

Research Into Use Programme

Annexes to Final Report (July 2006 – December 2012)

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Annex 1a Summary and details of selected RIU Publications

Annex 1a

Summary and details of RIU Publications

Publication Type	Number	Further details
Peer-reviewed publication	28	See listing below
Peer-reviewed publication (in press)	1	See listing below
Books	5	See listing below
Book chapters/guides/theses/conference papers	30	See listing below
Discussion papers	27	Titles and abstracts provided in Annex 7b
Other including:		
Policy briefs/policy related documents	40	
Shujaaz comic chapters	32	
Publicity materials/booklets/ case studies	140	
Websites/databases	6	
Research reports	352	
Dissemination events	497	
Miscellaneous	94	

The table does not include all the many internal reports/papers generated during the programme. As the Independent Review observed, over its existence many hundreds, reaching in to thousands, of documents have come out of the RIU, not to mention external documents that are relevant to the project. This table is therefore, just a summary.

Peer-reviewed publications

Torr, S.J., Maudlin, I., and Vale, G.A. (2007) Less is more: restricted application on insecticide to cattle to improve the cost and efficacy of tsetse control. *Medical and Veterinary Entomology 21 53-64*

Maudlin, I., Eisler, M.C. and Welburn, S.C. (2009) Neglected and endemic zoonoses Philosophical Transactions of the Royal Society, Biological Sciences Sep 27;364(1530):2777-87

Steele, K.A., Gyawali,S. Joshi, K.D. Shrestha, P., Sthapit, B.R. and Witcombe, J.R. (2009) Has the introduction of modern rice varieties changed rice genetic diversity in a high-altitude region of Nepal? *Field Crops Research, Volume 113 (1) 24-30*

Welburn, S., Maudlin I and Simarro, P.P. (2009) <u>Controlling sleeping sickness - a review</u>. *Parasitology. 2009 Dec; 136(14):1943-9*.

Normile D. (2010). Holding back a torrent of rats. Science 327, 806-807.

Redman, E.M., Wilson, K., Grzywacz, D. and Cory, J.S. (2010) High levels of genetic diversity in <u>Spodoptera exempta</u> NPV from Tanzania. *Journal of Invertebrate Pathology 105 (2010) 190–193*

Singleton, G.R. Belmain, S.R., Brown, P.R., Aplin, K. and Htwe, N.M. (2010). Impacts of rodent outbreaks on food security in Asia. *Wildlife Research*. 37:355-359.

Thompson, P., Sultana, P., Arthur, R. (2010) Integrating biological conservation into management: Community adaptive learning in the wetlands of Bangladesh. *Biodiversity 11 (1&2) 21-30*

<u>Waiswa C</u>, <u>Kabasa JD (2010)</u>. Experiences with an in-training community service model in the control of zoonotic sleeping sickness in Uganda. J Vet Med Educ. Fall;37(3):276-81

Wardrop, N.A., Atkinson, P.M., Gething, P.W., Fèvre, E.M., Picozzi, K., Kakembo, A.S. and Welburn, S.C. (2010) Bayesian geostatistical analysis and prediction of Rhodesian human African trypanosomiasis. *PLoS Negl Trop Dis. 2010 Dec 21;4(12):e914.*

Witcombe, J.R. Devkota, K.P. and Joshi, K.D. (2010)

Linking community-based seed producers to markets for a sustainable seed supply system *Experimental Agriculture 46: 425-437*

Ahmed HA, MacLeod ET, Hide G, **Welburn** SC, Picozzi K (2011) The best practice for preparation of samples from FTA® cards for diagnosis of blood borne infections using African trypanosomes as a model system. . Parasit Vectors. 2011 May 7; 4:68

Anderson NE, Mubanga J, Fevre EM, Picozzi K, Eisler MC, Thomas R, **Welburn** SC. (2011). Characterisation of the wildlife reservoir community for human and animal trypanosomiasis in the Luangwa Valley, Zambia. PLoS Negl Trop Dis. 2011 Jun;5(6):e1211. Epub 2011 Jun 21.

Clark, N., Frost, A., Maudlin, I., Seward, P., Wainwright, H. and Ward, A. (2011) Putting research into use: A market failure approach International Journal of Technology Management and Sustainable Development 10:3 pp 185-200

Kingiri, A.N. (2011) Conflicting advocacy coalitions in an evolving modern biotechnology regulatory subsystem: policy learning and influencing Kenya's regulatory policy process *Science and Public Policy (2011) 38(3): 199-211*

Okello, A.L., Gibbs, E.P. Vandersmissen, A. and Welburn, S. (2011) One Health and the neglected zoonoses: turning rhetoric into reality. *Veterinary Record September* 10:169 (11):281-5.

von Wissmann, B., Machila, N. Picozzi, K. Fèvre, E.M., deC Bronsvoort, B.M., Handel, I.G. and Welburn, S.C. (2011) Factors associated with acquisition of human infective and animal infective trypanosome infections in domestic livestock in Western Kenya. *PLoS Negl Trop Dis. 2011 Jan* 18;5(1):e941.

Wastling, S.L and S.C. Welburn (2011). New Techniques for Old Diseases I. Diagnostics for human sleeping sickness – Sense and Sensitivity. *Trends in Parasitology 27 (9) 394-407*

Wastling, S.L., Picozzi, K., Wamboga, C., von Wissmann, B., Amongi-Accup, C., Wardrop, N.A., Stothard, J.R., Kakembo, A. and Welburn, S.C. (2011) Latent <u>Trypanosoma brucei gambiense</u> foci in Uganda: a silent epidemic in children and adults? *Parasitology. 2011 Oct;138(12):1480-7. Epub 2011* Apr 18.

Welburn S. (2011) One Health: the 21st century challenge. *Veterinary Record June 11; 168(23):614-5.*

Harriet K, Picozzi, K., Malele I., , Torr, S., Cleaveland S and Welburn, S (2012) Using molecular data for epidemiological inference: assessing the prevalence of Trypanosoma brucei rhodesiense in tsetse in Serengeti, Tanzania. . PLoS Neglected Tropical Diseases. PLoS Negl Trop Dis. 2012 Jan;6(1):e1501. Epub 2012 Jan 31.

Hargrove JW, Ouifki R, Kajunguri D, Vale GA, Torr SJ (2012) Modelling the Control of Trypanosomiasis using Trypanocides or Insecticide-Treated Livestock. PLoS Negl Trop Dis 6(5): e1615.

Joshi, K.D., Devkota, K.P., Harris, D., Khanai, N.P., Paudyal, B., Sapkota, A. and Witcombe, J.R. (2012) Participatory research approaches rapidly improve household food security in Nepal and identify policy changes required for institutionalisation. *Field Crops Research 131: 40-48*

Reddy, V.T.S., Hall, A. and Sulaiman, R.V. (2012)

Locating Research in Agricultural Innovation Trajectories: Evidence and implications from Empirical Cases from South Asia. *Journal of Science and Public Policy 39(4): 476-490*

Sulaiman, R., Hall, A., Kalaivani, N.J., Dorai, K. and Reddy, T.S.V. (2012) Necessary but not sufficient: Information and communication technology and its role in putting research into use. *The Journal of Agricultural Education and Extension 18 (4) 331-346*

Ugbe, U. (2012) Presented a paper at the University of New Hampshire, USA, on "Public financing of agriculture in West Africa (Ghana, Nigeria & Sierra Leone): Toward Achieving the Maputo Declaration on Agricultural Funding in Africa" (published details to follow).

Welburn, S.C. and Maudlin I. (2012) Priorities for the elimination of Sleeping Sickness. Advances in Parasitology. 79 (Chapter 4) 299-337

Witcombe, J.R., Gyawali, S., Subedi, M., Virk, D.S. and Joshi, K.D. (2013) Plant breeding can be made more efficient by having fewer, better crosses *BMC Plant Biology* 13:22

Peer-reviewed publications (in press)

Witcombe, J.R. et.al (to be submitted in March 2013) The benefits of regulatory reform: The case of mungbean in Nepal. Field Crops Research

Books

Ojha, H.R., Hall, A. and Sulaiman, R.V. (eds) (2011) Can learning based approaches take root in natural resource management. Research Into Use. 117 pages

Gildemacher, P. and Mur, R. (2012) Bringing new ideas into practice: experiments with agricultural innovation. Learning from Research Into Use in Africa. KIT Publishers, Amsterdam. 184 pages ISBN 978-94-6022-233-7

Clark, N., Frost, A., Maudlin, I. and Ward, A. (in press – due March 2013) Technology development assistance in low income country agriculture: Putting research into use. Earthscan

Mur, R. and Nederlof, S. (in press – due March 2013) Building innovation capacity: Experiences from the Research Into Use Programme in Africa. KIT Publishers, Amsterdam

Mugittu, Vera (in preparation - due late 2013/early 2014) Meeting the Social cost of Building Systems to Enable Innovation in Subsistence-based Agriculture: an Analysis of a DFID-funded Commercialisation Process of the Indigenous Poultry Industry in Tanzania. PhD Thesis, University of Edinburgh

Book Chapters – Conference papers

Kingiri, A. (2012)

The Bumpy Path Towards Knowledge Convergence for Pro-Poor Agro-Biotechnology Regulation and Development: Exploring Kenya's Regulatory Process, Biotechnology In Molecular Studies and Novel Applications for Improved Quality of Human Life. Sammour, R. (Ed.), ISBN: 978-953-51-0151-2

Sultana, P. and Thompson, P. (2012) Learning through Networking: Enabling Adaptive Learning Network of Local Communities for Integrated Floodplain Management in Bangladesh.

Chapter 5 in Adaptive Collaborative Approaches in Natural Resource Governance. Rethinking participation, learning and innovation by Ojha, H., Hall, A. and Sulaiman, R (Eds) Earthscan 334 pages

All in Nederlof, S., Wongtschowski, M. and van der Lee, F. (eds) (2011) Putting heads together. Agricultural innovation platforms in practice, Bulletin 396 KIT Publishers 192 pages. ISBN 978 94 6022 1835

- VI The poultry sub-sector innovation network in Tanzania Mugittu, V.F. and Jube, J.T. pp 124-132
- VII Cowpea and soybean in Nigeria Ugbe, U.P pp 133-140
- VIII Maize in Rwanda Dusengemungu, L., Kibwika, P. and Kyazze Birungi, F.I. pp 141-148
- X Conservation agriculture in Zambia van der Lee, F.M., Kayula, F.M., Makasa, V. and Heemskerk, W. pp158-167

Singleton, G.R. Belmain, S.R. and Brown, P.R. (eds.) (2010) Rodent Outbreaks: Ecology and Impacts. International Rice Research Institute Press, Los Banos, Philippines. 289 pages. <u>http://snipurl.com/27vrix</u> - contains two chapters from Bangladesh

Conference papers presented

Sultana, P. (2008). Integrated Floodplain Management approach in Bangladesh. Paper presented at the International Association of the Commons 12th biannual conference in Cheltenham, July 2008.

Sultana, P. and Thompson, P. (2009). Scaling up Integrated Floodplain Management through Adaptive Learning Networks. Paper presented at the Innovation Asia-Pacific Symposium, Kathmandu, 4-7 May 2009

Ayodele Majekodunmi, K. Picozzi, M. Thrusfield, A. Fajinmi & SC Welburn (2010) Effect of land use patterns and seasonal migration on the epidemiology of trypanosomiasis in a previously tsetse free area - the Jos Plateau, Nigeria. ICOPA 2010 XIIth International Congress of Parasitology, Melbourne, Australia, 15-20 August 2010

Ayodele Majekodunmi, Alexandra Shaw & Sue Welburn (2010) Farmer knowledge, attitudes and practices of African animal trypanosomiasis on the Jos Plateau, Nigeria. 13th Association of Institutions for Tropical Veterinary Medicine Conference, Thailand, 23-26 August 2010

Ayodele Majekodunmi, K. Picozzi, M. Thrusfield, A. Fajinmi & SC Welburn (2010)} Seasonal variation and the effect of land use patterns and on the epidemiology of trypanosomiasis in a previously tsetse free area - the Jos Plateau, Nigeria13th Association of Institutions for Tropical Veterinary Medicine Conference, Thailand, 23-26 August 2010 Thompson, P., Sultana, P. and R. Arthur (2010). Community management of wetland biodiversity. Poster paper presented at the Zoological Society of London symposium "Linking Biodiversity Conservation and Poverty Reduction: What, Why and How?", 28-29 April 2010, Zoological Society of London, London.

Sultana, P. and P. Thompson (2010). Natural resource conflicts and community organisations in Bangladesh. Paper presented at CAPRI workshop on Collective action, property rights, and conflict management, 28 June – 1 July 2010, Siem Riep, Cambodia.

Putting Research into Use: Community Based Armyworm Forecasting in Kenya" A paper prepared for the 12th KARI bi-annual conference, November 2010.

Belmain, S.R. (2010) Battling rodents in Bangladesh. Pest. 11: 23-25. http://www.pestmagazine.co.uk/DocFrame/DocView.asp?id=324&sec=-1

Belmain, S.R. (2009) Rat Race. Developments. 45: 33-35.

http://webarchive.nationalarchives.gov.uk/20100423085026/http:/www.developments.org.uk/d ownloads/Developments%2045.pdf

A panel on IFM and adaptive learning was organised by the project team at the International Association for the Study of Commons 13th biannual conference: Sustaining Commons: Sustaining the Future, Hyderabad, India, January 2011, where the following papers were presented:

- Thompson, P. Sustainability of Community Based Organisations in Bangladesh.
- Halder, A. and Islam, M.A. Co-management of wetlands and its contribution to the livelihoods of poor people.
- Sultana, P. and Thompson, P. Implications of floodplain aquaculture enclosure.

Four students selected for Master thesis have submitted their thesis at the Central Department of Sociology and Anthropology (CDSA), and had completed their M.A. degree. They have conducted their study at the RIU sites. As CDSA is one of the RIU partner responsible for research and teaching the best practices from RIU sites to the University students. The approach contributed to out scale the best practices, and the initiatives that RIU launched at three different sites.

Welburn, S. Report to the Interagency meeting on planning the prevention and control of neglected zoonoses diseases, WHO, Geneva 5 -6 July 2011

Global Risk Forum One Health Summit 2012, One Health: Public health and livelihoods Control of "Neglected" Zoonoses: S7

To the power of One PUBLIC SERVICE REVIEW: UK SCIENCE AND TECHNOLOGY - ISSUE 2

Report of the NZD3 conference, WHO/HQ Geneva, 23-24 November 2010 (http://whqlibdoc.who.int/publications/2011/9789241502528 eng.pdf)

SOS - One Health approach for securing health and livelihoods in developing countries, 19th – 23rd February 2012 Davos.

Welburn, S.C. (2011) Controlling Sleeping Sickness in Uganda through a DFID and private sector partnership presented at House of Commons All-Party Group on Malaria and Neglected Diseases of

Annex 1a Summary and details of selected RIU Publications

the Tropics. 8th February 2011 6pm Macmillan Room Portcullis House

Neglected Tropical Diseases - what is out there?

Presentation given to McKnight Foundation Pesticidal Plant Workshop at Arc Hotel, Mororgoro, Tanzania, 5-8 December 2011 <u>http://www.nri.org/projects/adappt/mcknight.htm</u>

Annex 1a Summary and details of selected RIU Publications

Annex 1b Knowledge outputs delivered during RIU extension phase (July 2011 – December 2012)

Programme level outputs

Topic and Description of Expected Knowledge Output	Intended user or beneficiary of the output (and expected timeframe and end-date)	Progress to December 2012
Peer reviewed academic paper on putting research into use (New output)	Research practitioners and decision makers	COMPLETED Putting Research into Use: A Market Failure Approach Clark, N., Frost, A., Maudlin, I., Seward, P., Wainwright, H. and Ward, A. (2011) International Journal of Technology Management and Sustainable Development Volume 10 (3) pp 185-200
Book chapter on Pro-poor agro-biotechnology regulation (New output)	Research practitioners and decision makers	COMPLETED The book chapter has been published online "The Bumpy Path Towards Knowledge Convergence for Pro-Poor Agro-Biotechnology Regulation and Development: Exploring Kenya's Regulatory Process" can be reached by clicking on the link <u>http://www.intechopen.com/articles/show/title/the-bumpy-path-towards-knowledge- convergence-for-pro-poor-agro-biotechnology-regulation-and-developm</u>
How to incubate hybrid enterprises (Policy Brief)	Research practitioners and decision makers (March 2012)	COMPLETED under Clark, N., Frost, A., Maudlina, I. and Ward, A. (in press) Technology Development Assistance to Low Income Country Agriculture: Putting Research into Use (RIU)
The role of women in innovation systems within commodity value chains (Policy Brief)	Research practitioners and decision makers (March 2012)	COMPLETED Rethinking gender in agriculture innovation from an innovations system's perspective Kingiri, A., Wakhungu, J. and Hall, A. (2011) ACTS Policy Brief December 2011 (8 pages)
Brokering within the commodity value chain in getting agricultural research into use (Policy Brief)	Research practitioners and decision makers (April 2012)	COMPLETED under Mur, R. and Nederlof, E.S. (in press) Building innovation capacity: Experiences from the Research Into Use Programme in Africa

Institutional diagnostics in understanding the role of institutions within an innovation system context in commodity value chains (Policy Brief)	Research practitioners and decision makers (May 2012)	COMPLETED under Clark, N., Frost, A., Maudlin, I. and Ward, A. (in press) Technology Development Assistance to Low Income Country Agriculture: Putting Research into Use (RIU) and, Mur, R. and Nederlof, E.S. (in press) Building innovation capacity: Experiences from the Research Into Use Programme in Africa
Understanding institutional change (incentives, capacities and policies) and what makes agricultural innovation more socially relevant and responsive to the needs of the poor (RIU report)	Research practitioners and decision makers (May 2012)	COMPLETED Nederlof, Suzanne, Mariana Wongtschowski and Femke van der Lee (eds). 2011. Putting heads together. Agricultural innovation platforms in practice. Bulletin 396, KIT Publishers <u>http://www.kitpublishers.nl/-/33739/KIT-Publishers/KIT-Publishers-New-books?itemid=3166&title=Bulletin-396-Putting-heads-together</u>
Experiences from the RIU on how to get research into use (peer reviewed publications – working titles and journals to be confirmed)	Research practitioners and decision makers (May 2012)	COMPLETED Clark, N., Frost, A., Maudlin, I. and Ward, A. (in press) Technology Development Assistance to Low Income Country Agriculture: Putting
Scientific research and technology development: New perspectives for the rural poor (Open access book)	Research practitioners, academics and decision makers (May 2012)	Earthscan – no ISBN number as yet
An economic evaluation of getting research into use (Policy Brief)	Research practitioners and decision makers (June 2012)	COMPLETED Shaw, A. and Wint, W. (2012) Killing 3 birds with 1 stone. An economic analysis of operations to treat cattle against tsetse in the Human African Trypanosomiasis convergence zone of Uganda 40p And Gildemacher, P. and Mur, R. (2012) Bringing new ideas into practice: experimenets with agricultural innovation. Learning from Research Into Use in Africa. KIT Publishers, Amsterdam 184p
How to get research into use, the institutional histories of change, the understanding of innovation management – the entry points and processes (WB Economic Sector Work)	Research practitioners and decision makers (June 2012)	OUTPUT DROPPED There was no interest from WB in joint funding and given there is already a new source book now available within which the RIU features it is difficult to see what this output would have added. The RIU material in the new source book relates to work undertaken by the Central Research Team and KIT looking at the institutional histories of some of the RIU country programmes.

A. Client-oriented breeding, South Asia (Bangladesh, India and Nepal)

Topic and Description of Expected Knowledge Output	Intended user or beneficiary of the output (and expected timeframe and end-date)	Progress to December 2012
Value chain study of rice and legume in Nepal Terai	Small seed enterprises, seed companies, policy makers, research and extension agencies	Disseminated as internal working document by LI-BIRD, FORWARD and SUPPO Foundation
Participatory varietal selection (PVS) and its impact and influence: a case study	Research and extension agencies, policy makers	Joshi, K.D. et. al. (2012). Participatory research approaches rapidly imp household food security in Nepal and identify policy changes required institutionalisation. Field Crops Research 131 (2012) 40-48 Witcombe, J.R. et. al. (2013) Plant breeding can be made more efficient by ha fewer, better crosses. BMC Plant Biology 13: 22 (NEW OUTPUT)
A case study of the improvement in the capability of community based seed production (CBSP) initiatives: important learning from RIU projects	Other seed production initiatives, policy makers, research and extension agencies, donors (September 2012)	Witcombe, J.R., Devkota, K.P. and Joshi, K.D. (2010) Linking community-based seed producers to markets for a sustainable sees support system. Experimental Agriculture 46: 425-437
Project baseline study and re-sampling for outcome assessment	Research and extension agencies, policy makers (May 2012)	Presented to end of project workshgop to key stakeholders in December 2012. A field studies completed and write-up to be finalised by September 2013
The benefits of regulatory reforms: The case of mungbean in Nepal	Research and extension agencies, policy makers, donors (April 2012)	Manuscript is ready for submi9tting to Field Crops Research (March 2013)
Steps and processes of improving technical, business and institutional capabilities of CBSPs in Nepal: important learning from RIU projects	Other seed production initiatives, policy makers, research and extension agencies, donors (All the field studies completed, data processing and analysis is in progress. The write up will be completed by the end August 2013
The effectiveness of NGO networking for the promotion of new agricultural technologies	Extension agencies, policy makers, donors (June 2012)	Partially covered by item 2
Contribution of participatory crop improvement to food and livelihoods security: outcomes from RIU projects	Other seed production initiatives, policy makers, research and extension agencies, donors (June 2012)	Partially covered by item 2 and partially in Item 5
(1)-Video documentation of CBSP, COB processes and outcomes and mungbean production and on (2)- spread/uptake of mungbean in rice-based systems	Research and extension agencies, policy makers, donors (June 2012)	(1)Videos on COB/CBSP edited and ready for sharing (2)- Video documentation mungbean promotion has been edited and is ready for sharing

Topic and Description of Expected Knowledge Output	Intended user or beneficiary of the output (and expected timeframe and end-date)	Progress to December 2012
 Scientific publications in leading journals with regard to: Control of animal trypanosomaisis and tick borne diseases in 4 settings using PPP models Policy level change in practice Policy level change in practice as regards training of next generation of veterinarians Publications - new model for in service training / workforce crisis New model for higher education vocational training 	Research practitioners, academics and decision makers (From December 2011 onwards)	 Control of animal trypanosomaisis and tick borne diseases in 4 settings using PPP models: Modelling the Control of Trypanosomiasis using Trypanocides or Insecticide- Treated Livestock. JW Hargrove et al. 2012. PLoS Neglected Tropical Diseases. Using molecular data for epidemiological inference: assessing the prevalence of Trypanosoma brucei rhodesiense in tsetse in Serengeti, Tanzania, Harriet K, Picozzi, K., Malele I., Torr, S., Cleaveland S and Welburn, S. PLoS Neglected Tropical Diseases. PLoS Negl Trop Dis. 2012 Jan;6(1):e1501. Epub 2012 Jan 31. Welburn, S.C. and Maudlin I. (2012) Priorities for the elimination of Sleeping Sickness, Advances in Parasitology. 79 (Chapter 4) 299-337 Wastling, S.L and S.C. Welburn (2011). New Techniques for Old Diseases I. Diagnostics for human sleeping sickness – Sense and Sensitivity. Trends in Parasitology 27 (9) 394-407 One Health and the neglected zoonoses: turning rhetoric into reality. Okello AL, Gibbs EP, Vandersmissen A, Welburn SC. Vet Rec. 2011 Sep 10:169 (11):281-5. One Health: the 21st century challenge. Welburn S. Vet Rec. 2011 Jun 11;168(23):614-5. Characterisation of the wildlife reservoir community for human and animal trypanosomiasis in the Luangwa Valley, Zambia. Anderson NE, Mubanga J, Fevre EM, Picozzi K, Eisler MC, Thomas R, Welburn SC. PLoS Negl Trop Dis. 2011 Jun;5(6):e1211. Epub 2011 Jun 21. The best practice for preparation of samples from FTA@cards for diagnosis of blood borne infections using African trypanosomes as a model system, Ahmed HA, MacLeod ET, Hide G, Welburn SC, Picozzi K. Parasit Vectors. 2011 May 7;4:68.

B. Control of Sleeping Sickness, Uganda and Nigeria will roll-out to Tanzania and Zambia

	9. <u>Factors associated with acquisition of human infective and animal infective</u> <u>trypanosome infections in domestic livestock in Western Kenya.</u> von Wissmann B, Machila N, Picozzi K, Fèvre EM, deC Bronsvoort BM, Handel IG, Welburn SC. PLoS Negl Trop Dis. 2011 Jan 18;5(1):e941.
	10. <u>Bayesian geostatistical analysis and prediction of Rhodesian human African</u> <u>trypanosomiasis.</u> Wardrop NA, Atkinson PM, Gething PW, Fèvre EM, Picozzi K, Kakembo AS, Welburn SC. PLoS Negl Trop Dis. 2010 Dec 21;4(12):e914.
	Policy level change in practice
	1. ADVANZ - new EU FP7 Policy award 500,000 euro to provide Advocacy for Neglected Diseases SOS -PPP used as exemplar for Research into Practice and change in policy - will culminate in NZ4 meeting to flag successful OH examples.
	2. Global Risk Forum One Health Summit 2012, One Health: Public health and livelihoods Control of "Neglected" Zoonoses: SOS - One Health approach for securing health and livelihoods in developing countries, 19 th – 23 rd February Davos.
	3. Welburn, S.C. and Maudlin I. (2012) <u>Priorities for the elimination of Sleeping</u> <u>Sickness</u> , Advances in Parasitology. 79 (Chapter 4) 299-337
	4. Report of the Interagency meeting on planning the prevention and control of neglected zoonoses diseases, WHO, Geneva 5 -6 July 2011
	5. <u>Diagnosis of human sleeping sickness: sense and sensitivity.</u> Wastling SL, Welburn SC. Trends Parasitol. 2011 Sep;27(9):394-402. doi: 10.1016/j.pt.2011.04.005. Epub 2011 Jun 12.
	6. <u>Latent Trypanosoma brucei gambiense foci in Uganda: a silent epidemic in children and adults?</u> Wastling SL, Picozzi K, Wamboga C, VON Wissmann B, Amongi-Accup C, Wardrop NA, Stothard JR, Kakembo A, Welburn SC. Parasitology. 2011 Oct;138(12):1480-7. Epub 2011 Apr 18.
	7. To the power of One PUBLIC SERVICE REVIEW: UK SCIENCE AND TECHNOLOGY - ISSUE 2

		 Report of the NZD3 conference, WHO/HQ Geneva, 23-24 November <u>http://whqlibdoc.who.int/publications/2011/9789241502528_eng.pdf</u> Policy level change in practice as regards training of next generation of veterinarians OH-NEXTGEN project - EU project to build a new means of OH training for Sahelle Magreb. Experiences with an in-training community service model in the control of zoonotic sleeping sickness in Uganda. <u>Waiswa C, Kabasa JD</u>. <u>J Vet Med Educ.</u> 2010 Fall;37(3):276-81. Stamp Out Sleeping Sickness (SOS) Promoting an Animal-Based Intervention for the Control of Trypanosomiasis Rockefeller Foundation
		 4. Report of the NZD3 conference, WHO/HQ Geneva, 23-24 November <u>http://whqlibdoc.who.int/publications/2011/9789241502528_eng.pdf</u> New model for higher education vocational training Experiences with an in-training community service model in the control of zoonotic sleeping sickness in Uganda. <u>Waiswa C, Kabasa JD</u>. <u>J Vet Med Educ.</u> 2010 Fall;37(3):276-81 SOS article is now available online – <u>http://www.new-ag.info/en/focus/focusItem.php?a=2259</u>
 Policy evidence for the following: How science outputs can change policy How research outputs can build evidence How SS transfer can add value to partnerships and evidence for disease control T and T as an example of how people can make money in poor communities - fragile districts How SOS has solved problem of too soon privatisation - SOS bottom up not top down How privatisation can solve a 100 year problem 	Research practitioners, academics and decision makers (From September 2011)	 How science outputs can change policy SOS was selected by the EEAS EU for a special breakfast session at the 1st One Health Conference in Melbourne _ Alex Shaw and Susan Welburn presented SOS to over 500 scientists and policy makers attending this conference as an output Okello and Welburn published with EEAS 1. <u>One Health and the neglected zoonoses: turning rhetoric into reality.</u> Okello AL, Gibbs EP, Vandersmissen A, Welburn SC. Vet Rec. 2011 Sep 10;169(11):281-5. 2. <u>One Health: the 21st century challenge.</u> Welburn S. Vet Rec. 2011 Jun 11;168(23):614-5.

 How privatisation of T and T can add value for local populations 	3. Controlling Sleeping Sickness in Uganda through a DFID and private sector partnership presented at House of Commons All-Party Group on Malaria and Neglected Diseases of the Tropics
	8th February 2011 6pm Macmillan Room Portcullis House Neglected Tropical Diseases - what is out there?
	Professor Sue Welburn , Director, Edinburgh Global Health Academy & Professor of Medical and Veterinary Molecular Epidemiology
	How research outputs can build evidence
	SOS is being hailed as one of the few examples of One Health in Action and has been featured as an output for Rockefeller Foundation catalogue of outputs (copy available).
	SOS was selected by the EEAS EU for a special breakfast session at the 1st One Health Conference in Melbourne _ Alex Shaw and Susan Welburn presented SOS to over 500 scientists and policy makers attending this conference.
	The work of AFRISA was presented by Kabasa and the SOS partnership by Okello
	SOS was featured as a flagship NZ project at the 3rd Neglected Zoonoses Conference held in WHO November 2010 - see Report of the NZD3 conference , WHO/HQ Geneva , 23-24 November . <u>http://whqlibdoc.who.int/publications/2011/9789241502528_eng.pdf</u>
	SOS has been flagged as the way forward for control of Zoonotic trypanosomiasis with a view to elimination by 2020 by a joint initiative from the Tripartite WHO/OIE and FAO and discussed at the High-Level Technical Meeting to Address Health Risks at the Human-Animal-Ecosystems Interfaces in Mexico 15th to 17th November prior to the next Joint Ministerial Meeting JMM on "Health Risks at the Human- Animal-Ecosystems Interfaces" see www.hltm.org
	How SS transfer can add value to partnerships and evidence for disease control - SOS being hailed as the model for OH partnership for disease control - see above by Rockefeller, EU, WHO and at meetings of the Tripartite (One Health Mexico City), and at Policy and Risk Forum Davos Feb 2012.

		T and T as an example of how people can make money in poor communities - fragile districts - evidenced by the fact that the SOS3V practioners are making money and there is a lot more market to capture
		How SOS has solved problem of too soon privatisation - SOS bottom up not top down - districts now under vet care where before there were no vets. Bardosh and Okello interviewing communities to look at perception and impact and also interviewing policy makers.
		How privatisation can solve a 100 year problem - Ministries accept that SOS is the only sustainable solution to SS and TT in Uganda and keen for new Memorandum to be drawn up to highlight the role of the Private sector.
		How privatisation of T and T can add value for local populations - evidence is being collected coming through Kevin Bardosh who has interviewed all actors in SOS and tsetse control and local communities and also from Okello who has completed interviewing farmers and livestock keepers
Preparation of a scientific manuscript to summarise key finding from the Nigerian studies both in terms of relative disease frequency and the occurrence of disease-sign pairings and impacts of restricted application protocols (RAP).	Research practitioners, academics and decision makers (March 2012)	Integrated Control Programme for Tick borne diseases and trypanosomiasis in the Jos Plateau: The project is currently in process and the results are expected in April 2013. A 12 month longitudinal trial of restricted application vs. conventional treatments on 2,880 cattle is underway in Jos as follows supported by CEVA Sante Animale. Due to end April 2013. Papers for submission
		 A longitudinal survey of trypanosomiasis on the previously tsetse-free Jos Plateau, Nigeria: prevalence, distribution and risk factors; Livelihood analysis/pastoral livelihoods/gen economics /rural dev & MDGs
		3. Knowledge Attitudes and Practices of Livestock management & trypanosomiasis amongst Fulani Pastoralists on the Jos Plateau, Nigeria
		4. Pastoral Livelihoods, Natural Resource* Conflict & Social Unrest on the Jos Plateau, Nigeria
		5. Integrated Control Programme for Tick borne diseases and trypanosomiasis in the Jos Plateau

C. Biological Control (Real IPM), Kenya and Ghana

Promoting yield improvement through farmer-applied seed treatments in maize, sorghum and millet (Kenya)

Topic and Description of Expected Knowledge Output	Intended user or beneficiary of the output (and expected timeframe and end-date)	Progress to December 2012
An understanding and knowledge of seed treatments and their use. Disseminated to a further 50,000 farmers via field activities and SMS messaging.	Small scale farmers and growers in Western province Kenya (June 2012)	Publication of leaflet on GroPlus and distribution to farmers (copy of leaflet with RIU management) A programme of training and information dissemination has been in progress with farmers and more particular with agrovets over the last few months. Revised instruction leaflet and packaging and poster for agrovets (copies with RIU)
An understanding and knowledge of input provision to small-scale farmers through sales and marketing programme. Liaison with agrovets.	Small scale farmers and growers in Nyanza province Kenya, and agrovet network (June 2012)	Significant sales reported and increasing to over 10,000 in 2012. Sales data provided to RIU management. Undertaken 18 Agrovet training events Individual farmer or farmer group training in the use of GroPlus 30 days Trials on using GroPlus on crops other maize e.g. carrots, onions, beetroot, cabbage undertaken (report with RIU management)
A knowledge delivery data base consisting of 100,000 farmers in Nyanza and Western Province of Kenya.	Small scale farmers and growers and development project designers (June 2012).	Training of 391 agrovets in August and September 2011 before short rains planting season. Training of 3,681 farmers between August and November in Central Kenya. In Jan and Feb 2012, 377 agrovets were trained and numerous farmer and stakeholder events (reports with RIU).
Knowledge of issues relating to biocontrol of Striga through field trial plots – trial plots.	100 small scale farmers and growers (December 2011)	Established a farm based trial to investigate the use of GroPlus and its effect on the development of Striga. Trial completed using 100 small scale farmers in Western Kenya. Significant impact of GroPlus on reducing Striga development (Trial report with RIU)
Sharing knowledge and activities with other projects delivering inputs (FIPS, ICRISAT, TSBF, IFDC, Real Impact) - Field demonstrations	1,000 small scale farmers and growers. Project coordinators (June 2012)	Samples of GroPlus given out as follows: 1,000 to ICRISAT; 500 KARI Katumaini; 50 TSBF and 1,500 FIPS. Samples of GroPlus sent to Nigeria, Zambia, and Mali through ICRSAT collaboration programme.
Knowledge and use of local field team, telephone data base, and market promotions to disseminate other farm inputs.	10,000 small-scale farmers and project managers (June 2012)	SMS used to promote field events. 33,000 SMS messages were sent out in March 2012 to stimulate demand in GroPLus for the long rains planting (March – May). Many stakeholders meetings (meetings reported to RIU)

Biopesticide registration in Ghana

Topic and Description of Expected Knowledge Output	Intended user or beneficiary of the output (and expected timeframe and end-date)	Progress to December 2012
A knowledge of registration issues of biopesticides for regulators at a West African regional level - workshop	Regulators and government officials (December 2011)	 Publications of Guide to biopesticide registration in Ghana, October 2012 (Copy with RIU management). Attended capacity building workshop in Switzerland where regulators fom Ghana and EPA shared best practice with Europeans. Key outputs from the ABIM workshop were: Disitributed 100 brochures on KBL products registered in Ghana. Two interested companies for possible collaboration on pheromone products; which are of interest to Western Africa. EPA Ghana / PCPB Kenya:Gained more insight in current biopesticides-registration procedures and problems in Europe and opportunity to benchmark. Several biocontrol companies that showed interest in Kenya as well as Ghana were able to have one-on-one conversation and exchange contacts. Distributed 500 booklets on biopesticide registration in Ghana to delegates. Several opportunities to explain to biocontrol companies about the RIU project and its outcomes. Display and poster information prepared on project for Swiss workshop. Regional workshop is planned for 1 March 2012 and to be held in Ghana. Collaboration proposed with PIP. Also prepared briefing report for Tim Wheeler.
An understanding and knowledge of biopesticides and their potential value for export crops - workshop.	Growers and exporters (December 2011)	 Two workshops were completed. Not all products were registered therefore not all the workshops originally planned were undertaken. Presentation given to McKnight Foundation Pesticidal Plant Workshop at Arc Hotel, Mororgoro, Tanzania, 5-8 December 2011 http://www.nri.org/projects/adappt/mcknight.htm Regional workshop organised in Ghana on Biopesticide registration 20-21 March. Representatives from Nigeria, Ivory Coast, Mali, Burkino Faso, Cameroon as well as UK, Beglium, Kenya, and India (RIU have provisional delegate list). Leaflet on biopeticides published. (electronic copy with RIU). See web site www.biocontrolafrica.com for update.

Sharing knowledge and activities with other regional initiatives (e.g. EU's PIP programme) – liaison visits.	Project coordinators (February 2012)	PIP has asked Real IPM and Kenya biologics to provide information and products to undertake trials in Senegal. Invitation from CIRAD in Cameronn to share experences in use of biocontrol agents in Cocoa. Attended Assessment Workshop for a Public- Private-Partnership (PPP)-Unit in Kenya, ICIPE 29-30 Nov 2011. Attended a meeting in ICIPE, Nairobi on Thrips IPM program and a biopesticide presentation was made (8-9 March) Memorandum of Understanding signed with ICIPE on a biopesticide for use on red spider mites. (copy with RIU).
Presentation of biopesticide registration dossiers and information to obtain cocoa registration- dossier.	Cocoa board, CRIG, Wienco distributor (June 2012)	Dossier preparations were required to register biopesticides. This gave the commercial partners experience in dossier preparation that conformed to Ghanaian standards and gave the regulators experience in dossier evaluation. Now a fully documented process has been established and validated - this will be followed by EPA in future biopesticide registration in Ghana. This was reinforced by a stakeholders meeting that promoted the new procedures with organisations like the Ministry of Agriculture, local Universities and commercial companies as well as representatives from other regional countries. Registration trials are continuing in CRIG.
Presentation of biopesticide registration information on two baculoviruses in CILLS countries with objective of obtaining registration and use - dossiers.	CILLS regulators and government officials (June 2012)	The process of registration was tested and each step was successfully evaluated.
An understanding and knowledge of biopesticides and their use. Demonstration trials and radio programmes.	Farmers and growers of all categories (June 2012)	CRIG undertook laboratory and field trials. Ghanaian distributor (Wienco) have changed ownership and have had significant staff changes and this has delayed commercial developments.
Presentation of biopesticide registration dossier for Bacillus subtilis, a novel biopesticide for rust and mildew control – dossier	EPA and University of Ghana (September 2012)	Drafting of two dossiers has commenced, one for the registration of Campaign against fruit fly, and the second for a bioherbicide against Striga. Campaign now permitted for use in Mozambique against fruit fly. Discussion in progress on testing site for Striga work in Northern Ghana. Application for full registration completed and submitted to EPA for two biopesticides Ecotoxicology data submitted to EPA

Topic and Description of Expected Knowledge Output	Intended user or beneficiary of the output (and expected timeframe and end-date)	Progress to December 2012
 13 Training Posters for Village Based Advisors describing: technical and/or business plans for new innovations, including tree nurseries, tree grafting, sweet potato multiplication sites and dissemination, cassava multiplication sites and dissemination, tomato nursery management, sweet potato varieties in Tanzania, cassava varieties in Tanzania, beans in Tanzania, chicken vaccination, chicken breeding, rabbit breeding. Modifications to soil/water management protocol and to priming and/or growplus protocols. 	Users: VBAs will use the posters for training themselves and farmers Beneficiaries: VBAs will be supported in income generation. Farmers will access sustainable supplies of improved inputs along with information from a local entrepreneur and produce more food and/or money as a result. (In August, October, December 2011 and in March 2012)	 Business plans and technical guides are ready and will be sent for: tree nurseries; tree grafting; sweet potato multiplication & dissemination; tomato nursery management; chicken vaccination; rabbit breeding. Training on these business plans has been given to 243 VBAs spread across 19 districts (including all the RIU districts). A further 125 VBAs in 10 districts will be trained in this RIU output over the next quarter. No guide will be done for cassava varieties in Tanzania at this stage. Guide for Cassava varieties at KARI-Kiboko has been prepared. Guide for bean varieties at Selian (Tanzania) has been prepared. Modified protocol for soil/ water management protocol and gro-plus protocols have been prepared. Posters on success of deep tillage in Kilungu. Briefing note on modifications to soil management methods
Technical video showing how to do deep row tillage and other improved tillage methods.	Users: District coordinators may use the videos to train new VBAs. Beneficiaries: Farmers will benefit from improved soil management, reduced erosion, improved water capture, improved rooting depth, improved yields, improved livelihoods.(December 2011)	Many farmers have already learned about the activity through on-farm demonstrations, particularly, in the drier areas. This final technical version was delayed
Informational video describing deep row tillage and other improved tillage methods for donors and policy makers Farmers will benefit from improved soil management, reduced erosion, improved water capture, improved rooting depth, improved yields, improved livelihoods.	Users: FIPS-Africa will use the video to demonstrate the importance of good, simple, adoptable soil management techniques for donors and policy makers. Beneficiaries: Donors/ policy makers will benefit from highly	

D. Farm inputs and communication (Shujaaz), Kenya then expanding regionally within East Africa

	practical description and discussion of issues surrounding soil management to inform their decision making. (March 2012)	
30 case studies produced by FIPS-Africa journalist on how farmers are engaging with FIPS-Africa extension methodology, improved varieties and other research innovations and how their lives have changed as a result. These case studies are highly valued by all of FIPS- Africa's development partners, including donors, private sector partners, public sector researchers. They can be used to demonstrate what works (and what doesn't) in a very human accessible way, helping management within FIPS-Africa and its development partners in decision making and priority setting. They can also be used by all the partners when communicating the output and impact of their own programs to the public, donors, investors, potential partners.	All FIPS development partners (In August, October, December 2011 and in March 2012)	 30 case studies were prepared and submitted to RIU. The case studies covered: Beans in Western Kenya Rabbits in Vihiga Sweet potato from Masocho-Marani Gender from Western Maize in Masocho Marani Gender issues round the life of a VBA in Western Kenya All copies with RIU management

Topic and Description of Expected Knowledge Output	Intended user or beneficiary of the output (and expected	Progress to December 2012
Shujaaz comic strips and ShujaazFM radio programmes using RIU research stories	Continued appeal to mass audiences with comic reaching 50% of all Kenyans under the age of 35 and ShujaazFM expected to have audience of 20,000,000 Kenyans by end of 2011 (Monthly)	 The Shujaaz comic books continue to have mass impact on a monthly basis (half a million copies per month). Distribution has been expanded beyond the Nation newspapers and Mpesa kiosks and since January 2012 now includes deliveries of 105,000 copies each month to a new nationwide network of youth clubs. Daily Shujaaz radio programmes continued on 23 FM stations during the period. Daily activities also continued on social media, with the Shujaaz Facebook page receiving over 130,000 post views. 711,267 page views in total to date. The RIU storylines in the current period have been Chapter 22 (Dec 2011) new-variety Sweet potato farming; Chapter 23 (Jan 2012) the importance of Chicken vaccines to prevent Newcastle disease; Chapter 24 (March 2012) Urban farming – growing the staple, kale, in a sack in a confined area. Besides responses to current stories during this period Shujaaz media continued to receive feedback on RIU stories carried in previous Chapters. A new Youtube animation of the Urban farming story (with subtitles if you click "CC") can be seen at http://www.youtube.com/watch?v=3ARLydfl804 In April 2012 won the International Emmy Award in the digital, children and young people category. Complete list of the 32 RIU/DFID related stories appearing in Shujaaz attached.

#	Month	Chapta	RIU Campaign	Comics	Hero / gender
				Circulation	
1.	March '10	1	Dyeing chicks pink to protect them from predators.	300,000	Charlie Pele [M]
			Sack crops (LCD disability & urban farming).	300,000	Maria Kim [F]
					Male Case Study
2.	April '10	2	Water Pump- Use of the Money	300,000	Charlie Pele [M]
			Maker pump to increase yields.		Male Case Study
3.	May '10	3	Drying fruits to preserve them for a better day.	300,000	Malkia [F]
			Bale making- Helps in storage and portability.	300,000	Charlie Pele [M]
4.	June '10	4	Sweet potatoes	300,000	Charlie Pele [M]
5.	July '10	5	Chicken vaccination to protect them from diseases.	300,000	Charlie Pele [M]
6.	August '10	6	Seed soaking- Makes the germination process faster.	300,000	Malkia [F]
7.	September '10	7	Controlling Army worms.	300,000	Charlie Pele [M]
8.	October '10	8	Good seed selection.	300,000	Charlie Pele [M]

Research Into Use (RIU) ShujaazFM Campaign

9.	November '10	9	Maize breeds (Use of new variety seed)	300,000	Charlie Pele [M] Male Case study	
10.	December '10	10	Seed selection for better yields.	300,000	Charlie Pele [M] Female Case study	
11.	January '11	11	Use of Chicken pen to protect them from predators.	300,000	Charlie Pele [M]	
12.	March '11	13	Benefits of Fish Farming	300,000	Malkia [F] Male Case study	
13.	April '11	14	Preservation of fish by Drying.	300,000	Malkia [F]	
14.	May '11	15	Rabbit Farming	300,000	Maria Kim [F] Female case study	
15.	June '11	16	Storing sweet potatoes	300,000	Charlie [M]	
16.	July '11	17	Goat manure as a crop protector	300,000	Malkia [F]	
17.	August '11	18	Seed selection	300,000	Charlie [M]	
18.	September '11	19	LCD disability & urban farming [sack crops]	300,000	Maria Kim [F] Male case study	
19.	October '11	20	LCD disability & urban farming [rabbit farming]	300,000	Maria Kim [F] Male case study	
20.	November '11	21	LCD disability & urban farming [high value crops]	300,000	Maria Kim [F]	

21.	December '11	22	Benefits of sweet potato – how to grow	500,000	Charlie [M] Male case study	
22.	January '12	23	Chicken vaccination	500,000	Charlie [M] Female case study	
23.	Feb '12	24	Case studies: urban farming & disability	500,000	2 x Female case studies	
24.	March '12	25	Sack farming	500,000	Maria Kim [F] Male case study	
25.	April '12	26	Seed Soaking for better yields	500,000	Malkia[F]Female case study	
26.	May '12	27	Seed selection	500,000	Charlie Pele [M]	
27.	Aug '12	30	Nutrition- Benefits of a balanced diet.	500,000	Malkia [F] Male Case study.	
28.	Sep '12	31	Nutrition- Benefits of Sweet potatoes	500,000	CharliePele[M]Male case study	
29.	Oct '12	32	Nutrition in the first 1000 days of a child	500,000	Charlie Pele [M] Male case study	
30.	Nov '12	33	Nutrition- Prevention of Night Blindness	650,000	Charlie Pele [M] Male case study	
31.	Dec '12	34	Proper Nutrition	650,000	Charlie Pele [M]	
32.	Jan '13	35	Nutrition-Cash from farming.	650,000	Charlie Pele [M] 2 x Male case studies	

Topic and Description of Expected Knowledge Output	Intended user or beneficiary of the output (and expected timeframe and end-date)	Progress to December 2012
6 – 10 publications in relevant format (e.g. laminated cards) and language	Farmers and interested agents (from August 2011)	An Aquaculture Extension Manual which covers all the information gaps highlighred by farmers during the consultations has been finalised. This manaul will now be mass produced.
Broadcast Media i.e. How Too's and marketing aquaculture (and Aqua Shops). Looking at a documentary style video that shows the process of fish farming as a business principally for marketing to farmers and potential other investors. Targeted at farmers will be small snippets for certain aspect e.g. how to make it a business, effective feeding etc.	Farmers and interested agents Potential investors (From September 2011)	The DVD documentary Aquashop – Making Fish Farming Pay was produced <u>http://www.farmafrica.org/videos/videos/13/making-fish-farming-pay</u> A documentary shooting of the aqua shop project activities by BBC Horizon in Samia District dedicated to ' <i>Food Sustainability</i> ' titled " <u>establishing</u> <u>sustainable fish farms and a sustainable livelihood for farmers along the</u> <u>shores of Lake Victoria</u> " was made. The episode incorporated fish supplies and the sustainable farming initiatives that are taking place around Lake Victoria in Kenya as a result of the work of Aqua Shop project initiative. The documentary was broadcasted through BBC world wide channel and Bloomberg with viewership of almost 350 million.
2 – 3 local radio programmes using established radio culture for distributing information on cropping and livestock keeping	(From October 2011)	5 aquaculture personalities were profiled and consulted on their availability to participate in the programme. Quotations from Radio Citizen and KBC for the planned programmes received. Aqua Shop operators have participated in several local radio interview programmes, educating the public on best fish husbandry practices
Policy brief in relation to Fish Feed Standards on regulations and legislation to operationalise the Minister of Fisheries' role in aquaculture – this will be drafted by RIU team and published by the Ministry of Fisheries	National audience (policy makers, development practitioners; farmers, private operators etc) (Drafted by December 2011 and published by February 2012)	Tilapia feed standards, both complete and complimentary have been finalised and gazetted; A final catfish feed and tilapia seed standard awaits validation.
Barazza's – informal meetings at markets used to market products and services.	Farmers and interested agents (Throughout)	Six barazzas were held in Ogembo, Kisii, Nyakoe, Mumias, Malava and Lurambi areas reaching 606 farmers. This has served as an effective platform for the stimulation of demand for Aqua Shop services and products and for the aqua shop operators to get first hand exposure to the level of operations and needs of the targeted farmer clientele.

E. Aquaculture development (Aquashops), Kenya and Malawi but options for Uganda, Tanzania, Rwanda and Zambia

F. Indigenous poultry production, Tanzania

Topic and Description of Expected Knowledge Output	Intended user or beneficiary of the output (and expected timeframe and end-date)	Progress to December 2012
Stakeholders' experiences in the RIU Tanzania program innovation processes. A compiled document of Case Stories written by individual stakeholders participating in the indigenous chicken value chain in Tanzania. Facilitated by KIT and CRT through a write-shop.	 DFID Development practitioners, Policy makers in Tanzania (June 2011) 	Completed – Now in layout and printing process (copy with RIU management) - Case Stories on Institutional Changes
Innovation Networks: A chapter in a Book to be written with KIT. The chapter to be presented to SUA community.	 Development practitioners, Policy makers in Tanzania and elsewhere Academia (August 2011) 	Completed – The book is with the publisher now (copy with RIU management) A Poultry Sub-sector Innovation Network in Tanzania
Farmer experiences in commercializing their indigenous chicken activities in Tanzania A comic book (My Chicken is no longer slaughtered in the backyard) - Tales of farmers' experiences on how they changed their poultry keeping practices. The stories to be aired in 3 community Radio programmes	 All rural dwellers in Tanzania, Rural development practitioners, Policy makers, Academia (October 2011) 	Completed – First draft is with RIU management for editing. The Comic Book's Title (in Swahili will be finalised after final editing).
Linking rural producers with urban service providers through a value chain approach Three undergraduate projects with the Faculty of Agriculture of Sokoine University of Agriculture (SUA) Morogoro.	 Researchers and Policy makers (January 2012) 	Cancelled - This output was put on hold until January 2012 pending delivery of other knowledge output (see new knowledge outputs below). It will no longer be produced due to budget limitations as well as timing for working with Sokoine University Students. Most of the students go on field study during the June-September period.
 Engaging people with disability in agribusiness Three community Radio programs, Workshop to be organized together with the Federation of Disabled Peoples' Organizations in Tanzania 	 All stakeholders working on Disability Movement in East Africa, Development Partners with Disability component Ministry of Social Welfare 	Cancelled - This output was put on hold until January 2012 pending delivery of other knowledge output (see new knowledge outputs below). It will no longer be produced due to budget limitations.

Financing the rural poultry sector: Experience from RIU Poultry contract farming Discussion paper to be prepared by the University of Dar es Salaam and presented in a	 Disabled People's Organizations (DPOs) (January 2012) Financial (+insurance) institutions, Government, Universities (Sokeine) 	Completed – The brief is now in final editing, translation (for Swahili speaking audiences) design, layout (copy with RIU management).
 meeting with; all financial institutions in the country; Ministry of Finance; and ASLMs Changes: Collaboration in production of the discussion paper with UDSM was not possible due to limited time for finalisation of the outputs; different reflections on content and kinds of outputs that RIU Tanzania was looking for; and high budgets. This output has now been produced by RIU in collaboration with an independent consulting firm. The title has therefore changed as indicated below 	 Universities (coronie University of Agriculture (SUA); Moshi University College of Cooperatives Business Studies (MUCCOBS); School of Business Studies- University of Dar es Salaam (UDSM) (February 2012) 	Exploring Contract Farming as a Business Model for Financing Indigenous Poultry Farming
Policy Brief: Exploring Contract Farming as a Business Model for Financing Indigenous Poultry Farming - The objective of this paper is to discuss "contract farming" as a viable alternative to financing indigenous poultry farming.		
Public-Private Partnership in developing institutional arrangements necessary for rural growth. A Discussion paper to be developed form a study report together with government's policy think tank ESRF ^[2] (Economic and	 Policy and Planning Unit (Prime Ministers' Office) ASLMs¹ (Agricultural Sector Lead Ministries). These are 5 	Completed – The brief is now in final editing, translation (for Swahili speaking audiences) design, layout (copy with RIU management). Policy Brief: Putting Public Private Partnership in Development Mainstream of the Rural Poultry Subsector

^[2] Visit www.esrftz.org; The **Economic and Social Research Foundation** (ESRF) was established in **1994** as an independent, not-for-profit institution for research and policy analysis. The formation of **ESRF** was based on the assumption that there was need and demand for an improved understanding of policy options and development management issues, and that the capacity for this was lacking in the Tanzania civil service. **ESRF** addressed this gap by putting into place qualified **Professional Staff**, modest resources and a favourable **research** environment for the analysis and discussion of economic and social policy. The primary objectives of the Foundation are to strengthen capabilities in policy analysis and development management and to enhance the understanding of **policy options** in the government, the public sector, civil society, and the donor community and the growing private sector.

 Social Research Foundation) and get it presented in one of the ESRF policy briefing sessions in October 2011 Changes: Collaboration in production of the discussion paper with ESRF was not possible due to the poor quality of concept note submitted by ESRF as well as the time and funding demanded was beyond what RIU could afford. So this output has now been produced by RIU in collaboration with an independent consulting firm. The title has therefore changed as indicated below 	ministries working to develop the agriculture sector (April 2012)	The objective is to show that neither the public nor the private sector on its own can bring about meaningful transformation in the indigenous poultry subsector, therefore strong partnership between both sectors is critical.
Building Innovation Capacities for Increased Privates Sector Investment in Agribusiness: The Case of Indigenous Poultry Sector in Tanzania (PhD Thesis)	Expected - Late 2013	Vera Mugittu has started her PhD studies working with Prof James Smith (Edinburgh) and Prof Norman Clark (Open University) as supervisors.
New Knowledge Outputs		
Policy Brief: Moving Poultry Industry to Scale: A case	 Policy and planning unit, 	Completed – The brief is now in final editing, translation (for Swahili
for Horizontal Approach - The objective is to	 Prime Minister's Office, & 	speaking audiences) design, layout (copy with RIU management).
demonstrate the potential of a horizontal approach in stimulating rapid growth and development of the poultry subsector.	 ASLMs^[2] (Agricultural Sector Lead Ministries) – these include 5 ministries working to develop the agriculture sector Development partners 	Moving Poultry Industry to Scale: A case for Horizontal Approach
Policy Brief: Sustaining New Scales: A call for Stronger	 policy and planning unit, Prime Minister's Office and 	Completed – The brief is now in final editing, translation (for Swahili speaking audiences) design layout (copy with RIU management)
Subsector - The objective is to advocate for increased investment in institutional support system as a mandatory intervention to sustaining large-scale production of indigenous poultry production.	 ASLMs [2] (Agricultural Sector Lead Ministries) – these include five ministries working to develop the agriculture sector 	Sustaining New Scales: A call for Stronger Institutional Support System for the Indigenous Poultry Subsector

¹ Five Agricultural Sector Lead Ministries (ASLMs) – Ministry of Agriculture Food Security and Cooperatives (MAFC), Ministry of Water and Irrigation (MoWI), Ministry of Livestock Development and Fisheries (MLDF), Ministry of Industry Trade and Marketing (MITM) and Prime Minister's Office – Regional Administration and Local Government (PMO-RALG).

	Development partners	
Success Story: From Subsistence to Commercial Viability: The Role of a Value Chain Leader in Transforming Indigenous Poultry Farming - The objective is to share results of the RIU Indigenous Poultry Project and demonstrated the need for a resourceful but flexible value chain leader in transforming the indigenous poultry subsector into a vibrant commercial enterprise.	 policy and planning unit, Prime Minister's Office and ASLMs [2] (Agricultural Sector Lead Ministries) – these include five ministries working to develop the agriculture sector Development partners 	Completed – The story is now in final editing, translation (for Swahili speaking audiences) design, layout (copy with RIU management). From Subsistence to Commercial Viability: The Role of a Value Chain Leader in Transforming Indigenous Poultry Farming
Success Story: Beyond Business as Usual: Strategies for Releasing Potential of the Indigenous Poultry Subsector - The objective of this story is to show that transformation of the indigenous poultry subsector into a commercially viable enterprise requires extraordinary measures which go beyond business as usual.	ASLMsLocal governmentPrivate sector	Completed – The story is now in final editing, translation (for Swahili speaking audiences) design, layout (copy with RIU management). Beyond Business as Usual: Strategies for Releasing Potential of the Indigenous Poultry Subsector
Success Story: Improving Livelihood and Alleviating Poverty through Indigenous Poultry Farming - The objective is to demonstrate that it is possible to improve livelihood and alleviate poverty through indigenous poultry farming.	 Farmers Development partners Local government 	Completed – The story is now in final editing, translation (for Swahili speaking audiences) design, layout (copy with RIU management). Improving Livelihood and Alleviating Poverty through Indigenous Poultry Farming
Balancing the Equation of Scale and New Knowledge: Experiences from the RIU Indigenous Poultry Project in Tanzania - The objective of this paper is to provoke a robust discussion on the relationship between new knowledge use and increased scales of agricultural production.	 Academic institutions Development partners ASLMs Researchers 	Completed – Concept Brief prepared Balancing Scale and New Knowledge Use in the Indigenous Poultry Industry: Perspectives for the Future 11pp (copy with RIU management)

G. Improved storage of cowpea and soybean, Nigeria

Topic and Description of Expected Knowledge Output	Intended user or beneficiary of the output (and expected timeframe and end-date)	Progress to December 2012
7 published KIT-facilitated case study reports on institutional change attributable to RIU programme experiments in Nigeria; the authors will be drawn from various partner-agencies who have been involved in the planning or implementation of the RIU-Nigeria programme. The reports are intended for presentation to various appropriate agencies under the Federal Ministry of Agriculture and RD	Public Sector Partners: (1)Federal Ministry of Agriculture &Rural Development; (2) Stateministries of agriculture & ruraldevelopment; (3) Agriculturaldepartments of local governmentcouncils; (4) ADPs (agriculturaldevelopment programmes; (5)National Planning Commission; (6)Agricultural Research Council ofNigeriaPrivate sector partners: variousDFID & other InternationalDevelopment Partners: various(December 2011)	Completed and available on RIU website
3 CRT-reviewed Discussion Papers on key themes with relevance to agricultural policy, innovation brokering, and agricultural research management in Nigeria and Sierra Leone; intended for use by various programme partners	Public Sector Partners: various Private sector partners: various DFID & other International Development Partners: various (December 2011)	Completed and available on RIU website
1 chapter in a KIT-facilitated book volume on Agricultural Value Chain Innovation Platforms; intended for international audiences in Europe and elsewhere	Private sector partners: various Other International Development Partners: various (December 2011)	In Nederlof, Suzanne, Mariana Wongtschowski and Femke van der Lee (eds). 2011. <i>Putting heads together.</i> <i>Agricultural innovation platforms in practice</i> . Bulletin 396, KIT Publishers <u>http://www.kitpublishers.nl/-/33739/KIT-Publishers/KIT-Publishers-New-books?itemid=3166&title=Bulletin-396-Putting-heads-together</u>

2 reports on appraisal of policies affecting cassava and cowpea/soybean value chains; intended for use by agricultural policymakers in Nigeria	Public Sector Partners: various Private sector partners: various DFID & other International Development Partners: various (December 2011)	Completed and reports available
5 video documentaries to illustrate the lessons learnt from orchestrating innovation platform and supporting national priorities and agricultural policies	Public Sector Partners: various Private sector partners: various DFID & other International Development Partners: various (March 2012)	A 25 minute documentary on RIU cowpea storage programme was aired on 12 th November 2011
1 technical report on the facilitation of private sector development (PSD) and institutional changes relating to effective solutions to post-harvest losses in cowpea V.C.	Public Sector Partners: various Private sector partners: various DFID & other International Development Partners: various (March 2012)	PowerPoint and Poster Presentations were jointly developed by RIU and IITA on promoting the use of triple bags. These were jointly presented at the 7 th Integrated Pest Management (IPM) International Symposium (March 2012) in Memphis, USA. A delegation of 3 from RIU-Nigeria presented posters and sat on panels at the international conference on hermetic storage, sponsored by Purdue University, in Accra Ghana, in early April 2012. RIU was recently commended by Katsina State Government for enabling the state's ADP to be a current leader on improved cowpea storage.
4 nationally televised policy debates on agricultural innovation in Nigeria, to raise awareness on IP model	Agricultural policymakers & Public Sector Partners: various Private sector partners: various (June 2012)	The Nigerian Television Authority broadcast a 30-minute program on RIU was nationally televised. Due to increase in the cost of program slots and production costs, the remaining planned shows were not done. ,However, 3 radio talk shows and 3 television talk shows were done in Hausa language about RIU's work on cowpea storage in Bauchi, Gombe and Katsina state broadcasting stations
4 national radio programmes on agricultural advisory services and the role of value chain innovation platforms	Agricultural policymakers Private sector partners: various (March 2012)	The Nation newspaper, which has a national coverage and a very active agriculture desk, has featured or referred to RIU-related activities in 5 of its reports on agricultural advisory services, value chains and innovation platforms, between October 2011 and March 2012. RIU-assisted sensitization activities on the use of triple bags have been featured on state radio stations in all of the 6 partner states, both in Hausa and English. One of the episodes was reportedly aired on federal radio in February, but RIU was not informed of this in advance.

4 seminars on agricultural innovation, to be hosted by respective national agricultural research institutes. The scope will include the role of ADPs in multi-stakeholder innovation platforms in various value chains	Public Sector Partners: various Private sector partners: various Other International Development Partners: various (June 2012)	Three states in the south east (Abia, Anambra and Cross River) where cowpea is not produced in significant quantities but is heavily consumed as a food staple, have requested for RIU facilitate a one-day sensitization workshop in each state capital. They are reacting to rampant cases of illness or death of some people who ate poison beans (i.e. beans that were contaminated in storage as a result of the misapplication of toxic chemicals my farmers and merchants who try to prevent weevil infestation). These workshops, co-sponsored by ADP, State Ministry of Agriculture and Rural Development, and the a training consulting service, took place in March/April 2012, and involved training of trainers for the ADPs to carry out rural awareness campaigns and demonstrate the use of triple bags.
1 internationally published, peer-reviewed paper on public financing of agricultural innovation in West Africa; the paper will use evidence from RIU programmes in Nigeria and Sierra Leone to illustrate the argument that public financing necessary but not sufficient in promoting agricultural innovation, and the role of innovations platforms and independent brokers should be recognized and planned for by policymakers on each V.C.	Development practitioners; Academic Researchers Students Policy analysts Agricultural policymakers (December 2011)	Presented a paper at the University of New Hampshire, USA, on "Public financing of agriculture in West Africa (Ghana, Nigeria & Sierra Leone): Toward Achieving the Maputo Declaration on Agricultural Funding in Africa". The Audience included faculty and graduate students on international development at the Carsey Institute, UNH, Durham, in New Hampshire.

H. Warehouse Receipt System, unlocking market access for smallholder farmers, Rwanda

Topic and Description of Expected Knowledge Output	Intended user or beneficiary of the output (and expected timeframe and end-date)	Progress to December 2012
4 Provincial workshops (reports) on RIU experience in promoting innovation and agricultural value chain development through innovation platforms.	i)Local Government authorities (Provinces, Districts); ii) Development practitioners members of District/Sector Joint Action Forum (public sector, civil society, projects/programmes) and ; iii) Private sector partners (September 2011)	 Report to Governor of Eastern Province on warrantage system (July 2011) Report to Minster of Trade and Industry on warrantage system (September 2011) Workshop Report: Sharing experience on warrantage approaches between RIU supported maize and potato platforms (November 2011) Report on National Stakeholder Workshop – Cassava value chain (November 2011) Report on RIU participation in Eastern Province Trade fair (November 2011) Report of RIU participation at East African Commodity Fair (November 2011) Report on National Stakeholder Workshop – Potato Value Chain (September 2011) Report on National Stakeholder Workshop – Potato Value Chain (September 2011) Report Validation Workshop of the Strategic Plan for National Federation of Potato Producers Cooperatives (November 2011)
Case study report on scaling out the warrantage scheme on maize in Rwanda	i) Ministry of Agriculture and Animal Resources; ii) Ministry of Commerce and Industry; iii) Rwanda Agricultural Board; iv) Rwanda Cooperative Agency; iv) National Post Harvest Task Force; v) Local government institutions; vi) Farmers cooperatives; vii) various development projects/programmes; viii) Banks and microfinance institutions; ix) maize processing units and traders; x) Development Partners; xi) Members of the Maize Innovation Platform (December 2011)	 Nyagatare Maize Investment Group (NYAMIG) workshop report on achieve, enst and prospects for future interventions in warrantage (September 2010) Inventory report on strorage facilities in Eastern Province (September 2011) Report of indenfication of 10 maize collection sites for proximity warrantage serives to maize farmers/cooperatives (July 2011) Presentation made to Eastern Province Investment Corporation (EPIC) Prospects of expanding warrantage in Bugesera District in partnership with CARITAS (October 2011) Report on establisghing new partnerships to expand warrantage (November 2011)
10 case study reports on institutional change written by partners/beneficiaries of RIU-Rwanda.	i) Ministry of Agriculture and Animal Resources; ii) Rwanda Agricultural Board; iii) Local government institutions; iv) National Farmers Federations; v) various development projects/programmes/NGOs; v) Development Partners; x) Members of the Maize, Potato and Cassava Innovation Platforms	Collated as part of KIT write-shops
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3 national federations strategic plans (Maize, Cassava, Potato)	Ministry of Agriculture and Animal Resources; ii) Ministry of Commerce and Industry; iii) Rwanda Agricultural Board; iv) Rwanda Cooperative Agency; v) various development projects/programmes/NGOs; vi) Development Partners; vii) Cooperatives members of the three National Federations (December 2011)	Strategic Plan of the National Federation of Potato Producers Cooperatives developed with the support of RIU and shared with national stakeholders (November 2011) Strategic Plan for National Federation of Cassava Producers Cooperatives developed with support of RIU and shared with national stakeholders (March 2012)
Case study report on promoting new cassava mosaic resistant varieties and related Good Agricultural practices through Farmer Field schools (FFS)	i) Ministry of Agriculture and Animal Resources; ii) Rwanda Agricultural Board; iii) members of the Cassava Innovation Platform; iv) projects/Programmes/NGOs supporting cassava production. (December 2011)	National stakeholder workshop on the cassava value chain (oraganised by RIU) was held in November 2011. Workshop report highlighted the urgency for preventing/controlling the spread of Cassava Brown Streak Disease and enhances partnership between cassava producers' cooperatives and agro-processing industries.
Synthesis document of training workshops reports on enhancing maize produce quality at community level (to be used as training manual)	i)National Post harvest Task Force; ii) Rwanda Bureau of Standards; iii) members of maize innovation platform; iv) projects/Programmes/NGOs involved in the Crop Intensification programme; v) Maize processing units and traders; vi) maize farmers cooperatives and Federation (March 2012)	Workshop Reports on training of cooperatives in warrantage.

1 Case study report on promoting new maize hybrid varieties in Nyagatare District, Eastern Province, Rwanda.	i) Rwanda Agricultural Board; ii) members of maize innovation platform; iii) projects/Programmes/NGOs involved in the Crop Intensification programme; iv) maize farmers cooperatives and federation (March 2012)	Promotion of new maize hybrid varieties was not carried out as institutional framework between stakeholders (research, extension and private sector) was not yet in place. Case study report not produced.
National workshop report on RIU partnership with the Private Sector Federation in fostering agricultural value chain clusters at national level.	Ministry of Agriculture and Animal Resources; ii) Ministry of Commerce and Industry; iii) Rwanda Development Board; iv) Rwanda Agricultural Board; v) Rwanda Cooperative Agency; vi) members of the Chamber of Agriculture; vii) Banks and microfinance institutions; viii) input dealers, agro-processors and traders; ix) various development projects/programmes/NGOs; x) Development Partners; xi) farmers Cooperatives and National Federations (March 2012)	In progress – also project proposal submitted by PSF to the Royal Netherlands Embassy on enhancement of the role of the private sector in value chain development (submitted September 2011)
Case study report on revitalising the potato seed system through warrantage.	i) Rwanda Agricultural Board; ii) members of Potato innovation platform; iv) projects/Programmes/NGOs involved in the Crop Intensification programme; vi) potato farmers cooperatives and federation (March 2012)	Potato Innovation Platform Report (September 2011) Work on first warrantage pilot on potato seeds commenced in partnership with Impuyaki Cooperative (September 2011) along with consultant report on identification of potential rural entrepreneurs to set up basic seed units for potato (September-October 2011) followed up by report on status of commitments by rural entrepreneurs (November 2011).
Policy Brief on warrantage: sustaining farmers' investment for maize intensification through enhanced access to financing and market.	 i) Ministry of Agriculture and Animal Resources; ii) Ministry of Commerce and Industry; iii) Rwanda Agricultural Board; ; iv) National Post Harvest Task Force; 	Still in progress but dependent on delivery of other knowledge outputs and activities.

	v) Local government institutions; vi) various development projects/programmes; vii) Maize cooperatives; viii) Banks and microfinance institutions (May 2012)		
video on RIU supported experiments to be distributed as training material (warrantage, potato tissue culture, platform development)	i) Rwanda Agricultural Board; iv) projects/Programmes/NGOs involved in the Crop Intensification programme and R&D iii) Innovation platform; iv) private Sector Federation; v) Development partners (May 2012)		Not produced
Case study on mobilising foreign investment for scaling out the warehouse receipt system in Rwanda (In collaboration with H2O/UK)	i) Ministry of Agriculture and Animal Resources; ii) Ministry of Commerce and Industry; iii) Rwanda Agricultural Board; iv) Private Sector Federation; v) Farmers Cooperatives and Federations (May 2012)		 RGCC Operations plan developed (February-June 2012) with RIU Coordinator as interim MD. RGCC Ltd is a PPP that aim to profitably achieve the following objectives: i) efficiently manage the surplus production of grain and cereals whilst avoiding short term speculation; ii) Improve the quality of Rwanda's grain and cereals; iii) Manage strategic grain and cereals reserves under contract with the Government. Concept note for a Technical Assistance to RGCC - agreement in principle with DFID Rwanda, now awaiting clearance Workplan for setting up operations of Sarura Commodities Ltd (March-December 2102) Humura-Muhinzi" Concept note (bridging credit scheme)
Policy brief on enhancing farmer's access to fertiliser using the warrantage approach.	i)Ministry of Agriculture and Animal Resources; ii) Ministry of Commerce and Industry; iii) Rwanda Agricultural Board; iv) Inputs dealers; v) Private Sector	\bigcirc	Nothing to report to date – very much dependent on on-going policy reform on enhancing the role of the private sector in fertilizers import and distribution. Activity to be continued by Sarura Commodities Ltd as part of diversification of its revenue stream and services to farmers' cooperatives.

	Federation; vi) Banks and micro- finance institutions; vii) Innovation Platforms; viii) Farmers Cooperatives and Federations (May 2012)		
Case study report on enhancing market access to farmers through short/medium term purchasing contracts and loyalty programmes.	i)Ministry of Agriculture and Animal Resources; ii) Ministry of Commerce and Industry; iii) Rwanda Agricultural Board; iv) Local Government institutions; v) Private Sector Federation; vi) Banks and micro-finance institutions; vii) Innovation Platforms; viii) Farmers Cooperatives and Federations (May 2012)	\bigcirc	Nothing to report to date – very much dependent on on-going activities
1 national workshop report on RIU experience in promoting value chain development through innovation platforms.	i)Ministry of Agriculture and Animal Resources; ii) Ministry of Commerce and Industry; iii) Rwanda Agricultural Board; iv) Rwanda Cooperative Agency; vi) members of the Chamber of Agriculture; v) Banks and microfinance institutions; vi) input dealers, agro-processors and traders; vii) various development projects/programmes/NGOs; x) Development Partners; xi) farmers Cooperatives and National Federations (June 2012)		Report on national workshop on "Sharing RIU lessons on promoting value chain development through innovation platforms" (June 2012). This was the foinal RIU workshop and a special emphasis was placed on sustainability issues.
50 weekly radio programmes on innovation and agricultural value chain development	i)Farmers and development practitioners in rural communities of Eastern and Northern Province; ii) Local Government institutions (June 2012)		 Weekly radio programme broadcasted by Nyagatare Community radio. Radio Rwanda broadcast on visit of the Minister of Trade and Industry to RIU warrantage scheme (6th September 2011) Radio Rwanda broadcast on launch of 2012 – A potato season organised by RIU Potato Platform in Gicumbi District (20th September 2011). National television (RTV) broadcast of the same event with focus on RIU promoted model for producing high quality basic potato seed in greenhouses

		 RIU Country Coordinator interviewed about the potato work by a new community radio station, Radio ISHINGIRO (20-21 September 2011) Radio Rwanda coverage of National Stakeholder Workshop on cassava value chain (Novemner 2011) Radio Rwanda coverage of different activities of RGCC in Eastern, Northern and Western Provinces (2012) Radio-Rwanda and Musanze Community Radio coverage participation in the Agri Financial Trade Fair organised by AgriProcus in the Northern Province-Musanze District (2012)
1 Policy brief on enhancing the potato seed system through use of biotechnology outputs: addressing the shortage of potato seeds through support to rural micro enterprise using tissue culture outputs.	i) Ministry of Agriculture and Animal Resources; ii) Rwanda Agricultural Board; iii) Potato innovation platform; iv) projects/Programmes/NGOs involved in the Crop Intensification programme; vi) potato farmers cooperatives and federation (June 2012)	The rural micro enterprises using tissue culture outputs were operational towards the end of the RIU hence, policy brief not produced. However, there was a National Television (RTV) and Radio Rwanda coverage of the launching of these basic potato seed production units in Northern and Western Provine (June 2012). This experience was also shared with other stakeholders in the national workshop on sharing lessons on RIU achievements.
6 news articles on RIU published in newspapers with national coverage (The Newtimes and Imvaho Nshya)	National audience (policy makers, development practitioners; farmers, private operators etc) (June 2012)	 Article on RIU sharing experience with all districts agricultural officer published by "The NewTimes" (English) (November 2011) 3 articles published in the NewTimes 2012 the daily newspaper in English language with national coverage 1 article published in Imvaho Nshya, the daily newspaper in Kinyarwanda language with national coverage
3 national television news coverage on RIU supported interventions	National audience (policy makers, development practitioners; farmers, private operators etc) (June 2012)	National television (RTV) broadcast of the launch of 2012 – A potato season with focus on RIU promoted model for producing high quality basic potato seed in greenhouses (September 2011) National Television coverage of the launching of RGCC National Television and Radio "Live debate" on enhancing farmers 'access to

	markets through RGCC (participants: Minister of Trade and Industry, RGCC Chair and General Manager –also RIU Country Coordinator)
	National television coverage of national workshop on sharing lessons on RIU experience in promoting value chain development through innovation platforms (June 2012)

RESEARCH INTO USE (RIU) LOGFRAME

Project title: Researc	Date: 1 st July 2009 26 th January 2010 (Revised) 29 th January 2010 (2 nd revision) 2 nd February (3 rd revision) 30 th April (4 th revision)					
Goal	Indicator					
		(2009)	(2010)	(2011)	(2012)	
To contribute to sustained poverty reduction in countries of Africa and South Asia, where agriculture	A positive contribution made to agricultural GDP growth		baseline	+5% of baseline	+10% of baseline	
is important to the livelihoods of the poor ¹ .		Sources: Na Wo Hu	tional Statistic orld Developm man Develop	al Data. Ient Report (Ar ment Report (A		

Purpose	Indicator			Baseline	Milestone	Target	Target + 1	Assumptions:
				(2009)	(2010)	(2011)	(2012)	(Linking Purpose to Goal)
To significantly contribute to the knowledge of and investment in innovative models that promote and increase the widespread use of technology, thereby contributing to poverty reduction and economic growth	 Number of poor people (on < \$2/day), disaggregated by gender, to benefit from RIU initiatives Plans, strategies, policies, working papers from key international organisations investing in the agricultural development sector e.g. World Bank, DFID, IFAD, EU and GATES informed by outcomes of the RIU. 				395,000	1,500,000	>3,000,000	 Institutional arrangements are the limiting factor in preventing and excluding poor farmers moving to more efficient production paths This will be monitored and tracked.
				Sources: Inc policy, strate organisation	dependent sur egic and work s	veys (2010 – 2 ing plans of ke		
Inputs £	DFID	20,251,351	100%	DFID (FTEs)	РО	0.2 FTEs		
	Govt	0	%	4	Advisers	0.4 FTEs		
	Other	0	%			FTEs		
	Total	20,251,351	100%			FTEs		

Output 1	Indicator	Baseline	Milestone	Target	Target +1	Assumptions:
		(2009)	(2010)	(2011)	(2012)	(Linking Output to Purpose)
To introduce and implement experimental models which seek to expand the demand for and use of pro-poor agricultural research/technologies.	 An established portfolio of RIU activities generating and validating evidence on the institutional and policy conditions needed to : Strengthen networks and partnerships needed to put research into use for innovation; Strengthen the demand for research in the innovation process; Strengthen the responsiveness of innovation processes to the needs of poor people and other socially desirable outcomes; 					 National policy environments allow RIU programme and agents to RIU Country offices to exercise effective leadership (RIU support and mentoring has been built into Output 1) International trade environment and national trade policies are supportive of innovation (This variable will be monitoring by national programmes and Output 2)
	(a) Challenge fund projects;	13	8	8		
	(b) Country programmes with thematic innovation platforms, partnerships and policy advocacy activities;	6	6	6		
	(c) Best bet activities	0	6	10		
	Annual reports, strategy documents, working papers, white papers, project					

	proposals of developme selected reg (CAADP, 1 the adoption derived less policy char	of national resea nt organisation gional organisat FARA and the s on and promotions sons on institut nge	arch and and in ions SROs) reflect on of RIU- ional and		1	3	10	
				Sources: I RIU Count	ndependent ry work-pla	evaluations (2 ns (2009) an		
Impact weighting:					.008-2011).			Risk rating:
30%								
				a	T			Medium
Inputs £	DFID	16,619,291	100%	DFID	РО	0.1 FTEs		
	Govt	0	%	(FTEs)	Advisers	0.2 FTEs		
	Other	0	%			FTEs		
	Total	16,619,291	100%			FTEs		

Output 2	Indicator	Baseline	Milestone	Target	Target + 1	Assumptions:
		(2009)	(2010)	(2011)	(2012)	(Linking Output to Purpose)
To research the experimental investment models, disseminate findings and, thereby, increase understanding of how to promote and expand use of agricultural research and	1. Publications, synthesising evidence and lessons on the circumstances under which different modes of innovation and institutional and policy settings are needed to put research into use in different contexts for developmental purposes:					 The underlying complexity of innovation can be captured by the proposed "institutionalist" approach and framework (The "Institutionalist" approach is now used commonly for an analysis of governance.
technology.	a. Pro-poor led innovation;			3	6	institutions and political
	b. PPP/agro-enterprise led innovation;			3	5	economy more generally. Lessons can be learnt even where programmes fail!)
	c. Capacity development innovation;			2	4	
	d. Opportunity-led innovation;			2	4	
	e. Investment-led innovation;			1	3	
	f. Research communication-led innovation			3	5	
	2. Citations of RIU lessons in professional and academic publications.	0	10	50	100	
	3. Policy dialogues with DFID and other target organisations in national and international arenas.	1	4	6	8	

	 4. RIU princ profe R ar R po th A ar K co M bo on st 	staff promotion iples through ssional activities eviews/evaluation ad national prog eviews of func- eer review arti- neses; dvisory assignm ad national prog eynote speech onference intera lemberships pards, editor ganisational co- eering committe	e lessons and their wider s and networks ons of donor grammes; ding proposals, icles and PhD nents to donors grammes; nes and other ctions; of advisory orial boards, ommittees and ees		2 4 2 2 1	4 6 4 2 2	6 8 6 4 4	
				Sources: RIU policy and practice briefs; RIU publications and professional/academic publications and independent evaluations				
Impact weighting:								Risk rating:
70%								Low
Inputs £	DFID	3,632,060	100%	DFID	РО	0.1 FTEs		
	Govt	0	%	(FTEs)	Advisers	0.2 FTEs		
	Other	0	%			FTEs		
	Total	3,632,060	100%			FTEs		

Notes:

¹Goal wording remain unaltered.

²Given the short time period (and the possibility of a one year extension), results have been defined for 2012 (i.e. EOP +1)

Research into Use Programme

Supporting innovation -Changing lives



Guidelines for completion of proformas for validated outputs derived from the RNRRS

August 2006

Table of contents

Glossary of terms

Background

Output proforma

Annex A List of DFID PSA countries

Annex B Description of farming systems (FAO)

Glossary of terms

Adaptation: Adoption of research outputs usually includes an element of adaptation by the target institution and/or the beneficiaries.

Adoption: Beneficiaries choosing to put a particular output or cluster of outputs into practice e.g. following a technical recommendation or use of a new technology after the same output has been taken up and disseminated by a target institution. The RIUP distinguishes between adoption (by beneficiaries) and uptake (by target institutions.

Baseline: Information collected before, or at the start of a project, policy or programme that provides a basis for planning and assessing subsequent progress or impact. Ideally, information should be collected on a comparable group (the control group) outside the project to make comparisons and assess the impact of the project. The baseline data are collected in a baseline survey or study.

Beneficiaries: Poor people who stand to gain social, economic or environmental benefits from the output(s). A beneficiary will invariably be a primary stakeholder.

Cost-benefit analysis: A form of economic appraisal that assesses a project's worth by comparing its costs against the benefits it provides, including social costs and benefits. The techniques adopted include those used in financial appraisal but in addition a valuation in money terms is placed on social costs and benefits.

Demand articulation: A product of a process that requires stakeholder participation informed by the types of farmer livelihood strategies and needs, their enabling environment, and current institutional research capacity

End users: These are usually the ultimate beneficiaries but may sometimes be an institution.

Empowerment: The process whereby people gain more power over the factors governing their social and economic progress. This may be achieved through: increasing the incomes and assets of the poor; interventions that aim to enhance confidence and self-respect; by developing collective organisation and decision-making and by reforming political institutions to make them more inclusive. Empowerment is one aim of setting up participatory processes.

Environmental impact assessment: Analysis of the environmental consequences of a project, policy or programme.

Evaluation: A systematic assessment of the design, implementation, output and impact of an ongoing or completed project, programme or policy. This is a wider and more comprehensive activity than impact assessment and is generally multi-disciplinary. The aim is to identify the relevance and fulfilment of objectives, development efficiency, effectiveness, impact and sustainability

Impact: Beneficial or adverse changes experienced by end-users as a result of a research project activities and/or the application of research outputs. These changes may be direct or indirect, intended or unintended.

Innovation: The use of research (indigenous and exogenous) knowledge in a place or by people in a way it has not been used before. This is distinctly different to "invention" which is seen as the creation of new knowledge.

Innovation platform: A network of partners, working on a common theme and using research knowledge in ways it has not been used before to generate goods/services for the benefit of the poor.

Knowledge products: Outputs (in a myriad of forms of presentation) conveying the results of evaluation, research or other analysis.

Livelihoods approach: Development approaches based on the following principles – people-centred; holistic; dynamic; builds on strengths; considers micro-macro linkages and is sustainable. Frequently used as the shortened working title for the Sustainable Livelihoods Approach.

Output: The end product/service of an individual piece of research or from a cluster of research activities. The output maybe in various forms - a technology, a process, a methodology, a decision support tool, a policy brief etc. etc.

Poverty: The RIUP makes use of the recent paper² by Mary Hobley and Steve Jones and the following table is adapted from this paper to define the groupings of the poor the RIUP wants to analyse in consideration with the output(s) proposed.

Poverty grouping	Issues		
Moderate poor			
	 Some security to act in solidarity with others Able to develop capability to build their own voice Together with non-poor most likely to access new livelihood opportunities and use as stepping stone out of poverty 		
Extreme vulnerable poor			
Assetless (or near assetless) male & female headed households in rural areas This includes subsistence farmers who may have small areas for food production.	 Limited or no access to regular employment Irregular income availability Limited or no access to flexible finance, savings, credit Limited or no access to safety nets Chronic and persistent ill-health affecting capacity to work Lack of physical security/ fear of theft & robbery Women do labouring work but get lower wages than men Women commonly report domestic violence during 'lean season' Depending on shelter location subject to regular moves + dependent on landowners for access to homestead/ shelter/sharecropping land 		
Women headed households (without adult male)	 As above and in addition: Highly vulnerable to physical, sexual and verbal harassment Already constrained mobility further compromised due to absence of males No male representatives means doubly excluded from local arbitration systems and other decision making processes 		
Poor people living in disaster prone or remote areas	 As above and in addition: High levels of environmental vulnerability due to erosion, flood, salt inundation, adverse climatic conditions, adverse environmental health conditions including drought with limited coping mechanisms Absence of services both government and non-government; 		

² **Hobley, M. and Jones, S. (2006).** The Challenge of Extreme Poverty. What is it and what is being done about it? Background paper for DFID/BRAC. Extreme Poverty Workshop, BRAC Inn 12 June 2006.

	limited infrastructure and connectivity to markets
Poor people living in urban areas	 Women highly vulnerable to physical, sexual and verbal harassment Insecure shelter – living on streets, temporary shelters or in slums with no security of tenure Lack of physical security/ fear of theft & robbery Not considered to be 'citizens' as have no legal address so no entitlements; Exploitative labour relations, high dependence on middlemen for access to services and labour opportunities; High incidence of childhood labour – particularly of boys leading to early removal from school
Occupational groups e.g. fisher communities, sweepers	 Low status work taken up only by poorest households Heavily reliant on maintaining exploitative patron/client relationships for access to e.g. rivers/ponds and essential equipment Socially and self-excluded from services and opportunities
Indigenous people and minority religious groups	 Absence of services both government and non-government; limited infrastructure and connectivity to markets Socially, economically and politically excluded from services and opportunities High levels of self-exclusion from other indigenous groups and majority religious groups
Extreme dependent poor	
Elderly People with no family support	 excluded from most decision-making networks extreme food insecurity reliant on charity and/or relief limited or no access to safety nets and other forms of social protection
Disabled people, people suffering chronic illness without family support	 excluded from most decision-making networks extreme food insecurity reliant on charity and/or relief limited or no access to safety nets and other forms of social protection
Children of the extreme poor (vulnerable and dependent groups)
Children of the extreme poor	 Highly vulnerable to physical, sexual and verbal harassment Girls - low social status – considered burden because of dowry obligations Age and gender act to exclude girls from community level decision-making processes. Poor health and safety conditions at work, exploitative pay, no or limited access or opportunity for formal or non-formal education

Poverty map: A graphical or statistical representation of poverty often used to identify the most deprived regions of a country and to target expenditure. The term may also be used to refer to the process of collecting poverty data.

Poverty monitoring: A system for tracking poverty indicators.

Production system: Group of seven commodity/resource-based production systems selected by the RNRRS as the targets for sectoral research covering semi-arid, high potential, hillsides, forest-agriculture, peri-urban, land-water interface and tropical moist forests.

Risk: Understanding of the likelihood of events occurring, for example, on the basis of past experience. This concept contrasts with that of uncertainty, in which the likelihood is unknown. An individual or household may assess that the likelihood of a bad event, such as drought, occurring is high enough to alter the mix of species cultivated. Including more drought-resistant crops spreads risk. This is known as risk diversification.

Stakeholders: Any person, organisation, institution with some direct or indirect role to play in up-scaling of a particular output. Stakeholders may be defined:

- Primary stakeholders: those who are directly affected by the research outputs;
- Secondary stakeholders: may not be directly affected by the research outputs but they have an interest in the project;
- **Tertiary stakeholders**: those with high influence in the research and they can affect outputs but their interests are not the target of the research.

Stakeholders contribute firstly to the identification of needs, and then to ranking the priorities identified with the information provided on how the change will impact their livelihoods. Through this process a portfolio of outputs is identified, selecting interventions that would achieve greatest impact on the livelihoods of the various types of farmers; the poor, the very poor farmers, and the least poor as well as female headed households, women farmers, the youth and other vulnerable groups.

Target institution: These are institutions able to apply the research outputs with the aim of resolving the problem or exploiting the opportunity addressed.

Technology: Any one or combinations of tools, equipment, genetic material and breeds, farming and herding practices, gathering practices, laboratory techniques, models etc. and the knowledge and skills needed to use them.

Technology transfer: The whole process by which technology developed in adaptive research is eventually integrated into production systems (includes dissemination, promotion, uptake and adoption).

Uptake: The acceptance and promotion of research outputs by institutions along an uptake pathway and their eventual adoption by end users. This is the key stage in the conversion of research outputs to impacts on the livelihoods of poor people.

Uptake pathway: The institutions or processes by which research outputs reach end users, including organisations (civil society groups, government extension services, traders etc.) and activities (planting material multiplication , training).

User groups: A group of people who share a common task or asset, such as a water resource.

Validation: Evidence that the output(s) have been proven to be effective or offer efficiencies by: beneficiaries; other researchers; advisory providers and/or policy networks.

Background

DFID's Research Funding Framework (2004) highlighted sustainable agriculture, especially in Africa, as one of the crucial research areas to be addressed for achievement of the Millennium Development Goals³.

The Strategy for Research in Sustainable Agriculture⁴ (SRSA, 2005) proposed an exciting opportunity to build on the legacy of successes from the RNRRS through a Research into Use Programme (RIUP).

The RNRRS represented a considerable investment and the RIUP a further investment to take the best options forward to attain widespread impact on poverty reduction and economic growth.

It is important to stress that the RIUP will operate very differently to that of the RNRRS. The RIUP will not fund stand-alone projects but will instead link with and add value to existing national and regional processes and other initiatives by development partners. It is not a new research programme. This will be covered by other components under the SRSA which run concurrently - four new regional research programmes, a new blue sky responsive programme and the on-going multilateral funding arrangements. Whilst researchers will remain important partners in the RIUP, the emphasis will shift to the brokers and users of research and new entrants and partnerships are strongly encouraged. Further information on the RIUP is provided in the attached leaflet.

The inception phase of the RIUP will concentrate on the assessment and facilitation of the marriage of country demand with output⁵ supply. The RNRRS supported some 1,600 projects generating a wide variety of outputs. These are documented in a range of reports (Final technical reports), peer reviewed publications, brochures, posters and impact assessments, some of which appear on the DFID R4D portal⁶.

The reports were by far the most comprehensive source of information on the delivery of outputs and outcomes but at the time of the RNRRS evaluation exercise⁷ (2005) only 17 impact assessments were available.

For the RIUP the outputs from these projects have been assessed in discussion with a variety of stakeholder groups⁸ and around 300 have been selected for RIUP activities. Details on each of these selected outputs will be commissioned via the preparation of a proforma which will need to clearly demonstrate how the output will contribute to poverty alleviation and present an evidence-based case for delivering benefits to a large number of poor people in sub Saharan Africa and South Asia. The RIUP is expected to work in 10-15 countries from the Public Service Agreement (PSA) list which is shown in Annex A.

It is not the intention of the RIUP to support activities on RNRRS outputs that have already been scaled-up and have received funding for this from elsewhere.

The list of the selected outputs will be publicly available and will be sent to you by email as a PDF file. This will facilitate suggestions of potential clustering with other outputs but also to allow the list to be challenged. If for any reason, an individual/institution believe a validated

³ www.un.org/millenniumgoals/

⁴ www.dfid.gov.uk/research/srsa-consultation.pdf

⁵ The term output is used liberally and covers validated technologies, methodologies, policies etc.

⁶ R4D portal website www.research4development.info

⁷ Evaluation of DFID Renewable Natural Resources Research Strategy 1995 – 2005 LTS International (DFID Report

EVD659 June 2005) 521pp [copies available via dfidpubs@ecgroup.co.uk]

⁸ RNRRS Programme Managers, independent specialists and key stakeholder institutions

output has been overlooked there will be a window whereby a case can be made for this output to be included with those originally selected.

A budget allocation of £7,500 has been assigned for the preparation of each proforma; this is inclusive of all costs and is expected to facilitate overseas travel for meeting(s) with relevant stakeholders during the preparation of the proformas. The proformas will be assessed by an independent panel where the emphasis is upon quality of the information provided, the output described and upon the realistic potential impact on poverty.

It is intended that the completed proformas will be incorporated into a database that will then be used in matching output supply with in-country demand; the prototype database should be available from November 2006. The proformas will also be used to highlight success stories from the RNRRS which may not have been captured elsewhere to national ministries and agencies and that these successes are attributed to the individuals/institutions generating these outputs. The database of a sub-set of the information collated on validated RNRRS outputs will be publicly available in late 2006 on the RIUP website.

Key Dates for RIUP for validated output selection

8 September 2006	Invitation to prepare proforma
20 October 2006	Deadline for submission of proformas
31 October 2006	Prototype technologies database available for country assessment teams and general review
17 November 2006	Finalised database following peer review.

The database will be used by the teams assessing demand in-country and an independent panel as the first stage in mapping output supply and demand identifying initiatives to be taken further during the implementation phase of the RIUP (2007 – 2011). The database is very much seen as a showcase of the best of the RNRRS and will be promoted widely so any outputs not being taken further under the RIUP may be taken up by other DFID initiatives such as the regional research programmes or indeed by other donors/implementing agencies.

At this point it is pertinent to detail a roadmap (below), albeit provisional, as a guide for authors of output proformas that match the demand needs determined in-country. Whilst this roadmap is subject to change as the RIUP evolves it is intended to create a rolling programme of activities during the implementation phase. The first tranche of six in-country assessments will take place before December 2006 and the remaining assessments before the end of March 2007.

At present, there are no plans to have a set budgetary allocation per country.

Clearly time is of the essence and it is appreciated that the timeline imposed above is tight and may conflict with existing commitments.





The output proforma

The proforma requests information on 26 questions and some guidance is provided on how to go about answering these questions. You are requested to address each question in turn and adhere to the word limits specified. No formatting in terms of text boxes etc. has been included within the proforma – this is to facilitate the import of information into the database of outputs.

You are actively encouraged to enter into discussion with the RIUP team during the preparation of your proforma. Submission of a proforma is <u>not a guarantee of funding</u> – this will be dependent upon demand from the focus countries and regions and the opportunities offered by existing national or regional scaling up initiatives.

Within the proforma you will find some self scoring elements relating to certain questions. This will be used to facilitate ranking of outputs. A similar ranking exercise will also be undertaken by the independent panel based on the information (including any supporting documentation) provided in completed proformas. Whilst a relatively simplistic scoring mechanism has been adopted here you are strongly encouraged to be realistic and pragmatic and ensure that any claims are based on evidence that can be verified.

You are requested to submit your responses in MS WORD format and in text font Arial 11.

The 26 questions are divided into eight broad themes:

- A. Description of the research output(s) covering questions 1 9
- B. Validation of the research output(s) covering questions 10 11
- C. Current situation covering questions 12 15
- D. Current promotion/pathways covering questions 16 19
- E. Impacts on poverty covering questions 20 21
- F. Potential poverty impact covered in question 22
- G. Potential poverty impact assumptions covered in question 23
- H. Environmental impact covering questions 24 26
- I. Self scoring of output based on evidence provided in proforma and supporting documentation in answering questions 10-23

Please submit your proforma electronically to a.frost@nrint.co.uk by 5pm Friday 20th October 2006.

RESEARCH INTO USE PROGRAMME: RNRRS OUTPUT PROFORMA

A. Description of the research output(s)

1. Working title of output or cluster of outputs.

In addition, you are free to suggest a shorter more imaginative working title/acronym of 20 words or less.

2. Name of relevant RNRRS Programme(s) commissioning supporting research and also indicate other funding sources, if applicable.

3. Provide relevant R numbers (and/or programme development/dissemination reference numbers covering supporting research) along with the institutional partners (with individual contact persons (if appropriate)) involved in the project activities. As with the question above, this is primarily to allow for the legacy of the RNRRS to be acknowledged during the RIUP activities.

4. Describe the RNRRS output or cluster of outputs being proposed and when was it produced? (**max. 400 words**). This requires a clear and concise description of the output(s) and the problem the output(s) aimed to address. Please incorporate and highlight (in bold) key words that would/could be used to select your output when held in a database.

5. What is the type of output(s) being described here? Please tick one or more of the following options.

Product	Technology	Service	Process or Methodology	Policy	Other Please specify

6. What is the main commodity (ies) upon which the output(s) focussed? Could this output be applied to other commodities, if so, please comment

7. What production system(s) does/could the output(s) focus upon? Please tick one or more of the following options. Leave blank if not applicable

Semi- Arid	High potential	Hillsides	Forest- Agriculture	Peri- urban	Land water	Tropical moist forest	Cross- cutting

8. What farming system(s) does the output(s) focus upon? Please tick one or more of the following options (see Annex B for definitions). Leave blank if not applicable

Smallholder rainfed humid	Irrigated	Wetland rice based	Smallholder rainfed highland	Smallholder rainfed dry/cold	Dualistic	Coastal artisanal fishing

9. How could value be added to the output or additional constraints faced by poor people addressed by clustering this output with research outputs from other sources

(RNRRS and non RNRRS)? (max. 300 words).

Please specify what other outputs your output(s) could be clustered. At this point you should make reference to the circulated list of RNRRS outputs for which proformas are currently being prepared.

B. Validation of the research output(s)

10. How were the output(s) validated and who validated them?

Please provide brief description of method(s) used and consider application, replication, adaptation and/or adoption in the context of any partner organisation and user groups involved. In addressing the "who" component detail which group(s) did the validation e.g. end users, intermediary organisation, government department, aid organisation, private company etc... This section should also be used to detail, if applicable, to which social group, gender, income category the validation was applied and any increases in productivity observed during validation (max. 500 words).

11. Where and when have the output(s) been validated?

Please indicate the places(s) and country(ies), any particular social group targeted and also indicate in which production system and farming system, using the options provided in questions 7 and 8 respectively, above (max 300 words).

C. Current situation

12. How and by whom are the outputs currently being used? Please give a brief description (max. 250 words).

13. Where are the outputs currently being used? As with Question 11 please indicate place(s) and countries where the outputs are being used (max. 250 words).

14. What is the scale of current use? Indicating how quickly use was established and whether usage is still spreading (max 250 words).

15. In your experience what programmes, platforms, policy, institutional structures exist that have assisted with the promotion and/or adoption of the output(s) proposed here and in terms of capacity strengthening what do you see as the key facts of success? (max 350 words).

D. Current promotion/uptake pathways

16. Where is promotion currently taking place? Please indicate for each country specified detail what promotion is taking place, by whom and indicate the scale of current promotion (max 200 words).

17. What are the current barriers preventing or slowing the adoption of the output(s)? Cover here institutional issues, those relating to policy, marketing, infrastructure, social exclusion etc. (max 200 words).

18. What changes are needed to remove/reduce these barriers to adoption? This section could be used to identify perceived capacity related issues (max 200 words).

19. What lessons have you learnt about the best ways to get the outputs used by the largest number of poor people? (max 300 words).

E. Impacts on poverty to date

20. Where have impact studies on poverty in relation to this output or cluster of outputs taken place? This should include any formal poverty impact studies (and it is appreciated that these will not be commonplace) and any less formal studies including any poverty mapping-type or monitoring work which allow for some analysis on impact on poverty to be made. Details of any cost-benefit analyses may also be detailed at this point. Please list studies here.

21. Based on the evidence in the studies listed above, for each country detail how the poor have benefited from the application and/or adoption of the output(s) (max. 500 words):

- What positive impacts on livelihoods have been recorded and over what time period have these impacts been observed? These impacts should be recorded against the capital assets (human, social, natural, physical and, financial) of the livelihoods framework;
- For whom i.e. which type of person (gender, poverty group (see glossary for definitions) has there been a positive impact;
- Indicate the number of people who have realised a positive impact on their livelihood;
- Using whatever appropriate indicator was used detail what was the average percentage increase recorded

F. Potential (future) poverty impact⁹

22. Where are potential poverty impacts achievable? (max 1,000 words).

Indicate which countries, regions, production system and farming system this output may realistically be used to contribute to both economic growth and poverty reduction. Bearing in my mind definitions of the poverty groups defined in the glossary and gender considerations how will the poor potentially benefit from the widespread application and adoption of the output(s). Furthermore, how will these outputs reduce the vulnerability of different poverty groupings? And are any poverty groups excluded from potential benefits of these outputs. You may wish to justify your claim e.g. following the same format as in question 21 – what, for whom, how many etc.

This section should also indicate what demand exists and how this demand is expressed e.g. demand by users, expressed by proxy, through policy papers, strategic frameworks etc. You may also choose to indicate here how your output(s) may contribute to attainment of the Millennium Development Goals. Any appropriate reference material can be provided in the form of an annex.

G. Potential poverty impact assumptions¹⁰

23. What is needed for the potential poverty impacts detailed above, to be achieved by 2011? (max 500 words)

These could be platforms and processes (i.e. potentially within programme influence) or external conditions (which are likely to be outside the influence of the RIUP). For each country identified where major impacts are realistically achievable detail what type of platforms and processes are needed and to what extent these exist already and what type of external conditions are needed, indicating how likely these conditions will be met.

H. Environmental impact

24. What are the direct and indirect environmental benefits related to the output(s) and their outcome(s)? (max 300 words)

This could include direct benefits from the application of the technology or policy action with local governments or multinational agencies to create environmentally sound policies or programmes. Any supporting and appropriate evidence can be provided in the form of an annex.

25. Are there any adverse environmental impacts related to the output(s) and their outcome(s)? (max 100 words)

26. Do the outputs increase the capacity of poor people to cope with the effects of climate change, reduce the risks of natural disasters and increase their resilience? (max 200 words)

I. Self scoring assessment

⁹ Achievable poverty impact by 2011

¹⁰ The processes, institutions, partners, means, conditions or decisions necessary for achieving the specified impact. This excludes assumptions that are either minor or those very likely to occur anyway.

The final section of the proforma asks you to self-score your output based on the evidence you have provided. Clearly, some outputs will have had more impact, in more places, for more people. Furthermore, some outputs will clearly have the potential to have more impact by 2011, in more places, for more people. The RIUP country strategies need to support those outputs that have the most potential to reduce poverty for the largest number of people. It is much easier to provide this information in the form of scores, supported by text and other information requested within this proforma. A simple four-point scoring system is being adopted here to avoid the mid-point tendency:

A = very high; B = high; C = low and D = very low

You are reminded to be realistic within this self-scoring exercise and that an independent panel will also seek to validate these scores based on the evidence you provide. Please record your scores on the table below.

Criteria for scoring	Questions in proforma to which criteria relate	Your score (enter A, B, C or D)
Extent of validation	10-11	
Current usage	12-15	
Current promotion/uptake pathways	16-19	
Impact on poverty to date	20-21	
Potential future impact on poverty	22-23	

Annex A: List of DFID PSA Countries

The Research into Use Programme is expected to will work in 10-15 focus countries that will be selected from the 25 PSA countries listed below:

East Africa

Ethiopia, Kenya, Rwanda, Sudan, Tanzania, Uganda

Southern Africa

Lesotho, Malawi, Mozambique, South Africa, Zambia, Zimbabwe

South Asia

Afghanistan, Bangladesh, Cambodia, China, India, Indonesia, Nepal, Pakistan, Vietnam

West Africa

DR Congo, Ghana, Nigeria, Sierra Leone

Annex B. Description of Farming Systems (from FAO)

Smallholder Rainfed Humid

The Rainfed Humid Farming Systems are based on smallholder cultivation of root crops, cereals or tree crops. They often contain an important component of livestock and support an agricultural population of approximately 400 million. There is little irrigation. Pressure on land is typically moderate - only 2.5 persons per cultivated ha on average - although there are some areas of intense pressure.

Irrigated

The Smallholder Irrigated Farming Systems are dependent on large-scale irrigation schemes dominated by small-scale farming. This category contains only about 30 million women, men and children who farm about 15 million ha of irrigated land, but it is important for national food security and export earnings in many countries.

Wetland Rice Based

The Wetland Rice Based Farming Systems of East and South Asia, which include a substantial proportion of irrigated land, support an agricultural population of around 860 million. Although bunded rice cultivation is the distinguishing characteristic of these systems, a wide range of other food and cash crops are produced and poultry and livestock are raised for home consumption and sale. These systems depend on the monsoon, but nearly 60 percent of the cultivated land is equipped with irrigation facilities. Relatively little grazing or forest land remains - almost half of land is under annual or permanent crops - and these systems suffer from intense human pressure on the natural resources base, with 5.5 persons per ha of cultivated land.

Smallholder Rainfed Highland

The Smallholder Rainfed Highland Farming Systems in steep and highland areas contain an agricultural population of more than 500 million. In most cases these are diversified mixed crop-livestock systems, which were traditionally oriented to subsistence and sustainable resource management. However, these days they are characterised by intense population pressure on the resources base, which is often quite poor - averaging 3.5 persons per cultivated ha, aggravated by heavy grazing pressure on the four-fifths of the land which is not cultivated. Given the lack of road access and other infrastructure, the level of integration with the market is often low.

Smallholder Rainfed Dry/Cold

The Smallholder Rainfed Dry/Cold Farming Systems in dry or cold low potential areas cover an enormous land area - around 3.5 billion ha - but support a relatively modest agricultural population of around 500 million. These lower potential systems are generally based on mixed crop-livestock or pastoral activities, merging eventually into sparse and often dispersed systems with very low current productivity or potential because of environmental constraints to production.

Dualistic

The Dualistic Farming Systems are characterised by significant contrast, i.e. a mix of large, often commercial, farms together with smallholder farms. This category contains an agricultural population of nearly 200 million and more than 400 million ha of cultivated land in a variety of ecologies, and exhibits diverse production

patterns. Such systems are prevalent in Eastern Europe, Central Asia and Latin America, but can also be found in Africa. All except one are predominantly rainfed systems - the exception being the Irrigated Farming System in Eastern Europe and Central Asia, which is dominated by medium and large farms.

Coastal Artisanal Fishing

The crop component of the Coastal Artisanal Fishing Farming Systems is important for household food security, but the principal livelihood is inshore fishing, with a rapid growth in aquaculture in many parts of the world. Because of infertile soils crop yields are often low. The few areas with fertile soil often face serious risks of storms and floods - as occurs around the Bay of Bengal. Many systems include some tree crop production (e.g. coconut and cashew) and small livestock, especially goats, and poultry.

B List of output proformas collated for RNRRS legacy database

Proforma No.	Title of output/cluster	Related R Nos	Lead organisation
CPP01	Improved maize seed system to meet farmers needs in the southern highlands of Tanzania and similar high potential areas	R8220/R8406, R8422 (CPHP)	ARI-Uyole
CPP02	Sustainable potato seed - tuber management and marketing through commercialisation	R8104 R8435	AT Uganda
CPP03	Commercial incentives for groundnut production and farmer led multiplication	R8442 R8105	AT Uganda
CPP04	Promotion of integrated pest management strategies for Maize grey leaf spot (GLS)	R8453; R7566	CABI-ARC
CPP05	Cocoa ICPM W.Africa	R8448; R8313	CABI
CPP06	Sustainable management of Mikania micranthra in India, focussing on classical biological control	R8229 (or R8228?),R8502	CABI
CPP07	Accelerated uptake and impact of CPP research outputs	R8299, R8219, R8296, R8041, R7813, R7472, R7403, R6764	CABI-ARC
CPP08	Promotion of bean ICPM strategies	R8414,R7965,R7568,R7569,R8316	CIAT
CPP09	Bean root rot disease management	R8478, R8316,R7568	CSL
CPP10	Sustainable potato seed tuber management systems	R8435, R8104,R7856	CSL
CPP11	Management of virus disease of vegetable crops and the promotion of quality kale seed in Kenya	R8312, R8439, R7571	CSL
CPP12	Dissemination of improved crop varieties and crop management practices to improve food security amongst poor farmers in east Africa	R8219/R7405	FIPS Africa
CPP13	Finger millet blast management in East Africa: Creating opportunities for improving production and utilisation through an innovation systems approach	R8445, R8030, R6733	HRI Warwick
CPP14	Increasing food security and improving livelihoods through the promotion of integrated pest and soil management in lowland maize systems Pase II	R8452/R8215	ARI Ilonga, Tanzania
CPP15	Promotion of crop residues for fodder	R8339, R7346, R8296	ICRISAT
CPP16	Simple food safety technologies for health and wealth: Technologies for reducing aflatoxin levels in groundnuts in Asia and sub-Saharan Africa	R8483, R7809, R8279	ICRISAT
CPP17	Promotion of integrated pest management technologies for increasing pigeonpea productivity and livelihood security of smallholder farmers in the semi-arid tropics	R8481, R8205, R7452	ICRISAT & SCRI
CPP18	Managing the BXW pandemic in east and central Africa	R8484	IITA

Annex 3 Outp	out proforma	template and	list of prof	ormas collated
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CPP19	IPM of fruit flies in Asia and Africa	R8440	Imperial College
CPP20	Sweet potato virus resistant cultivars identified through a decentralised farmer participatory approach and promoted disease management and promoted	R8243	NRI
CPP21	Improved learning on sweet potato management through farmer group activity	R8457 R8243,R8458,R8167	NRI
CPP22	Promotion of control measures for cassava brown streak disease	R8227/R8404	NRI
CPP23	Farmer participatory client oriented breeding for disease resistant cassava	R8405/R8302/R7565	NRI
CPP24	Control of cassava mosaic disease	R8456,R 8303	NRI
CPP25	Clean seed yam production systems	R8416,R7503	NRI
CPP26	ICPM for smallholder Arabica coffee in malawi	R8423,R8203	NRI
CPP27	Pheromone traps as an aid to control Maruca vitrata	R8411,R8300,R7441	NRI
CPP28	Dissemination of improved beans	R8415	NRI
CPP29	Facilitating the adoption of direct-seeded rice by smallholders: Sustainable weed management options in the Indo-Gangetic Plains	R8409,R8233,R7377	NRI
CPP30	Direct seeded rice - securing the harvest and raising incomes	R8412,R8234,R7471	NRI
CPP31	Wild rice management strategies	R8477,R8198	NRI
CPP32	Ecologically based rodent management technologies for rice-based systems and small scale rural farming villages	R8424,R8164	NRI
CPP33	Tomato leaf curl virus disease and whitefly, Bemisia tabaci, management	R8425, R8247	NRI
CPP34	Tools, methods and systems to promote and scale-up the adoption of integrated pest management and other improved farm species	R8417, R8341	NRI
CPP35	Development and promotion of high-yielding production of chickpea on cereal fallows: A poverty alleviation technology producing increased income and protein for poor farmers in Nepal	R8427, R8366, R7885	NRI
CPP36	A policy and supporting strategy for the increased generation of wealth and enhanced food security by poor farmers in rain fed cereal systems of south Asia and Africa through the supplemental growing of high yield legumes	R8366	NRI
CPP37	Communication strategy for E.African semi-arid systems	R8428, R8349	NRI
CPP38	Improved technologies for groundnut production in sub Saharan Africa	R7445, R6811	NRI
CPP39	Cotton ICM technology dissemination using the commodity chain	R8403, R8197	NRI

CPP40	Linking demand for agricultural information with its supply	R8429, R8281	NRI
CPP41	Medium and short-term spatio-temporal forecasting of likely breeding areas for the red- billed Quelea	R8426, R7967, R6823	NRI
CPP42	Community based armyworm forecasting (CBAF)control in east and southern Africa	R8407, R7966, R6762	NRI
CPP43	Novel biological control for African armyworm (Spodoptera exempta) using low cost endemic armyworm nucleopolyhedrovirus (NPV)	R8408	NRI
CPP44	Capacity building for biological pesticide registration for Africa	R7960, R8430	IITA
CPP45	Improved pest disease management for irrigated rice systems	R6519, R5243, R5244, R5245	NRI
CPP46	ICOSAMP	R8315, R7890	PPRI - S Africa
CPP47	Coconut lethal yellowing	R8309	Rothamsted Research
CPP48	Improving crop establishment and weed management in both dryland upland and wetland cereal-based systems	R7473	Silsoe
CPP49	Improving research throughout and effective use through capacity strengthening in data management and statistical applications	R8301, R8410	University of Reading
CPP50	Biocontrol of root knot nematodes	R8296	University of Reading
CPP51	Improved seasonal availability of forage by better IPM strategies especially of maize	R7955	University of Reading
CPP52	Improving livelihoods of smallholders through integrated pest and soil fertility management in maize-livestock production systems	R8449/R8212	ICIPE
CPP53	Rapid multiplication and distribution of sweet potato varieties	R8040	BUCADEF
CPP54	Integrated pest management of banana	R8342, R7567, R7529, R7972	CABI
CPP55	Scaling up availability of safe biological pesticides for poor farmers in India and south Asia	R7821, R7295, R7004, R5540	NRI
CPP56	Promotion of current knowledge on pests of coffee in east Africa	R8513	САВІ
CPP57	IPM potato pests in Hilliside system Bolivia	R8443, R8044	PROINPA
CPP58	Methods for linking the supply of technology with the demand from smallholder farmers	R8485, R8182	CIP
CPP59	Rice sheath blight complex	<i>R7778</i>	HRI Warwick
CPP60	Support to SME supplying pheromone control technologies AND promoting policy change for commercial production	R8413,R8304,R7465D	NRI
CPP61	Managing rice pests in B'desh by improving extension service information management for policy and planning	R 8447	САВІ
CPP62	Ecologically based and sustainable rodent control strategies in south Africa	R8441, R8190	PPRI - S Africa

CPP63	Adaptive evolution within Bemesia tabaci and assoctaed begemoviruses	R8222	Rothamsted Research
CPP64	Development of private sector service providers for the horticultural industry in Kenya	R8438, R8297	ICIPE
CPP65	Reducing drudgery and improving returns to annual crop production in Uganda through the promotion of draught animal technologies	R7401	SAARI, Uganda
CPP66	Green manure to control striga	R8436, R8194, R7564	ARI Tanzania
CPP67	Promoting weed management options for cotton-based systems in semi-arid areas of SSA	R8191, R7473, R7474, R6655, R7189, R7440, R5742	University of Zimbabwe
CPP68	Control of armoured bush cricket in southern Africa	R8253, R7428	NRI
CPP69	Good seed initiative (GSI) sharing the learning from CPP programme into pro-poor seed systems in east Africa	R8480	CABI-ARC
CPP70	Components of an improved Brown locust forecasting system for southern Africa	R7779	NRI
CPP71	Developing a sustainable management strategy for Parthenium in India, focussing on biological control technologies	R6695	САВІ
CPP72	Minimising the economic and sociological impact of <i>Phalaris minor</i> in rice/wheat ecosystems	R7331	SAC
CPP73	Non chemical control of banana nematodes in E.Africa	R6580	University of Reading
CPP74	Environmental impact assessment of Quelea bird control	R8314,	NRI
CPP75	Increasing yield and sustainability of banana production by small scale growers through use of improved crop management practices to control the spread and reduce the effect of banana virus disease	R7529, R8342, R7478	NRI
CPP76	Ecology and management of rice hispa (<u>Dicladispa armigera</u>) in Bangladesh	R7891	САВІ
CPP77	Development of pheromones for management of coffee stemborer	R6928, R7246	NRI
CPP78	Striga management in sorghum	R6291, R6654, R7564	NRI
CPP79	Validated molecular diagnostic methods for important bacterial and fungal plant pathogens	R6520	NRI
CPH01	Participatory Market Chain Analysis (PMCA)	R8182 R8418	CIP. Peru
СРН02	Peanut butter processing	R7419	University of Zimbabwe
CPH03	Enhancing rural livelihoods through improving post harvest handling and rice quality in Ghana	R8263 (R7543/ R6331/ R6688/ R6507)	Food Research Institute, Ghana
CPH04	Bambara processing technologies for enhanced rural livelihoods	R8261 (R7581)	Food Research Institute, Ghana
CDHUE	Aflatoxin control	<i>R7809 (ref CPP list)</i>	ICRISAT
CITIOJ	research, industry and user coalition: Sorghum-		

	poultry feed		
CPH06	Mobilising policy systems and stakeholder networks to improve food safety for the urban and peri-urban poor	R7530	University of Sussex
СРН07	Incorporated elsewhere		
CPH08	Supporting farmer organisations for poverty reducing market access	R8275	Imperial College at Wye
CPH09	Participatory approaches to decentralising market access, coordination and competition policies in developing market systems	R7151	Imperial College at wye
CPH10	Improving smallholder farmer market access and profitability through increased productivity, quality, organised storage and participation	R8274 R8498	ARI Kawanda
CPH11	inventory credit schemes (community parliaments)	R8113	KENDAT
CPH12	Principle for enabling partnership-based innovation	R7502/R6306	NRI
CPH13	Policy advice and planning frameworks to help strengthen pro-poor institutional learning and change	R8310 R8500	CRISP
CPH14	Optimising the indigenous use of pesticidial plants	R6501/ R7373	NRI
CPH15	Impact of rodents on rural household food security, health and nutrition	R7372	NRI
CPH16	Back to ethics: Enhancing African ethical trading bodies to export horticulture	R7168 R7468	NRI
CPH17	The development of technologies for the control of mycotoxins in human and livestock feed	R5898 R6091 R6125 R6127	NRI
CPH18	Transforming agricultural marketing and improving access to finance through warehouse receipt systems	R 6344 R7013 R7668	NRI
CPH19	Improved paddy markets for small-scale producers in Bangladesh: An analytical framework	R7496	NRI
CPH20	Agriculture to agri-business: Management systems for high value horticulture	R8271 R8431	NRI
CPH21	Cassava as a commerical industrial commodity	R 6504/ R7418/ R8268	NRI
CPH22	Managing food - COProM Management model for viable markets	R8432	NRI
CPH23	Better grain stores for farmers and traders	R6658 (R6502/ R6684)	NRI
CPH24	Preserving grain quality in long-term storage	R5104	NRI
CPH25	Diversity Response Approach: Sensitising service providers to farmer diversity as exemplified by approaches to better crop storage	R6311 R6684 R7486 R8265	NRI
CPH26	Market information tools: Combining radio and training to facilitate successful farmer group marketing	R8250	NRI
CPH27	Building partnerships for sustainable rural transport development	R8114	NRI

CPH28	Low cost and safe pest control for the storage of cowpea by smallholder farmers	R7442	NRI	
CPH29	Improving the livelihoods of vegetable growersand processors through market promotion of fresh and processed indigenous vegetables	R6964/ R7487	NRI	
CPH30	Improved cassava processing for resource poor households for income generation and to ensure safety	R6332 (not R6630) (R6339)	NRI	
CPH31	Commercialisation of solar drying technologies formicro and small-scale rural enterprise development	R5539	NRI	
CPH32	Improving small-scale extraction of coconut oil:	R6087	NRI	
CPH33	Gross margin analysis and marketing fact sheets for farmer groups and extension staff	R8421	NRI	
CPH34	Cultivars with improved storage root quality	R7520, R6769, R6507	NRI	
CPH35	Diatomaceous Earths: Providing safer options for smallholder grain production	R7034 & R8179	NRI	
CPH36	Improved processing of shea nuts	R6631	NRI	
CPH37	market information tools	R7494	NRI	
CPH38	Safer street and informally vended foods	R7493 R8270 R8433 R8272	NRI	
CPH39	Small scale starch extraction and storage to improve process efficiency	R6316	NRI	
CPH40	Maximising the potential of fresh sweetpotato for farmer and trader income	R7498	NRI	
CPH41	Commercialisation of traditional processed cassava production to maximise benefits and sustain rural livelihoods	R7495	NRI	
CPH42	Larger Grain Borer (Prostephanus truncatus) risk assessment and control in maize stores	R6684		
CPH43	A marketplace for agricultural information services (MPAIS) in Uganda	ZB0380	NEDWORC	
CPH44	Sweet potato technologies for food markets and renewable energy	R8273	PRAPACE	
CPH45	Knowledge management	R8402	Step Systems Ltd	
CPH46	Maize Innovation Systems Opportunities (MISO): Improving access to quality information and products for maize innovation systems	R8422	ARI Uyole	
CPH47	Improving the domestic and export marketing system for yams in Ghana	R6505/R7582	NRI	
PSP01	Dry season crops for replacing rice fallows in Nepal	R8221	CAZS-NR	
PSP02	Participatory varietal selection in rice - Improved rice variation for rainfed upland (BG1442 Sarwati), medium land (Pant Dhailo) Rampur, Masuli and lowlands (Swama) for the terai regional of Nepal	R8221	CAZS-NR	
PSP03	Participatory varietal selection in wheat - improved varieties for Gujarat, India	R6748	CAZS-NR	
PSP04	Participatory varietal selection in finger millet- improved varieties for Karnataka India	R7324	CAZS-NR	
PSP05	Participatory varietal selection in <i>Rabi</i> sorghum - improved varieties Phula yashoda, Mauli and Parbhari Moti for India	R7409	CAZS-NR	
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PSP06	Participatory crop improvement, rice, Ghana	R6826 and R7657	University of Reading	
PSP07	Participatory varietal selection in chickpea - improved varieties for rainfed agriculture in Western India	Prog dev	CAZS-NR	
PSP08	Participatory varietal selection - Rainy season legumes - improved agronomy and improved varieties for India	Prog development	CAZS-NR	
PSP09	PVS in maize - improved varieties for India (JVM21) and the mid hills of Nepal (Maria Kamena 3)	Prog dev and R7281	CAZS-NR	
PSP10	Rice varieties for eastern India	R8099	CAZS-NR	
PSP11	PVS chickpea Bangladesh	R8269	CAZS-NR	
PSP12	PVS and COB in rice - improved varieties for the rainfed lowlands of Bangladesh	R8269	CAZS-NR	
PSP13	Better rice varities by client-oriented breeding (COB) in Nepal	R7122, R8071 & R8099	LI-BIRD	
PSP14	COB rainy season legumes - improved varieties of blackgram and horsegram in Western India	Prog dev	CAZS-NR	
PSP15	COB maize - improved varieties, GH-6 for western India and BVM2 for eastern India	R8099 and Prog dev	CAZS-NR	
PSP16	COB in rice - improved varieties for rainfed, drought-prone ecosystems in eastern and western India	R7434, R8099 & Prog Dev.	CAZS-NR	
PSP17	COB chickpea and horsegram - improved varieties for eastern India	Prog dev	CAZS-NR	
PSP18	Genetically engineered rice free of selectable marker gene	R7415 and R7548	JIC	
PSP19	Genetically engineered resistance to rice nematodes	R6453 R6948 R7294 R8031	University of Leeds	
PSP20	Genetically engineered resistance to banana nematodes	R6743 and R3081	JIC	
PSP21	Genetically engineered resistance to potato nematodes	R6380 R7548 and R8031	University of Leeds	
PSP22	Molecular marker assisted rice breeding	R6673 R7080 R7434 R7435 R8200 R8089	CAZS-NR	
PSP23	Genetic improvement of pearl millet seedling intolerance and terminal drought tolerance	R6451 and R7375	IGER	
PSP24	Marker assisted breeding of disease resistant versions of farmer-preferred pearl millet hybrids	R6667 R6951 R7382 R7379 R8183	ICRISAT	
PSP25	Seed priming rice West Africa and Asia	R7438	CAZS-NR	
PSP26	Seed priming legumes in South Asia	R6395 R7438	CAZS-NR	
PSP27	Seed priming in wheat, barley, sorghum, pearl- and finger millet in South Asia and Africa	R6395 R7438	CAZS-NR	
PSP28	Seed priming to improve drought resistance	R6395	CAZS-NR	
PSP29	On-farm' seed priming to improve disease resistance in mungbean and chickpea	R7540 R7438	CAZS-NR	
PSP30	On-farm' seed priming to improve plant nutrition in low fertility soils	R7438 R8221 R8269	CAZS-NR	
PSP31	Transplanting sorghum and pearl millet in semi- arid regions.	R7341	CAZS-NR	
PSP32	Intercropping of smallholder plantation tree crops	R7002 R7212	CAZS-NR	
PSP33	Concepts and opportunities of participatory varietal selection (PVS)	na	CAZS-NR	
PSP34	Concepts and opportunities of client orientated breeding (COB)	na	CAZS-NR	
PSP35	Double cropping in rice-fallow systems of south Asia	R8098 R8221 R8269	CAZS-NR	
PSP36	Concepts and opportunities of community-based seed production (CBSP) for sustainable seed supply system in Nepal	na	CAZS-NR	

PSP37	Agroforestry on rice bunds, farm boundaries and marginal bunds in low altitude areas of Nepal		CAZS-NR
NRSP01	Participatory Action Plan Development for NRM and rural development - utilising and building	R7562	Roger Lewins Independent
	consensus	(R8223; R8103)	
		R8195	
		(K0493)	
NRSP02	Incorporated into NRSP01		
NRSP03	Better options for integrated floodplain management: uptake promtion in Bangladesh	R8306; R8495; R8195; R8223; R6756: R7562; R7866; R8306; R8486	CNRS, Bangladesh
NRSP04	Community-led mecahism		University of Leeds
NRSP05	Scaling-up strategies for pilot research experiences - a comparative review	R7865	Sabine Gundel Independent
NRSP06	Field methods to assess the extent and impact of land degradation in the context of local livelihoods	R6525	Overseas Development Group
NRSP07	Communication and advocacy for pro-poor coastal resource management and development	R8317	Caribbean Natural Resources Institute (CANARI)
NRSP08	Analysing trade-offs for resilence in resource management	R7408; R6919	Overseas Development Group
NRSP09	MPA guidelines	<i>R7976</i>	University College London
NRSP10	Achieving alternative livelihood strategies	R8325	University of West Indies, Trinidad
NRSP11	Strategy for the management of agrochemicals	R7668	MRAG Ltd
NRSP12	Rainwater harvesting for upgrading and stabilising rainfed agriculture in semi-arid areas	R7888	ASARECA
NRSP13	Rainwater harvesting and management	R8088	Sokoine University of Agriculture
NRSP14	Rainwater harvesting and management of common pool resources	R8116	Sokoine University of Agriculture
NRSP15	Institutional scaling-up and uptake promotion of outputs from soil and water management research in east and central Africa	R8381	ASARECA
NRSP16	Enhancing livelihoods and income through integrated land management and credit provision	R7962	Imperial College at Wye
NRSP17	Strengthening social capacity for improving governance of natural resources in highlands of eastern Africa	R7856; R8494	CIAT, Uganda
NRSP18	Partnerships and empowerment: Scaling up irrigated gardens in the semi-arid communal areas of southern Africa	R7304	Shanduko
NRSP19	Informing the policy process: Decentralisation and environmental democracy in Ghana	R8258	University of Ghana
NRSP20	Integration of participatory technology developed into research and extension	R7446	University Wales, Bangor
NRSP21	Developing and promoting mechanisms for the delivery of improved rural services	R8334	STREAM
NRSP22	Scaling-up through communication	R8363	STREAM
NRSP23	Strategies for participatory irrigation management and multiple water use support by	R7830	GYA Associates
	interactive decision support tools	(R7839)	

NRSP24	Common pool resource management and poverty	R7973	University of Cambridge
		(R8280)	
NRSP25	Forest CPR management and use in Nepal: Hills	R7889 and R7975	Oliver Springate_Baginski
NRSP26	Incorporating local knowledge in participatory technology developed of soil and water management interventions in the middle hills of Nepal	R7412	University Wales, Bangor
NRSP27	Market orientation and value enhancment (MOVE) supporting sustainable livelihoods for the poor	R8084 Hubli Dharwad, India	University Wales, Bangor
NRSP28	Supporting innovation - West African Peri-urban Poverty Policy Platform (WAPPPP)	R8090 Kumasi, Ghana	CEDEP
NRSP29	Participatory Action Planning and Implementation (PU - PAPI)	R8365 Calcutta, India	University of Essex
NRSP30	Community mobilisation for self sustaining development in Africa and Asia	R8084 Hubli Dharwad, India	University Wales, Bangor
NRSP31	Participatory planning and implementation	R8084 Hubli Dharwad, India	University Wales, Bangor
NRSP32	Less poverty for rural to urban change	R8491	University College London
NRSP33	Scaleable and sustainable community-level institutions that facilitate livelihood improvement for the poor and the extreme poor		
NRSP34	Forest CPR management and use in Nepal: Terai	R7889 and R7975	Oliver Springate_Baginski
AHP01	Sleeping sickness for identification Diagnostics and infective trypanosomes in cattle blood differentiation of African trypanosomes	R7596 R8318	CTVM with Livestock Health Research Institute, Uganda
AHP02	Control of zoonotic sleeping sickness by treatment of domestic livestock	R7596 R8318	CTVM with Livestock Health Research Institute, Uganda
AHP03	Rabies Design of rabies control programmes for domestic dogs	R5406	CTVM with Sokoine Unviersity of Agriculture, Tanzania
AHP04	Identification of risk factors for TB/Brucellosis and dissemination of messages to at risk populations	R7229, R7357	CTVM with Sokoine Unviersity of Agriculture, Tanzania
AHP05	Integrated tsetse control Tsetse plan, an interactive computer program that provides expert assistance to help NGOs and farmers groups plan tsetse control campaigns	R7173, R7987	NRI
AHP06	Control of worms in goats in southern Africa Development and dissemination of strategies for controlling nematodes in goats	R6608, R8151	Onderstepoort Veterinary Institute, South Africa with CTVM
AHP07	Decision support for diagnosis Effective decision supoprt tools for diagnosis of endemic diseases in SSA	R7596, R7597	CTVM with Livestok Health Research Institute, Uganda
AHP08	Delivery of research findings African Universities Veterinary e-learning Consortium (AUVEC) Transforming existing animal health and production research outputs into interactive continuing professional development (CPD) modules to support in practice training of animal healthcare professionals	R7597, R7596, R8151, R8022, R8208, R8042, R7173, R7987, R7229, R7357, R5406, R7596, R8318	AUVEC
AHP09	Information kiosks in India Assessing and meeting the information demands of poor livestock keepers	R8152, R7359, R8213	University of Reading

Annex 3 Output proforma template and list of proformas collated

AHP10	Influencing policy for zoontic disease control through generation and dissemination of research findings: Zoonotic sleeping sickness - a case study	R7596, R8318	CTVM with Makerere University Veterinary Faculty, Uganda and Livestock Health Institute, Uganda	
AHP11	Delivery of research findings African Universities Veterinary e-learning Consortium (AUVEC) - a network for developing and delivering appropriate learning opportunities to animal health professionals	R7597, R7596, R8151, R8022, R8208, R8042, R7173, R7987, R7229, R7357, R5406, R7596, R8318	AUVEC	
AHP12	Delivery of research findings African Universities Veterinary e-learning Consortium (AUVEC) Creation of a common e-learning framework to develop, deliver and share learning resources	R7597, R7596, R8151, R8022, R8208, R8042, R7173, R7987, R7229, R7357, R5406, R7596, R8318	AUVEC	
AHP14	Infect and treat method (ITM) for ECF control A pro-poor vaccine against ECF	R8022, R8208, R8042	ILRI	
AHP15	Integrated tsetse control Tsetse muse, an interactive computer program designed to help planners develop cost-effective strategies for controlling tsetse	R7173, R7987	NRI	
LPP01	Smallholder dairying toolbox	ZC0261	Stirling Thorne Associates	
LPP02	Optimising knowledge and information transfer - Novel approaches for stimulating innovation as a poverty reduction entry-point	R7431, R7855	Stirling Thorne Associates	
LPP03	Conserved forage in the form of bagged silage maintains livestock productivity through the dry season in SSA	R7010	Marion Titterton	
LPP04	Adoption of planted forages for smallholder dairying in Kenya	R6153 R5732	ILRI	
LPP05	Manual boxbaling of maize stover and other dry forages to facilitate transport, storage and feed budgeting	R6619		
LPP06	Self selection and other methods to improve quality of fibrous crop residues (cereal stover and straw) as stall-feed for ruminants	R5188		
LPP07	Clustered with LPP08			
LPP08	Leguminous forages and feed blocks for smallholder mixed farms and landless dairy producers in Bangladesh	R6610	BAU	
LPP09	Draught Animal Power Toolbox	ZC0204	KENDAT	
LPP10	OXFEED: Practical decision support tool to improve the feed management of ruminant work animals	R7376 ZC0257	Stirling Thorne Associates	
LPP11	The use of radio programmes to promote donkey welfare	ZC0235	KENDAT	
LPP12	Improved management and use of draught animals in the Andean hill farming systems in Bolivia (Prometa-CIFEMA)	R6970	Brian Simms Independent	
LPP13	Indigenous and biological knowledge integration for improved dry season feeding strategies in hill farms in Nepal	R7637	University of Wales, Bangor	
LPP14	Restricted insecticide application for tsetse control	R7539	NRI	
LPP15	Improved soil and water conservation practices in hillside production systems in the Andean valleys of Bolivia	R6621	Brian Simms Independent	

LPP16	The role of tanniniferous tree products for improved livestock productivity in semi-arid regions	R7798, R7424, R7351, R6954		
LPP18	Improving information and communication for smallholder farmers		FARM-Africa	
LPP19	Community based goat productivity improved under smallholder production systems using the FARM Africa model	R7634	FARM-Africa	
LPP20	Alternative strategies for small livestock keepers in forest margins	R6774	NRI	
LPP21				
LPP22	Restocking pastoralists - A manual of best practice and decision support tools	R7402	University of Reading	
LPP23	Environmental variability and productivity of semi-arid grazing systems	R6984 & R8476	University of Edinburgh	
LPP24				
LPP25	Livestock Guru	ZC0262	University of Reading	
LPP30	El Promotor and Daktari wa Mifugo: Demand- led interactive learning software for poor livestock keepers in Bolivia and Kenya	ZC0262	University of Reading	
LPP26	Networking as a tool to disseminate information and training manuals	ZC0289	University of Nottingham	
LPP27	Participatory livestock research	ZC0208	NRI	
LPP28	Methodologies for development of appropriate extension messages and communication pathways	R7425	Need-to-know Ltd	
LPP29	Voices of the poor	R8213 & ZC0177	ICRAF	
LPP30	Urban livestock keeping practices and legislation	Programme Development	Various	
FMSP01	Simple empirical models for lake and river fishery assessment	R5030 & R6178 cross ref. R5485	MRAG Ltd	
FMSP02	Improving policy for fishery management: maximising potential for economic growth and poverty reduction	R8118, R8196, R8467 Policy briefs R7334, R8294, R7336, R6338CB	MRAG Ltd	
FMSP03	Vulnerability of fisheries and fisher communities to climate variation: adaptation and policy responses	R4778J, R8475	MRAG Ltd	
FMSP04	Participatory fisheries monitoring: transparency, sustainability and improvement	R7042, R8285, R8462 (cross ref: R8397, R8464 & R7834)	MRAG Ltd	
FMSP05	How to assess and manage a fishery: A collection of tools for fish stock assessment and developing management plans	R4517, R5050, R6465, R7041, R8360, R8468	MRAG Ltd	
FMSP06	Managing fisheries with limited data: technical and participatory approach	R6437, R7947, R8397, R8464 (cross ref: R8292, R8470, R8468)	MRAG Ltd	
FMSP07	Adaptive co-management: Supporting co- managed fisheries	R7335, R8292, R8470 (cross ref: R8462, R8470, R8468)	MRAG Ltd	
FMSP08	Optimal control of foreign fishing through improved fisheries governance	R4775, R5049CB, R8463	MRAG Ltd	
FMSP09	Tools for managing floodplain fisheries	R5485, R5953, R6494, R7043, R8210, R8486	MRAG Ltd	

FMSP10	Fisheries Enhancement Decision Support Tools	R5023, R5958, R8469 (cross ref: R7335, R8292)	MRAG Ltd	
FMSP11	Fish agregating devices (FADs) for enhancing coastal artisanal fisheries	R4777, R8394, R8331	MRAG Ltd	
FMSP12	Training courses in fisheries stock assessment and management	R4778, R8360, R8464, R8468	MRAG Ltd	
AFGP01	Partnerships in aquatic seed: Developing quality seed networks for diversified and profitable aquaculture	R7590, R7591, R7052, R6070, R6069cb, R6059, R6058	University of Stirling	
AFGP02	Short-crop aqautic production	R7100, R7052	University of Stirling	
AFGP03	Local aquatic food for cities	R8287, R8286	University of Stirling	
AFGP04	Integrated aquatic production for rural livelihoods	R7100, R7064, R8286, R7917	University of Stirling	
AFGP05	New strategies for aquatic animal health management	R8093, R7463, R8119, R7054, R7051, R6426	University of Stirling	
AFGP06	Development opportunities from aquaculture market quality network	R8286, R8287	University of Stirling	
AFGP07	Livelihood gains from informed aquaculture markets	R8286	University of Stirling	
AFGP08	Aquaculture production reaching home markets		University of Stirling	
AFGP09	Networks for genetic management for biodiversity and production gain to meet food supply and environmental quality goals in aquaculture and stocked fisheries	R7590, R7284	University of Stirling	
AFGP10	Promoting opportunities for sustainable coastal aquaculture	R8288, R8094, R7100, R4443	University of Stirling	
PHF01	Post Harvest Livelihoods Assessment Tool (PHLAT)	<i>R8111</i>		
PHF02	Incorporated elsewhere			
PHF03	Incorporated elsewhere			
PHF03 PHF04	Incorporated elsewhere A guide to the analysis of fish marketing systems using a combination of sub-sector analysis and the sustainable livelihoods approach	R7969	NRI	
PHF03 PHF04 PHF05	Incorporated elsewhere A guide to the analysis of fish marketing systems using a combination of sub-sector analysis and the sustainable livelihoods approach Incorporated in PHF08 & PHF09	R7969	NRI	
<i>РНF03</i> РНF04 <i>РНF05</i> <i>РНF06</i>	Incorporated elsewhere A guide to the analysis of fish marketing systems using a combination of sub-sector analysis and the sustainable livelihoods approach Incorporated in PHF08 & PHF09 Incorporated in PHF08 & PHF09	R7969	NRI	
PHF03 PHF04 PHF05 PHF06 PHF07 PHF02	Incorporated elsewhere A guide to the analysis of fish marketing systems using a combination of sub-sector analysis and the sustainable livelihoods approach Incorporated in PHF08 & PHF09 Incorporated in PHF08 & PHF09 Encorporated in PHF08 & PHF09 Encorporated in PHF08 & PHF09 Encorporated in PHF08 & PHF09	R7969	NRI	
PHF03 PHF04 PHF05 PHF06 PHF07 PHF08 PHF02	Incorporated elsewhere A guide to the analysis of fish marketing systems using a combination of sub-sector analysis and the sustainable livelihoods approach Incorporated in PHF08 & PHF09 Incorporated in PHF08 & PHF09 Fishloss Assessment and reduction - field based methodology Fishlos F	R7969 R5027/ R6817/ R7008	NRI NRI NRI	
PHF03 PHF04 PHF05 PHF06 PHF07 PHF08 PHF09	Incorporated elsewhere A guide to the analysis of fish marketing systems using a combination of sub-sector analysis and the sustainable livelihoods approach Incorporated in PHF08 & PHF09 Incorporated in PHF08 & PHF09 Incorporated in PHF08 & PHF09 Fishloss Assessment and reduction - field based methodology Fishloss: Electronic tools for fish loss assessment and reduction	R7969 R5027/ R6817/ R7008 R5027/ R6817/ R7008	NRI NRI NRI NRI	
PHF03 PHF04 PHF05 PHF06 PHF07 PHF08 PHF09 PHF10	Incorporated elsewhere A guide to the analysis of fish marketing systems using a combination of sub-sector analysis and the sustainable livelihoods approach Incorporated in PHF08 & PHF09 Incorporated in PHF08 & PHF09 Incorporated in PHF08 & PHF09 Fishloss Assessment and reduction - field based methodology Fishloss: Electronic tools for fish loss assessment and reduction Sensitive polymerase chain reaction (PCR) based detection of aquatic vibrios	R7969 R7969 R5027/ R6817/ R7008 R5027/ R6817/ R7008 R5793	NRI NRI NRI NRI NRI NRI	
PHF03 PHF04 PHF05 PHF06 PHF07 PHF08 PHF09 PHF10 PHF11	Incorporated elsewhere A guide to the analysis of fish marketing systems using a combination of sub-sector analysis and the sustainable livelihoods approach Incorporated in PHF08 & PHF09 Incorporated in PHF08 & PHF09 Incorporated in PHF08 & PHF09 Fishloss Assessment and reduction - field based methodology Fishloss: Electronic tools for fish loss assessment and reduction Sensitive polymerase chain reaction (PCR) based detection of aquatic vibrios Guidelines on using a systems based approach to control blowfly infestation of traditionally processed fish	R7969 R7969 R5027/ R6817/ R7008 R5027/ R6817/ R7008 R5793 R7971	NRI NRI NRI NRI NRI The Grimsby Institute of Further and Higher Education	
PHF03 PHF04 PHF05 PHF06 PHF07 PHF08 PHF09 PHF10 PHF11 PHF12	Incorporated elsewhere A guide to the analysis of fish marketing systems using a combination of sub-sector analysis and the sustainable livelihoods approach Incorporated in PHF08 & PHF09 Incorporated in PHF08 & PHF09 Incorporated in PHF08 & PHF09 Fishloss Assessment and reduction - field based methodology Fishloss: Electronic tools for fish loss assessment and reduction Sensitive polymerase chain reaction (PCR) based detection of aquatic vibrios Guidelines on using a systems based approach to control blowfly infestation of traditionally processed fish A review of insect infestation of traditionally cured fish in the Tropics	R7969 R7969 R5027/ R6817/ R7008 R5027/ R6817/ R7008 R5793 R7971 R6824	NRI NRI NRI NRI NRI The Grimsby Institute of Further and Higher Education The Grimsby Institute of Further and Higher Education	
PHF03 PHF04 PHF05 PHF06 PHF07 PHF08 PHF09 PHF10 PHF11 PHF12 PHF13	Incorporated elsewhere A guide to the analysis of fish marketing systems using a combination of sub-sector analysis and the sustainable livelihoods approach Incorporated in PHF08 & PHF09 Incorporated in PHF08 & PHF09 Incorporated in PHF08 & PHF09 Fishloss Assessment and reduction - field based methodology Fishloss: Electronic tools for fish loss assessment and reduction Sensitive polymerase chain reaction (PCR) based detection of aquatic vibrios Guidelines on using a systems based approach to control blowfly infestation of traditionally processed fish A review of insect infestation of traditionally cured fish in the Tropics Cleanse it, Ice it and Log it	R7969 R7969 R5027/ R6817/ R7008 R5027/ R6817/ R7008 R5793 R7971 R6824 R6959/ R5027/ R6817/ R7008	NRI NRI NRI NRI NRI NRI The Grimsby Institute of Further and Higher Education The Grimsby Institute of Further and Higher Education The Grimsby Institute of Further and Higher Education The Grimsby Institute of Further and Higher Education	
PHF03 PHF04 PHF05 PHF06 PHF07 PHF08 PHF09 PHF10 PHF11 PHF12 PHF13 PHF14	Incorporated elsewhere A guide to the analysis of fish marketing systems using a combination of sub-sector analysis and the sustainable livelihoods approach Incorporated in PHF08 & PHF09 Incorporated in PHF08 & PHF09 Incorporated in PHF08 & PHF09 Fishloss Assessment and reduction - field based methodology Fishloss: Electronic tools for fish loss assessment and reduction Sensitive polymerase chain reaction (PCR) based detection of aquatic vibrios Guidelines on using a systems based approach to control blowfly infestation of traditionally processed fish A review of insect infestation of traditionally cured fish in the Tropics Cleanse it, Ice it and Log it Globalisation and seafood trade legislation: The effect of poverty in India	R7969 R7969 R5027/ R6817/ R7008 R5027/ R6817/ R7008 R5793 R7971 R6824 R6959/ R5027/ R6817/ R7008 R7970	NRI NRI NRI NRI NRI The Grimsby Institute of Further and Higher Education NRI	

FRP02	Silvicultural prescriptions for mahogany plantation establishment under nurse crops	R6697	<i>Queensland Department of Primary Industry (QDPI)</i>	
FRP03	Use of baculovirus control agents within an integrated pest management strategy against teak defoliator, <i>Hyblaea puera</i> , in India	R6295	Forest Research Alice Holt Lodge	
FRP04	Genetic improvement of Calliandra calothyrsus Phase II	R6535 (R5728)		
FRP05	Enriching livelihoods in drylands, though improved management, utilisation and marketing of Prosopis - producing green products from greened deserts	R7295	Agroforestry Enterprises	
FRP06	Understanding the traditional patterns of multipurpose seed exchange and use in small farm communities	R6054	University of Oxford	
FRP07	Non-industrial tree species uptake and seed disposal	R6551	University of Oxford	
FRP08	Capturing botanical knowledge in building foundations for a sustainable and bodiverse future	R7276	University of Oxford	
FRP09	Tree species for farmers: Offering sustainable management options (TREEOPTIONS)	R7588	University of Oxford	
FRP10	Integrated control of Leucaena psyllid	R6524	CABI Africa Regional Centre	
FRP11	African acacias - information resources	R7275	University of Oxford & University Wales, Bangor	
FRP12	Agroforestry manual for illiterate women	R6072	Independent	
FRP13	Sustainable community forest management and carbon sequestration in indigenous communities in Chiapas,	R6320 (R7274)	Edinburgh Centre for Carbon Management	
FRP14	Mexico Sustainable management of Miombo woodland by local communities in Malawi	R6709	FRIM	
FRP15	Practical guidelines for economic analysis of local user incentives and equity in participatory forest management (PFM) projects and policies	R6914	Independent	
FRP16	Participatory forest management in Nepal	R6918	Kasetsart University	
FRP17	Review of participatory forest management (PFM) support processes: Promoting Pro-Poor PFM Policy and Promotion in Nepal and India	R8101	Independent	
FRP18	A practical manual or toolkit for forest concessionaries on the implementation of international forestry standards	R6370E	ProForest	
FRP19	Ethical Trade and Forest Livelihoods (ETFL) - helping producers and harvesters to access ethical markets in forest products	R7285	NRI	
FRP20	Certification of small forest enterprises	R7589	ProForest	
FRP21	Pro poor strategies for agroforestry development based on new partnerships, novel uses for tree fodder and "optimised" tree planting pattern	R5398	Biodiversity International Limited	
FRP22	A knowledge based systems approach to interdisciplinary research on tree fodder	R6322	University Wales, Bangor	
FRP23	Agroforestry modelling and co-ordination Phase II	R6348 (R5651, R7342, R5810)	NERC	
FRP24	Integrated use of agroforestry models	R7635 (R5651, R6348, R7315)	University Wales, Bangor	
FRP25	International pilot greenhouse gas bubble for forests	R7274 (R6320)	Edinburgh Centre for Carbon Management	
FRP26	Rural livelihoods and carbon management	R7374	IIED	
FRP27	Modelling and measuring N and C dynamics in agroforestry systems in the humid tropics	R6523 (R6364)	Hohenhiem University formerly Imperial College at Wye	

FRP28	On-farm research for the development and promotion of improved agroforestry systems for	R6290 (R4611, R4742)	University Wales, Bangor
	steeplands in the Caribbean	(
FRP29	Incorporated into FRP31	R7937	University of Newcastle upon Tyne
FRP30	FIESTA (Fog Interception for the Enhancement of Streamflow in Tropical Areas) Fog Delivery Model [PART A ONLY}	R7991 (R8174)	Kings College, London
FRP31	FRP FLOWS research cluster on the management of upeer water catchments	R8171 (R7991)	University of Newcastle upon Tyne
FRP32	Socio-economic aspects of catchment hydrology	R8174	CINPE, Universidad Nacional de Costa Rica
FRP33	Dipterocarp manuals for foresters	R6512 (R5650)	Independent
FRP34	Impact of harvesting on forest mortality and regeneration in high forest zones and guidelines for sustainable forest management	R6716	Living Resources Limited
FRP35	Local Applications of Remote Sensing Technologies - LARST Tools	R6326 (R5072)	Flasse Consulting Limited
FRP36	Humid and semi-humid tropical forest yield regulation	<i>R7278</i>	Independent
FRP37	Participatory assessment, monitoring and evaluation of biodiversity (PAMEB)	R7475	University of Oxford
FRP38	Participatory science for sustainable forest harvests	R8295	University of Oxford
FRP39	Developing biometric sampling systems and optimal harvesting methods for medicinal tree barks in southern Africa	R8305	Wild Resources Ltd
FRP40	Position paper on the biometris of assessment of NTFPs	Programme Development	Wild Resources Ltd
FRP41	Mopane worm farming: a new mini-livestock system (MWF)	R7822	Independent
FRP42	Commercialisation of non-timber forest products: Factors influencing success (CEPFOR)	R7925	Traffic International
FRP43	Scaling up the promotion of fodder shrubs in east Africa	R6549 (R6535, R5732)	CABI
FRP44	Promoting selected tropical fruit trees through dissemination of information and improved livelihoods through the development of small- scale fruit processing enterprises in Africa		ICUC
FRP45	User-friendly field botany: Activating new ways for the flora to reduce poverty	R7367	University of Oxford
FRP46	Empowering the rural poor to communicate with and influence government	R6297	NRI

Annex 3 Output proforma template and list of proformas collated

Annex 4 Breakdown of financial expenditure – Research Into Use Programme

	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	-
Figures in £	Actual	Actual	Actual	Actual	Actual	Actual	Actual	TOTAL
Inception Phase	4,819,384	607,280						5,426,664
Implementation Phase								
Africa Country Programmes		663,322	1,735,028	2,404,970	2,647,214	1,436,134	154,645	9,041,313
Non-specific set-ups/Capacity building		663,322	16,968	160,388	-9,039			831,639
Nigeria			154,572	593,878	389,937	355,506	45,804	1,539,697
Sierra Leone			297,929	377,601	400,540	74,519		1,150,589
Rwanda			238,434	328,116	306,069	377,733	108,841	1,359,193
Malawi			460,157	41,213	335,299	60,729		897,398
Zambia			173,233	294,770	362,466	74,693		905,162
Tanzania			393,735	609,004	861,942	492,954		2,357,635
Asia ICE		315 791	1 236 739	1 802 093	763 560	290 989		4 409 171
Cluster 1 Participatory Gran Improvement		515,751	1,230,735	1,002,055	703,500	250,505		4,405,171
CAZS (Bangor), LI-BIRD, FORWARD			244,071	483,529	-386			727,214
Cluster 2 Value Chain Innovation								
IDE			75,737	157,450	168,823			402,010
ICUC			50,718	163,705	70,902	62,739		348,063
RDRS			75,107	171,607	101,622	51,181		399,518
Cluster 3 Innovation in NRM								
Forest Action			34,143	55,660	31,234	10,444		131,481
BELA			73.603	107.196	149.907	72.982		403.689
Cluster A Other			-,			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
			142 466	125 251	127 222	14.040		410 990
AID-COMILLA			143,400	123,231	127,232	14,940		410,889
BFRF			49,371	72,166	21,288	21,795		164,620
GYA Ltd			161,286	162,870	87,876	28,497		440,529
development and closed projects		315.791	329,236	302.659	5.061	28.410		981.158
		515,751	523,230	502,055	5,001	20,110		501,150
De at De te		156 413	177 220	1 012 052	4 363 430	2 824 454	FFF 433	0 700 704
Dest Dets		150,412	177,239	1,813,033	4,302,429	5,834,434	-555,425	9,788,784
Programme aevelopment		156,412	177,239	296,871	2,131,368	1,376,520	-1,663,618	2,474,792
FIPS Africa				/3,4/1	195,460	332,250	125,168	726,349
Shujaaz (Well Told Story)				63,334	125,415	149,801	106,958	445,508
Stop Striga (Real IPM)				90,108	192,086	119,579	1,617	403,391
BCAs Ghana (Real IPM)					261,134	170,417	15,171	446,723
Aquashops (FARM Africa)				75,000	93,781	219,935	59,257	447,973
Armyworm control (EcoAgri/CABI)				116,518	194,671	294,757	107,693	713,639
NERICA (CABI)				59,366	69,378	43,596		172,339
Control of Sleeping Sickness (UoE)				734,934	481,283	382,676	402,770	2,001,663
Clean vam seed (MSHR)					44.484	82.832	2.684	130.000
Participatory Gran (mprovement (Aria)				204.051	572.260	663.001	296.976	1 026 207
Purticipatory crop improvement (Asia)				304,031	373,309	002,091	280,870	1,820,387
Other Phase 1 costs		59,311	151,640					210,951
Pilot Programme Rwanda						234,048	705,952	940,000
Development Impact Bond							157,981	157,981
OUTPUT 2								
MIL - IOD		259,843	735,680	86,478				1,082,001
Impact Evaluation -IOD		546.565	1.524.087	487.370				2.558.022
Independent Review			7- 7-		585 392	145 406	8 925	739 722
Impact Evaluation -KIT					565,552	22 126	296 869	220.005
						25,150	290,809	320,003
Influencing the agenda		229,140	151,640	177,989	-23		100,000	658,746
Communications		378,363	417,844	358,561	330,030	119,843	4,810	1,609,451
Central Research Team				387,886	558,958	265,627	-9,675	1,202,796
Management								
NIDA		180,350	308,033	27,859				516,242
IOD		114.511	127.042	48.886				290.439
NRII		581 217	572 189	582 829	476 678			2.212 912
		551,217	5.2,105	176 945	485 092	385 255	168 990	1 217 070
001				110,043	-05,502	505,555	100,003	1,217,070
				0.000				
TOTALS		4,092,105	7,137,160	8,355,417	10,210,219	6,734,990	1,032,974	42,382,249

Annex 5. THE RIU SOUTH ASIA PROJECT PORTFOLIO

The following provides a brief description of the South Asia projects:

Cluster 1: Participatory Crop Improvement in Asia

(i) Improving Livelihoods in South Asia through Sustained Access to New Technologies in Rainfed Agriculture (India)

This initiative, led by the Centre for Arid Zone Studies (CAZS), Bangor, UK, focuses on promoting the uptake of upland varieties developed through Participatory Crop Improvement in Central and Eastern India. It partners with two NGOs — namely, Gramin Vikas Trust (GVT) and Catholic Relief Services (CRS) — to disseminate these seeds widely. It focuses on strengthening the capacity of seed producer groups, with the main mechanism deployed being the grain cash seed bank. The initiative is now planning to set up a producer company to commercially produce and market quality seed evolved through Participatory Crop Improvement.

(ii) Poverty Reduction through Crop Intensification into Rice Fallows in Nepal

This initiative led by the Forum for Rural Welfare and Agricultural Reform for Development (Forward) — an NGO in Nepal — focuses on promoting rice and legume seeds developed through Participatory Crop Improvement by strengthening the capacity of community-based seed producer groups to produce these seeds and then disseminating these seeds as small kits. In this project, it partners with another NGO — Local Initiatives for Biodiversity Research and Development (Li-Bird) — and CAZS, Bangor. Forward has now set up a seed company called Global Agritech Nepal Private Limited (GATE) to produce and market these seeds.

(iii) New Rice and Legume seed from Client-Oriented Breeding (Nepal)

The NGO Li-Bird leads this initiative in collaboration with Forward and CAZS. It also has similar objectives, such as strengthening community-based seed producers and achieving the wider dissemination of seeds developed through Participatory Crop Improvement as seed kits. Li-Bird has also established a seed company, called the Anmolbiu Seed Company Private Limited, to produce and market quality seeds of rice and other crops produced.

Cluster 2: Value Chain Innovation

(i) Linking Farmers with Markets for Rural Prosperity

This initiative, led by International Development Enterprises (IDE) in Nepal, Vietnam and Cambodia, is about building and strengthening linkages and partnerships among market chain actors through the promotion of the Participatory Market Chain Approach (PMCA)¹¹. In Nepal the project is focusing on building the capacity of market planning committees and developing trust among various actors in the existing value chain, including the management of collection centres, farmers and traders.

(ii) Coalition to Diversity Income through Under-Utilised Crops

The International Centre for Underutilised Crops (ICUC) is piloting this multi-pronged approach in India and Vietnam to promote underused crops by supporting community services for production, post-harvest and marketing of underused crops and improving access to the market for the rural poor. In India it is partnering with the NGO Bharatiya Agro Industries Foundation (BAIF) and in

¹¹ The PMCA is a research and development approach for fostering pro-poor, market-led innovation in commodity chains, through active participation of private and public market chain actors. CIP's Papa Andina Initiative

^{(&}lt;u>http://papandina.cip.cgiar.org</u>) and partners began to develop PMCA in 2001 as a means to reduce rural poverty in the Andes by linking small farmers to new market opportunities. The PMCA built on the "Rapid Appraisal of Agricultural Knowledge Systems" (RAAKS) which stimulates networking for innovation (Engel and Salomon, 2003).

Vietnam with the Centre for Agrarian Systems Research and Development (CASRAD) and the Fruit and Vegetables Research Institute (FAVRI), two national research centres.

(iii) Developing Fish Seed Value Chain in Bangladesh

This initiative, led by the NGO Rangpur Dinajpur Rural Services (RDRS) in Bangladesh, is about developing a fish seed value chain (brood fish producers, fingerling traders and table fish growers) by creating a role for small-holders as intermediary producers and thereby enhancing the availability and quality of fish seed. WorldFish Center and International Development Enterprises are partners in this initiative.

Cluster 3: Innovation in Natural Resource Management

(i) Reducing Poverty through Innovation Systems in Forestry

This initiative, led by Forest Action — a policy think tank NGO in Nepal — focuses on promoting innovations in internal group governance (visioning, hamlet-based planning, decision-making and self-monitoring) among community forest user groups and introducing active forest management and sustainable harvesting technologies, including enterprise development. To implement this initiative, it partners with FECOFUN (Federation of Community Forest Users, Nepal), NEHHPA (Nepal Herbs and Herbal Products Association) and the Nepal Forum of Environmental Journalists (NEEFJ).

(ii) Scaling up IFM through Adaptive Learning Networks

The Bangladesh Environmental Lawyers Association (BELA) is leading this initiative in collaboration with the Flood Hazard Research Centre (Middlesex University, UK). It focuses on promoting innovations in managing flood plains in Bangladesh. This approach, called Integrated Floodplain Management (IFM), involves participatory action plan development, adaptive learning among stakeholders, development and compliance of rights and developing a legal framework for community-based management of floodplain resources and resource management for fisheries and crop production.

Others

(i) Promoting Sustainable Livelihood Development (Roji Roti)

This project attempts to reach the ultra-poor in Northern and Eastern India through forming groups of poor women and establishing a sustainable rural support delivery system to support the poor in their efforts to improve their livelihoods. This approach, called the 'dialectic approach' by the project team, relies on group saving as a starting point, which is then followed by access to microfinance and links to inputs, technical expertise and insurance. This project is led by GY Associated Ltd. (GYA), a UK-based consulting company, in collaboration with a Bihar-based NGO CPSL (Centre for Promoting Sustainable Livelihoods), and the ICAR (Indian Council for Agricultural Research) research centre in Patna, India.

(ii) Rat Management for Rural Communities

This is an initiative that uses a transfer of technology approach to control rats in Bangladesh. It involves training rural communities and implementing agencies — mainly NGOs and other extension agents — on community-focused and Ecologically-Based Rodent Management (EBRM), all the while producing and distributing improved rat traps. The initiative is led by AID-Comilla, an NGO in Bangladesh, in collaboration with the Bangladesh Agricultural Research Institute (BARI), the Bangladesh Department of Agricultural Extension (DAE) and the Bangladesh Natural Resources Institute.

(iii) ProSCAB or Promoting Sustainable Coastal Aquaculture in Bangladesh

This is an initiative for dissemination of 5 coastal fisheries technologies (crab fattening, molluscs culture, seaweed culture, improved fish icing and production of pesticide-free dry fish) through

training and enterprise promotion. This initiative is led by the Bangladesh Fisheries Research Forum (BFRF), a professional alliance of researchers and practitioners involved in research, development and commercialisation of the fisheries sector in Bangladesh. The main tasks involved in this initiative are: training, enterprise promotion and establishing links to input and output markets.

Further details can be found in Annex 6 (separate annex due to size of file) of the collated final project reports from the Asia ICF portfolio.

Annex 7 List and abstracts of CRT discussion papers

Annex 7 List and abstracts of CRT discussion papers

Discussion paper 01

Research Into Use: Investigating the relationship between agricultural research and innovation

Authors: Andy Hall, Jeroen Dijkman and Rasheed Sulaiman V

July 2010

This paper sets out an analytical framework for doing research on the question of how to use agricultural research for innovation and impact. Its focus is the Research Into Use programme sponsored by the UK's Department for International Development (DFID). This is one example of a new type of international development programme that seeks to find better ways of using research for developmental purposes. The main analytical approach draws on contemporary innovation perspectives and focuses on understanding the ways in which the process of research is used, rather than only on how research products are transferred and adopted. It argues that there is a diversity of ways of organising innovation appropriate to different market, social, technological, institutional and policy niches. The framework developed in the paper is used to frame questions that will help RIU in its quest to provide practical policy with selection guidance in choosing the right sort of innovation support strategies for particular requirements of different niches at different points in the innovation trajectory.

Discussion paper 02

Bottom-up, bottom-line: Development-relevant enterprises in East Africa and their significance for agricultural innovation

Authors: Andy Hall, Norman Clark and Andy Frost

July 2010

Over the last 10 years much has been written about the role of the private sector as part of a more widely-conceived notion of agricultural sector capacity for innovation and development. This paper discusses the emergence of a new class of private enterprise in East Africa that would seem to have an important role in efforts to tackle poverty reduction and food security. These organisations appear to occupy a niche that sits between mainstream for-profit enterprises and the developmental activities of government programmes, NGOs and development projects. This type of enterprise activity is not corporate social responsibility, but an altogether new type of business model that is blending entrepreneurial skills and perspectives with mission statements that seek to both serve the needs of poor customers and address their welfare. The ethos is both "bottom-up" and "bottom-line". This paper classifies these organisations as *Development-Relevant Enterprises* (DevREs).The experience of the Research into Use (RIU) programme discussed in this paper suggests that supporting these types of entrepreneurial activity may form the basis of a new mode of development assistance aimed at using innovation for both social and economic purposes.

Discussion paper 03

Innovation systems, economic systems, complexity and development policy

Author: Norman Clark September 2010

Discussion paper 04

Putting research into use: A market failure approach

Author: Norman Clark and Ian Maudlin September 2010

Discussion paper 05 It may take a little while... Insights on agricultural research for innovation and development in Nigeria Author: Utiang P Ugbe October 2010

Conventional research and extension approaches in Sub-Saharan Africa have proven ineffective in translating research into innovation and impact. This paper describes the main operational elements of a new approach to innovation support being tested in Nigeria for using research for agricultural innovation and development. The approach described in the paper is part of the DFID-funded Research Into Use (RIU) Programme. The lessons from this experiment are discussed in the context of agricultural research and development activities and the wider policy, institutional and political economy setting it is taking place in. The main conclusion of the paper is that while the experience of RIU in Nigeria in facilitating the development of networks and other multi-actor processes can clearly promote agricultural innovation and impact, the process of institutionalising these approaches at the national level is going to require sustained and consistent support from both the national policy domain and international development partners over many years to come. In other words, a medium to long-term agenda of strengthening agricultural innovation capacity needs to be addressed in the policy and institutional domain rather than just in terms of the skills and actions of farmers and market actors.

Discussion paper 06

Gender and agricultural innovation: revisiting the debate through an innovations systems perspective Author: Ann Kingiri October 2010 *Related paper:* Rethinking gender in agriculture innovation from an innovation system's perspective Publisher: African Centre for Technology Studies Nairobi, Kenya as a policy brief Authors: Ann Kingiri, Judi Wakhungu and Andy Hall December 2011

This paper is an attempt to bring together two major streams of debate and policy analysis, which could make a major contribution to equitable development. The first concerns gender issues and how they relate to achieving both equity and efficiency goals. The second concerns innovation in agriculture and the way planning and policy is starting to view this as a multidimensional process driven by capacities distributed through society. This paper is being written in the context of a programme — the DFID-funded Research Into Use programme — that is exploring how research can be used for innovation and impact. The purpose of the paper is to reflect on the opportunities that a systems understanding of innovation provides for addressing gender issues and to provide some insight on what RIU might expect to achieve in this regard. The paper concludes with a call for two major shifts in practice and analysis: (1) A shift from gender analysis to gender learning and (2) A shift from women's empowerment to empowering innovation system capacity

Discussion paper 07 New organisational and institutional vehicles for managing innovation in South Asia: Opportunities for using research for technical change and social gain Author: T S Vamsidhar Reddy, Andy Hall and Rasheed Sulaiman V October 2010

This paper sets out to explore the nature of new organisational and institutional vehicles for managing innovation in order to put research into use for social gain. It has reviewed four classes of such vehicles found in South Asia. The first two — contract farming and organised retailing — represent what is becoming commonly-accepted in policy circles: namely that the private corporate sector can play a more prominent role in agricultural development, particularly in arrangements that combine providing access to markets in combination with access to technology needed to service those markets. The second two classes of vehicles — hybrid enterprises and social venture capital — represent a new, albeit fluid in definition, class of initiatives and organisations that combine features referred to as bottom-of-the pyramid and below-the-radar innovation. For each of these classes of innovation management vehicles this review has mapped the diversity of emerging examples and discussed their relevance for putting research into use for social gain. The paper concludes by saying that it is these new and as yet poorly-understood modes of innovation that have the greatest potential to effect change, although developing ways of supporting them is going to require some creative public policy instruments.

Discussion paper 08

The innovation trajectory of sleeping sickness control in Uganda: Research knowledge in its context

Author: John Morton

October 2010

This paper documents the way in which the "Stamp Out Sleeping Sickness" (SOS) Campaign in Uganda made use of research knowledge to have large-scale impact on the livelihoods and health of rural people in its target area. The SOS campaign mobilised private and public resources to control the deadly disease of human sleeping sickness, using mass treatment of cattle to destroy trypanosomes, the parasites that cause human sleeping sickness but also live in cattle, and insecticidal spraying of cattle to control the tsetse flies that are vectors of both human sleeping sickness and the related disease of trypanosomiasis in cattle. The research knowledge used to create the SOS campaign was communicated through a variety of formal and informal channels, within a web of institutional and personal connections between the main actors. This paper provides a detailed description of the SOS Campaign in order to consider the complex ways in which research knowledge can be put to policy use, and the complex factors that facilitate or encourage that process.

Discussion paper 09 Africa Matters: emerging lessons from the RIU Country Programmes Author: Jeroen Dijkman November 2010

This discussion paper presents recent empirical evidence of the RIU Africa country programmes, after positioning these ongoing activities within current debates about innovation in the rural and agricultural sector. The case findings presented confirm innovation as a process of accessing, developing and locating knowledge and technology from different sources within the appropriate institutional and organisational setting. They also provide new lessons on the role of intermediation and intermediates and research capacity, and highlight that while entrepreneurship is often essential to innovation, the common understanding of what such entrepreneurship comprises may require adjustment to take advantage and stimulate ongoing sector development processes. In that respect, while the private sector may be ideally placed in some sectors, local circumstances may currently limit their role in many areas. In light of this, coalitions of private, public and civil society sector actors are important for developing, accessing and using knowledge and technology for agricultural and rural system innovation. The paper concludes that rather than investment in research and technology initiatives only, rural innovation may be significantly promoted through the establishment of independent brokering bodies.

Discussion paper 10

What does innovation smell like? A conceptual framework for analysing and evaluating DFID-RIU experiments in brokering agricultural innovation and development

Author: Utiang P Ugbe November 2010

The key objective of the DFID-funded Research Into Use (RIU) Programme, which has been implemented across 12 African and Asian countries, involves the notion of enabling 'agricultural innovation and development' as outcomes. Despite that, there seems to be little specification in terms of what country teams should expect as indicators of such desired 'innovation' when it does occur. It was perhaps the right thing to do because a cookie-cutter approach would have proven problematic in field implementation, given that what could count as innovation in one country context may not apply in another. This paper briefly reviews three conceptual frameworks: namely, the national agricultural research system (NARS), the agricultural knowledge and information system (AKIS) and the agricultural innovation system (AIS) concepts. Next, the paper reviews the definition of 'innovation' and proposes that agricultural innovation can occur at four different but interlinked domains. The paper then defines and discusses these domains, and uses evidence from outcomes of the DFID-RIU experiments in Nigeria to explain how these fit into the four domains, and how all these outcomes qualify as agricultural innovation. It concludes by explaining that the programme needs to recognise the whole gamut of impact in different domains in order to make a compelling case for investments in RIU-like approaches.

Discussion paper 11

Studying rural innovation management: A framework and early findings from RIU in South Asia Authors: Rasheed Sulaiman V, Andy Hall, T S Vamsidhar Reddy and Kumuda Dorai January 2011

This paper aims to map the experience of the RIU Asia projects and draw out the main innovation management tactics being observed while laying the groundwork for further research on this topic. It provides a framework to help analyse the sorts of innovation management tasks that are becoming important. This framework distinguishes four elements of innovation management: (i) Functions (ii) Actions (iii) Tools and (iv) Organisational Format. The paper's review of the distribution of innovation management in the Asia projects suggests that it is not technology access-related tasks alone that are important, but the bundling of these with other activities, which include the development of networks, advocacy for policy change, training and other negotiated changes in practice and action. The implication for policy is that ways of supporting this wider suite of innovation management tasks would go a long way in helping make better use of agricultural research in rural development.

Discussion paper 12

Organised retailing of fresh fruit and vegetables: Opportunities for putting research into use? Authors: Rasheed Sulaiman V, N J Kalaivani, Jatinder Handoo, T S Vamsidhar Reddy, Kumuda Dorai and Andy Hall May 2011

A cross-cutting theme in the DFID-funded Research into Use (RIU) programme is the exploration of the developmental opportunities presented by new patterns of entrepreneurial activity. This is an exciting time to be exploring such issues as there has been an upswing in enterprise activity in the developing world, characterised by a markedly different era of economic dynamism. This has affected agri-food value chains in profound ways. For RIU this raises questions about whether there is potential to piggyback on this new dynamic for putting research into use. It also raises the question of whether institutional change in marketing arrangements is associated with institutional change in relation to access to technology, research and other technical expertise. Organised retailing of fruit and vegetables is investigated to explore this question. A farm-level survey and retail outlet-level review suggest that this pattern of market development is linking farmers to markets with promising social and economic consequences. But it is also finding that the value of this as a mechanism for strengthening technical change and innovation capacity is under-developed and that it is here that public policy needs to concentrate its attention and efforts.

Discussion paper 13 Beyond knowledge brokerage: An exploratory study in innovation intermediaries in an evolving smallholder agricultural system in Kenya

Authors: Catherine W Kilelu, Laurens Klerkx, Cees Leeuwis and Andy Hall May 2011

The recognition that innovation occurs in networks of heterogeneous actors and requires broad systemic support beyond knowledge brokering has resulted in a changing landscape of the intermediary domain in an increasingly market-driven agricultural sector in developing countries. This paper presents findings of an explorative case study that looked at 22 organisations identified as fulfilling an intermediary role in the Kenyan agricultural sector. The results show that these organisations fulfil functions that are not limited to distribution of knowledge and putting it into use. The functions also include fostering integration and interaction among the diverse actors engaged in innovation networks and working on technological, organisational and institutional innovation. Further, the study identified various organisational arrangements of innovation intermediaries with some organisations fulfilling a specialised innovation brokering role, even as other intermediaries take on brokering as a side activity, while still substantively contributing to the innovation process. Based on these findings we identify a typology of 4 innovation intermediation arrangements, including technology brokers, systemic brokers, enterprise development support and input access support. The results indicate that innovation brokering is a pervasive task in supporting innovation and will require policy support to embed it in innovation support arrangements. The paper is not normative about these arrangements

Discussion paper 14

The when and the where of research into agricultural innovation trajectories: Evidence and implications from RIU's South Asia projects

Authors: T S Vamsidhar Reddy, Andy Hall and Rasheed Sulaiman V June 2011

Discussion paper 15

Dynamics of bioscience regulation and opportunities for bioscience innovation in Africa: Exploring regulatory policy and brokering

Authors: Ann Kingiri and Andy Hall June 2011

Knowledge brokering has been explored in the innovation literature to understand how different innovation tasks are organised toward technological development. This paper reflects upon the role of different organisations as knowledge brokers in regulatory policy processes towards putting biosciences research into use. It identifies a practical function-based typology that describes four categories of policy brokers who perform different tasks, with the potential to impact biosciences regulatory policy change. The paper concludes with a brief exploration of how policy can support the different functions of regulatory policy brokerage to enhance the translation of biosciences research into use for the benefit of the poor. Using regulatory policy-making in Kenya as an example, it contributes to growing scholarship that seeks to link

knowledge emanating from research with policy-making and economic development, particularly in an African context.

Discussion paper 16

Necessary but not sufficient: Information and communication technology and its role in putting research into use

Authors: Rasheed Sulaiman V, Andy Hall, N J Kalaivani, Kumuda Dorai and T S Vamsidhar Reddy June 2011

This is the first of two linked papers dealing with information and computing technology (ICTs) and the question of putting research into use. This, the first paper, takes the experience of South Asia to review the scope of ICT applications in development practice as a tool for putting research into use for innovation. The findings from this study suggest that ICTs in general have not contributed effectively to the challenge of putting new knowledge into use as they are mostly used to support traditional communication tasks — such as information dissemination and training. The paper argues that this under-utilisation of the potential of ICTs could be due to: a lack of appreciation of the new communication-intermediation tasks required for innovation, underestimation of the roles of intermediaries and their capacities for innovation and lack of networks needed for communication, innovation and extension has changed substantially in the past two decades, there is still a big gap between theory and practice. This paper contends that this gap needs to be bridged if ICTs are to effectively contribute to putting new knowledge into use.

Discussion paper 17

Functions and forms of brokerage in the Malawi fisheries platform Author: Elias Madzudzo

July 2011

Making agricultural research relevant for development remains a challenge for development planning. The Research Into Use (RIU) programme has attempted to tackle this question and has identified the role of an innovation broker as key in creating a conducive environment to make better use of research, by building up networks of relevant actors. This paper examines the facilitation or brokering efforts of the RIU Malawi country programme in developing the fish farming sector of the country, specifically *chambo* fish production. *Chambo* is a major source of animal protein for the rural and urban poor in Malawi, but its production has been declining over the last 20 years. While it is too early to gauge the long-term impact of RIU initiatives in Malawi, this paper shows that the programme did not develop new technologies but facilitated a way of working together between private hatcheries, government departments and research organisations. According to the paper, flexibility in the roles performed by RIU Malawi allowed innovation to take place.

Discussion paper 18 Embedding research into use ideas in the policy space: The case of RIU Nigeria and Sierra Leone Author: Utiang P Ugbe July 2011

The DFID-funded Research Into Use (RIU) programme can be characterised as 'a new type of organisation performing a blend of new roles'. In a broad sense, RIU's role in brokering agricultural innovation involved serving as an interface between policy and practice, involving research, capacity building, business incubation, network facilitation, policy advocacy, and facilitation of the use of agricultural research. However, instead of a cookie-cutter approach across all Africa country programmes, this paper examines how implementation strategies and thematic priorities varied with each context, and takes the instances of Nigeria and Sierra Leone, in particular. This paper reveals that although the Nigeria and Sierra Leone country offices were literally embedded within national agricultural agencies, each country programme developed its own unique links to the agricultural policy arena. Both country programmes' strategies proved effective in getting the desired results, although the successes were, perhaps, due to different reasons. In Nigeria, the effectiveness of the RIU programme in the policy arena was, possibly, due to the maturation and readiness of the national agricultural research system (NARS), coupled with other forces coalescing serendipitously. In Sierra Leone, the challenges of post-war rehabilitation and revitalisation of the NARS and related systems created a situation in which the national government had been very receptive to the ideas of innovation thinking and having these incorporated into the new national policy on agriculture

Discussion paper 19 Brokering in practice: The experience of the RIU Malawi Country Programme Author: Maija Hirvonen July 2011

Commissioned by the Central Research Team (CRT) of RIU, this study develops an institutional history of the Research Into Use Malawi Country Programme. It has sought to focus on the specific mechanisms associated with 'innovation platforms' and the function of the country programme as a brokering or intermediary within wider innovation and development landscapes. What emerges is an account of a programme that was willing to break away from the usual 'silo thinking' and 'turf wars' that had characterised past development interventions in the agricultural sector. At the same time, however, conveying its intentions to an audience accustomed to working through a triad of actors (researchers-extension agents-farmers) would prove to be far from straightforward. The situation was made more complicated by the restructuring and redefinition that happened within the programme itself. The country programme would negotiate a series of tensions between the expectations of local stakeholders ('a pot of money', 'an input dissemination project'), overall RIU programme management ('getting research outputs off-the-shelves', 'building networks to enable innovation' and 'generating lessons on innovation processes') and its donors ('quantifiable numbers of beneficiaries'). Nonetheless, RIU-Malawi appears to have located niches within which to begin

transforming interactions, working routines, policies, as well as the production and use of knowledge. By all accounts, however, it is too soon to tell to what extent these niche-level changes can reverberate at broader scales.

Discussion paper 20

Research Into Use: An institutional history of the RIU Nigeria country programme

Author: Maija Hirvonen July 2011

Commissioned by the Central Research Team (CRT) of RIU, this study develops an institutional history of the Research Into Use Nigeria Country Programme. It has sought to focus on the specific mechanisms associated with 'innovation platforms' and the function of the country programme as a brokering or intermediary within wider innovation and development landscapes. RIU-Nigeria appears to provide an example of how innovation brokerage can take place outside of pre-established structures (innovation platforms) and workplans that intentionally seek to promote the practice. In this respect, its experiences would question whether 'function can follow form', as the early RIU programme planning documents seemed to assume. Rather, the case of RIU-Nigeria illustrates how brokerage occurs under circumstances that are difficult to predict and in institutional spaces that may lie beyond the formal remits of organisations. As a consequence, an innovation broker can rarely be appointed, and may be an individual or organisation with 'multiple hats' with demonstrated agility or suppleness to respond unexpected opportunities. to

Discussion paper 21 NERICA seed versus local landraces: Another battle of the paradigms? Author: Maija Hirvonen August 2011

Commissioned by the Central Research Team (CRT) of the Research Into Use (RIU) programme, this study was motivated by reports from Zambia of the multiplication of NERICA 4 seed and its distribution in October 2010 to farmers through the Farmer Input Support Programme (FISP). The delivery of NERICA seed coincided with various efforts, including one spearheaded by RIU-Zambia, to purify local rice landraces and extract high quality planting with the view of contributing towards improved yields and capitalising on the overall development potential of the rice sub-sector. The event serves to contrast two distinct approaches towards pursuing productivity gains in a crop of increasing economic importance: the introduction of a new seed variety into the production system versus the purification of widely-used local landraces. This case study documents these two approaches and explores their wider ramifications. It highlights how a 'quick fix' and top-down method of seed multiplication — bearing the hallmarks of a Green Revolution-era paradigm of agricultural development — risks stifling innovation capacity on the ground. It also emphasises the importance for locally-based initiatives to forge effective linkages to national-level policy communities and debates. In their absence, policy risks imposing actions that are out-of-step with grassroots momentum.

Discussion paper 22 Emerging development-relevant enterprises in Kenya: Do they exist, what do they look like and what is their role in poverty alleviation?

Author: Andrew O Adwera August 2011

This paper explores emerging development-relevant business models in Kenya — organisations that appear to occupy a niche that sits between mainstream for-profit enterprises and the developmental activities of government programmes, NGOs and development projects. These organisations exhibit a kind of entrepreneurship that blends market-oriented goals with an underlying mission statement that seeks to serve the needs of the poor. This mapping paper sets out to identify some of these organisations in Kenya and explores their potential for putting research into use or facilitating this process. The paper also examines new sources of funding for this niche social entrepreneurial activity — from traditional donors, venture capitalists, philanthropists, challenge funds, hedge funds, etc., — that are convinced that solutions to poverty are being generated by entrepreneurs operating at various levels in society. The paper concludes that these new organisational models are already contributing to 'disruptions' in the market in terms of the way of doing business. And, in turn, this has repercussions on the institutional and policy landscapes in which these models operate.

Discussion paper 23

Exploring mechanisms for putting research into use: Evidence from RIU's value chain-oriented projects in South Asia

Authors: TS Vamsidhar Reddy, Rasheed Sulaiman and Andy Hall August 2011

The question of how agricultural research can best be used is a topic of some debate in developmental circles. The idea that this is simply a question of better transfer of ideas from research to farmers has been largely discredited. Agricultural innovation is a process that takes a multitude of different forms, and, within this process, agricultural research expertise are mobilised at different points in time for different purposes. This paper presents and examines the efforts of the DFID funded Research Into Use (RIU) Programme's value chain oriented projects in South Asia to shed some light on this process and to understand the mechanisms that allow innovation to take place. These cases seem to suggest that the initial stage of a project's trajectory require the creation of social architecture of actors, which helps articulate demand for specific research and sets the ground conditions for the process of putting research into use. The study also reveals that actors' roles are constantly shifting, becoming more or less important along the course of a project, depending on the need of the hour. The paper then uses this analysis to deliver implications for public policy and its ongoing efforts to add value to research investments.

Discussion paper 24

Beyond Biosafety Regulation: Implications for putting biotechnology research into use in a developing country context

Author: Ann Kingiri

September 2011

The objective of biosafety regulation is to enhance safe and responsible use of new biotechnologies, thus optimise benefits and reduce risks. This seemingly narrow focus of

regulation for development is challenged by the need to look at factors that drive innovation in totality. To this end, all aspects of biosafety regulation implementation that could hamper the process of putting biotechnology research into use need to be given critical thought. Using *Bt* Cotton as illustration, this paper explores the dynamics involved in the implementation of regulations associated with biotechnology in a developing country context towards putting research into use. It seeks to bring to the limelight the underlying issues that complicate the process of identifying and building pathways to sustainability in complex, dynamic, social-ecological-technological systems. It finds that addressing the regulatory issues is a prerequisite to biotechnology development but does not guarantee uptake of products for development. The paper concludes by suggesting an integrated approach to deal with the multiple challenges that have delayed the translation of biotechnology research products into use in Africa.

Discussion paper 25

Missing the target: Lesson from enabling innovation in South Asia

Author: TS Vamsidhar Reddy, Rasheed Sulaiman V and Andy Hall September 2011

This paper reflects on the experience of the Research Into Use (RIU) projects in Asia. It reconfirms much of what has been known for many years about the way innovation takes place and finds that many of the shortcomings of RIU in Asia were precisely because lessons from previous research on agricultural innovation were "not put into use" in the programme's implementation. However, the experience provides three important lessons for donors and governments to make use of agricultural research: (i) Promoting research into use requires enabling innovation. This goes beyond fostering collaboration, and includes a range of other innovation management tasks (ii) The starting point for making use of research need not necessarily be the promising research products and quite often identifying the promising innovation trajectories is more rewarding (iii) Strengthening the innovation enabling environment of policies and institutions is critical if research use is to lead to long-term and large-scale impacts. It is in respect of this third point that RIU Asia missed its target, as it failed to make explicit efforts to address policy and institutional change, despite its innovation systems rhetoric. This severely restricted its ability to achieve wide-scale social and economic impact that was the original rationale for the programme

Discussion paper 26

Putting Research into Use: A Market Failure Approach

Author: Norman Clark, Andy Frost, Ian Maudlin, Paul Seward, Henry Wainwright and Andrew Ward

September 2011

This paper explores innovation and technology development aid targeted at the African rural poor but often failing to deliver benefit. Using five cases of UK bilateral aid (current and historic) it suggests the prime importance of securing continuous knowledge interaction across the whole of the relevant value chain, combined with the need for institutional reform of science policy in this field. The approach emphasizes the underlying problem as an inherent tendency to failure in knowledge markets combined with often unsuitable institutional contexts.

Discussion paper 27 Putting Research into use: Lessons from contested visions of innovations Author: Andy Hall April 2012

This paper is a synthesis of research undertaken as part of the Research Into Use programme (RIU) to explore the question of how agricultural research can be used more effectively to improve agricultural production and farmers' livelihoods in developing countries. Many of the challenges the programme encountered were a result of contested visions of the way agricultural research should be used for innovation. The paper suggests a number of novel entry points for projects promoting research into use. However, it also argues that the effectiveness of RIU was undermined by its failure to productively manage contested visions of research and innovation within the programme and between the programme and its donors and other international champions of the dominant view on agricultural research and development.

Country Programme: NIGERIA (to June 2011)

List of Partners: Farmer's associations, value chain actors involved in production, processing, storage and marketing, Community based associations, Nongovernmental organisations, Private sector entities, federal/ state Government agencies/parastatals, Faith based organisations, financial institutions, International/National Agricultural Research Institutes and Universities.

Knowledge being put to use

Identify and describe all the knowledge products/processes that have been put to wider use in this project. This can refer to methodologies, techniques, tools and resources etc. Please refer to your country strategy documents to answer this section. Please also provide data on the number relevant to, or designed primarily for use by, women.

RNRRS generated knowledge used:

Innovation Platforms

- AQUACULTURE: The RNRRS knowledge outputs adopted by stakeholders are GP03 (integrated fish and vegetable farming); AFGP05 (combating fish diseases); AFGP01 (household hatcheries); R8468 (capacity building in the use of FMSP stock assessment and tools and management guidelines). All the RNRRS (3) adopted are relevant to women. The aquaculture sector is a women affable enterprise. The level of women participation in the aquaculture platform activities is 49.5% (See appendix for details).
- 2 CASSAVA FLOUR: The RNRRS knowledge outputs adopted by stakeholders include CCP22 (improved high-yield white-coloured varieties suitable for production of cassava flour) and CCP24 (combating cassava mosaic disease (CMD) through use of disease-resistant varieties and other control methods); The cassava varieties adopted were TME419, TMS98/1642, TMS98/0505, TMS96/1632, TMS98/0581, TMS98/2101 CPH30. All were RNRRS knowledge outputs through the CGIAR facilities in Nigeria. All were directly beneficial to women because cassava production and processing has historically been part of rural women's economy in Nigeria.
- 3. COWPEA/SOYBEAN CROP LIVESTOCK INTEGRATION: The RNRRS outputs adopted by stakeholders are CPP08 (Improving farmers' livelihoods through better crop options for getting high-yielding varieties, pest-control, fertilizers and weed control techniques); and CPP28 (new high-yielding varieties). The varieties adopted by farmers were IT277-2 (Dual purpose medium maturing-High yielding and forage potential variety), IT97K-499-35 (High yielding striga resistant medium maturing varieties, IT98K-205-8 (High forage potential and medium maturing. All the RNRRS adopted were relevant to women. Women are traditionally involved in production, Post harvest processing and value addition

Non RNRRS generated knowledge used:

1. Aquaculture Platform

a. Locally produced high quality affordable fish meal and fish feed

1. Cassava flour Platform

- a. Locally fabricated hand-held cassava peeling technology developed by the National Root Crop Research Institute (NRCRI) and National Centre for Agricultural Mechanisation (NCAM), in collaboration with RIU-assisted Cassava Value Chain Innovation Platform
- b. New production techniques on post-harvest value addition (e.g. in making *Odourless fufu* developed by NRCRI
- c. Production of starch from cassava using cottage technology developed by NRCRI

3. Cowpea/Soybean Crop Livestock Integration Platform

- a. Fodder management and marketing (compacting, storage, marketing & utilization as livestock feed), designed and fabricated by Wetlands Nig Ltd, with field testing and rural advisory services from resource persons
- b. Rust resistant variety of soybean TGX 1835-10E developed by International Institute for Tropical Agriculture (IITA) and National cereals Research Institute (NCRI)
- c. Dual purpose-High grain and fodder yielding cowpea varieties IT 277-2, IT97K-499-35 and IT98K-205-8 developed by IITA and IAR

Project Outputs

In this section we would like you to describe the status of achievement of your stated outputs and also the changes (if any) that have taken place to your project outputs. Kindly explain the reasons for the changes (if any) that have occurred.

In the activities section briefly describe the nature of specific activities you have adopted in your project to achieve the outputs. Did you have to use any new activities [other than what you have committed in the log frame] or modify these activities and if so explain the reasons for the same.

Project Output Title	Activities undertaken /changes in activities	Status of achievement	Deviations if any, and the reason for the deviation.	Please provide a brief description of the management decisions and strategic direction taken that affected the project outputs.
1. Aquaculture Platform: a. Value Chain Innovation Platform established and functional	Facilitated the establishment of a functional Aquaculture Innovation Platform	Aquaculture Innovation Platform was established. Stakeholders in the Platform meet to discuss and share ideas as evidenced by minutes of their meetings.	The Aquaculture Innovation Platform was not domiciled in the Southwest as stated in the country strategy/work plan. Aquaculture is already well developed in that	The decision to relocate the platform from Southwest to the hinterland was strategic. It enabled greater impact to be achieved and allowed for larger geographical spread. Zonal workshops held at strategic locations brought the programme closer to the people. The realisation that aquaculture is led by private sector effort rather than by the government (as is the case in crop sectors) was capitalised upon by many small-scale entrepreneurs, thereby reflecting the way the platform conducted itself. The high cost of fish feed (70% of total operating costs) was a challenge to all segments of the value
	Farmers access/uptake of producer preferred brood stock	10 private sector fish seed producers and two National mandated Fisheries Research Institute were identified and linked to farmers Uptake of these	region, so it was necessary for RIU to target the parts of the country where fish farming was in its infancy. Impact of intervention	chain; addressing this problem generated collective action and sustained the interest of both the private and public sectors in the platform

	brood stock is on going	will be more observable.	
		The middle belt	
Production of	High quality fish meal from	(hinterland) had	
high quality	Low valued Tilapia and	challenges which when	
affordable fish	Cluneids have been	properly addressed could	
meal and feed	produced Up scaling of this	leverage more impact	
incur una recu	innovation and utilization	levelage more impact.	
	by private sector food		
	by private sector reed		
	millers is in progress		
Development of	Fish Farmers gained access		
fish farmers	and use of locally fabricated		
canacity for	fish drying kiln developed		
officient post	by NIOMP		
barwast fich	by NOWR.		
handling and			
nandling and	Conducted Workshops in 3		
processing	Zones (Lagos, Idah and		
techniques	Kaduna) 179 group		
	representatives (50.28%		
	women) were trained on		
	various activities relating		
	to production and post-		
	harvest value addition.		
	Fish farmers (28% of the		
Promotion and	farmers targeted) using		
development of	earthen ponds have		
farmers' skill on	adopted integrated fish and		
integrated fish	vegetable farming. Others		
and vegetable	(72%) have not due to lack		
farming.	of space		
	52% of fish farmers have		
Linkages between	been linked to reputable		
fish farmers,	input/output markets (This		
reputable	is ongoing)		
aquaculture			
service providers			
and input/output			
markets			

	Facilitated [.]		
	i demedica.	Through a stakeholder's	
	The evaluation of	workshon government	
	existing policies	nolicies relating to	
	as they affect	aguaculture development	
	functioning of	were documented and	
		relayed to the Enderal	
	chain, provided	Department of Eicheries	
	foodbook and	This has led to the	
		This has led to the	
	sensitized	development and	
	stakenolders on	production of a Criteria	
	status of policies	and Guidelines for	
	and their effect	certification of aquaculture	
	on the sector	products in Nigeria 'This	
		will form the bases for	
		setting standards for fish	
		farming in the country	
	Advocacy aimed		
	at creating	Institutional capacities of	
	enabling	National Institute for	
	environment for	Oceanography and Marine	
	the aquaculture	research (NIOMR) and	
	sector	Nigerian Institute for	
		Freshwater Fisheries	
		Research (NIFFR) was	
		developed, particularly in	
		the areas of linkages,	
		building capacity of fish	
		farmers and production of	
		fish meal,	
	Facilitated:	Linkage has been created	
	The	and sustained between the	
	development of	National Research	
	Institutional	Institutes (NIOMR and	
b. Enablir	g capacity to	NIFFR) This has led to	
policy	effectively	synergy amongst the	
enviror	nme participate in RIU	Institutes. Stakeholders	
nt for	innovation	now interact freely and	
aguacu	ltur approaches to	have sustained	

c.	chain advocated to policy makers Developed the capacity of stakeholder s to effectively participate in RIU innovation approach and share	The development of stakeholders' capacity to sustain linkages and foster synergies amongst themselves.	of RIU The process of RIU Innovation Approach to uptake of agricultural research outputs is being documented. Lessons were shared amongst all RIU innovation Platforms members at the RIU-Nigeria Learning Event	
	lessons	lessons from implementing RIU		
		approach to R4D and shared		
		amongst stakeholders		
		stationalero		
2.Cowpe Crop live Integrati Innovati	ea/Soybean estock ion on Platform	Facilitated: The establishment of a functional	Cowpea/Soybean livestock Innovation Platform was established with 25% Female members	The key challenge of the cowpea sector was identified as storage loss due to weevil infestation. This has economic implications for household producers and marketers as well as health concerns (cases of death due to use of chemicals in cowpea storage has been reported severally). Intervention in this area was widely accented and brought about a multi-stakeholder inter agency.
a.	Value Chain	Cowpea/Soybean		collaboration. Using existing institutions and structures helped to leverage
	Innovation	Crop livestock	Varieties of	greater impact at scale.
	established	Platform	Cowpea/Soybean for different production objectives were introduced	
		Farmers	to farmers.	
		access/uptake of	They were also linked to	
		preferred	seeds. (Premier Seeds Ltd,	
		varieties (Dual	Seed Project com. and	
		purpose high grain and fodder	Certified Seed Out growers)	
		yield with	The seed project Co. Ltd,	

resistance to	Jubaili Agro Tech., Superb	
striga) enhanced	Feeds & Vet Services.	
	Candel Cov Ltd. provide	
	extension services to	
Linked farmers to	farmers and supply farm	
sources of inputs	inputs at company price.	
(including credit)		
and output	A manually operated Crop	
markets.	Residue Bailer with a	
	capacity of producing 18	
	bales of 10kg per hour was	
	fabrication and made	
Local fabrication	available to farmers	
of manually		
operated Crop		
Residue		
Compacting	1 million	
equipment	farmers/marketers were	
	sensitised on the use of	
	Triple bagging and	
	solarisation technology via	
	direct demonstration.	
	About 17million	
	farmers/marketers were	
Promote/trained	sensitized through radio	
farmers and	coverage in six states.	
marketers on the	About 600,000 have	
use of improved	adopted the technology so	
nermetic cowpea	far	
storage (Triple	The use of the below use	
bagging and	Ine use of the baler was	
solarisation)	avtension agents of	
	Agricultural Development	
	Agricultural Development	
	states (Kaduna and Kano)	
	The capacity of 10	
	unemployed youths was	
	enhanced to use the baler	
	in a microenterprise	
	scheme.	

	The capacity of 120 (24% female) extension agents of the Agricultural Development Project (ADP) in 6 states was enhanced to conduct community based demonstration in 1200 communities	
Facilitated Institutional capacity development that enabled effective participation in research into use approach to R4D.	Commissioned a study on 'Rapid Assessment of policies Affecting Cowpea/Soybean Sectors in Nigeria	
	The Platform has been sensitised and is collaborating with relevant government agencies (Standard Organisation of Nigeria, Nigerian Food Drug Administration and Control, chambers of commerce and Consumer Protection Council of Nigeria) to address the challenge imposed by edible oil importation. An innovation value chain approach to handling Platform challenges has	
Facilitated activities leading to better understanding of	evolved	
existing policies as they affect the functioning of the	Lessons on implementation of RIU intervention in the sector was shared amongst	

		cowpea/soybean	partners at the RIU-Nigeria		
		value chain	Learning Event		
			0		
		Provided			
		policymakers with			
b.	Enabling	evidence for			
	policy	creating an			
	environme	enabling policy			
	nt for	for the			
	cowpea/so	cowpea/sovbean			
	vhean	sector			
	value chain	5000			
	advocated				
	uavocatea	Facilitated			
		institutional			
ſ	Canacity of	capacity			
0.	stakeholder	development for			
	s to	effective			
	effectively	participation in			
	participate	RIU approaches			
	in RIU	to R4D.			
	approach				
	to				
	agricultural				
	innovations				
	enhanced	Improved the			
		capacity of			
		stakeholders in			
		handling value			
		chain challenges			
		and created			
		awareness of RIU			
		innovation			
		approach			
		amongst them.			
		Documented and			
		shared lessons of			
		implementation			
		of RIU approach			
		to R4D			
				1	

2. Cassava Flour Value Chain Innovation Platform a. Cassava Flou Value Chain Innovation Platform established and function	Facilitated: The establishment of a functional Cassava Flour Innovation Platform	Cassava Flour Value Chain Innovation Platform involving farmer groups, processors, fabricators of peeling machines, and other service providers was established and fully functional	The emphasis of the platform was shifted from production of high quality cassava flour to production of starch and odourless fufu because the production of high quality cassava flour that can be utilized by flour mills needs flash dryers and electricity both of	A Platform inception meeting was held where the value chain actors in the cassava sector were mobilized and challenges faced by each segment outlined. Consultants then worked with the Platform members to identify RNRRS that could best address the identified challenges. In the course of the platform activities it was realised that due to absence of policy on 10% cassava flour inclusion in composite flour, lack of supporting infrastructure (electricity) and high cost of flash dryers necessary for the production of high quality cassava flour, the platform shifted its focus to other less expensive farmer friendly cottage technologies that could easily be adopted and could generate income at household levels. Monthly meeting were held by the platform, minutes of such meeting were forwarded to RIU and issued raised
	farmers access/uptake of prosumers preferred varieties	Farmers have adopted 6 varieties of high yielding Cassava Mosaic Disease (CMD) resistant cassava.	which are not readily available and also too expensive.	that needed RIU attention were followed up. RIU staff attended some of these meetings
		A cassava hand held peeling tool was developed by NRCRI. This was utilized and evaluated by 100 participants and Platform members at a post harvest value addition workshop.		
	Fabrication of cassava hand held peeling tool	Evaluation of its performance indicated that it has significantly (P≥0.05) reduced wastage and saved time		
	Built the capacity of processors to achieve acceptable quality cassava flour	Farmers have access to 6 cassava varieties that yield flour of good texture and colour acceptable to flour millers. Capacity of stakeholders		
		for value addition was enhanced (starch and		

Annex 8 Final reports from RIU Africa Country Programmes

			odourless fufu)	
		Linked farmers to reliable input/output markets and credit	Farmers were linked to Ihiala starch mills for bulk purchase of fresh cassava roots. Conducted an appraisal of the National Policy Directive on Cassava Flour and presented the findings to the stakeholders	
		Evaluated existing policies in the cassava value chain sector, provided feedback and sensitised stakeholders on	Presented policy appraisal document to the National Assembly (House Committee on Agriculture) The bill for 10% cassava inclusion into composite flour is awaiting public hearing	
		status of policies relating to the sector.	Built institutional capacities of Abia State Agricultural Development Project (ADP) and National Root Crop Research Institute (NRCRI)	
		Provided policymakers with	Stakeholders understood and appreciated the need for synergy in the cassava value chain as a tool for sustained development in	
b.	Enabling policy environment for Cassava Value Chain advocated	evidence and advocated for the creation of enabling policy environment in the sector	the sector Lessons from the Cassava Innovation Value Chain	
			were documented and	
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			shared amongst	
с.	Capacity of	Built institutional	stakeholders	
	stakeholders	capacity for		
	for effective	effective		
	participation	participation in		
	RIU approach	RIU innovation		
	enhanced and	approach to R4D		
	lessons learnt			
	documented	Built capacity of		
	and shared	stakeholders,		
	amongst	created		
	stakeholders.	awareness of RIU		
		approach and		
		fostered synergy		
		amongst them		
		Documented		
		lessons from		
		implementation		
		of RIU approach		
		to R4D and		
		shared amongst		
		stakeholders		

Partnerships

i). Have all partners listed in your project proposal contributed as expected in the project? Did you have to drop some of the partners and bring in new partners to achieve the objectives of your project? Kindly describe your experiences in this regard.

ii). When working to strengthen and enhance relationships what do you think worked well?

- i) No. Not all members listed in the project proposal contributed as expected. Some of the partners listed were no longer available to participate in the project or showed no serious commitment to the programme. The programme allowed for free exit and entry. Partners joined or exited depending on the value they feel the programme can add to the sector. At some times during implementation, there was need to seek for new partners depending on emerging issues and the relevance of the new partners to such issues.
- ii) Members having a clear understanding of what the platform represents and their roles/responsibilities, knowledge sharing and synergy amongst members of the platform (actors in the value chain) leverage greater impact. Creating awareness of group ownership of benefits.

Policy change

i). Have you engaged with policy makers in this project and what has this experience been like?

ii). Who are the critical policy makers /policy influencing groups that are essential for up-scaling your interventions? What mechanisms were used to engage with policy makers? iii). Please detail policy changes to which your project has contributed, for example have any other organisations adopted or promoted lessons derived from your project?

i).We engaged policy makers and realised that there are vested interests or pressure groups who exert influence on agricultural policy decisions. Working in the policy arena requires much time to achieve institutional change. Sometimes policymakers need capacity building in order to understand, appreciate and act on issues that may have far reaching implications not obvious to them. In some cases the policies are there but no supporting institutions for effective enforcement.

ii)The key policymakers in agriculture are: The State Houses of Assembly at state level, House of Representatives and Senate at national level. Federal Ministry of Agriculture and Rural Development at national level, and respective state ministries of agriculture. Policy influencing groups include relevant agricultural occupational associations, nongovernmental organisations, trade unions, relevant government agencies, influential members of the society. Mechanism used included: Advocacy, Lobby, information sharing and synergy of action amongst stakeholders.

iii). Policy changes contributed by RIU-Nigeria:

- a. Federal Fisheries Department developed and produced Criteria and Guidelines for Certification of Aquaculture Products in Nigeria, as a result of collaborating with RIU Programme
- b. A privately sponsored Cassava Bill was presented to the National, reflecting the interests of the stakeholders in the RIU-assisted Cassava Value Chain Innovation Platform
- c. Agricultural Research Council of Nigeria (ARCN) adopted for replication, RIU's Innovation Platform model in designated Adopted Villages in collaboration with selected national agricultural research institutes across the country.
- d. At least 2 commercial banks joined the RIU-assisted agricultural IPs and developed targeted financial products and services to suit the special needs of the IP members such as farmers, processors and marketers. This represents a major shift away for banks who have historically been risk-averse when it comes to loaning to agriculture.
- e. The role of at least 7 partner-ADPs (agric development programmes), who have historically been practising top-down agricultural extension, shifted when they participated in multi-stakeholder IPs. Some of the ADPs worked directly with private companies in the supply of inputs or technologies in cowpea, soybean, aquaculture and cassava sectors. The successful trials have provided economic incentives for the transactions to be repeated by the various parties, even without the involvement of RIU Programme. This indicates sustainability potential.

Organisational & Institutional Change

i). Has your project resulted in development of new working practices, regulations, functional changes in organisations, emergence of new partnerships etc. within your own project teams and also outside? What has been the effect of these changes?

ii). Have there been any unintended changes / consequences?

- New working practices developed such as planting of high yielding disease-resistant varieties of cassava, cowpeas and soybean, hermetic storage of cowpeas, Fish farmers relied more on certified services and fingerling producers for their sources of brood stock, more fish farmers integrate fish and vegetable farming, more farmers engaged in value addition. Guidelines and criteria for certification of fish products has been produced by the Federal Department of Fisheries, more interagency collaboration has developed between research institutes with related mandates, there was inter and intra platform partnership between stakeholders, awareness of RIU approach to R4D has been created. These has led to increases in farm production, grater income generation through higher yields and value addition, enhanced food security and synergy of action on platform challenges.
- ii) Yes. Development of a microenterprises in the fodder sector; value addition for cassava into starch and odourless fufu instead of high quality cassava flour; collaboration with Nigerian Red Cross and US Embassy on procurement of seeds and implements for rural farming families affected by religious war in Bauchi and Plateau states; collaboration with socially excluded group (Abanbeke Development Association) in Cross River State. Nigeria/Sierra Leone collaboration on supply of poultry feeds and brokering of franchise arrangements between Feed Masters Ltd (a member of Cowpea/Soybean Value Chain IP) and NARECO-SL (a member of the PAID IP in Sierra

Leone).

Lessons learnt

i). What les	i). What lessons have you learnt about how to put research into use and enable innovation in agriculture?			
ii). Have yo	u shared these lessons with others and if so with whom and how?			
iii). Also, de	escribe what has not worked and explain the reasons why not.			
iv). What ki	nds of challenges did you face while up scaling/promoting new knowledge under this project and were you able to address these and if so how?			
v). What kir	nds of challenges [technical, organisational, marketing, policy etc.] continue to remain and how you think these could be resolved?			
i)	Involvement of all stakeholders in problem identification and possible interventions and documentation and lesson sharing on progress and shortcomings of innovations allows for greater uptake of agricultural research outputs. Private sector participation is necessary for sustainable up-scaling of innovation in agriculture. Synergy, persistence and patience amongst stakeholders are required for changes to occur in an enabling policy environment.			
ii)	Lessons from implementing RIU approach to R&D has been shared with various programme stakeholders and partners during stakeholders meetings at platform levels, workshops, newsletters, and at the RIU-Nigeria Learning Event.			
iii)	Financial Institutions offer credit to agricultural enterprises at very high interest rate without cognisance of the respective value chain cycles (e.g. planting, harvesting, etc). Therefore, they could not respond to farmers needs appropriately. The private sector has not fully responded to its role in R4D probably due to over involvement of the public sector over the years. Building of trust and confidence among value chain actors needs time and the role of an independent broker is necessary if the gains made are to be sustained			
iv)	There was suspicion and mistrust amongst value chain actors in all the commodity sectors, farmer groups and associations have reasons over the years to doubt the genuineness of nongovernmental agencies commitment and ability to deliver. In most cases there was lack of confidence on government agencies to put the interest of the farmers first. These challenges were resolved/reduced through regular meetings at platform levels, keeping to schedule of platform activities and making sure that collaborating agencies/institutions live up to expectation, all these helped to build confidence and trust which led to some success.			
v)	Linkage of stakeholders to credit and markets is very weak, unstable and sometimes unfavourable policy environment, platforms are weak and need nurturing to mature and sustain. Institutional capacities are weak and most often a catalyst is required to kick start the innovation process. There is the need for a neutral independent innovation broker/catalyst to continue for some time so as to strengthen, nurture and build institutional capacity for R4D. Working in the policy environment needs time and persistence. It is not clear where such a broker will come from.			

Project Beneficiaries / Scale achieved

Please state the estimated number of people affected by your project. Please note that it is very important that the data entered here is supported by the data you have collected. In the table below an example is given, please use columns below this to enter your own information.

Aquaculture Innovation Platform

*Make sure that all information provided here correlates with the evidence you have collected. Please include the evidence as separate attachments to this report and label the attachments appropriately.

Aquaculture Innovation Platform

Project Output	Output No 1 Value chain Innovation Platform established and functional	Output No2 Enabling policy environment for aquaculture value chain advocated to policy makers	. Output No3 Capacity of stakeholders to effectively participate in RIU innovation approach developed and lessons documented and shared amongst partners.
Number & Type of Indirect Beneficiaries	 Built the capacity of 2000 households in producing fingerling and proper management and disease control in fish farms. Built the capacity of 5175 households to integrate fish farming with vegetable production 52% of fish farmers have been linked to reputable input/output markets 	 Through a stakeholder's workshop, government policies related to aquaculture and their effect on aquaculture development were documented and relayed to the Federal Department of Fisheries, This has led to the development and production of a 'Criteria and Guidelines for certification of aquaculture products in Nigeria 'This will form the bases for setting standards for fish farming in the country 	 Institutional capacities of National Institute for Oceanography and Marine research (NIOMR) and Nigerian Institute for Freshwater Fisheries Research (NIFFR) was developed particularly in the areas of linkages, building capacity of fish farmers and production of fish meal Linkage has been created and sustained between national research institutes (NIOMR and NIFFR) This has led to synergy amongst them. Stakeholders now interact freely and have sustained relationships independent of RIU Documentation of the RIU innovation approach to uptake of agricultural research outputs is on. Lessons have been shared amongst all RIU innovation platforms at the RIU-Nigeria Learning Event, workshops and meetings
Number & Type of Direct Beneficiaries	 80 households produce cottage fish feed 207 households produce 1,035,000 9(Av weight 1kg) table fish every 2 months 201 households integrate fish and vegetable farming Built capacity of 2 national fisheries research institutes (National Institute for Oceanography and Marine Research 		

	 (NIOMR) and Nigerian Institute for Freshwater Fisheries Research (NIFFR) to produce high quality affordable fish meal (N209.65/kg fish meal from Low valued Tilapia, N241.65/kg fish meal from Clupeids compared to N350.00/kg from imported) thereby reducing fish cost by 30% 52% of fish farmers have been linked to reputable input/output markets NIOMR and NIFFR produce700,000 fingerlings per month 	
Male Beneficiaries	1000 households produce fingerlings	
(indirect and direct)	• 2,587 adopted integrated fish and	
	vegetable farming	
	30 households produce cottage fish feed	
Female Beneficiaries	1000 households produce fingerlings	
(indirect and direct)	2,587 households integrate fish and	
	vegetable farming	
	50 households produce cottage fish feed	
Total	5376 households integrate fish and	
	vegetable farming	
	80 households produce cottage fish feed	
	2000 households produce fingerlings	
	207 households produce table size fish	
Please describe the	Farmers had access to certified sources	
benefits to the	of fingerlings and other service providers	
beneficiaries for example	and can now produce table size fish at	
what was the impact/	lower cost (N200.00/fish and heavier	
result of naving access to	weight as against N25U/fish) from	
bave on the farmers in	uncertimed sources.	
Gicumbe? Please try to	Adoption of integrated fish farming with vegetable production increased income	
quantify your responses.	(about N30, 000/month) and ensured an	
so use numbers.	environmentally friendly means of	
percentages etc. when	managing waste water.	
describing the benefits.	 Feed cost/ kg reduced from N350.00/kg 	
Ç d	to 241.65/kg or 209.65/kg depending on	

	the type of the fish meal	
Have you conducted an	No	
impact assessment study?		
What are the main		
findings? Kindly attach a		
copy of the impact		
assessment report.		

Cowpea/Soybean Crop Livestock Integration Innovation Value Chain Platform

Project Output	Output No 1	Output No2	Output No3
	Value chain Innovation Platform established and functional	Enabling policy environment for aquaculture value chain advocated to policy makers	Capacity of stakeholders to effectively participate in RIU innovation approach developed and lessons documented and shared amongst partners.
Number & Type of Indirect Beneficiaries	 450,000 farmers accessed dual purpose cowpea 454,000 farmers accesses rust resistant soybean 600,000 farmers and marketers adopted hermetic cowpea storage 172.80 tonnes of fodder produced 	 Conducted an appraisal of the National Policy Directive on Cassava Flour and presented the findings to the stakeholders Presented policy appraisal document to the National Assembly (House Committee on Agriculture) The bill for 10% cassava inclusion into composite flour is awaiting public hearing Built institutional capacities of Abia State Agricultural Development Project (ADP) and National Root Crop Research Institute (NRCRI) to conduct community based trainings on post harvest value addition Stakeholders understood and saw the need for synergy in the cassava value chain as a tool for sustained development in the 	 An innovative value chain approach to handling Platform challenges has evolved Lessons on implementation of RIU intervention in the sector was shared at the RIU-Nigeria Learning Event

		 sector Lessons from the Cassava Innovation Value Chain were documented and shared amongst stakeholders 	
Number & Type of Direct Beneficiaries	 120,000 farmers accessed dual purpose cowpea 154,000 farmers accesses rust resistant soybean 4,800 farmers and marketers adopted hermetic cowpea storage 46.08 tonnes fodder produced 		
Male Beneficiaries (indirect and direct)	 433,200 accessed dual purpose cowpea 228,000 accessed rust resistant soybean 452,352 adopted hermetic cowpea storage 165.87tonnes of fodder was produced 		
Female Beneficiaries (indirect and direct)	 136,800 accessed dual purpose cowpea 145,920 accessed rust resistant soybean 145,152 adopted hermetic cowpea storage 530.10 tonnes of fodder was produced 		
Total	 570,000 accessed dual purpose cowpea 608,000 accessed rust resistant soybean 604,800 adopted hermetic cowpea storage 218.88 tonnes of fodder produced 		
Please describe the benefits to the beneficiaries for example what was the impact/ result of having access to good quality potato seed	 The yield of local Cowpea varieties is between 200 to 500kg/ha while the varieties adopted (name of variety)!! yielded 1000 to 1200kg/ha Rust is a major disease of soybean particularly in middle belt and southern 		

have on the farmers in	Nigeria. The disease has limited the	
Cisumbo 2 Diagon tru to	accorrentical approach of the gran	
Gloumber Please try to	geographical spread of the crop.	
quantity your responses,	Adoption of (name of variety) has led to	
so use numbers,	spread of the crop to southern part of	
percentages etc. when	Kaduna state and Obudu area in Cross	
describing the benefits.	Rivers state.	
	 Farmers/marketers loss between 50- 	
	100% of their cowpeas if not properly	
	stored within 2 to 6 months of storage.	
	The hermetic cowpeas storage technique	
	recorded 0% loss. In addition cases of	
	poisoning as a result of consumption of	
	cowpeas stored with chemicals had been	
	reported over the years. This has	
	reduced greatly as a result of adopting	
	this technology. Income differential	
	accrued from storing cowpea for 6	
	months ranged between 30 to 50%	
	 Large quantity of fodder is available for 	
	livestock feeding during critical period of	
	dry soason when livesteck less weight	
	and could even die	
	And could even die.	
Have you conducted an	No but an evaluation was conducted by the	
Impact assessment study?	Agricultural Research Council of Nigeria with the	
What are the main	following conclusions	
findings? Kindly attach a		
copy of the impact	 The linkages in the platform has enabled 	
assessment report.	the farmers access appropriate	
	technologies	
	These are expected to lead to	
	higher productivity	
	 lower post harvest storage losses 	
	 higher income for farmers 	
	Safer health/environmental	
	·	

Cassava Flour Value Chain Innovation Platform

Project Output	Output No 1	Output No2 -	. Output No3

	Value chain Innovation Platform established and functional	Enabling policy environment for aquaculture value chain advocated to policy makers	Capacity of stakeholders to effectively participate in RIU innovation approach developed and lessons documented and shared amongst partners.
Number & Type of Indirect Beneficiaries	 400,000 households accessed high yielding CMD resistant cassava varieties producing 20tonnes/ha/ hh?? Built capacity of 54000 widows on cassava value addition in Cross River State 646,000 households producing odourless fufu and starch in Abia state 	 Conducted an appraisal of the National Policy Directive on Cassava Flour and presented the findings to the stakeholders Presented policy appraisal document to the National Assembly (House Committee on Agriculture) The bill for 10% cassava inclusion into composite flour is awaiting public hearing 	 Built institutional capacities of Abia State Agricultural Development Project (ADP) and National Root Crop Research Institute (NRCRI) (in what area) Stakeholders understood and appreciated the need for synergy in the cassava value chain as a tool for sustained development in the sector Lessons from the Cassava Innovation Value Chain were documented and shared amongst stakeholders
Number & Type of Direct Beneficiaries	 4635 households accessed high yielding CMD resistant cassava varieties producing 20tonnes/ha/hh Built capacity of 430 widows on value addition to cassava Built capacity of 100 ADP extension agents for community based demonstration on value addition 		
Male Beneficiaries (indirect and direct)	 141,600 accessed CMD 323,040 produce odourless fufu and starch 		
Female Beneficiaries (indirect and direct)	 263,034 accessed CMD 377,450 produce odourless fufu and starch 		
Total	• 404,634 CMD		

	• 700,490 Starch and fufu	
Please describe the	The adoption of high yielding CMD resistant	
benefits to the	cassava varieties increased yield from 10	
beneficiaries for example	tonnes/ha using local varieties to 20 tonnes/ha.	
what was the impact/	More so the quality of cassava flour these varieties	
result of having access to	produced is acceptable to industrial flour millers.	
good quality potato seed	This has addressed a major challenge of farmers to	
have on the farmers in	meet industrial standard which had over the years	
Gicumbe? Please try to	limited the inclusion of locally produced cassava	
quantify your responses,	flour into composite flour.	
so use numbers,		
percentages etc. when		
describing the benefits.		
Have you conducted an	No but an evaluation was conducted by the	
impact assessment study?	Agricultural Research Council of Nigeria with the	
What are the main	following conclusions	
findings? Kindly attach a	Cassava Flour Value Chain	
copy of the impact	Innovation Platform has been	
assessment report.	registered and has a bank account.	
	 Strong linkages are evolving 	
	between actors in the value chain.	
	Linkages between credit	
	institutions is very weak	

Social Exclusion & Gender

i). Please explain how the project has targeted women and other socially excluded groups, and provide evidence of the projects impact on gender and social exclusion. ii). Have you used the data your project has collected on gender and social inclusion to help shape project interventions?

i).By ensuring that women associations and organisations were specifically invited and participated in the activities of the platform, Women constituted between 24 to 56% of the three platforms, The project paid specific attention to gender roles that are traditionally male or female and encourage interventions that could meet the needs of all. The commodity sectors chosen for the programme are traditionally women domain enterprises to ensure that women could easily understand and participate actively. Some interventions such as peeling tools and post-harvest value addition were included primarily to reduce drudgery for women and/or increase their income generating potentials. Others such as rust resistant soybeans were aimed at improving household and food security. Care was taken to involve socially excluded groups and other disadvantage groups in the society. 450 widows were trained on value addition to cassava.2880 widows accessed high yielding cowpea/soybean

ii). The data generated from project implementation has helped the programme recognise the roles, diversity and impact that could be made when gender is mainstream into the programme and has been used as the bases for making informed decisions

Expected and Unexpected Outcomes

i). We would like to identify theories of change that underlie project activities. By theories of change we mean 'a process of planned transformation (economic, social or political) including an articulation of the assumptions that lie behind its design and its goals'. Although theories of change were not made explicit early on in project activities, please identify theories of change / the underlying assumptions that your project was based on.

ii). Were the assumptions in your theories of change correct? Did the project go as you predicted it to? If not, what did cause the changes to take place in your project? iii). Have there been any events or activities that have happened during project implementation that were never planned, but resulted in new, better or worse outcomes related to your project?

1)The theories of change were:

- a) The orchestration of multi-stakeholder innovation platforms will promote uptake of research outputs and improve livelihoods in Nigeria
- b) Positive change in Institutional environments will enable the mainstreaming of processes for putting agricultural research into use in Nigeria
- c) Effective documentation and dissemination of evidence and lessons based on the processes and outcomes of the orchestrated IPs will prompt a paradigm shift from a linear, state-run agricultural extension to one involving multi-stakeholder networking participation in agricultural research for development (R4D) in the country

ii). The assumptions were correct. The project went as expected.

iii). Activities that were not planned but occurred include; collaborating with International Society of the Red Cross, the Nigerian Red Cross and the US Embassy on access to certified, high-quality seeds, collaborating with the office of Abia State First Lady on facilitating access of rural women to DMD-resistant cassava varieties; building capacity of processors on post harvest value addition and inclusion of a socially excluded group in platform activities. This has helped to leverage greater impact, and made the programme flexible and allowing it to respond to challenges as they occured.

Any Other Comments

Please include any other comments that you would like to include and which you feel don't fit in elsewhere.

Brokering agricultural innovation involves conflict resolution, and it is important that an innovation broker is perceived by all stakeholders as being neutral, unbiased and fair. This is necessary for creating linkages that would enable large scale adoption of agricultural research outputs. The linkages formed by RIU programme are growing, but are still fragile and need to be nurtured to maturity to be sustainable.

Country Programme: NIGERIA (RIU Extension Phase June 2011 - July 2012)

Partnerships

	Women in Agriculture (WIA); Kano State Cowpea Marketers Association; Cowpea Farmers & Seed Producers Association (Kano State); Hikima Women Forum (Kaduna State); Dararafe Women's MP Coop		
	(Kano State); Miyatti Allah Cattle Breeders Association (local branches); Kaduna Soybean Farmers Association; Gonin Gora Women MP Coop; Vegetable/Edible Oil Millers Association; Gamariya Women MP		
	Coop; Poultry Farmers Association of Nigeria; Tofa Seed Breeders Association (Kano State); Kausani Seed Breeders Association (Kano State); Garko Women Farmers Association (Kano State); Abanbeke Dev't		
NGOs/CBOs (14)	(Widows) Association		
	Feed Masters Nig Ltd (animal feed producer); Grand Cereals Nig PLC (animal feed producer); Rebson Feed Co. (animal feed producer and researcher); Lela Agro Nig Ltd (maker of jute and plastic bags); Seed		
	Project Co. Ltd (producer and marketer of certified seeds); Premier Seed Nig Ltd (producer & marketer of certified seeds); Candel Agro-Chemicals (agro input supplier); Jubaili Agro-Chemicals (agro input		
Private Sector (11)	supplier); Nigerian Agricultural Coop & Rural Development Bank; United Bank for Africa; Wetlands Associates Ltd (agric engineers, equipment fabricators & input suppliers)		
State & Local public agencies	Bauchi State Agricultural Development Programme; Gombe State Agricultural Development Programme; Jigawa State Agricultural Development Programme; Kaduna State ADP; Katsina State ADP; Kano State		
(7)	Agriculture and Rural Development Authority; Agric Department of Garko Local Government Council, Kano State		
	Agricultural Research Council of Nigeria (ARCN), Abuja (Research management); Institute of Agricultural Research (IAR), Zaria (Cereals mandate); National Animal Production Research Institute (NAPRI), Zaria		
Federal agencies (5)	(Livestock mandate); National Agricultural Extension Research & Liaison Services (NAERLS), Zaria (extension mandate); Nigerian Stored Products Research Institute (NSPRI), Ilorin (Post-harvest storage		
	mandate).		
International (1)	International Institute of Tropical Agriculture (IITA)		

Partnerships (contd.)

i). Have all partners listed above contributed as expected in the project? Did you have to drop some of the partners and bring in new partners to achieve the objectives of your project? Kindly describe your experiences in this regard.

ii). When working to strengthen and enhance relationships what do you think worked well?

- iii) There was free entry and free exit of members/partners to the Cowpea innovation platform. Partners contributed by addressing issues that were of direct interest to them, and by so doing contributing to the development objectives of the cowpea value chain as a whole. Each partner acted to address their respective economic interests. The public agencies, such as ARCN and Federal Ministry of Agriculture played their parts in line with their statutory mandates and functions. RIU sought and developed new alliances such as RIU-IITA/PICS collaboration, where the need arose.
- iv) ii)Members had a clear understanding of their respective roles and interests in joining the platform. Knowledge sharing and diverse business transactions strengthened the relationships among the partner/member s of the IP.

Knowledge being put to use

Identify and describe all the knowledge products/processes that have been put to wider use in this project. This can refer to methodologies, techniques, tools and resources etc. Please refer to your country strategy documents to answer this section. Please also provide data on the number relevant to, or designed primarily for use by, women.

Knowledge outputs from DFID's 1995-2005 investments in RNRRS (specifically CPP08 – "Improving farmers' livelihoods through better crop options for getting high-

yielding varieties, pest-control, fertilizers and weed control techniques;" and CPP28 – "new high-yielding varieties") as well as CGIAR (IITA) and Nigerian NARIs, were put into use in the cowpea sector during the period July 2011 and June 2012. These included:

Innovations brought about by this platform included: (1) The adoption, by 10,000 participating farmers, of high-yielding, dual-purpose, medium-maturing varieties of Cowpea. The varieties are technically described as:

- IT277-2 (Dual-purpose, medium-maturing, high yielding and forage potential variety) from IITA and NARIs
- IT97K-499-35 (High yielding, *striga*-resistant, medium-maturing variety) from IITA and NARIs
- IT98K-205-8 (High forage potential and medium-maturing variety) from IITA and NARIs
- Triple Bags (hermetic storage for cowpea grains) from Purdue University, USA
- Legume Fodder Compactor (for improved management and use of fodder) from RNRRS & a Nigerian entrepreneur
- Scientific combination of fodder and concentrates in animal rations (private sector driven research output)

Most of the activities across the cowpea value chain were carried out by women. The activities included all aspects of farm production, post-harvest processing and storage, marketing, and converting the cowpea into various table foods for local consumption.

Non RNRRS generated knowledge used:

Cowpea/Soybean Crop Livestock Integration Platform

- d. Fodder compactor (to improve management and marketing of cowpea fodder) was designed, developed, fabricated, field-tested, improved and produced and commercialized by a local company, Wetland Associates Nigeria Limited, in partnership with consultants from the Ahmadu Bello University.
- e. Rust resistant variety of soybean TGX 1835-10E, a locally complementary crop to cowpea, was developed by CGIAR the International Institute for Tropical Agriculture (IITA) and the National Cereals Research Institute (NCRI)
- f. Triple bags for improved storage of the cowpea grains was developed by Purdue University, USA, and promoted in Nigeria by the IITA and RIU programme in partnership with six cowpea-producing states through their respective Agricultural Development Programmes (ADPs), namely: Bauchi, Gombe, Jigawa, Kaduna, Kano, and Katsina.

Project Outputs

In this section we would like you to describe the status of achievement of your stated outputs and also the changes (if any) that have taken place to your project outputs. Kindly explain the reasons for the changes (if any) that have occurred. In the activities section briefly describe the nature of specific activities you have adopted in your project to achieve the outputs. Did you have to use any new activities [other than what you have committed in the log frame] or modify these activities and if so explain the reasons.

Project Output Title	Activities	Status of	Deviations if	Please provide a brief
	undertaken	achievement	any and the	description of the
	/changes in		reason for the	management decisions and
	activities		deviation	strategic direction taken that

				affected the project outputs.
Cowpea/Crop livestock Integration Innovation Platform d. Value Chain Innovation Platform established	Facilitated an investment by 3 local companies in the production and distribution of triple bags	Female membership of the Cowpea Value Chain Innovation Platform increased from an initial 25% to 60% of total participants as at June 2012, which the total number participants across the six partner- states Fodder compactors are currently in use across	The United Nations Development Programme had earlier agreed to provide funding for increasing the scale of this intervention. However, the UNDP cancelled its pledge after its office building in	affected the project outputs. RIU invested much effort in securing private sector interest and financial investment in the production and distribution of triple bags, as this was a key element for sustaining the innovation in cowpea storage after the end of support from RIU and IITA. This objective was achieved because 3 manufacturing companies are now producing the triple bags on a competitive basis, thereby offering
	implementation of RIU approach to R4D	 14 rural communities in Kaduna and Kano states. 18 previously unemployed youths are now micro-enterprise owners using the fodder compactors for income generation. 120 agricultural (40% female) extension agents deployed by partner ADPs in 6 states were trained and are now also serving as retailers of triple bags 	Abuja was demolished by a terrorist bomb attack.	cowpea farmers and marketers a choice both in terms of quality and price. Profit motive will keep the companies producing the bags in future years, thereby ensuring sustainability.

Policy change

i). Have you engaged with policy makers in this project and what has this experience been like?

ii). Who are the critical policy makers /policy influencing groups that are essential for up-scaling your interventions? What mechanisms were used to engage with policy makers? iii). Please detail policy changes to which your project has contributed, for example have any other organisations adopted or promoted lessons derived from your project?

RIU engaged policy makers and realised that there are vested interests or pressure groups who exert influence on agricultural policy decisions. Working in the policy arena requires much time to achieve institutional change. Sometimes policymakers need capacity building in order to understand, appreciate and act on issues that may have far reaching implications not obvious to them. In some cases the policies are there but no supporting institutions for effective enforcement.

The key policymakers in agriculture were: The State Houses of Assembly at state level, House of Representatives and Senate at national level. Federal Ministry of Agriculture and Rural Development at national level, and respective state ministries of agriculture. Policy influencing groups include relevant agricultural occupational associations, nongovernmental organisations, trade unions, relevant government agencies, influential members of the society. Mechanism used included: Advocacy, Lobby, information sharing and synergy of action amongst stakeholders.

Policy changes contributed by RIU-Nigeria:

- f. Agricultural Research Council of Nigeria (ARCN) adopted for replication, RIU's Innovation Platform model in designated Adopted Villages in collaboration with selected national agricultural research institutes across the country.
- g. At least 2 commercial banks joined the RIU-assisted agricultural IPs and developed targeted financial products and services to suit the special needs of the IP members such as farmers, processors and marketers. This represents a major shift away for banks who have historically been risk-averse when it comes to loaning to agriculture.
- h. The role of 6 partner-ADPs (agric development programmes), who historically practised top-down, state-run agricultural extension, shifted to a multi-stakeholder arrangement which included the private sector, local micro entrepreneurs and civil society groups. The ADPs worked directly with manufacturing and supply chain companies in producing and distributing inputs to farmers as well as triple bags for post harvest storage. Similar channels developed for output markets which enabled farmers to sell at better prices that was previously the case.

Organisational & Institutional Changes

i). Has yo	our project resulted in development of new working practices, regulations, functional changes in organisations, emergence of new partnerships etc. within your own project
teams ar	nd also outside? What has been the effect of these changes?
ii). Have	there been any unintended changes / consequences?
i)	New business relationships between private sector and public agencies in promoting extension services (i.e. production and distribution of triple bags) to improve storage of
	cowpea and reduce post-harvest looses of stored cowpea grain caused by bruchid infestation. New working practices developed such as planting of high yielding disease-
	resistant varieties cowpeas and soybean, hermetic storage of cowpeas. These new developments have strengthened the capacity of economic actors to participate in the
	activities of Cowpea IP.
ii)	No unintended consequences were recorded.

Lessons learnt

i). What lessons have you learnt about how to put research into use and enable innovation in agriculture?

ii). Have you shared these lessons with others and if so with whom and how?

iii). Also, describe what has not worked and explain the reasons why not.

iv). What kinds of challenges did you face while up scaling/promoting new knowledge under this project and were you able to address these and if so how?

v). What kinds of challenges [technical, organisational, marketing, policy etc.] continue to remain and how you think these could be resolved?

- vi) i).Private sector participation is in the input and output markets is necessary to sustainable agricultural innovation; profit-making opportunity for producers and suppliers and agro inputs, and for triple bags for post-harvest use, motivated the manufacturers as well as the distributors and related service providers to invest in the sustainable production and delivery of the products and services to the input and output markets.
- vii) One of the most effective ways of advocating for institutional change is by demonstrating the economic feasibility of what could be achieved under the desired policy environment. The adoption and integration of Innovation Platforms into the World Bank funded West African Agricultural Productivity Programme (WAAPP), implemented by the Agricultural Research Council of Nigeria (ARCN), and ARCN's directive to all NARIs to adopt integrated agricultural research for development (IAR4D)

are evidences of institutional learning and change, which has utilized and scaled out lessons from RIU-assisted IP experiments.

Project Beneficiaries / Scale achieved

Please state the estimated number of people affected by your project. Please note that it is very important that the data entered here is supported by the data you have collected. In the table below an example is given, please use columns below this to enter your own information.

*Make sure that all information provided here correlates with the evidence you have collected. Please include the evidence as separate attachments to this report and label the attachments appropriately.

Project Output	Output No 1	Output No 2	Output No 3
	Value chain Innovation Platform established and functional	Enabling policy environment for cowpea value chain advocated to policy makers	Capacity of stakeholders to effectively participate in RIU innovation approach developed and lessons documented and shared amongst partners.
Number & Type of Indirect Beneficiaries	3.6. million people attended face-to-face Information, Education and Communication (IEC) activities conducted by RIU-trained ADP extension agents across 6 states in northern Nigeria. 600,000 of these were cowpea farmers and marketers. Due to improved management and use of 2.5 million cattle in Kaduna and Plateau states had access to preserved fodder and concentrates during the 2012 dry season when there was scarcity of green vegetation for grazing.	A total of 16.6 million people were reached by Information, Education & Communication (IEC) activities, thereby raising their awareness about non-chemical hermetic method of cowpea storage: Bauchi State (2,000,000) Gombe State (1,000,000) Jigawa State (600,000) Kaduna State (5,000,000) Kano State (15,000,000) Katsina State (3,000,000)	Various economic actors that were brought together by RIU under the Cowpea IP have continued to initiate and carry out business transactions with each other; this shows that they have developed their capacity to pursue their respective development objectives under the Platform. An innovative value chain approach to handling Platform challenges has evolved
Number & Type of Direct Beneficiaries	 380,000 cowpea farmers produced 352,000 metric tonnes of cowpea grains 120 agric extension agents trained in 6 states 6 agric supervisors trained 	Not known	Not quantified
Male Beneficiaries (indirect and direct)	 152,000 cowpea farmers 30 fodder compactors 32 triple bag distributors and retailers 	Not known	Not quantified
Female Beneficiaries	228,000 cowpea farmers 200,000 adopted hermetic cowpea storage	Not known	Not quantified

Cowpea Innovation Value Chain Platform

(indirect and direct)			
Total	 3.6 million people sensitized (triple bags) 600,000 directly attend village workshops 120,000 triple bags acquired by users 228,000 female farmers benefit 30 fodder compactors acquired by users 	• 16.6 million people sensitized (triple bags)	
Please describe the benefits to the beneficiaries for example what was the impact/ result of having access to good quality potato seed have on the farmers in Gicumbe? Please try to quantify your responses, so use numbers, percentages etc. when describing the benefits.	 10.2 metric tonnes of cowpea seeds and other inputs worth GB£150,000 were acquired by 380 cowpea farmers. These inputs yielded 352,000 metric tonnes of cowpea grains, valued at GB56 million, from 406,620 hectares of cultivated land. The inputs also generated 179,000 metric tonnes of cowpea fodder valued at GB3.6 million. 120,000 triple bags were produced and supplied by private sector companies, enabling the storage of GB£3.5 million worth of cowpea grains in the triple bags; this prevented potential post harvest losses valued at GB£1.1 million in cowpea grains 		
Have you conducted an impact assessment study? What are the main findings? Kindly attach a copy of the impact assessment report.	 Yes. An overall Impact Assessment was conducted in May 2012 by the Royal Tropical Institute (KIT) of the Netherlands. The main findings were as follows: The value-for-money analysis revealed that each GB£1 invested by DFID-RIU generated GB£5.4 in direct net impact among the direct participants in the Cowpea Value Chain Innovation Platform activities. 	 The Impact Assessment Report showed that There was a strong buy-in by both federal and state agricultural agencies, in the mobilization and other processes that were promoted by RIU. ARCN, which hosted the RIU programme, has scaled out Innovation Platform model to other crop sectors through the World Bank funded West African Agricultural Productivity Programme (WAAPP). Cowpea has been included among the crop sectors targeted for Agricultural Transformation Agenda (ATA) by the Federal Ministry of Agriculture and Rural Development. This will enhance scaling up the success demonstrated by RIU-assisted IP model. 	

Social Exclusion & Gender

i). Please explain how the project has targeted women and other socially excluded groups, and provide evidence of the projects impact on gender and social exclusion. ii). Have you used the data your project has collected on gender and social inclusion to help shape project interventions?

i). Through proactive involvement of women's associations and other organisations in the activities of the platform, Women the proportion of female participants increased from 24 to about 60% in cowpea value chain economic activities.

Expected and Unexpected Outcomes

i). We would like to identify theories of change that underlie project activities. By theories of change we mean 'a process of planned transformation (economic, social or political) including an articulation of the assumptions that lie behind its design and its goals'. Although theories of change were not made explicit early on in project activities, please identify theories of change / the underlying assumptions that your project was based on.

ii). Were the assumptions in your theories of change correct? Did the project go as you predicted it to? If not, what did cause the changes to take place in your project? iii). Have there been any events or activities that have happened during project implementation that were never planned, but resulted in new, better or worse outcomes related to your project?

1)The theory of change was that private sector involvement in the production and supply chain for triple bags would ensure effective and sustainable adoption of innovation in the post-harvest storage of cowpea grains in Nigeria, thereby strengthening the case for public-private partnership in agricultural innovation

Any Other Comments

Please include any other comments that you would like to include and which you feel don't fit in elsewhere.

i. The successful take-off of the WAAPP in July 2012, after RIU programme ended in June 2012, indicates that not all of the impact of RIU manifested during the timeframe of the programme. It also shows that institutional learning and change at the level of the ARCN was pivotal to sustainable mainstreaming of the principles of IAR4D which RIU promoted.

Selected list of documented and shared knowledge emanating from RIU-assisted innovation platforms in Nigeria

1.	Ugbe, U. P. (2012).	"Cowpea and Soybean in Nigeria". In Nederlof, Wongtschowski & Van der Lee (Eds.) Putting heads together: Agricultural Innovation
		Platforms in Practice. 133-140. Amsterdam: KIT Publishers
2.	Daramola, A., Emechebe, A. & Ugbe,	"Managing Agricultural Innovations: The case of RIU-Nigeria". In Lessons and case stories from RIU-Assisted Innovation Platforms in
	U. P. (2011)	Nigeria, pg 9.

3.	Udensi, E. U. (2011)	Partnership Brought Succour to Cassava Farmers in Abia State, Nigeria. In Lessons and case stories from RIU-Assisted Innovation Platforms in Nigeria, pg 13.
4.	Elekwachi E. F. (2011)	RIU Partnership Oils the Wheel of Agricultural Inputs Distribution in Abia State. In Lessons and case stories from RIU-Assisted Innovation Platforms in Nigeria, pg 21
5.	Kalu I. K (2011)	Unity in Diversity: The Driver of Innovation Platforms. In Lessons and case stories from RIU-Assisted Innovation Platforms in Nigeria, Pg 24
6.	Oti, E. & Kalu I. K (2011)	Progress in Manual Cassava Peeling: The Outcome of Interaction of Stakeholders. In Lessons and case stories from RIU-Assisted Innovation Platforms in Nigeria, pg 28
7.	Abdoulaye, T., Ugbe P. U. & Dieudonne B. (2011)	Promoting an Agricultural Technology through Multi-Stakeholders' Approach: The Case of PICS Hermetic Cowpea Storage in Nigeria. In Lessons and case stories from RIU-Assisted Innovation Platforms in Nigeria, pg 32
8.	Sanni S. A. & Jokthan G. (2011)	Battle Against Cowpea Weevils Finally Won: Improving Farmers Livelihood Through Promotion of Non-Chemical Hermetic Cowpea Storage Technology. In <i>Lessons and case stories from RIU-Assisted Innovation Platforms in Nigeria</i> , pg 37
9.	Ingwu A. (2011)	Widows Now Smile – A Case Story of Abanbeke Development Association. In Lessons and case stories from RIU-Assisted Innovation Platforms in Nigeria, pg 41
10.	Jokthan G. (2011)	Food for Man, Feed for Animals: A Case of Dual Purpose Cowpea Varieties. In Lessons and case stories from RIU-Assisted Innovation Platforms in Nigeria, pg 47
11.	Akande G. R. & Oresegun A (2011)	Low Value Tilapia: New Idea on an Old Problem. In Lessons and case stories from RIU-Assisted Innovation Platforms in Nigeria, pg 50
12.	Olokor J. O & Raji A. (2011)	Tilapia Fish Meal Harvest Profit. In Lessons and case stories from RIU-Assisted Innovation Platforms in Nigeria, pg 54
13.	Talabi S. O, Coker M. & Oni K. (2011)	Aquaculture is not Just <u>Clarias</u> farming. In Lessons and case stories from RIU-Assisted Innovation Platforms in Nigeria, pg 58
14.	Apochi J. O. (2011)	Aquaculture Value Chain: Innovations, Opportunities & challenges in Nigeria. In Lessons and case stories from RIU-Assisted Innovation Platforms in Nigeria, pg 62
15.	Ndirpaya Y. D (2011)	Successful Cross-Pollination: Towards A New Strategy for Agricultural Development in Nigeria. In Lessons and case stories from RIU- Assisted Innovation Platforms in Nigeria, Pg 65
16.	Jokthan, G. & Sanni, A. (2011)	An Analysis of Triple Bag Intervention for Cowpea Storage in Nigeria. Paper presented at a One-Day Cowpea Stakeholders' meeting, Abuja October 12, 2011
17.	Jokthan G., Ugbe, U. P. & Sanni, A	Innovations in the Cowpea Sector in Northern Nigeria: Research Into Use Nigeria. Paper presented at the Purdue Improved Crop Storage

	(2012)	Workshop, Accra-Ghana April 10-12, 2012
18.	Abdoulaye, T., Ugbe P. U. & Gital, I.	Multi-agency collaboration for Agricultural Innovation: A case study of RIU-PICS promotion of Improved Cowpea storage in Nigeria. 2012
	(2012)	IPM Symposium, Memphis - Tennessee, USA. March 27-29, 2012.

SIERRA LEONE Country Programme

List of Partners: These are categories in which RIU-Sierra Leone partners fall: See potential partners list attached (to be updated)

- Farmers, FBOs and other representatives of rural communities
- Loci of economic/market demand : processors, wholesalers, retailers,
- Other agricultural enterprise such as inputs companies, machinery, finance
- Primary conduits/intermediaries, including technical advisory and business development services
- Communications services and media
- Knowledge generators : research and education, or others that are widely cited as sources of knowledge
- Policy /decision makers /regulators with influence over 'framework conditions', both Agriculture and other relevant such as Science and Technology, Communications, Transport.

Knowledge being put to use

Identify and describe all theknowledgeproducts/processes that have been put to wider use in this project. This can refer to methodologies, techniques, tools and resources etc. Please refer to your country strategy documents answer this section. Please also provide data on the number relevant to, or designed primarily for use by women.

RNRRS generated knowledge used:

An RNRRS output on "how can we increase the impact and uptake of research?" A demand-driven framework for scaling up research findings in agriculture and natural resource management has been adopted by PAID-SL to contribute to poverty reduction and improving livelihoods in Sierra Leone - http://www.researchintuse.com/nrk/RIUinfo/PF/NRSP05. PAID-SL and its membership have identified the key strategies that must be put in place including strong networks and partnerships, building institutional capacity, policy advocacy and ear-marking appropriate funding. PAID-SL has now become the conduit for knowledge linkages and flows. Through the new ways of working, self-started initiatives by members in some districts seeds before planting, commenced including priming of maize solar drying of fruit have and vegetables (http://www.researchintouse.com/download5 Marketing Processing Storage 2nd edition RIU.pdf - Commercialization of solar drying technologies for micro-and small-scale rural enterprise development (Ref: CPH31 on CD), participation in commodity value chains (cassava and vegetables), commercial rice production, processing and packaging of fruits and vegetables. The number of women targeted to benefit is 479,805

Non RNRRS generated knowledge used:

None

Project Outputs

In this section we would like you to describe the status of achievement of your stated outputs and also the changes (if any) that have taken place to your project outputs. Kindly explain the reasons for the changes (if any) that have occurred.

In the activities section briefly describe the nature of specific activities you have adopted in your project to achieve the outputs. Did you have to use any new activities [other than what you have committed in the log frame] or modify these activities and if so explain the reasons for the same.

Title/1. PAID•effectively•provided with•coordination and•communications•	 /changes in activities Launching of SL-RIU/PAID-SL Partnership. Descling studies on SL 	achievement Completed	and the reason for the deviation.	decisions and strategic direction taken that affected the project outputs.
1. PAIDeffectivelyprovided withcoordination andcommunications	Launching of SL-RIU/PAID-SL Partnership.	Completed	the deviation.	project outputs.
1. PAIDeffectivelyprovided withcoordination andcommunications	Launching of SL-RIU/PAID-SL Partnership. Subscription of SL-RIU/PAID-SL	Completed		
services by RIU Secretariat leading to managed withdrawal by March 2011	 Baseline studies on SL Innovation context analysis and PAID clusters/partnership and other emerging platforms Facilitate the registration drive for PAID-SL membership Facilitate the development of PAID-SL strategy and implementation plan Develop terms of reference for cluster champions and platform facilitators Facilitate the formation of SL- RIU/PAID-SL learning group on innovation systems approach Organize meetings on a monthly basis - SL-RIU Secretariat & PAID-SL board Support to partner coordination mechanism through the AAG and ATT/National Agricultural 	Completed completed Completed Completed Not achieved On-going Ends with project life span		Management promoted the platform at various fora and developed interest in an innovation systems approach for a wide range of stakeholders All levels of PAID –SL i.e. Board, District Coordination teams, AGM have been used as learning group platforms in addition to interactive events for training purposes. The activities of the solar drying and poultry Feed platforms are now closed in the North and South East of Sierra Leone

	• Open day to create awareness within MAFFS on IS	Not completed		SL RIU sits in the AAG while PAID-SL sits in the ATT
Output 2. Self- sustaining Knowledge Market Services as identified in the country strategy established	 Identify and hold discussions with interested stakeholders (District councils, ABUs, FBOs, FFS & ISPs) and undertake baseline studies Identify and sensitize beneficiary groups Train SL-RIU Secretariat team Organize awareness raising workshop/event on how the facility will operate Develop business model/plan Operationalizing DSF/KB/IFF in the field 	On hold Ditto Ditto Ditto Ditto Ditto	Based on the recommendation of the CRT, this aspect of the project was completely removed. The CRT feels that its operationalization will pose problem in the field.	
Output 3. Innovation processes established through innovation platforms	 identify and assess potential members/participants and conduct baseline assessment facilitate interactive events and sessions for trusting building among organizations focusing on market access, youth and use of research identify and assess the relevant RNRRS outputs to be used e.g. Participatory Market Chain Analysis Organize and implement 	Completed Completed		The rest of the activities were not done because of funding and time constraints

Innovation Investment		
Events (IIEs)		
• Through the leadership of		
the Partnership in		
Agricultural Innovation for		
Development (PAID) and		
the champions of		
thematic cluster, identify		
innovation opportunities		
within each cluster		
 Formulate and advertise 		
call for concepts for		
innovative ideas		
 Establish (on ad-hoc basis) 		
assessment/review teams		
to evaluate concepts for		
innovative ideas		
 Formulate proposal/draft 		
business plan for		
successful concepts		
 Disbursement of funds for 		
project implementation.		

Partnerships

i). Have all partners listed in your project proposal contributed as expected in the project? Did you have to drop some of the partners and bring in new partners to achieve the objectives of your project? Kindly describe your experiences in this regard. ii). When working to strengthen and enhance relationships what do you think worked well?

- i) The contribution of partners to the attainment of the objectives of the project varied during the implementation period. Some partners dropped along the way as there perceived interest in the project was what they would receive. Those who saw the partnership would lead to synergy continued. MAFFS the line ministry of agriculture is still a partner and contributed to the project objectives. No partners were dropped by management. Those who dropped did so willingly. To put it in context, dropping was not done formally. Even redundant partners can come back on board if they feel their interests are catered for.
- ii) In the process ofstrengthening and enhancing relationships, the following went well: Stakeholders interactive events; The meeting at various levels from AGM, Board Meetings, Platform Meetings etc.; Staff of SLRIU and PAIDSL were allowed to work creatively; There was openness and accountability with all stakeholders; The strategies and protocols were communicated to all stakeholders; All stakeholders were made to see the

potential benefits of the innovation approach; and Field trips were well organized; Commitment and support from stakeholders

Policy change

i). Have you engaged with policy makers in this project and what has this experience been like?

ii). Who are the critical policy makers /policy influencing groups that are essential for up-scaling your interventions? What mechanisms were used to engage with policy makers?

iii). Please detail policy changes to which your project has contributed, for example have any other organisations adopted or promoted lessons derived from your project?

i) The project has engaged with policy makers at different levels; the experiences have been mixed. Sometimes it is not easy for them to change their stances; at other times they showed willingness but they shied away from committing the resources to back their willingness.

ii)Some of the critical groups that could facilitate scaling up include;

AAG – SLRIU is a member of the forum and there is a memorandum of understanding MOU between RIU-Sierra Leone and MAFFS

Farmers network – They are registered as PAIDSL members and PAIDSL has registered with them as well.

The Universities- are represented on PAIDSL board as technocrats and have been used for consultation on a range of issues.

NGO network – Are members of PAIDSL and PAIDSL participates in the NGO Livelihoods Forum.

MAFFS – SLRIU always has MAFFS representation in activities and SLRIU/PAIDSL supports and takes part in MAFFS activities like field days.

iii). The platform model is being adopted by SLARI, SCP, and some NGOs in the Northern Province. The IAR4D model in agricultural research is based on the innovation systems model. SLARI is working on cataloguing local research results for the purpose of developing modalities to put them into use now in contrast to the former orientation of research for academic publication and for professional growth.

Organisational & Institutional Change

 i). Has your project resulted in development of new working practices, regulations, functional changes in organisations, emergence of new partnerships etc. within your own project teams and also outside? What has been the effect of these changes?
 ii). Have there been any unintended changes / consequences?

i) The SLRIU implementation has had a transformational effect on the way some NGOs engage/work with the beneficiaries e.g. CARE, Welthungerhulte and MADAM have requested that SLRIU staff to train their field workers in Bo, Bombali and Koinadugu Districts on establishing partnerships around the Solar drying technology they have adopted; The MIL templates have been used to upgrade the M&E framework of MAFFS; District level governance of PAID-SL via the District Coordination teams was introduced and proved useful since it led to ownership of innovations; PAID-SL by facilitating the formation of a forum for agricultural advisory services, and also made policy makers realize that there is need to develop a national extension policy and MAFFS is encouraging the development of one.

ii) None

Lessons learnt

i). What lessons have you learnt about how to put research into use and enable innovation in agriculture?

ii). Have you shared these lessons with others and if so with whom and how?

iii). Also, describe what has not worked and explain the reasons why not.

iv). What kinds of challenges did you face while up scaling/promoting new knowledge under this project and were you able to address these and if so how?

v). What kinds of challenges [technical, organisational, marketing, policy etc.] continue to remain and how you think these could be resolved?

i) There is a genuine desire to try out new approaches in innovation systems in agriculture. Research can best be put into use with the platform model so that all stakeholders are achieving synergy and getting better returns from the innovation; Partnerships are important to achieve results or get research into use; Establishing partnership requires continuous stakeholders engagement; Partners are willing to innovate when they observe the success of the interventions; There is willingness to innovate around opportunities, enhanced capacity and limited support may be needed to assist members in the process; Partnerships are key for sustaining innovation systems and developing financially sound business enterprises;Strong and broad partnerships are required to move and influence policy directions; When members have access to information, they can innovate around challenges and opportunities; Enterprise development is the way to go to sustain innovation systems and lead to demand for information and services;

- ii) This lesson has been shared with other partners like the National Research Institutes, training courses, workshops etc. at local and international levels. The lessons were also shared during the AGM in scientific meetings that were organized.
- iii) Challenges include the availability of adequate funds to meet the ever expanding demand. In addition members showed signs of depending on SLRIU. The ministry of Agriculture has not committed funds to upscale the interventions. To address PAIDSL has been negotiations with other stake holder. Furthermore, SLRIU is working on drawing up MOUs with other agencies e.g. CARE Sierra Leone.
- iv) Policy challenges no policy on agricultural technology dissemination and support to promotion of these technologies
- v) Marketing issues on value additions on produce before attacking especially the international markets.

Project Beneficiaries / Scale achieved

Please state the estimated number of people affected by your project. Please note that it is very important that the data entered here is supported by the data you have collected. In the table below an example is given, please use columns below this to enter your own information.

Project Output	Output 1. PAID effectively	Output 2aInnovation	Output 2bInnovation	
	provided with coordination and	processes established	processes established	
	communications services by RIU	through innovation	through innovation	
	Secretariat leading to managed	platform -	platform - Poultry feed	

	withdrawal by March 2011	Solar Drying in fruit/horticulture value chain	production and marketing	
Number & Type of	2,560,000 individuals in various	1,120,000 Household	1,579,000	
Number & Type of	200 associations (farmer	60 farmer associations	70 Maize producer	
Direct Beneficiaries	associations research		organizations 75 poultry	
	academic institutions etc.		producers	
Male Beneficiaries	1.000.000	520.000	651.000	
(indirect and direct)	, ,	,		
Female Beneficiaries	1,560,000	600,000	928,000	
(indirect and direct)				
Total	2,560,000	1.120,000	1,579,000	
Please describe the	200 associations will have the	60 farmers associations	70 maize producers	
benefits to the	following benefits:	will have following the	associations and 75	
beneficiaries for	i) Better access to resources	direct benefits	poultry farmers will have	
example what was	for pro-poor agricultural	i) Persistent bottle necks	following direct benefits	
the impact/ result of	"innovation platforms"	along food value chain	i) Improved protein	
having access to good	ii) Increased engagement of	overcome e.g.	intake	
quality potato seed	pro-poor organizations in	provision of improved	ii) Better access to	
have on the farmers	shared dialogue, working	maize variety	quality poultry feed	
in Gicumbe? Please	together and innovative	ii)Better access to feed		
try to quantify your	partnership		This will benefit	
responses, so use	iii) Learning for continuous	This will benefit	1,579,000 people nation	
numbers,	Improvement	1,120,000 people nation	wide	
percentages etc.	Inis Will benefit 2,560,000	wide		
when describing the	people nation wide			
Denenits.	No impact study conducted	Impact evaluation was	No impost study	
nave you conducted	No impact study conducted	corrige out Soo	sonducted	
study? What are the		attached		
main findings? Kindly				
attach a copy of the				
impact assessment				

ranart			
report.			
	•		

Social Exclusion & Gender

i). Please explain how the project has targeted women and other socially excluded groups, and provide evidence of the projects impact on gender and social exclusion.

ii). Have you used the data your project has collected on gender and social inclusion to help shapeproject interventions?

i) The management made it a policy decision at all levels to ensure that women are well represented in all aspects. For example, in the PAID SL Board, the chairman and the alternate have to be male and female. Management endeavoured to get a thirty percent representation of women where possible. Other areas where women were represented were on the two pilot platform i.e. solar drying in fruit/horticulture value and the poultry feed production and marketing – 60 to 70% involvements were women.

ii). No quantitative data has been collected

Expected andUnexpected Outcomes

i). We would like to identify theories of change that underlie project activities. By theories of change we mean 'a process of planned transformation (economic, social or political) including an articulation of the assumptions that lie behind its design and its goals'. Although theories of change were not made explicit early on in project activities, please identify theories of change / the underlying assumptions that your project was based on.

ii). Were the assumptions in your theories of change correct? Did the project go as you predicted it to? If not, what did cause the changes to take place in your project?

iii). Have there been any events or activities that have happened during project implementation that were never planned, but resulted in new, better or worse outcomes related to your project?

i) Developing relationships and linkages between organizations which will lead to knowledge flow and utilization for improving policy and practice in agricultural innovation in Sierra Leone

ii) The project did not go 100% as predicted because of management decisions which led to changes in the project implementation

iii)None

RWANDA Country Programme

List of Partners:

Partner organisations	Public/Private/others	Role e.g. Researcher, Research user, policy makers etc.		
At National level				
MINAGRI (Ministry of Agriculture and Animal Resources)	Public	Policy maker (Agriculture sector)		
Rwanda Agriculture Board (RAB)	Public	Extension/research user		
Rwanda Cooperative Agency (RCA)	Public	Extension-Access to markets-Cooperative promotion		
ISAR (National Agricultural Research Institute)	Public	Researcher		
RADA (Rwanda Agricultural Development Authority)	Public	Extension/research user		
Faculty of Agriculture of the National University of Rwanda	Public	Researcher/Higher Learning Institution		
ISAE BUSOGO (Higher institute of Livestock and Agriculture)	Public	Researchers/Higher Learning Institution		
National Confederation of Farmers Cooperatives	Umbrella Organisation of Farmers Cooperatives in Rwanda	Advocacy, Research users-Extension-Access to markets- Cooperative promotion		
National Federation of Potato Producers Cooperatives	Umbrella Potato Farmers Organisations	Research users-Extension-Access to markets-Cooperative promotion		
National Federation of Cassava Producers Cooperatives	Umbrella Cassava Farmers Organisations	Research users-Extension-Access to markets-Cooperative promotion		

Partner organisations	Public/Private/others	Role e.g. Researcher, Research user, policy makers etc.		
ORINFOR (Rwanda Bureau of Information and	Public	Communication/community development		
Broadcasting)				
WFP (World Food Programme)	International Organisation	Access to market		
Private Sector Federation	Private	Business development		
MINIMEX	Private	Access to market (Maize miller)		
ROPARWA	Umbrella Farmer	Research user/Farmer empowerment		
	organisation			
PASNVA (Support Project to National Extension System)	Project	Support to Extension		
PAPSTA (Support Project to Strategic Plan for Agriculture	Project	Extension/Community development		
Transformation)				
IFDC Catalyst	Project	Fertiliser promotion		
Partners at operation level (Maize, Potato and Cassava Innovation Platforms)				
Gicumbi District	Public	Policy maker at decentralised level / Community Development		
Nyagatare District	Public	Policy maker at decentralised level / Community Development		
Gatsibo District	Public	Policy maker at decentralised level / Community		
		Development		
Musanze District	Public	Policy maker at decentralised level / Community		

Partner organisations	Public/Private/others	Role e.g. Researcher, Research user, policy makers etc.
		Development
Nyabihu District	Public	Policy maker at decentralised level / Community
		Development
ISAR/ Maize Research Programme	Public	Research
ISAR /Potato Research Programme	Public	Research
ISAR /Cassava Research Programme	Public	Research
ISAR/ Technology Transfer Unit	Public	Research
RADA /Seed Unit	Public	Extension/Seed certification/research user
CARITAS Diocese Byumba	NGO	Extension/ Community Development
RDO (Rwanda Development Organisation)	NGO	Extension/ Community Development
Centre de Perfectionnement Agricole de Kisaro	NGO	Seed production/Community development
ΙΜΡυγακι	Farmers' Cooperative	Input supply/seed production
NYINAWIMANA Parish	Faith Based Organisation	Extension/Seed production
Banque Populaire du Rwanda (Gicumbi Branch)	Private	Financial Institution
RIM(Reseau Interdiocesain de Micro Finance	Private	Financial Institution
Duterimbere IMF	Private	Financial Institution
CT Murambi	Private	Financial institution

Partner organisations	Public/Private/others	Role e.g. Researcher, Research user, policy makers etc.
Gakoni Polytechnic	Private	Secondary Education School (Agriculture)

Knowledge being put to use

Identify and describe all theknowledgeproducts/processes that have been put to wider use in this project. This can refer to methodologies, techniques, tools and resources etc. Please refer to your country strategy documents to answer this section. Please also provide data on the number relevant to, or designed primarily for use by, women.

RNRRS generated knowledge used:

Warrantage: Warrantage is a system derived from the "Warehouse Receipt System" previously developed/promoted under DFID—funded RNRRS.

The analysis made the Maize Innovation Platform has revealed that maize profitability and income was reduced by poor farm gate price. In many cases, farmers were obliged to sell their "products" even before harvesting because of urgent family needs that require money. As rural credit services are not tailored to such urgent needs, farmers were obliged to deal with some traders who offer very low prices. The practice is known as "*Kotsa*" in kinyarwanda and RIU-Rwanda has advised and supported NYAMIG (the business arm of the Maize Platform) to pilot the "*warrantage system*" in Nyagatare District in order to address this challenge.

Based on key principles of the warehouse receipt system, RIU-Rwanda developed with NYAMIG Ltd and Duterimbere IMF, (the banking partner) a warrantage model where on delivery of their maize harvests to the secure warrantage warehouse, smallholders are advanced loans from the bank which represented 60% of the value of their crops. The balance of the payment (40%), less interest and warehouse charges, are made at an agreed time and price, payable when the crop is sold on. Individual farmers and farmers' cooperatives were recruited to take part in warrantage through a series of meetings, visits to the warrantage site and to participating farmers' cooperatives, and through a weekly broadcast on Nyagatare Community Radio. There was initial resistance from smallholders who were nervous about the probity of the scheme but, over the subsequent seasons, trust was built and the number of smallholders grew to 5,000.

NYAMIG Ltd has continued to develop new markets, including large contract with the World Food Programme and MINIMEX (the largest maize milling company in Rwanda) to ensure that lucrative markets are secured for smallholder's maize.

In order to scale out the above initiative, RIU contracted the Oxford based H2O Venture Partners to develop a commercial vehicle that will commercialise the warrantage system across Rwanda. The process supported during RIU extension phase (2011-2012) resulted into the creation of SARURA COMMODITIES Ltd, a Rwandan private company, designed as a social enterprise, and who started its warrantage-based operations in Eastern Province with an ambition to grow nationally and do business with 400,000 farmers after 5 years of operations.

[CPP24] Winning the battle against cassava mosaic disease (CMD):

This Knowledge output is related to fighting the cassava mosaic pandemic by using new, resistant varieties and other control methods. When RIU-Rwanda started its operations in Gatsibo District in 2008, the most serious bottleneck that the Cassava Platform decided to confront was the lack of mosaic resistant cassava planting material. An in-depth analysis indicated that the nature of the problem was twofold and subsequent interventions were designed to address the following:

- First of all, there was a need to put in place a system for introduction/ multiplication of new planting material, sharing knowledge on the new varieties with farmers and other stakeholders, as well as responding to the market demand. Activities related to that aspect were initiated in October 2008 with 5 farmers cooperatives (120 members) and completed in November 2009. The evaluation made in October 2009 indicated that 25 Ha have been successfully managed by farmers and produced 2 millions of cassava cuttings.
- ✓ Second, observations of farmers' practices have indicated that the prevailing situation where projects and NGOs were trying to supply cassava cuttings to farmers has disrupted the traditional informal system that enabled farmers to undertake cassava production by saving their own planting material or exchanging it with neighbours. To address this issue, Farmer Field Schools were used since October 2009. The varieties under promotion were *Rwizihiza*-MM96/3920; *Mavoka*-MM96/0287; *Garukunsubire*-MM96/7204 and *Seruruseke*-MM96/5280. 200 farmers graduated in FFS in 2010 in a ceremony that was officiated by District authorities and covered by the national television.

[CPP01] New varieties and methods boost maize production ; [PSP09] Improved Maize; [PSP15]Maize varieties picked by farmers for farmers:

Lessons learned from these 3 outputs have been adapted to Nyagatare District (Rwanda) in order to address the crucial issue of quality maize seed suitable to the relatively dry area of Nyagatare District. The Maize innovation Platform in Nyagatare District was supported by RIU-Rwanda for the introduction and the first multiplication (7Ha) of the M081 maize early maturing variety, specifically developed by ISAR (also Platform member) for the Nyagatare conditions. The new variety (Quality Protein Maize) was thereafter promoted through a network of demonstration plots with community facilitators, an activity that reached 12,000 beneficiaries in 2011.

[CPH01] New market chain approach (PMCA): The Participatory Market Chain was used for stimulating networking and promoting access to market for maize producers in Nyagatare District. RIU-Rwanda supported the process of setting up the Maize Innovation Platform Investment Group (NYAMIG). That business arm of the innovation platform took a leading role in collecting, purchasing and marketing local maize produce, in order to ensure competitive prices for maize producers and improve maize supply to processing units. It was estimated that 25,000 farmers have benefit from higher prices and a better organisation of maize commercialisation in the maize value chain.

[CPH10] Use of appropriate Post Harvest Technologies to achieve competitiveness through supply of high quality produce: The lessons learnt from this output have motivated the RIU Programme to promote post harvest and processing infrastructure for maize in Nyagatare District. Two drying yards and sheds were set up and training sessions were organised for 30 maize cooperatives, leading to reduction of post harvest losses

and better maize quality that was sold at higher price (see above: warehouse receipt system).

Non RNRRS generated knowledge used:

1. Commodity value chain development through innovation platforms.

RIU-Rwanda supported the emergence and functioning of three commodity based platforms, namely: i) The Maize Innovation Platform in Nyagatare District, Eastern Province, i) The Potato Innovation Platform in Gicumbi District, Northern Province, i) The Cassava Innovation Platform in Gatsibo District, Eastern Province. These platforms are networks of key stakeholders of value chain including researchers, extension services, farmers' cooperatives and individual farmers, input dealers, traders, processors and financial institutions as well. In a general sense the objective of the platforms was to catalyse agricultural innovation in the wide sense of the word. The platforms were meant as the hubs for stimulating technical, organizational and institutional innovation related primarily to the chosen commodity.

With RIU support, platforms were able to perform the following functions: i) *Advocacy for change* :Lobby towards decision makers to support their interests; ii) *Demand articulation*: Formulate clear needs towards supporting services, internal and external; iii) *Access to financial service*: Lobby for products tailored to economic actor needs; iv) Instilling trust by working together; v) *Access to research and extension services* :

Improved understanding of needs, Access through visibility and organization of stakeholders (effective service delivery); vi) Access to inputs: Credit, Communication needs; viii) Access to markets: Build closer relationships between economic actors, Improve response to demand; Collective marketing; ix) Farmer collaboration: improve collaboration between farmer organizations; x) Innovation: Vehicle for co-development of new things, Risk sharing among actors, Arena for brainstorming and trying out ideas; xi) Communication: Communication of lessons from innovation

2. Improved maize husbandry:

The theme was adopted following field analysis done by Maize Platform members who observed that despite efforts done by extension services in the context of the Crop Intensification Programme, many farmers were still sowing huge quantities of seeds (at least twice the technical requirement) due to high plant density (4-5 maize plants per hole rather that 1-2) and inadequate spacing. Fertilisers were not adequately applied. In order to redress that situation, RIU-Rwanda supported the maize platform to set up demonstration plots at sector and cell level, following the model developed by FIPS in Kenya. To achieve this, some 240 Community facilitators were identified amongst best performing farmers who were then trained to follow up these demonstration plots and share their knowledge on best agricultural practices with other farmers. It was estimated that 12,000 farmers benefited from that specific activity.

3. Introduction of new highly marketable round potato varieties:

The needs assessment process by the Potato Platform has highlighted the critical issue of degenerated local potato varieties and the subsequent need for high market value varieties to ensure profitability in potato production in Gicumbi District. As a response to the demand formulated by the platform, RIU Programme in collaboration with Rwanda Agricultural Development Authority (RADA) initiated and supported the introduction and multiplication of 2 new varieties from neighbouring Uganda (Rwangume and Rwansake). The two varieties were particularly appreciated for the following features: i) resistance to diseases; ii) relatively short development cycle; iii) high yield; iv) higher farm-gate price compared to local varieties. It was estimated that the activity impacted on 25,000 people.

4. Farmer learning events

"Farmer Learning Events" are special field gatherings where participants share information on what they have done, key achievements and challenges. They were organized by RIU to foster more interaction between farmers, researchers and extension services in the framework of enhancing demand for research outputs and inducing change in the way researchers and extension services work with farmers. Learning events organized focused on the following topics that attracted 2,000 farmers in participants and Gicumbi District:

- ✓ Comparison of M081, an early maturing variety suitable to the Nyagatare dry area with other local varieties
- ✓ Achievements and challenges related to the Crop Intensification Programme and
- ✓ Maize Platform self assessment (the role of the maize Platform in improving access to knowledge)
- ✓ Comparison of introduced potato varieties (Rwangume and Rwansake) with other local varieties
- ✓ Challenges for potato intensification (farmers practices Vs modern potato crop husbandry)
- ✓ Knowledge and observations on new cassava varieties introduced in Farmer Field schools in Gatsibo Districts.

5. Potato Positive Selection:

Developing a community based "positive selection" initiative was identified by RIU supported Potato Platform as an intervention to cope with the issue of acute shortage of potato seeds. The key principle of the positive selection process was to enhance farmers' practical knowledge and skills on early identification of potato diseases on field and apply a basic protocol to peg and select best plants that will produce potato seeds. For RIU-Rwanda, the decision to support such an activity was due to the fact that in Gicumbi District, most of farmers continued to use small potato tubers saved from their last harvest as seeds for the next planting season. Many of them did not even have the capability to save their own seeds and rely on neighbours who are considered to be suppliers of "potato seeds" out of the official supply system. The main issue with this system was a build-up of diseases resulting into seed degeneration that leads to a continuous decline in productivity.

In collaboration with CARITAS-Byumba, a Faith Based Organisation that is involved in potato development in Gicumbi District, 110 potato farmers were selected and trained as community facilitators: Their fields were used for demonstration/training of groups of (15-20) neighbours in positive selection. The activity benefited directly to 2,400 farmers who were acquainted to positive selective methods. A "<u>Seed Revolving Fund</u>" was also set up by the platform, from an initial RIU support (190 tons of potato seeds) injected in the seed system to address the issue of degenerated planting material that was continuously recycled through farmer auto-saved seeds.

6. Making potato biotechnology outputs accessible to poor farmers.

An assessment of the potato seed system made by the Potato Platform with the facilitation of RIU-Rwanda has revealed that inadequate supply of basic seeds was the underlining cause of the lack of certified potato seeds to be planted by farmers in Gicumbi District. In collaboration with the national agricultural research institute (ISAR) and IMPUYAKI Cooperative, the Potato Platform champion, RIU-Rwanda piloted in 2009 the first unit to produce potato basic seeds in green house in Gicumbi District. The experience was successful and attracted visitors from other Districts who were eager to undertake the same activity.

During the extension phase (2011-2012) RIU-Rwanda responded to the demand and expanded the support to rural private entrepreneurs and cooperatives, leading to the creation of 8 potato basic seeds production as follows: i) 5 units in Gicumbi District, Northern Province; ii) 2 units in Musanze District, Northern Province; iii) 1 unit in Nyabihu District, Western Province. Regarding capacity building, 20 technicians were trained in potato green house management and 5 production cycles completed at the end of the Programme in June 2012. Potato varieties multiplied were *Kinigi, Gikungu, Kigega, Ngunda, Mabondo, Sangema, kirundo and 393371-58*. Their choice was based on adaptability to areas targeted by the Programme and demand by consumers.

The model developed by RIU was highly appreciated by the Rwanda Agriculture Board (RAB) and rural entrepreneurs supported by RIU were regularly invited by RAB to show case their projects in order to stimulate other entrepreneurs to invest in such small businesses. RAB potato programme will continue to provide technical follow up in order to ensure quality of the seeds.

7. Strengthening cassava seed system through Farmer Field Schools:

Winning the battle against the Cassava Mosaic Virus implied that new planting material introduced in the community be maintained and disseminated to an increasing number of farmers through the informal seed system. Strengthen ownership of the community and its capacity to sustainably manage the multiplication/production of clean cassava planting material was therefore identified as priority by RIU Programme in Gatsibo District. In consequence, Farmer Field Schools (FFS) was chosen because as a group learning approach, it can build knowledge and capacity amongst farmers to enable them diagnose their problems, identify solutions and develop plans and implement them with or without support from outside.

The experiment was done in collaboration between the Cassava Platform, RIU and the Socio-Economy Department of the National Agricultural Research Institute (ISAR). This was the first application of FFS in Rwanda piloting strong community involvement for creating/maintaining sustainable cassava planting material. In 2009, 100 farmers were organised in four FFS groups. Regarding the knowledge aspect, a FFS curriculum was developed by RIU with the support of a researcher from the Socio-Economy Department of the National Agricultural Research Institute (ISAR). Four Agro-Ecological Survey (AESA) were organised and attracted 1,000 farmers, who were initiated to new ways of cassava farming including planting, use of organic and mineral fertilisers, regular disease identification and control as well as selection of good cassava cuttings for dissemination. In addition to that, 50 Ha of cassava field were put in place, resulting into the production and dissemination of 4 million cuttings by FFS participants to 10,000 neighbours.
Project Outputs

In this section we would like you to describe the status of achievement of your stated outputs and also the changes (if any) that have taken place to your project outputs. Kindly explain the reasons for the changes (if any) that have occurred.

In the activities section briefly describe the nature of specific activities you have adopted in your project to achieve the outputs. Did you have to use any new activities [other than what you have committed in the log frame] or modify these activities and if so explain the reasons for the same.

Project	Activities undertaken	Status of achievement	Deviations if any, and the	Please provide a brief description
Output Title	/changes in activities		reason for the deviation.	of the management decisions and
				strategic direction taken that
				affected the project outputs.
The National Innovation Coalition developed to promote innovation in Agriculture in Rwanda	Stakeholders networking at national level. RIU facilitated the establishment of the NIC as well as meetings, workshops, planning sessions, self evaluations and re-structuring of the National Innovation Coalition (NIC).	 1.The National Innovation Coalition (NIC) was established in February 2008 as the driving engine of the RIU Programme in Rwanda in order to ensure the sustainability of promotion of agricultural innovations beyond the programme lifetime. The National Innovation Coalition is a "Consortium" of the major stakeholders within the Rwandan Innovation System from the public and private sector as well as farmer organisations and the civil society: Government institutions: i) Rwanda Agricultural Development Authority (RADA); ii) National Institute of Agricultural Research (ISAR); Rwanda Animal Resources Development Authority (RARDA); iv) Rwanda Cooperative Agency; v) National University of Rwanda/Faculty of Agriculture. Private Sector: i) Rwanda Development 	Due to lack of member's commitment and a common understanding of RIU mandate and approach, the NIC was not active and a self evaluation process effected in November 2009. Despite these efforts, NIC was not operational since June 2010.	The RIU Midterm Review (2008) and Technical Review (2009) recommended NIC restructuring into a policy dialogue platform at national level. This option did not work due the fact that participants in NIC were not policy makers.
		Bank(BRD); ii) Private Sector		

Project Output Title	Activities undertaken /changes in activities	Status of achievement	Deviations if any, and the reason for the deviation.	Please provide a brief description of the management decisions and strategic direction taken that
		Federation(PSF); iii) Former Support Center to Small and Medium Size Enterprises(CAPMER) Civil Society: i)Rwanda Development Organisation (RDO); ii) Profemmes Twese Hamwe; iii) Network of Farmers' Organisations in Rwanda (ROPARWA). 2.NIC spearheaded the establishment of 4 innovation platforms and played the role of the steering committee for RIU. It designed two major projects (Agricultural Knowledge Market, Rwanda Innovation Facility for Agriculture). These two projects were not implemented following the re- structuring of RIU in 2009		affected the project outputs.
Innovation platforms developed for pro-poor innovation promotion.	RIU facilitated the creation, functioning and operations of 4 Innovation platforms, namely: i) The Maize Innovation Platform in Nyagatare District, Eastern Province, ii) The Potato Innovation Platform in Gicumbi District, Northern Province, iii) The Cassava Innovation Platform in Gatsibo District, Eastern Province.	 The three commodity based platforms (maize, cassava, potato) proved to be successful initiatives in terms of networking, organisation and coordination of value chain stakeholders. The capacity of Innovation platforms was strengthened The sustainability of innovation platforms was promoted through the two following interventions: ✓ Support to the process of developing and registering as inter-professional organisations in conformity 		The Karongi Rural Innovation Platform was established as the only non-commodity based platform. The Technical Review (2009) commissioned by RIU Headquarter recommended to withdraw that platform form RIU portfolio in a move to narrow down interventions for more effectiveness.

Project Output Title	Activities undertaken /changes in activities	Status of achievement	Deviations if any, and the reason for the deviation.	Please provide a brief description of the management decisions and
				strategic direction taken that affected the project outputs.
	 this output represented the core business of RIU Programme in Rwanda. Key activities performed were: ✓ Technical and organizational capacity building; ✓ Workshops (needs assessment; planning, self-evaluation) ✓ Support in Strategic planning; ✓ Study tours; field 	 with existing regulatory framework in Rwanda; ✓ Strategic plans were elaborated in participatory manner, and provided a common vision for the future and will be used for resource mobilisation as well. 		
Enhanced capability within Innovation platforms for increased research outputs demand.	 RIU focused on developing platform internal capacity to enhance demand for research outputs. Workshops were organised to enhance capacity to analyse bottlenecks, assess capacity and find innovative solutions. An emphasis was put on continuously identifying approaches that can be used for addressing identified bottlenecks or respond to needs expressed by platforms 	 5. The three commodity innovation platforms (maize, cassava and potato) initiated/implemented activities that had an impact on the respective value chain such as: ✓ Introduction of new varieties with higher potential for profitability for producers(resistance to diseases, shorter cycle, higher yield); ✓ Promoting the informal seed system for potato via the positive selection process; ✓ Access to financing and markets through The warrantage system on maize; 		Following the 2009 Technical review, support to the Cassava innovation platform was gradually reduced. A soft-landing support was granted to enable them to initiate activities that would create a solid basis for sustainably. The establishment of the "Flexibility Fund" under the new RIU and more autonomy given to the Country Programme resulted into more initiatives and capability to undertake new activities and test new approaches.

Project Output Title	Activities undertaken /changes in activities	Status of achievement	Deviations if any, and the reason for the deviation.	Please provide a brief description of the management decisions and strategic direction taken that affected the project outputs.
	 Financing and logistical support was provided to implement commonly agreed priority actions (training, workshops, consultants, study tours, field operations and events, etc) 	 bottlenecks into business opportunities (Creation of NYAMIG-the Nyagatare Maize Investment Group for maize trade; Units producing potato basic seeds using biotechnology outputs) 6. Platforms promoted a series of approaches to enable uptake of innovations and foster agricultural development: ✓ Farmer Field Schools; ✓ Technology demonstration plots; ✓ Positive selection; ✓ Community facilitators; ✓ Making community radios a powerful tools for research and communication); ✓ Private sector development. 		
Enhanced access to market and Finance	RIU supported Platforms to tackle issues related to access to market and finance through: i) encouraging active participation of financial institutions and traders in platform activities; ii) fostering trust between parties; iii) organising workshops and other	Creation of NYAMIG (Nyagatare Maize Investment Group) as the business arm of the Maize platform, with 24 farmers cooperatives (3,838 members) as key shareholders. Piloting the warrantage system has lead to the following results: i) 900 tons of maize were collected and stored and sold; ii) 16 cooperatives have benefited to credit warrantage; iii) maize quality has improved,	The initial thinking was to enable access to market and through the "Knowledge market information system ". Access to financing was foreseen through the "Rwanda Innovation Facility for Agriculture". After the decision by RIU Headquarter to phase out these activities, RIU- Rwanda embarked on new	 The Technical review recommended phasing out the "Knowledge market information system and the "Rwanda Innovation Facility for Agriculture". The establishment of the "Flexibility Fund" under the new RIU and more autonomy given to the Country Programme resulted into more

Project Output Title	Activities undertaken /changes in activities	Status of achievement	Deviations if any, and the reason for the deviation.	Please provide a brief description of the management decisions and strategic direction taken that	
	working sessions to brainstorm on challenges and identify solutions of common interest. For the Maize Platform in particular, that process has lead to the creation of the Nyagatare Maize Investment Group and the initiative to promote the warrantage scheme in partnership with DUTERIMBERE IMF, a local microfinance institution. In that context, farmers were trained on post harvest handling and storage; and NYAMIG personnel were trained in maize grain storage management as	resulting into access to market of exigent off-takers such as the World Food Programme and MINIMEX; iv) advocacy and committed involvement in fair maize trade ahs lead to a general increase of farm-gate price from 60-70 Frw/kg to 150-200 Frw/Kg; v) warrantage has been diversified to beans and tested for potato seeds as well.	activities/approaches to address identified bottlenecks.	initiatives and capability to undertake new activities and test new approaches.	
	well.				
Private sector	RIU-Rwanda provided	SARURA and Commercialisation of		The design of RIU for the extension	
development	of specific business	Private sector development led to the		characterised by closely linking	
	enterprises to carry on	creation of two medium size		private sector development to the	
	innovative activities that	enterprises for the commercialisation		sustainability of research outputs	
	were promoted by the	of the warrantage scheme (Sarura		иртаке.	
	warrantage on maize and	Sarura Commodities Itd was			
	other crops as well as	established as a joint Venture between			
	production of potato basic	H2O Venture Partners (Oxford) and			

Project Output Title	Activities undertaken /changes in activities	Status of achievement	Deviations if any, and the reason for the deviation.	Please provide a brief description of the management decisions and strategic direction taken that affected the project outputs.
	seeds. The support was targeted to : i) facilitate the process of business development; ii) contribution to initial investments to launch business activities; iii) designing the impact tracking system; iv) capacity building in management.	SKAI Consultants Ltd and was the first commercial vehicle to operate the inventory credit at scale in Rwanda while providing the following services to communities: access to reliable markets for key staple crops such as maize and beans; ii) enhancing post harvest handling and promoting quality of grains; iii) linking farmers to financial institutions. Production of potato basic seed:		
		Following the initial success of producing basic potato seeds in green houses in Gicumbi District with Impuyaki Cooperative, RIU-Rwanda expanded its support to that particular in two other Districts (Nyabihu and Musanze District) through rural micro enterprises. At the end of the Programme, 8 production units were operational and have all completed the first cycle of producing potato basic seeds through green house technologies.		
		Support to the development of Rwanda Grains and Cereals Corporation (RGCC). RIU support to agricultural markets development was particularly appreciated by the Ministry of Trade and Industry: It was in that context that the Ministry		

Project Output Title	Activities undertaken /changes in activities	Status of achievement	Deviations if any, and the reason for the deviation.	Please provide a brief description of the management decisions and strategic direction taken that affected the project outputs.
		requested RIU and H2O Venture		
		Partners to participate in early stage		
		development of the Rwanda Grains		
		and Cereals Corporation (RGCC), a new		
		business company whose mission was		
		to establish a well structured,		
		system in Rwanda under a Publica		
		Private Partnershin (PPP) RILL-Rwanda		
		Country Coordinator was therefore		
		appointed as the Chief Executive of the		
		Corporation since February 2012.		
		Support to Private Sector Federation-		
		PSF: RIU provided technical assistance		
		to PSF to design the first project		
		proposal for « Strengthening PSF		
		Chamber of Agriculture and Livestock		
		to sustain country's food security and		
		develop related value chains". The		
		proposal was later on improved by PSF		
		and the Netherlands Cooperation and		
		financed.		
		RIU participated in the strategic		
		planning process of the Chamber of		
		Agriculture and Livestock.		
		-		
Learning and	RIU-Rwanda has promoted	- A national workshop on sharing		Following the Mid Term Review
knowledge	approached and organised a	RIU experience in value chain		and the Technical Review (2009)

Project Output Title	Activities undertaken /changes in activities	Status of achievement	Deviations if any, and the reason for the deviation.	Please provide a brief description of the management decisions and
				strategic direction taken that affected the project outputs.
sharing	series of events that enabled stakeholders in value chains to learn and share knowledge. We can mention in that context knowledge sharing workshops, Farmer Field Schools, open days for dissemination of research results; intensive use the Nyagatare Community radio and participation in national and local agriculture show and exhibitions.	 development through innovation platforms was organised in June 2012. With the support of the Ministry of Agriculture and Animal Resources, all 30 District agriculture Officers visited RIU and were introduced to RIU approach for platform development and the warrantage system. The Maize, Potato and Cassava Platforms have shared experience on platform development and sustainability Farmers have exchanged on improved crop husbandry practices through Farmers Field Schools, fields learning events and radio Platforms participated in 2 national agricultural shows and 3 regional exhibitions, enabling them to shares their approach and achievement nationwide. 1,000 farmers from Nyagatare Districts and 200 persons from other Districts visited Nyamig and exchanged with its members about the warrantage system and prospects for scaling it out. 10 Cooperatives from other Districts visited RIU supported "potato green house units" in 		the decision of the "New RIU" to integrate monitoring and learning aspects in country programmes was welcomed. However, inadequate process documentation was a serious challenge to learning.

Project Output Title	Activities undertaken /changes in activities	Status of achievement	Deviations if any, and the reason for the deviation.	Please provide a brief description of the management decisions and strategic direction taken that affected the project outputs.
		Gicumbi District and learned from IMPUYAKI Cooperative how to promote such investments in other districts.		

Partnerships

i). Have all partners listed in your project proposal contributed as expected in the project? Did you have to drop some of the partners and bring in new partners to achieve the objectives of your project?Kindly describe your experiences in this regard. ii). When working to strengthen and enhance relationships what do you think worked well?

Building partnership was at the centre of RIU Programme in Rwanda. Implementation has been conducted under full integration within the national overall development frameworks and under the overall umbrella of the Ministry of Agriculture and Animal Resources (MINAGRI). The programme falls under Programme 2 of the Strategic Plan for the Transformation of Agriculture (PSTA), and in consistency with the implementation of the Economic Development and Poverty Reduction Strategy (EDPRS). RIU Rwanda has been therefore part and parcel of the overall agricultural development agenda and was implemented in strong collaboration with other national actors in the area, including major projects, programmes and other initiatives. The latter include the projects; PASNVA, CATALYST and PAPSTA.

As previously presented, partners in the National Innovation Coalition did not contribute as expected. Many organisations were represented in NIC by junior cadres which did not allow having fruitful debates at policy or strategic level.

Nevertheless, at operational level in platforms, initial partners have played a commendable role in programme implementation, the major ones being: i) ISAR (National Agricultural Research Institute), RADA (Rwanda Agricultural Development Authority) and the Rwanda Development Organisation (RDO). Some partners changed their role such as CAPMER, the first fund manager who was replaced in 2009 by the Private Sector Federation (PSF) as fund manager and by SKAI Consultants during the last project extension phase (2011-2012). Note also that PSF was replaced by RDO as the new NIC chair in 2009. Since 2009, new partners joined the programme and greatly contributed to innovation and impact. This is particularly the case of DUTERIMBERE micro finance, CARITAS, and ORINFOR. Other partners that broadened RIU scope of intervention during the extension phase (2011-2012) were the National Federation of Cassava Producers Cooperatives and the National Federation of Potato Producers Cooperatives.

Government institutions:

- Partnerships with ISAR and later on Rwanda Agriculture Board (RAB) has evolved over time and produced good results in terms of promotion of new maize and cassava varieties, applying FFS on cassava and supporting production of potato basic seeds using biotechnology outputs at local level through micro rural enterprises.
- ✓ In order to put more emphasis on communication (enhancing demand for research outputs, policy dialogue, learning), RIU-Rwanda signed a contract

with the Rwanda Information and Broadcasting Bureau (ORINFOR). That agreement enabled RIU-Rwanda to partner with the Nyagatare Community Radio for broadcasting a weekly 30 minute programme on RIU supported interventions. 52 radio-programmes were broadcasted and that provided a unique opportunity for members of the Maize platform and Nyamig to share experience and learn mutually.

Financial institutions

- DUTERIMBERE asbl, as a national NGO supporting women development was integrated as a new NIC member in 2009. It actively participated in activities preparing the design of NYAMIG and decided to work hand in hand with farmers cooperative by buying shares in new company. In 2010, RIU approached the financial arm, DUTERIMBERE IMF (Micro-Finance) and agreed partner for piloting the warrantage system in Nyagatare District.
- In order to commercialise the warrantage at national level, Sarura Commodities undertook to extend the scope and financial partnership from Duterimbere Micro Finance to other commercial banks in Rwanda such as Banque Populaire du Rwanda (BPR) and Equity Bank, a major commercial bank from Kenya. Contacts were also established with the Business Development Fund (BDF), an institutions that provides financing for small and medium size enterprises. Another resource mobilisation strategy developed by Sarura Commodities was to seek for equity investment from specialised firms operating in East Africa.

Farmers organisations

- RIU-Rwanda has established a fruitful partnership with farmers organisations mainly through the support provided to the development of innovations platforms in which maize, cassava and potato farmers' cooperatives played a key role. Since 2011, the partnership was extended to two umbrella organisations, namely the National Federation of Potato Producers Cooperatives and the National Federation of Cassava Producers Cooperatives.
- Working with the National Federation of Potato Producers Cooperatives and the National Federation of Cassava Producers Cooperatives was part of RIU-Rwanda growth plan to move from the local to national level for greater impact. The support provided to these newly formed national umbrella organisations was in strategic plan, member mobilisation and outreach. They also provided to RIU a unique opportunity to communicate at national level about its approach to promote innovation in agriculture through sharing knowledge.

Civil society organisations

- CARITAS (Byumba Diocese) was approached by RIU in 2009 for partnership because that organisation had track records in promoting agricultural development in Gicumbi District. An agreement was signed with CARITAS as the service provider to provide facilitation services to the Potato Platform. In addition to that, the organisation piloted the positive selection process to contribute to increase availability of quality seeds at community level. The same approach was also used with RDO as the service provider for the Maize Innovation Platform. This move was part of RIU exit strategy, as it was crucial to work closely with local organisations that understand, practice and develop owner ship of RIU approach and sustain it beyond the life time of the Country Programme as well.
- ✓ With the support of CARITAS Byumba, Nyinawimana Catholic Parish accepted to partner with RIU-Rwanda to establish and run its small business for the production and commercialisation of potato seeds produced under green house. This was considered as a positive move for that particular partner who was offering other services in community development.

Policy change

- 1. At national level, RIU has signed an MoU with the Ministry of Agriculture and Animal Resources in January 2009. The objective of the MoU was to promote effective use of existing scientific research based knowledge in agriculture, livestock development and natural resources sectors. The fields of cooperation included development of innovation systems, increasing access to research outputs, enhancing demand for research outputs, developing enterprises using research outputs, informing policy processes and communicating with the wider community nationally and internationally. Working with the Ministry of Agriculture has been through participation in meetings of the "Rural Cluster" and other events organised by the Ministry.
- 2. RIU support to early stage development and management of Rwanda Grains and Cereals Corporation (RGCC) contributed to increased opportunities for farmers across Rwanda to access reliable markets for their produce (maize, beans). It also provided a first evidence of public-private-partnership (PPP) as an effective approach for financing agribusiness development.
- 3. Regarding activities promoted by RIU, the warrantage pilot scheme has provided evidence to national decision makers that stakeholders in maize value chain were able to find solutions to bottlenecks they have identified. The Minister of Agriculture visit to RIU supported warrantage scheme on 2010 World Food Day provided an opportunity to communicate with a wide range of decision makers: many visitors from Rwanda and neighbouring countries continue to come and are briefed on warrantage success, which is being scaled up in Rwanda.
- 4. The initiative to promote use of potato biotechnology outputs through green house units managed by cooperatives and other small rural entrepreneurs were shared with the National Agricultural Research Institute and obtained their support. Following the success of the first experiment with IMPUYAKI cooperative, district authorities supported the approach and requested to expand it to other areas. Moreover, engagement with the Ministry of Agriculture provided opportunity for expending the intervention in two districts in the Northern and western Province.
- 5. At District level, the Programme has benefited from the conducive environment created by the decentralisation policy and transfer of responsibilities and financial resources to Districts. In that regards, the three commodity-based innovation platforms have provided a framework for districts leaders to interact with stakeholders in value chains and agree on key interventions to be promoted. Active participation in "District Joint Action Development Forum" provided another opportunity for policy dialogue at local level.
- 6. Even if the failure of NIC limited the scope for influencing policy at national level, the results achieved in enhancing farmers' access to markets and financing provided an opportunity to RIU to deal with and influence policy making at national level through support to early development and management of the Rwanda Grains and Cereals Corporation in partnership with the Ministry of Trade and Industry.

Organisational & Institutional Change

i). Has your project resulted in development of new working practices, regulations, functional changes in organisations, emergence of new partnerships etc. within your own project teams and also outside? What has been the effect of these changes?
 ii). Have there been any unintended changes / consequences?

Type of change	Achievements
Change in relations within the same actor group (within domain)	 Collaboration of producers in a maize marketing company Potato farmers starting mini-tuber production and marketing Cassava producers managing to produce and distribute clean cuttings
Change in relations between actor groups (between domains)	 Development of 3 functioning district level innovation platforms Improved collaboration as a result between research, advisory services and producers Warehouse receipt system for maize functioning Improved relationship input suppliers and potato producers
Changes in policies	 Full support of the warrantage approach by the Ministry of Agriculture and its increasing adoption by financial institutions and development practitioners District development plan taking marketing issues of cassava into consideration Potato producers allowed to multiply mini-tubers The Governor o the Eastern province has requested RIU to extend the platform approach to the entire Eastern Province.

Institutional change within stakeholder groups was mainly at the level of producers, who have managed to improve their collaboration as a result of the platforms and have taken on new activities in the field of collective marketing as well as clean planting material production and marketing.

Changes in relations between stakeholder groups have mainly been achieved around the 3 commodity platforms. Through the platforms there has developed a better collaboration with research. The platforms have managed to become the arena to identify what problems are hindering further development of the selected sectors and innovate to overcome these constraints. This has led to new economic activities, companies and services.

Lessons learnt

i). What lessons have you learnt about how to put research into use and enable innovation in agriculture?

a. Private sector development is key for sustaining innovation: The emergence of Sarura Commodities, Nyagatare Maize Investment Group (NYAMIG), as well as rural micro enterprises using tissue culture outputs to boost production of quality potato seeds proved to be good vehicles that enabled uptake

of research outputs following enhanced demand for these outputs.

- b. The creation and achievements of Nyagatare Maize Investment Group (NYAMIG) Ltd, the offshoot of Nyagatare Maize Innovation Platform, indicates that Innovation Platforms should be established and developed in a way that allows enough space and mechanisms for flexibility to evolve. As developments occur and focus of the actors change on their way to develop innovations along the value chain, certain priorities change.
- c. Working together in Platform as an organization of value chain actors (e.g. farmers, seed multipliers, researchers, extension services, traders, transporters banks,) proved to be an effective mechanism for seeking solutions internally to solve economic problems and reduce poverty.
- d. Platform approach facilitated actors to have a bigger voice for advocacy, visibility, gathering trust and recognition.
- e. Being member of a platform also facilitated actors to get new information on markets for their products.
- f. Being organized in a platform allowed actors to share knowledge and experiences with other actors in the value chain, and therefore making innovation happen.
- g. Given the kind of interactions, discussions and analysis that occurred in platforms, members who were facilitated by RIU to participate in study tours expressed the view that these study tours were just different than the ones they have participated in the past. The challenge of participants was to extract from their visit elements that can improve platform delivery in terms of institutional organization; innovative technologies and processes and new ways of doing things.
- h. As the platform evolved, there was a shift in training needs expressed by participants: Even if request for training on good agricultural practices remained important, farmers and their partners were increasingly interested by topics related to agribusiness, managing value chains, quality improvement, markets access etc. That new reality gave more relevance to holistic view of platform approach.
- i. Platform members learnt through RIU approach that grants and any other financial support given to them was for gap-filling, then acknowledged that they should refund it for the continuity of the platform activities (example paying back the cost of cassava planting material in Gatsibo and Potato seed in Gicumbi): That was a good lesson for sustainability of RIU supported interventions.
- j. The processes and technologies of the production of potato seed from mini-tubers in green house by a local cooperative IMPUYAKI in Gicumbi district, Northern province, formerly done exclusively only by Rwanda Institute for Agricultural Research (ISAR) was an indicator that demystifying putting research into use was possible through brokering innovations.
- k. RIU support to Maize, Cassava, and Potato Innovation platforms to have Legal Personality is a good sign for sustainability of activities to promote innovations in Rwanda. These platforms are the first agricultural inter professional organization in Nyagatare, Gatsibo, and Gicumbi.
- I. The use of innovative and community tailored communication methods like community radios, local learning events and Farmer Field Schools are the most effective methods of sharing agriculture knowledge especially at community level. These methods have resulted into more visibility of innovative processes and the demand for take up of innovations has been greatly enhanced.
- m. The farmers' understanding/mindset has been positively changed: Farmers' agricultural techniques changed from traditional to professional farming as a result of working with RIU and joining the innovation platforms by various farmers.
- n. Establishment of partnerships and linkages between RIU and service providers (CARITAS in Gicumbi for potato platform and Rwanda Development Organization in Nyagatare and Gatsibo for Maize and Cassava platform respectively), facilitates easy linkages with the farmers. The role of service providers who are already experienced in facilitation in the area is crucial for the success of the programme.
- o. Community tailored innovations are more likely to bring about change and impact: The RIU backed warrantage system was primarily a response to bottleneck identified by platform members. Farmers were enabled to get access to better markets, increase farm-gate prices through adoption of innovative post harvest handling methods, and increase competitively and revenues.
- p. With the warrantage scheme, it was proved that with adequate training, access to information and networking, farmers organizations can be eligible to

markets that require high standard product (World Food Programme, MIMIMEX)

q. The success registered in the implementation of warrantage in Nyagatare district in partnership with NYAMIG Ltd and DUTERIMBERE IMF Ltd has attracted other people and organizations from neighboring sectors; districts like Kirehe, Gatsibo and Kayonza in Eastern Province and Democratic Republic of Congo (DRC), and neighboring Uganda: the business model designed is likely to be scaled out for greater impact.

ii). Have you shared these lessons with others and if so with whom and how?

RIU has shared lessons learnt with various partners in various audio-visual, electronic –online and print ways depending on the applicability of the methods in relation to the target audiences. The following were used:

- a. Before closing the Country Programme activities in June 2012, RIU-Rwanda organised a national workshop for sharing lessons on RIU experience in promoting value chain development through innovation platforms. The workshop provided an opportunity to go across RIU approach, achievements and challenges and drew lessons for sustainability of future or similar interventions.
- b. Nyagatare Community Radio and other media such as the national radio and television were instrumental for disseminating these lessons and providing space for actors of innovation platforms to share their experiences and views.
- c. Lessons on uptake and profitability of good agricultural practices were shared through farmers field schools, and other field learning events where were convened farmers, researchers, development practitioners and local authorities as well.
- d. Holding Planning, evaluation and exchange workshops and training sessions with innovation platforms (farmers, input dealers, traders, transporters, financial institutions, local NGOs, local leaders) was yet another way of sharing lessons with platform actors.
- e. Participation of platform actors in agricultural exhibitions on national and in districts level facilitated farmers and other actors in value chains to share lessons.
- f. Production of short and long films on the RIU supported programme as well as other programmes outside Rwanda and RIU supported innovations in Rwanda was another way of sharing lessons. These films were published on Research Into Use website (<u>www.researchintouse.com</u>); other online media like YouTube. Platform actors in Rwanda, non farmer audiences inside and outside Rwanda have accessed these films.
- g. The write shop organized by RIU for innovation platforms actors and other actors like media, has been another way of sharing lessons in Rwanda.
- h. Producing written stories and publishing them in newspapers and on television in Rwanda

iii). Also, describe what has not worked and explain the reasons why not.

- a. Among what did not work, the National Innovation Coalition (NIC) formed in early 2008 and became redundant in 2010 was not sustainable due to the facts that 1) the actors in the agriculture innovation system at national level were not senior enough to influence policy change in their respective national organizations as their main role; 2) the computer based tools that would otherwise facilitate to link the actors on line to strengthen the innovation system in Rwanda (National Agriculture Innovation Network-NAIN) and Knowledge and Information Market was designed but implementation was not on RIU portfolio since the 2009 Technical review found it irrelevant.
- b. Supporting platforms does not work where platform actors are not focused on one single commodity. RIU supported the formation of Karongi Innovation Platform that did not have a single value chain to focus on. Lack of focus was the first reason to phase out in favor of Maize, Cassava and potato innovation platforms during the RIU re-positioning process.

Project Beneficiaries / Scale achieved

Project Output	Output No 1-	Output No2 – Farmers	Output no 3- Farmers	Output no 4-	Output 5 – Platform	Output 6- sharing	Output 7- Scaling
	households benefit	benefiting from new	accessing potato seeds	Farmers benefiting	workshops , study tours,	knowledge through	out innovation
	from the warrantage	cassava mosaic	through variety	from new maize	trainings, learning events,	other means and media	through media
	in maize	resistant	diversification, positive	varieties and good	Exhibitions	to scale out innovations	(radio, print,
		varieties(2008-2010)	selection and use of	agricultural			Television,
			biotechnology outputs.	practices			website)
Number &	50 Cooperatives;	50,000 Farmers	a) 10,000 Farmers	12,000 farmers	2,500 people who learned		· ·
Type of	from Gatsibo,	informed about new	Informed on positive	informed on good	from platform members		
Indirect	Kayonza,	varieties and good	selection by neighbours	agricultural			
Beneficiaries	Rwamagana, Kirehe,	agricultural practices	participating in the process.	practices by	8 Districts where RIU		
	Bugesera Districts:	through radio		community	conducted workshops		
	,		b) Rwanda Agriculture Board-	facilitators	(Gicumbi, Nyagatare,		
	2 NGOs (RDO, Caritas)		Potato Research programme		Gatsibo. Karongi.		
			got 7 new customers for their		Rwamagana, Kirehe,		
	5 Districts in Eastern		potato tissue culture		Kavonza, Ngoma).		
	Province. Ministry of		laboratory.				
	Agriculture.		,		Ministry of Agriculture and		
	0,		c) 3 Districts (Gicumbi.		its agencies(Rwanda		
	2 Government		Musanze, Nyabihu) where		Agriculture Board, Post		
	Ministries (RIU provided support to		harvest task Force)		
	Agriculture, Trade		potato intensification.				
	and Industry)						
	100,000 farmers						
	benefitting from						
	increased maize farm						
	gate price						
Number &	30 Cooperatives	14,000 farmers	110 Community Facilitators	30 cooperatives	1,500 members of maize,	3,000 people directly	An estimated
Type of Direct	And 200 Individual	accessed to new	trained	trained on	cassava, potato platforms	reached by RIU	number of
Beneficiaries	farmers	varieties introduced in		improved post	and other actors who	messages through	500,000 people
	10 Organizations (2008-2009	2,400 farmers participated in	harvest techniques	directly benefited from	various exhibitions	listened to 50
	Duterimbere Micro		positive selection field		workshops, learning events,		radio programes
	Finance, Rwanda	200 Farmers	activities	200 Community	study tours		broadcast on
	Development	participating in FFS and		Facilitators trained			various radios
	Investments, Banque	100 who graduated in	10,000 farmers accessed to	on good agricultural			
	Populaire du Rwanda,	2010	quality seeds through variety	practices			
	Equity Bank, NYAMIG,		diversification and				
	Sarura Commodities,	5,000 Farmers part of	introduction of the Seed				
	Nyagatare District,	Agro Ecological Surveys	Revolving Fund.				

	Gatsibo District, Eastern Province) 40% of beneficiaries of the warrantage pilot were women.	500 Students from Gakoni Technical School	20 technicians trained in techniques for producing potato minitubers. 7 micro enterprises supported to produce potato basic seeds 10 seed producers cooperatives using basic seeds produced in green houses				
Male Beneficiaries (indirect and direct)							
Female Beneficiaries (indirect and direct)							
Total							
Please describe the benefits to the beneficiaries	 a) Maize farmers in Nyagatare, Gatsibo Districts benefited from better markets, better prices and increased financial revenues as a result of the RIU supported warrantage. b) Warrantage was adopted as a new product by financial institutions; c) Increased access to market for market contributed to District development agenda. d) New business commercialising 	Cassava farmers in Gatsibo district accessed mosaic resistant cassava varieties to increase production and improved food security as well as increased revenues	a) Potato farmers got access to better potato seeds. b)Increased take up of technologies c) Increased entrepreneurship skills for owners/managers of potato seed micro enterprises.	Better knowledge and practice on improve maize husbandry increase demand for quality seeds and fertilisers.	More human capacities strengthened through new knowledge. More partnerships and linkages established for sustainability and better performance	Innovations scaled out and up as a result of more visibility and recognition for policy advocacy and increased/improved markets	

	warrantage were created (Nyamig ;Sarura)						
Have you conducted an impact assessment study? What are the main findings? Kindly attach a	Yes, an impact assessment was conducted in mid 2010 by RIU Headquarter. Another on lessons learned was commissioned by RIU before the end of	Yes, an impact assessment was conducted in mid 2010 by RIU Headquarter.	Yes, an impact assessment was conducted in mid 2010 by RIU Headquarter.	Yes, an impact assessment was conducted in mid 2010 by RIU Headquarter.	Yes, an impact assessment was conducted in mid 2010 by RIU Headquarter.	Yes, an impact assessment was conducted in mid 2010 by RIU Headquarter. Another evaluation on lessons learned was commissioned by RIU	Yes, an impact assessment was conducted in mid 2010 by RIU Headquarter. Another evaluation on
copy of the impact assessment report.	the Project in June 2012.					before the end of the Project in June 2012.	lessons learned was commissioned by RIU before the end of the Project in June 2012.

*Make sure that all information provided here correlates with the evidence you have collected. Please include the evidence as separate attachments to this report and label the attachments appropriately.

Social Exclusion & Gender

i). Please explain how the project has targeted women and other socially excluded groups, and provide evidence of the projects impact on gender and social exclusion.

It is important to highlight that in Rwanda, there is a general political commitment for gender equality and empowerment of women and girls. That particular context has a direct impact on the way projects are designed and implemented. This was the case for the implementation of RIU Programme, where women and girls were naturally part and parcel of all interventions as actors or beneficiaries.

RIU Rwanda has targeted both men and women. During the formation and development of innovation platforms, women have been involved directly as members of the platforms and or members of the executive committees of the platforms and other subsidiary organs of the platforms.

RIU entered into partnerships intentionally with organizations that are direct pathways to women. DUTERIMBERE Microfinance that partners with Nyagatare Maize Investment Group to implement warrantage in maize, is a microfinance that off short from a woman umbrella organisation: the chairperson of DUTERIMBERE asbl in Nyagatare was elected as a member of the board of NYAMIG.

PROFEMME TWESEHAMWE, a national women umbrella organization was an initial member of the National Innovation Coalition that launched RIU in Rwanda in 2008.

As evidence, 40 % of participants in warrantage pilot were women. Women participate in all kind of workshop, study tours, field events, exhibitions organised or supported by RIU.

ii). Have you used the data your project has collected on gender and social inclusion to help shape project interventions?

Yes

Expected and Unexpected Outcomes

i). We would like to identify theories of change that underlie project activities. By theories of change we mean 'a process of planned transformation (economic, social or political) including an articulation of the assumptions that lie behind its design and its goals'. Although theories of change were not made explicit early on in project activities, please identify theories of change / the underlying assumptions that your project was based on.

ii). Were the assumptions in your theories of change correct? Did the project go as you predicted it to? If not, what did cause the changes to take place in your project?

iii). Have there been any events or activities that have happened during project implementation that were never planned, but resulted in new, better or worse outcomes related to your project?

1. Formalizing the platforms into inter-professional organisations

The three innovations platforms supported by RIU-Rwanda have decided to become officially registered as inter-professional organizations. When they were created, platforms were not registered officially and the RIU management was taking a stand that registration was not desirable, as it would hinder change and flexibility and aimed at an informal status. Some argued that this informal status suffices for the platforms to function, and does allow for the flexibility it requires in membership and mandate.

However, as platform developed, RIU-Rwanda supported the internal process that led to platform registration for the following reasons: i) Legitimacy to represent a group of people; ii) Recognition by other organizations and administration; iii) The Clarification of rules, regulations and mandate. The status of platforms as inter-professional organizations recognizes their multi-stakeholder character and does allow for membership of individual and cooperative economic actors, but also of organizations with a value chain support role. It solidifies the mandate of the platform as a not-for-profit entity, working for the public interest. This was a key outcome regarding platform sustainability.

2. Innovation brokerage by local NGOs.

The promotion of innovation platforms in their first development phase was possible because some members played a pro-active role as platform

champions. In order to sustain that voluntary role, RIU undertook to enhance these champions' capacity in platform development and facilitation. The process lead to the choice of Rwanda Development Organisation(RDO) and CARITAS Diocesaine Byumba as "service providers", offering platform facilitation/development services under a special contract with RIU. That specific arrangement created an opportunity for these two organizations to develop their own capacity and continue support to platforms at the end of the current phase of RIU Programme.

3. From technology promotion to enterprise development

RIU-Rwanda has strongly supported the emergence and early stage development of business enterprises that managed to turn bottlenecks identified by platforms into business opportunities. The first activities supported by RIU through platforms proposed technological solutions to address value chain bottlenecks, predominantly on the production side. As the Programme evolved, support to rural enterprises appeared to be a more sustainable approach for promoting innovation in targeted value chains.

This was obviously the case for Sarura Commodities and Nyagatare Maize Investment Group that emerged as a solution to address issues related to maize trade, access to financing and securing higher price to farmers. Another area of interest was the production of potato minitubers through green houses piloted by Impuyaki Cooperative and later on extended to other rural microenterprises who embarked in production of quality potato seeds through use of tissue culture outputs.

THE MALAWI RESEARCH INTO USE (MRIU)

END OF PROJECT REPORT

July 2011

ABSTRACT

The process of establishing Research into Use (RIU) programme in Malawi began in 2006 with a country assessment. This involved extensive consultations in the country with institutions and individuals well conversant with the agricultural and natural resources management sectors in Malawi. The country assessment was followed by the development of the Malawi RIU (MRIU) country strategy in December 2007 and the Implementation Plan in February 2008. The programme was officially launched in Malawi in July, 2008 marking the commencement of implementation of activities in Malawi. The programme was designed to build on the capacity of the already existing agricultural initiatives in the country identified within the Agricultural Sector Wide Approach (Aswap) as well as the wider CAADP programme.

Since commencement of the RIU programme in Malawi, it has assisted in building institutional capacities in the country for promoting and applying innovation in agriculture. The focus was on establishment of innovation platforms as conduits for facilitating agricultural innovations.

There are notable impacts in the platforms through RIU's support such as increased fish fingerlings multiplication and adoption of improved strain of *Orechromis shiranus* from established decentralized hatcheries; development of standards and guidelines for tilapia hatchery operations in Malawi; multiplication of legumes seed from breeder to foundation level with involvement of private sector and farmer organizations; and improved marketing of pigs through established decentralized market structures and brokered partnerships. The platforms have the relevant capacities and structures to continue operating and sustaining themselves post RIU. The innovation systems approach has gained ground in Malawi through RIU's influence exemplified by more commodity based innovation platforms and processes emerging organically in the country through learning from RIU facilitated platforms.

BACKGROUND

The process of establishing Research into Use (RIU) programme in Malawi began in 2006 with a country assessment. This involved extensive consultations in the country with institutions and individuals well conversant with the agricultural and natural resources management sectors in Malawi. The country assessment was followed by the development of the MRIU country strategy in December 2007 and the Implementation Plan in February 2008. The programme was officially launched in Malawi by the Principal Secretary of Agriculture & Food Security (on behalf of the Minister) in July 2008. In essence, this marked the commencement of implementation of activities in Malawi.

RIU programme in Malawi was designed to build on the capacity of the already existing agricultural initiatives in the country identified within the Agricultural Sector Wide Approach (Aswap) as well as the wider CAADP programme. RIU-Malawi was going to promote mobilisation of outputs from research on agriculture and natural resources whereby facilitating improved benefits through innovation. RIU-Malawi was not going to support research or extension in the conventional sense. Drawing on the concept of innovation systems, the programme was instead intent on encouraging the use of knowledge in ways it has never been used before to generate goods and services for the benefit of the poor.

MRIU implementation plan proposed four strategic priority areas for the programme namely:

- Facilitating the establishment of the Malawi Innovation Coalition based around existing institutions and individuals that would support the development of innovation systems approaches.
- Facilitating farmers' empowerment to participate in innovation systems.
- Facilitating a knowledge, information and communication support and learning group which would also provide input to innovation platforms.
- Facilitating development of innovation platforms at national, district and area levels.

However, after RIU mid-term programme evaluation and technical review in September 2008 & March 2009 respectively, the Malawi RIU programme focus shifted to mostly establishing and facilitating commodity-based innovation platforms where there was potential to put the innovation systems (IS) into practice. Following the IS approach, diverse stakeholders with a common interest along the value chain were brought together into an innovation platform, facilitating knowledge & information exchanges leading to synergy and enhanced poverty-reducing impacts.

INNOVATION PLATFORMS

The RIU programme defined an innovation platform as a network of partners working on a common theme and using research knowledge in a way that it has not been used before to generate goods and services for the benefit of the poor.

Initially, MRIU started with four innovation platforms, namely: Fish farming/aquaculture; Legumes (beans, soyabeans & groundnuts), Livestock (piggery) and cotton. After a year, the cotton platform was weaned off to concentrate on the other three.

In terms of structure, each platform has a Platform Champion whose major role is to provide leadership to platform members. Platform champions are expected to 'drive' the platforms in a business-like culture into their operations and to sustain members' motivation towards achieving platform goal and objectives. The champions – being well-networked and respected individuals in their respective sectors – have also proved to be very effective in mediating and brokering interactions between the platforms and policy makers.

In general, the platform process began with articulation of key challenges that stakeholders (members) would address and/or opportunities to capitalize upon. Priority was for the members to commit themselves in tackling the bottlenecks whilst MRIU provided brokerage and facilitation services. In instances where external input was required, platforms developed project proposals with desired outputs, indicators for monitoring progress, budgets, timelines and focal points for progress. The proposals were submitted to MRIU for review by the National Innovation Coalition – NIC (description of NIC below). If the proposals were accepted by NIC, Malawi RIU allocated 'seed money' (sometimes used interchangeably with platform grant) to the platforms to assist in addressing the prioritised challenges or enhance realizing the potential opportunities. In essence, this seed money became available to platforms as a catalyst to trigger the flow of research outputs into use, mostly with the view that stakeholders would continue with those activities or initiatives on their own in an innovative manner. Parallel to this, MRIU built capacity of platforms in innovation fund management, with the intention of preparing them to handle future investments from other funding agencies. As part of fund management, the platforms amongst their members elected treasurers and set up financial sub-committees with auditing responsibilities. Platforms also put in place sub-structures in form of task forces or working groups, to tackle specific issues that were emerging from platform action plans.

PLATFORM DESCRIPTIONS AND OUTPUTS

Fish farming/aquaculture innovation platform

The fisheries sector is very important to Malawi's economy and its overall food security. However, fish catches from water bodies like lakes and rivers have declined due to over-fishing caused by increase in human population. Fish farming/aquaculture is therefore seen as an option to reverse the dwindling fish catches and/or consumption of fish in Malawi. The government has shown commitment to boost fish farming and aquaculture in the country through establishment of the Presidential Initiative on Aquaculture Development (PIAD) in 2006.

The establishment of the fish farming/aquaculture platform therefore offered an alternative means to ensure coordination across PIAD efforts, and to translate policy intentions into action. At its first meeting in June 2008, the platform opted to prioritise support for small, medium and large-scale production of competitively priced fish from both fish farming and aquaculture. It identified five major challenges to the development of aquaculture in Malawi namely: input supply (fingerlings, feed, ponds and cages); extension services and information systems; inefficient marketing systems of feed, fingerlings and table fish; inconsistent investment environment and lack of capital. The fish innovation platform hence aims to address these challenges in the aquaculture value chain with the view of meeting the PIAD targets and developing aquaculture into an industry that can contribute to national economic growth. In addition to meeting the PIAD targets, the initiative was viewed to be in line with the NEPAD CAADP as reflected in the Malawi Agricultural Sector Wide

Approach (Aswap) which is the Malawi CAADP compact where fish production through aquaculture has been identified as one of the key agricultural sectors.

The members of the platform include: National Aquaculture Centre, Bunda College of Agriculture and World Fish Centre as aquaculture research institutions; private companies (MALDECO, African Novel Resources – ANR); government extension services; commercial farmers (Mandevu, Solace & Hangere); fish farmers associations; NGOs (WVI, Project Concern International - PCI); Innovative Fish Farmers Network; and Opportunity International Bank as an investment loan provider.

The initial activities of the platform centred on multiplying and disseminating an improved strain of *Oreochromis shiranus* that had been developed through rigorous selection by NAC in collaboration with World Fish Centre (WFC) & Bunda College. The strain has been developed through a rigorous selective breeding programme for 5 generations and the output has been tested on farm condition and has shown to grow 60% faster than their local counterparts.

Through this selective breeding process, it was realized that use of quality fingerlings of improved strain has several advantages. Good quality fingerlings are of known age and have little if any combination with parents and this reduces stuntedness thereby improving on table fish yield.

The production of good quality fingerlings formed the starting point for platform activities as a way of addressing one of the identified priority areas. This would contribute to increased access to quality fingerlings by fish farmers resulting into increased fish production. Though NAC was engaged in fingerling production, the platform deemed this to be an outside domain for a government aquaculture research centre. The approach taken by the platform was to identify and engage four potential private hatchery operators, whose facilities would be upgraded using seed money from the MRIU to produce quality fingerlings of improved strain. The hatcheries were to be at decentralized locations in the country for ease of access by the farmers from all the regions of the country. The identified hatcheries that were selected and upgraded using MRIU seed grant include Solace Farm International & Mandevu farm in the south, African Novel Resources in the centre and Hangere farm in the north. The platform decided to allocate the bulk of the seed money as a loan to the hatcheries ie they would be expected to repay this using the profits from the sale of fingerlings into a platform-administered, rovolving fund. The loan allowed hatcheries to procure brood stock of the improved strain of Oreochromis shiranus from NAC, and to purchase feed and other relevant inputs. The other seed money was used by the platform to develop guidelines for hatcheries operations by among others, contracting consultants to provide technical input and engaging government authorities in adopting the policy hence approve the guidelines.

The development of the hatchery guidelines was led by a task force of volunteers from the platform, who were assisted by technical consultants. The guidelines are envisioned to contribute towards a system of formalizing and certifying fingerlings production in the country, which in turn would minimise losses to farmers from buying stunted fish which were often sold as fingerlings on markets.

In terms of fingerlings distribution, in 2010, one of the upgraded hatcheries entered into an agreement with World Vision International (WVI) to supply fingerlings of *O. shiranus* to its fisheries projects. A Community Action Research Project (CARP) fisheries project implemented by Bunda College/RUFORUM in consortium with several implementing institutions has also entered into business agreement with the hatcheries through the platform to supply 600,000 fingerlings of improved *O. shiranus* to CARP project farmers. MALDECO Fisheries Ltd procures over 170,000 fingerlings from established hatcheries for cage culture production.

NAC now maintains a nucleus of around 3,000 brood stock of improved *O. shiranus* for 2011/2012 fingerlings production cycle.

Nursing Farm	Fingerlings Distributed	Districts distributed
Mr F. Nikoloma	60,000	Thyolo
ZFFA	70,900	Zomba
Mrs Chokani	54,700	Mchinji
Mr Gama	10,000	Nkhatabay
Mr Skepe	8,000	Ntchisi
HATCHERIES	Number of fry produced	Districts Distributed
Mrs Chavula	20,000 (continuing)	Mzimba
Solace farm	160.000	
	100,000	Zomba, Michinji, Thyolo
Mandevu Farm	20,000 (continuing)	Thyolo
Mandevu Farm	20,000 (continuing)	Thyolo
Mandevu Farm National Aquaculture Centre	20,000 (continuing) 130,000	Zomba, Michinji, Thyolo Thyolo MALDECO/Mangochi

Table 1. Number of fry and fingerlings of improved O. shiranus distributed to focal districts in Malawi

The platform also serves as a springboard for advocacy to influence change of government regulations or persuasion for approvals. MALDECO Aquaculture Company, for instance, had struggled on its own to convince government regulatory authorities to approve sex reversal technology, which could accelerate the growth rate of farmed fish in cages. MALDECO was initially reluctant to join the platform as it viewed it as any other talk shop that staged a series of meetings without any concrete activities. However, MALDECO decided to join in after being coerced by MRIU and Platform Champion that a platform provides a good vehicle for lobbying towards policy change. The general manager then started attending platform meetings where the platform expressed its support for pursuing technology clearance collectively. The platform members who had been involved in studies on sex-reversed fish productivity, were also able to provide technical data to support the advocacy efforts. The platform champion was asked to present the sex-reversal technology to the Technology Clearing Committee, which subsequently approved it. Through this experience, MALDECO company has now become a very active member of the platform.

The approval of the Hatchery Standards & Guidelines for Tilapia Hatchery Operators in Malawi by the Director of Fisheries is another milestone in the advocacy role of Malawi RIU and the platform on influencing policy.

Malawi RIU also facilitated the process towards re-invigorating the Innovative Fish Farmers Network (IFFN). The IFFN was formed by JICA in 2004 with the intention to empower the community of fish farmers through, among others, a mentoring scheme between medium-sized and smaller scale producers so that there is progression to approaching fish farming as a business. However, after JICA project phased out in 2007, the network operations waned down as there was over-dependence by the farmers on JICA in driving the process. Malawi RIU recognized that revamping the IFFN would assist in giving a voice to farmers in as far as production, marketing, service delivery and demand for knowledge were concerned. The network would be an opportunity to build the cohesiveness of a broader network of a pool of business-oriented fish farmers with a stronger voice for services like extension services, organized production, as well as access to markets. As a process of revitalizing IFFN, Malawi RIU facilitated extensive consultations among various stakeholders on the way forward towards instituting a vibrant IFFN that would in the long-run be able to sustain itself. Among others, three regional and one national consultative workshops were conducted where stakeholders reviewed the status-quo of the IFFN and proposed measures for strengthening the operations of the IFFN. One key issue recommended in the process was that the network should be driven by the farmers themselves, be anchored to the fish farming innovation platform and that any funding agency should just play a facilitator role in the background. Hence, an executive committee, comprising innovative farmers has been set-up that will steer the network in a farmer-driven approach. Among others, the executive will in the enterim run a secretariat, mobilize progressive fish farmers into clusters based on geographical production and market potentials, facilitate linkage with potential funding agencies and lobby with government on access to PIAD resources. The IFFN is currently at its pro-active state with potential to self-manage its strategy.

In January 2011, RIU Malawi and some selected members of the Fish Farming Platform received in audience a delegation from China, World Bank (Head of Fisheries Division, Washington) and DFID. The delegation was led by the Senior Fisheries Advisor of NEPAD. The delegation was under the Africa-Britain-China (ABC) platform on fisheries development and were keen to explore opportunities for supporting fisheries initiatives in some African countries, including Malawi, in the areas of fisheries policy enhancement, demonstration of up-to-date aquaculture technologies, provision of technical & financial support...etc. The delegation sought input into the design of its planned regional support programme for fisheries. The delegation looked motivated by the fish farming/aquaculture platform structure, systems and operations and viewed it as a possible window at country level for support. The overall coordination in Africa would be done by the Fisheries Division of NEPAD. However, the platform still sees this window as an opportunity for further strengthening of its activities in Malawi.

Malawi RIU partnered with Bunda College of Agriculture on the implementation of the RUFORUM funded CARP project titled: "Enhancing fish Production and Marketing for Food Security and Rural Incomes of Small-scale producers in Malawi". Malawi RIU has been partnered to provide expertise on value chain/innovation systems approach as well as mobilization and organizational development of fish farmer clusters around the Innovative Fish Farmers Network members that RIU has assisted to revitalize. Other partners in the project are

NAC, World fish Centre, and Farmers Union of Malawi (FUM). This is a three years outreach project, supporting also two Msc & 1 PhD students. The other benefits from this partnership is that CARP project has now signed a contract with the Fisheries platform to be buying quality fingerlings of improved strain of *O. shiranus* from the established private hatcheries. The platform will be charging commission for this facilitation whose returns will be used for sustaining its operations.

Legumes Platform

The legume sub-sector was identified as a priority early on in the Malawi RIU country programme design phase. Legumes represent a cheap source of vegetable protein and vitamins in addition to their contribution to soil fertility improvement through nitrogen fixation into the soil. Their ability to fix atmospheric nitrogen can help reduce expenditure on in-organic fertilisers, and protect soil and water from the negative effects of excessive fertiliser use. Despite these benefits, the grain legumes sector in Malawi is characterised by low productivity due to among others, low farmers' access to improved and certified seed at planting time.

The legumes platform found a niche for strengthening the position of legumes in Malawi's largely maize-based crop production systems. As the platform was getting off the ground, the Malawian government announced its intention to include legume seed, especially beans, into the Farmer Input Subsidy Programme (FISP). This provided an impetus for the platform to focus on legumes as FISP represented a ready market for its output, and allowed the platform to build capacities not only in seed production, but also in business management and marketing. This opportunity demanded some coordinated and consulted efforts by various partners in the legumes sector to work together in partnership to realize increased seed production. The key members of the platform include: research (CGIAR, NARS & Bunda College); government extension services, NGOs, farmer organizations (ASSMAG & GALA); input suppliers (Farmers Organization); private sector seed producers (Seed co) and grain traders/processors (Transglobe).

The Department of Agricultural Research Services (DARS) and Bunda College of Agriculture have in the past two decades, developed a number of technologies targeted at improved beans, soybeans and groundnuts production in Malawi. These technologies are however not yet accessible to farmers due to unavailability of certified seed. The legumes innovation platform therefore prioritized seed production of improved varieties of beans, soybeans and groundnuts to increase access by farmers. The platform also has plans to extend its efforts to marketing and value addition of these legumes.

With the seed money from Malawi RIU, the platform procurred pre-breeder seed from CIAT and Chitedze Research Station and then contracted Demeter Agriculture Ltd to multiply beans under irrigation to breeder seed. The remaining seed money was allocated as a loan to ASSMAG & GALA farmers to purchase breeder seed from the platform, and to multiply it to basic seed and eventually to certified seed. In order to see the certification process to completion, farmers would have to register with the Seed Certification Unit, and the seed money was also used to meet incidental costs for Breeders and Seed Technologists from Chitedze Research Station related to the monitoring of seed production and other steps required in the process. ASSMAG & GALA farmers would then be in a position to sell the basic seed and/or the final certified seed to

interested buyers, and with the profits, repay the loan back to the platform. This is similar to the revolving fund that had been set up by the fisheries platform for the hatchery operations; the money in this fund would subsequently be used for addressing other priority challenges in the legumes sector. Demeter also provides market for produced seed from ASSMAG & GALA farmers since it is among the companies that have an agreement with the government to supply seed for FISP. The farmers, however, were free to sell their seed to any bidder of their choice.

Malawi RIU also supported the training of 85 GALA and ASSMAG farmers in seed production and certification process by the Seed Services Unit of Chitedze Research station, a body that regulates and certifies seed production in Malawi. The purpose of certification is to ensure that the public accesses high quality seeds of superior quality crop plant varieties so as to promote purity and identity. The farmers during the training were oriented to processes and techniques for maintaining the legume varietal purity and identity of the seed at all stages of the certification process. This includes planting, growing, harvesting, drying, storage, bagging and labeling of the seed. The seed services unit elaborated on each of the four inspections that they would make to the farmers: field inspection, harvest inspection, bin inspection and official laboratory inspection.

Previously, the government regulations only allowed research stations (breeders) to be responsible for multiplying pre-breeder seed to breeder seed for open-pollinated crops and not farmers. Due to scarcity of resources and bureaucratic nature of government services, this has been contributing to prolonged periods for producing certified seed that can be accessed by farmers. The legume platform therefore lobbied with government to waiver this regulation so that farmers, with intensive collaboration with Breeders, could also be allowed to multiply breeder legume seed so as to speed up the process. This lobbying coupled with the increased demand for certified legumes seed for the subsidy programme, influenced government to offer consent allowing ASSMAG and GALA farmers also to participate under the coordination of the platform.

Crop/Year	Pre-breeders seed		Breeders seed		Foundation seed	
	Farmers	Quantity	Farmers	Quantity	Farmers	Quantity
	involved		involved		involved	
		(kg)		(kg)		(kg)
<u>Beans</u>						
2009/10	Demeter	400	Demeter	2500	20	1000
2010/11	Demeter	400	Demeter	2800	85	4000
<u>Groundnuts</u>						
2009/10			20	600	20	300
2010/11					85	1500
<u>Soya beans</u>						
2009/10			20	600	20	300
2010/11					85	3000

Table 2: Number of farmers involved and seed provided to ASSMAG and GALA farmers

Note: the table above is just up to foundation (basic) level of seed produced.

The platform has since attracted the attention of the Irish Aid and IFAD funded RLEEP project to invest into legume platform activities.

Livestock Platform

Livestock constitutes a developing sub-sector of agriculture, with underutilized and under-estimated potential to contribute to household and national food and nutrition security and poverty alleviation. Currently, Malawi is noticing a rapid growth in the sector based on livestock numbers.

Livestock had a place in the Malawi RIU agenda from the outset. In the early NIC meetings, several classes of livestock like goats, beef and poultry were flagged for consideration in the platform. In the end, piggery and dairy were adopted. In due course, piggery became the main area of activity for the platform as dairy industry was viewed as relatively more privileged in terms of receiving support from other funding agencies compared to piggery.

Of late, there have been rapid increases in pig production (of improved breeds) supported by development projects and NGOs which supplied breeding stock and extension services to pig farmers in most areas of Malawi. Although pig production has been increasing over the years among small holder farmers, pig processors have found it difficult to easily access these pigs due to lack of proper marketing infrastructure. This has led to pig processors resorting to importation of pig products. Thus, currently one of the critical gaps in pig innovations and development has been its failure to link farmers to profitable markets and to increase incomes for marketing pigs and pig products. The current pig marketing channels have generally been informal and poorly developed and this calls for initiatives to develop interventions to enhance the ability of pig farmers to access marketing opportunities and diversify their links with markets. This is paramount to raising farmers' income and reducing poverty and should be considered as a best strategy for enhancing the adoption of improved pig production technologies and disease control interventions. The other constraint affecting the pig industry is the frequent outbreak of African Swine Fever which is endemic throughout the country, killing close to 100,000 pigs every year. The absence of the formal slaughter places makes the control of this disease even more difficult when pigs are slaughtered anyhow.

It was this gap that the livestock platform decided to address through the establishment of four formal decentralised market structures in Mulanje, Mzuzu, Balaka and Dowa. These are envisioned to provide formal slaughtering facilities and, as a consequence, contribute to the containment of African Swine Fever and making easily accessible locations for selling both pigs and processed meat.

The pig farmers to benefit from these markets are:

Mulanje Association – 24,000 farmers

Dowa Association – 1,845 farmers

Mzuzu Livestock Cooperative – 1,800 farmers

Balaka Piggery Association – 1,050 farmers

The distinguishing aspects of the livestock platform from its legumes and fish farming platforms is firstly, farmers form the clear majority of participants in this platform. Secondly, it continues to make use of 'platform facilitators' in the four locations where the decentralised markets have been constructed. Piggery associations from Mulanje, Mzuzu, Balaka and Dowa, along with the facilitators who were tasked with ensuring that progress occurs as planned, are the core members of the platform. Other members include Bunda College of Agriculture, government's Department of Animal Health & Livestock Development; cold storage/pork processing companies (Kapani & Bwemba Cold Storage) and commercial farms. The technical support at association level is provided by ADD, district and local level government staff as well as a platform champion from the Bunda College of Agriculture, and a representative from the Department of Animal Health & Livestock Development head office.

As with the other platforms, the grant provided by the RIU country programme played a role in getting activities off the ground. Malawi RIU also provided advice on the use of finances, thereby building the capacities of the platform to manage funds from other sources in the future. The country programme also facilitated interactions between the platform members and the district assembly authorities responsible for over-seeing the construction of the markets as well as the quality of the product that is traded at the facilities. The platform meetings offered consistent opportunities for producers and processors/buyers to exchange information on supply and demand.

In all the four locations, piggery associations took on board much of the responsibility for the building of the structures as they realised to be the primary beneficiaries of the markets. After completion, the markets were launched by high level government officials, politicians and other important dignitaries. With the functioning markets, other support agencies like government programme One Village One Product (OVOP) is coming in to support value addition by financing procurement of meat processing equipment to diversify products from pigs. Piggery associations are again acquiring training to progress into becoming Cooperatives. Being a cooperative offers several advantages like: a greater degree of organisation to pursue collective marketing opportunities, easier access to loans from banks and other credit facilities, and the expectation that benefits would be distributed more equitably among members based of share ownership.

The associations also have plans to set up kiosks at the urban centres near market locations to sell meat products, in addition to live pigs and pig meat.

Another fascinating development in the livestock platform is that one of the facilitators is the proprietor of the commercial-scale processing company and offers direct link of the company with the decentralised markets. The pig processor has since invested in enlarging the existing Pig Processing Plant (with a big capacity and better facilities) than the old one as a sign of improved prospects for the pig processing business. This entrepreneur is an active member of the platform and has been motivated into making further processing plant investment due to assuring availability of pig markets. As such, the processor played a very active role in seeing pig markets construction coming to completion and being put into use.

The Director of Animal Health & Livestock Development, in his speeches during the pig market launches expressed the intention of the Malawian government to seek funding for the construction of similar markets elsewhere in the country.

The Malawi RIU's approach in the piggery sub-sector is attracting interest from other organisations and initiatives. The Volunteer Services Overseas (VSO) in Malawi is pursuing a value-chain approach in its "Making the markets work in the dairy sector in Malawi", and has had discussions with RIU on its platform approach and how the initiative might be incorporated into this dairy initiative.

Cotton Development Platform

The government of Malawi has prioritized cotton as one strategic crop that requires intervention and support in order to increase its export potential. The ever-growing anti-smoking campaign in the world is jeopardising the production and markets for tobacco which is the main foreign exchange earner in Malawi. The government is therefore investing more attention to cotton as an alternative foreign exchange earner for the country. Production yields of cotton have for a long time been low due to mainly low adoption of improved technologies by farmers. The crop has currently an average yield of about 800kg/ha against potential of 3000kg/ha. Cotton is a significant smallholder farmer cash crop in Malawi, grown by about 140,000 smallholder farming families, with very few estates growing the crop.

The Malawi RIU Country Strategy identified cotton as one of the priority commodities to institute an innovation platform. This was seen as an opportunity for RIU to add value to AICC's (RIU Malawi Fund Manager) initiatives under the Public Private Partnerships (PPP) that it was pursuing with cotton. The Malawi RIU programme hence supported the establishment of the Cotton Innovation Platform, broadening up participation of key players in the cotton sector. The members of the cotton platform after a year in operation, resolved that the platform should evolve into a Trust so that its activities and services are sustained beyond the life of RIU project. African Institute of Corporate Citizenship (AICC) was appointed as secretariat to coordinate the activities of the Cotton Development Trust. Hence, Malawi RIU's initial contribution allowed a growing coalition of actors with sufficient mutual interests to mature into the Cotton Development Trust (CDT). In addition, the country programme sensitised the cotton sector actors to an innovation systems perspective, which subsequently expanded the range of stakeholders participating.

Malawi RIU also granted seed money to CDT in the 2009/2010 season to conduct demonstrations in all key cotton growing areas to show-case to farmers the recommended technologies and practices for boosting cotton production and productivity. In total, 420 farmer demonstration plots were established across the country in the key cotton growing areas. Three field days were organized within the season at the demonstration sites targeting various stakeholders at all levels. Through this approach, around 42,000 farmers, government, NGO and private sector extension staff were directly exposed to recommended cotton production practices.

After one year of involvement in the cotton platform, Malawi RIU became convinced that the platform had adequate facilitation from AICC as it's secretariat and the private sector showed commitment to contribute towards running another set of cotton demonstrations in 2010/2011 growing season. In essence, there would

be no new lessons generated by Malawi RIU in its continued support to conducting cotton demonstrations. Hence, the country team's role was reduced to minimal compared to the other platforms.

ROLE OF MRIU IN PLATFORMS

Malawi RIU played brokerage and catalytic roles in the platforms. MRIU provided seed money – a critical investment that has allowed collective activities in the platforms to get off the ground. The contribution and impacts from the seed money in platform activities has already been elaborated earlier on.

Members of the RIU country team made themselves available at every platform meetings. Their main role was to ensure that discussions remained focused, followed up the platform's calendar of events, documented platform activities, and brought together representatives of the different platforms to exchange experiences.

The Malawi RIU team also kept abreast with policy, market and other developments that are relevant to the respective platforms. MRIU informed the platforms of these opportunities, and supervised their alignment with such prospects. Matching the intentions of the PIAD with the implementation plan of the fish farming platform is an example of this. In the case of the livestock platform, the RIU country team instigated interactions with pig buyers, who were invited to platform meetings to share information on their market needs. In the fisheries platform, MRIU brokered consultations between the platform and the Director of Fisheries leading to approval of the Hatchery guidelines; and processes towards approval of sex reversal technology by government.

The country team also followed up on activities that were pursued by individual members or task forces on behalf of the platforms in liason with the Champions and/or Platform Facilitators. The team also worked towards sustaining the involvement of platform members by stimulating energy among members towards platform activities. From the outset, MRIU avoided using money as an incentive to platforms. As such, the level of involvement among platform members was driven by conviction of common interests among stakeholders, and the perceived advantages of collaboration. These are all facets of innovation brokering.

INFLUENCING POLICY

The Malawi RIU Country Programme also established a National Innovation Coalition (NIC), consisting of up to sixteen senior and influential individuals from organizations which were receptive towards the RIU principles and which were already implementing RIU related approaches. As stipulated in the Country Strategy, NIC was envisioned to provide the energy, stimulus, resources and critical mass of effort to facilitate the greater use of research-based knowledge in the agricultural and natural resource sector to improve livelihoods and sustainable use of the environment. In essence, NIC was regarded as the local board of Malawi RIU. In addition, NIC members were regarded as conduits for advancing policy reforms based on lessons being generated from the innovation platforms and RIU operations. NIC therefore became an important mechanism

for interfacing with policy. In addition, NIC played a great role in reviewing proposals for platforms, and guided MRIU upon the allocation of platform seed money.

Malawi RIU team also actively networked with policy communities, among others, securing meetings with the Directors of the various departments to show-case the activities of the platforms and in the process cultivating the need or lobbying for policy changes to facilitate improvements in the sector (see examples in fisheries & legumes platforms).

During the programme design phase, there were deliberate arrangements of anchoring the programme to the Ministry of Agriculture and Food Security for policy support. To this effect, the Controller of Agricultural Extension & Technical Services (CAETS) served as patron of Malawi RIU to facilitate policy linkage between RIU and the Ministry. In this regard, Malawi RIU provided regular programme and platform updates to the patron and the Principal Secretary of the Ministry, requesting their guidance and indulgence wherever policy issues were concerned. The presence of the patron made interactions between Malawi RIU and government agencies very cordial.

COMMUNICATION

RIU Malawi recognized the significance of having a communication strategy that could lead to increased public awareness in its activities and the innovation systems in general. This was believed to be an important tenet for setting an environment for networking with various actors and lobbying with policy makers. The communications design incorporated a spectrum of communication activities with the purpose of effectively utilizing communication as a tool in the implementation of the MRIU Programme; communicating the lessons being learnt in-country to internal & external audiences; and communicating the MRIU Programme to national and international stakeholders and audiences. The tools included developing materials for TV and radio programmes; producing articles for print media; producing newsletter; and facilitating network events and meetings with other stakeholders.

The programme was therefore intensively featured on Malawi main radio stations (both public & private) and Malawi television, broadcasting Malawi RIU events, activities and achievements with a listenership of around 10 million people. Feature articles were also covered in the Malawi prominent newspapers. Three quarterly RIU newsletters were produced showcasing important activities and events done by RIU and Partners. RIU Malawi also organized visits for Journalists to RIU supported initiatives to assist in publicizing work being done by the programme. The impact from these communication models has been increased networking and demand for RIU services, especially seeking advice on how to establish and manage innovation platforms.

Malawi RIU also produced video documentaries on all the three platforms: fish farming, piggery and legumes. The fish farming and piggery documentaries were posted into RIU website for international publicity. Another documentary on the overall RIU Malawi programme has been produced for both TV and radio broadcasts in Malawi. The documentary focuses on the impact of the programme since its inception in the country.

PROGRAMME CHALLENGES

Despite the enormous successes that Malawi RIU has managed to register, there were a number of challenges that were encountered in the course of implementation. As stated earlier, the process towards establishing the programme commenced in 2006, but the actual implementation started in 2008. Thus the two years period for consultations somehow reduced the period that would have effectively been invested into implementation of activities and achieving results. The programme would have possibly achieved more if the period taken for preliminary consultations was reduced.

The initial stage of the programme had heavy layers of management to the extent that decisions were bureaucratically taking long to be made. Again, the country programme in the same period used to host several advisors and consultants from RIU consortium and quite often the operational advice provided was conflicting. The innovation systems approach that RIU was supposed to employ also seemed to be an unfamiliar approach to the advisors hence creating a spiral of uncertainties in the implementation of the programme.

The country programme also got exposed to frequent evaluations and technical reviews. This resulted into frequent changes on the strategic areas that the programme was hinged on. The country programme started with four strategic areas as stated earlier on. These strategic areas culminated into five commodity innovation platforms, three learning groups and two districts and area based panels (platforms). Through these reviews, the programme had to be rescaled down to only three commodity innovation platforms. This development soured the relationship and trust between Malawi RIU and the national stakeholders and this took too long before confidence got restored with the stakeholders.

The application of the RNNS outputs experienced some hiccups as the issues identified in the platforms were mostly not in tandem with the available RNNS. The platforms therefore mainly used the research outputs developed by national research systems as opposed to adapting the RNNS. The adoption of the innovation systems approach necessitated the platforms to innovatively pursue developments in a wide area of needs related to policies, markets, infrastructure, value addition in addition to technologies.

Orienting stakeholders to the innovation systems concept, which was new to most of them proved to be a challenge. The country team had to invest a lot of time in organizing regular capacity building sessions for stakeholders for them to internalize the concept and its application. Eventually, there was growing recognition among stakeholders and platforms on the benefits of operating in 'innovation systems' and 'value chain' approaches. However, the processes demanded a lot of time, efforts and patience in early phases of the programme.

LESSONS LEARNED

It requires putting the right structures and systems first to trigger mainstreaming of innovation systems processes. So far, platforms are opting for greater use of other research outputs developed in the country other than RNRRS. Therefore, there is need to further de-mystify the RNRRS to make them better understood by in-country stakeholders.

Brokering & neutrality

MRIU's brokering role is most evident in its involvement with the platforms. While the platform grant has played a critical role in brokering new relationships and working practices, the RIU country team also facilitated network building, capacity strengthening and mediation to bring together a pool of stakeholders willing to act in concert. The country team with time, sought to reduce its role of active management of the platforms with the intention of encouraging devolution of responsibilities to platform members themselves as a way of building capacity and ensuring sustainability.

The other brokering function entailed fostering collective learning ie platform members were also oriented to networking, negotiations and business management practices. Platform task forces, in turn, served to build the skills of their members in data collection and analysis, and to help raise awareness on issues that shape the innovation environment.

Malawi RIU spearheaded greater levels of self-organisation among the platform members. The role of the RIU country team, for instance, changed over time. In the early days, the team actively facilitated discussions at platform meetings, but progressively reduced its involvement, increasingly observing proceedings and just providing back-up support.

Generally, Malawi RIU was able to do this as a neutral institution/organization among the platforms. It is therefore necessary that an innovation broker is perceived as neutral by stakeholders for innovation to work.

In case of platform bottlenecks, initial support with grant (seed) money assists in caterizing the process of setting things moving. Stakeholders also confessed that Innovation is not about technology transfer but that there has to be proactive interaction of stakeholders along the value chain to advance generation, transfer and application of new knowledge for advancing development.

Revolving fund

The legume and fish farming platforms have adopted a revolving fund approach in disbursing seed funds to beneficiaries. In fisheries platform, the innovation funds given to commercial fish farmers for upgrading hatcheries were given on loan with the agreement that they pay back the initial capital after they start selling the produced fingerlings. The legume platform on the other hand provides basic seed to ASSMAG and GALA farmers on loan so that they pay back to the platform after harvest. Both arrangements will assist the platforms to sustain themselves and continue addressing issues in the sectors even after the phasing out of support from Malawi RIU.

UNEXPECTED OUTPUTS

In the course of implementation, the programme registered some unexpected outputs. One of the lady hatchery operators in Mzuzu (northern Malawi) that Malawi RIU supported has gained recognition from stakeholders in the northern region as an important resource person on fingerlings production and pond management. The lady is a member of the fisheries innovation platform. With intensive interactions with Malawi RIU and improved network through the platform, Mzuzu University (Faculty of Fisheries &
Aquaculture) has discovered a niche in her to be using her farm as a practical training site in aquaculture for the undergraduate students pursuing their studies in aquaculture. The deal started in a loose form but is now developing into a formal arrangement whereby the university is promising to pay the training services that this hatchery operator is offering. NGOs like World Vision International and others are using her to train their farmers from through-out the northern region of Malawi. Farmers are trained in situ whereby they do camp at the lady's farm site on WVI's/NGOs expense. She is also now regarded as a lead fish farmer in the area providing technical services, advice and leadership to a cluster of fish farmers in close proximity to her farm. She attests these developments to the capacity building support she has received through Malawi RIU. Another hatchery operator that benefited from RIU seed funds through the platform is diversifying the farm to be an eco-tourism destination. Apart from fish ponds and hatchery, the farm has integrated into keeping different classes of livestock, restaurant and has constructed accommodation chalets. People are already paying a fee for visiting the farm.

The Ministry of Agriculture and Food Security has formed the roots and tubers platform to emulate the RIU-established platforms in terms of governance and operations. The Ministry requested RIU's input on how to work in a systems-mode, carry out diagnostic exercises and secure stakeholders' commitment. The Malawi RIU Country Coordinator was invited to facilitate the first meeting of this platform to ensure that the basic processes are taken on board in platform formation and operations. This can be interpreted as a signal of the ministry's receptiveness towards the notion of multi-stakeholder consultations and collective action as a response to common challenges. Malawi RIU is still invited to the roots and tubers platform meetings to provide back-up technical advice on how the platform should be operating.

EXIT STRATEGIES

Towards the end of the programme, Malawi RIU organized a series of workshops for innovation platforms to discuss and map out exit strategies post RIU. This was done with the aim of reviewing the sustainability mechanisms that had already been adopted in the platforms and incorporate improvements wherever deemed fit. The programme had sought to build sustainability mechanisms into platform activities from the outset. As the programme progressed, Malawi RIU staff's involvement in coordinating platform activities slowly got devolved to Platform Champions. As regards seed money disbursement, platforms were first of all expected to prepare comprehensive proposals (with budgets, work plans, etc.) and this was seen as a way of enhancing their fund-raising skills for the future.

Platforms had also to put in place accountability mechanisms in the management of platform grants from RIU. Among others, this included instituting an audit and finance team from within the members to monitor the utilization and accountability of funds by those entrusted with spending. Malawi RIU also trained the platforms in areas of financial management and record keeping, business management skills and networking. Platforms have in the process adopted revenue generating strategies like operating a revolving fund from the seed money for fingerling production (fisheries platform) and seed multiplication (Legumes platform). The piggery associations charge market levies for all the people who bring the pigs at the markets. The platforms

are using these resources to finance further initiatives and addressing priority bottlenecks where deemed necessary. In this way, the platforms are increasing attractiveness to other potential funding agencies using the experience and confidence in managing and accounting for platform financial resources from Malawi RIU as an example.

The regular platform meetings that RIU organized and facilitated assisted in building trust among platform members to collaborate and work together and in the process realize benefits from those collaborative efforts. This has helped in shifting the mindset among stakeholders to value working together in collaboration and in partnerships.

A further way that the programme has sought to ensure the sustainability of its efforts is by building on the momentum of existing projects, as opposed to setting up parallel structures or activities. The piggery associations, for example, which were established under previous government-led development projects and NGOs provided a stepping stone for further investment into constructing decentralized pig markets hence providing an effective link along the value chain spectrum.

CONCLUSION

Despite the delays in the start-up of actual implementation of activities in Malawi, MRIU has contributed quite a lot to facilitating innovations in agriculture in the country. The programme has managed to put structures and systems in place that are vital in facilitating innovations in agriculture. Most notably are the establishment and functioning of the commodity based innovation platforms namely livestock, fish farming/aquaculture, legumes and cotton. In addition, there are already tangible impacts through platforms towards improving agricultural production and improving livelihoods. For example, the establishment of decentralized pig markets, the established sustainable systems for multiplication of fingerlings in fisheries and seed in legumes are contributing substantially towards food security and economic development of Malawi. The platforms have mechanisms in place for sustaining themselves post RIU and would look attractive to other funding agencies due to the experiences and structures available.

ANNEX

Annex 1: Project outputs and achievements

Project Output	Activities undertaken	Status of	Deviations if any,
Title	/changes in activities	achievement	and the reason for
			the deviation.
1 Established	Four batcheries	achieved	
decentralised	established in strategic	demeved	
hatcheries	areas of Malawi		
2 Fingerlings	5 million fingerlings to be	Only 2	Late and insufficient
produced and	produced from hatcheries	million	brood stock supply
disseminated	and distributed to farmers	fingerlings	to hatcheries by NAC
		were	
		produced	
3. Legume	Engaged farmers from	achieved	Legume seeds still at
improved	GALA and ASSIMAG, and		
varieties	Agriculture) to participate		seeu ievei
multiplied	in seed multiplication		
4.	Four pig markets	Delaved	Late release of funds
Decentralised	constructed and marketing	accomplishm	from RIU UK to
pig markets	of pigs has since started	ent of the	Malawi RIU for
established		task	platform grants
5. Five	Establishing and	Platforms	To increase focus for
innovation	facilitating the operations	reduced to 3	impact and lesson
platforms	of the platform		generation
established		- 1	December 1
6. Farmer	Conducting training	Inese	Recommended to
& platform	Platform Eacilitators and	plationis	commodity
facilitators	nartner staff on facilitation	discontinued	nlatforms by the
platforms	and farmer empowerment	uiscontinucu	Technical Review
established			
7. National	Facilitating meetings for	NIC	Members were very
Innovation	NIC in innovation systems;	established	senior & most of the
Coalition	NIC functioning as a policy	&	times busy with work
established &	linking body	functioning –	at their organizations
functioning		but not very	
		active	

Annex 2: Project outputs & number of beneficiaries

Project Output	Output	No	1-	fish	farmers	Output	No2	- value	Output3 –Farmers increase
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	benefit from the production	chain for seed supply	their income through
	of fingerlings from improved	enhanced	improved established pig
	strain of O. shiranus		market structures
Number & Type of Indirect	4,000 fish farmer households	85 farmers multiplying	
Beneficiaries		seed from breeder to	
	3 millon fingerlings produced	basic seed; 1700	
		farmers to multiply	
		from basic to certified	
		seed	
Number & Type of Direct	4,000 fish farmer households	It is projected that	Around 28,600 pig farmers
Beneficiaries		close to 1.6million	will improve economic
		farmers will benefit	livelihoods through sales of
		(certified seed)	their pigs to established
		through the	markets
		government farmer	
		input subsidy	
		programme – from	
		platform multiplied	
		seed	
Male Beneficiaries (indirect and	1.300	900.000	13000
direct)	,	,	
Female Beneficiaries (indirect	2,700	700,000	15600
and direct)			
Total	4,000	1.6million	28600
Please describe the benefits to	The farmers using improved	Improved access to	Increased incomes as pigs
the beneficiaries for example	fish strain had an advantage	certified seed will	are sold according to
what was the impact/ result of	as the fish grows 60% faster	result into increased	quality and weight – no
having access to good quality	than the local strain. The	production of legumes,	more vending. Farmers will
potato seed have on the	economic returns would also	improved farmers	improve production
farmers in Gicumbe? Please try	increase by 60%. Use of	incomes and improved	husbandry techniques to
to quantify your responses, so	quality fingerlings resulted in	soil fertility through	attain higher prices as per
use numbers, percentages etc.	reduced mortality rate,	nitrogen fixation	market demands. Reduced
when describing the benefits.	uniform growth, fast growth		incidences of African Swine
	and bigger table fish		Fever

Annex 3: Some major training workshops done by Malawi RIU

Workshop	No. of	Subject matter	Participants
	workshops		
Fish farming platform	6	Sector analysis, stakeholder analysis, platform members	Platform members from government, private
		identification, prioritization of issues, review & development of	sector, NGOs, farmer groups, academia
		action plans/activities	
Livestock platform	6	Sector analysis, stakeholder analysis, platform members	Platform members from government, private
		identification, prioritization of issues, review & development of	sector, NGOs, farmer groups, academia
		action plans/activities	
Legumes platform	4	Sector analysis, stakeholder analysis, platform members	Platform members from government, private
		identification, prioritization of issues, review & development of	sector, NGOs, farmer groups, academia
		action plans/activities	
Innovative Fish farmers	3	Analysis of status of network, definition of innovative fish farmer,	Innovative fish farmers, government fisheries
network		fish farming as a business, institutional arrangements of the	department extension services, National
		network, networking, devising future plans and strategies	Aquaculture Centre, NGOs (WVI), commercial fish
			farms
GALA & ASSMAG	2	Standards & guidelines in legumes seeds production, handling,	Association members (legumes seed producers)
		processing and certification	
Pig Association (Mulanje,	2	Financial management record keeping, business management	Piggery associations (farmers) and their field
Mzuzu,		skills, marketing, pork handling & processing, group dynamics	extension agents
Dowa & Balaka			
National Innovation	4	Concept of innovation systems approach, roles & functions of	NIC members drawn from institutions that share
Coalition (NIC)		NIC, review & approval of project proposals from platforms	RIU operational principles
Platform Facilitators (PFs)	2	Facilitation of innovation systems processes, roles & functions of	PFs drawn from government, NGOs, private
training		PFs, managing institutional change processes, networking	sector and farmer organizations
Farmer empowerment	2	Levels of farmers participation, characteristics of empowered	Organizations working with farmers and farmer
		farmers, community based participatory monitoring, innovation	organizations in agriculture & NRM sectors.
		systems approach, demand for knowledge	

Annex 4: Acronyms

ADD	Agricultural Development Division
ADP	Agricultural Development Programme
AICC	African Institute for Corporate Citizenship
ASSMAG	Association of Smallholder Seed Multiplication Action Group
ASWAP	Agriculture Sector Wide Approach
CAADP	Comprehensive Africa Agriculture Development Programme
CGIAR	Consultative Group for International Agricultural Research
CIAT	International Centre for Tropical Agriculture
DAHLP	Department of Animal Health and Livestock Production
DARS	Department of Agricultural Research Services
DFID	Department for International Development
FISP	Farmer Input Subsidy Programme
GALA	Grain Legumes Association
IFFN	Innovative Fish Farmers' Network
JICA	Japan International Cooperation Agency
MGWIPA	Mugwirizano Pig Association (Mulanje)
MRIU	Malawi Research into Use
MTR	Medium Term Review
NAC	National Aquaculture Centre
NARS	National Agricultural Research System
NGO	Non-Governmental Organisation
NIC	National Innovation Coalition
OVOP	One Village One Product
PF	Platform Facilitator
PIAD	Presidential Initiative for Aquaculture Development
RNRRS	Renewable Natural Resources Research Strategy
WFC	World Fish Centre

ZAMBIA Country Programme

Knowledge being put to use

Identify and describe all the knowledge products/processes that have been put to wider use in this project. This can refer to methodologies, techniques, tools and resources etc. Please refer to your country strategy documents to answer this section. Please also provide data on the number relevant to, or designed primarily for use by, women.

RNRRS generated knowledge used: Minimum tillage through ripping - making furrows (CPP48), labour-saving intervention to boost harvest (CPP48), use of draft animals to reduce labour for women and children (CPP65), soil and water conservation through minimum tillage (CPP48, NRSP12), partnership based innovation help research to respond to needs of technology users (CPH12), innovation platforms – forging strong networks/partnerships (NRSP05), crop rotation to improve soil fertility (CPP66), rice seed priming (PSP25), use of cheap herbicides to control weeds (CPP67), innovative radio programmes (CPP04), participatory varietal selection in local rice seed improvement (PSP33, PSP06), community based seed production in rice (PSP36), use of certified seed, group marketing (bulking)(CPH01)

Non RNRRS generated knowledge used: System of Rice Intensification (SRI), demonstrations and field days (though dropped later), use of a combination of radio programmes (recorded, interactive, drama and short features), 'Supa' rice, use of magoye ripper, rice value chain forum, etc

Project Outputs

In this section we would like you to describe the status of achievement of your stated outputs and also the changes (if any) that have taken place to your project outputs. Kindly explain the reasons for the changes (if any) that have occurred.

In the activities section briefly describe the nature of specific activities you have adopted in your project to achieve the outputs. Did you have to use any new activities [other than what you have committed in the log frame] or modify these activities and if so explain the reasons for the same.

Project Output Title	Activities undertaken /changes in	Status of	Deviations if any,	Please provide a brief description of the management
	activities	achievement	and the reason for	decisions and strategic direction taken that affected the
			the deviation.	project outputs.
1 Promotion: Enhancing the	1.Support capacity strengthening	Good	Learning sites	The idea of learning sites was dropped after it became
demand for and putting into	of Innovation Platforms/ Learning	achievement	concept dropped.	apparent that the room for enabling innovation around
use Conservation	Sites' (LSs) in Monze and Chipata	for IPs	A decision was made	this concept was limited and more of the conventional
Agriculture (CA) related			to increase number	approach of demos and field days which other partners
Agriculture (CA) related	2. Facilitate value addition		of districts to	were already doing.

outputs of RNRRS and other research for the benefit of the poor,	 (adaptation) to key identified and selected initiatives/mechanisms 3.Strengthening awareness creation about CA related RNRRS and other research outputs and their appropriate application 	Good	facilitate IPs from 2 to 5 districts	It was decided to widen the experimentation of Innovation platforms from 2 to 6 in order to get more conclusive results.
2 Learning: Generating evidence about getting CA research into use and sharing lessons/ supporting policy dialogue	Support learning and policy enhancing interventions through analysis of accumulated evidence, documentation and dissemination of information/lessons	Good. Good but more consolidation needed		

Partnerships

i). Have all partners listed in your project proposal contributed as expected in the project? Did you have to drop some of the partners and bring in new partners to achieve the objectives of your project? Kindly describe your experiences in this regard.

ii). When working to strengthen and enhance relationships what do you think worked well?

i). Contribution of partners has been at varying levels. Initially during the consultation and mobilisation stages a lot of interest was shown by the stakeholders. However as the roles of RIU and its mode of operations became clearer some initially enthusiastic partners begun to slowly take a 'back stage' as they discovered RIU was not a classic or conventional donor but a programme working to scale up use of research out puts through supporting innovation. So number of stakeholders reduced and at some stage it stabilised and then started going up as the role of RIU begun to be appreciated. Recently we are seeing increasing interest from the public sector and non-state actors (NGOs and Private sector) in terms of wanting to buy into the innovative approaches that RIUZ has initiated. For example private sector like MRI seed company in Monze started sponsoring a series of radio programmes to promote conservation agriculture, which is in line with the exit strategy. Similarly the Ministry of Agriculture focal point person, who is also the chair of the Conservation Agriculture Task Force has indicated willingness to replicate the Innovation Platforms to other districts. He acknowledges that RIU's brokered IPs have brought out good experiences that are useful in replicating formation of IPs in other districts. An organisation called CELIM also moved in to support CA innovation platform in Monze district. Also Participatory Ecological Land Use Management (PELUM) is impressed by RIU work and is interested in picking up programmes like the CA radio programme component. Asking about what PELUM

can pick up from what RIU has been working on, the acting Secretary General for the regional (East and Southern Africa) body said; "What should PELUM pick from the project apart from fund management, that which we can take forward within our Agriculture and Rural Development (ARD) or Campaign Advocacy and Lobbying (CAL) portfolio within Zambia and the other 9 countries"? Other interest have come from CARE Zambia southern province office concerning development and strengthening of well trained weed control (using herbicides) service contractors as a business based solution for farmers. ZARI is also interested in continuing to support the maintenance of purity of the local rice seed that has been purified by them by continuing to work with local rice stakeholders through RIUZ brokered Rice Forum. Recently RIUZ decided to interest more district based Agro-dealers to link in with RIUZ developed CA service contractors in order to create an agro-dealership network that should be able to provide market based solutions to the challenges of up scaling CA by addressing CA input supply system gaps, starting with Chipata district where additional 5 major agrodealers namely Sheni Agric Suppliers, Modern Bazaar, MSP Agric Suppliers and Plant Agrichem Services, have shown interest. RIUZ hopes to complete this process in the other 5 districts of operation and lobby for stakeholders to replicate this to other places in Zambia. The RIUZ Country Team is actively following up these leads and new ones so that more linkages can be brokered to drive the innovation process for sustained impact.

In terms of internal RIU relationships, RIUZ has been well linked at some level with other RIU countries through exchange of ideas and information through RIU organised learning events and country to country communication. However, a lot of room for improvement has existed. For instance the recent exchange visit of the RIU Uganda rice project to RIUZ rice project just confirmed the importance of such events in enhancing lesson sharing across similar country programmes or project portfolio. More of such events at an early stage in the programme would have added a lot of value in shaping the interventions. At country level, there has been a total of 3 core staff making up the country team. Although we started off with some (2) staff turnover at National Programme Officer level in the beginning, the situation was addressed later, and staff relationship has been very good, always working together as a team in as far implementation of the work plans was concerned.

ii). RIUZ has noted that fora such as the Innovation Platforms and the value chain forum are easily able to foster development and strengthening of functional linkages and commercial relationships among stakeholders and value chain actors. This has been so due to certain characteristics of the IPs/forum that include ability to bring stakeholders together and interact and share information about respective activities and therefore present opportunities for exploring potential opportunities for building both vertical and horizontal business synergies/links or otherwise, to enhance effectiveness and efficiency in the delivery of services to their clients in order to achieve what may be a common objective or agenda, and in the process helping the farming communities. IPs/Forum bring together different categories of stakeholders such as public sector or government, NGOs, private sector, media, producer associations etc, that have different objectives, but which objectives can be achieved by tapping into the potential of one another. So IPs/Forum provide a good 'space' for development and business partnerships to easily begin to happen. In addition articulation of challenges and opportunities is made easier in Innovation Platforms or fora environment. Thus far the relationships emerging in RIUZ facilitated CA Innovation platforms and rice value chain forum are proving to be beneficial and point to sustainability.

Policy change

i). Have you engaged with policy makers in this project and what has this experience been like?

ii). Who are the critical policy makers /policy influencing groups that are essential for up-scaling your interventions? What mechanisms were used to engage with policy makers?

iii). Please detail policy changes to which your project has contributed, for example have any other organisations adopted or promoted lessons derived from your project?

i). Through the National Innovation Coalition (NIC), RIUZ has been engaging policy level actors, sharing experiences arising from programme implementation with them and making recommendations for uptake and support to interventions that are yielding positive results. RIUZ has supported other key policy influencing stakeholders like the recently created Conservation Agriculture Association – hosted by GART – to help enhance strategic and policy level dialogue aimed at increasing the use of research outputs in Conservation Agriculture. In addition RIUZ went into partnership with the Agriculture Association of Zambia (ASAZ) to support the production of a special issue of Zambian Journal of Agriculture Science focusing on Conservation Agriculture to help with knowledge sharing and dissemination of scientific facts about CA. We hope once published this will contribute a lot to the CA body of knowledge and translate into increased awareness of the available technologies and how best to scale up use of the same. Beyond these, RIUZ has used the publication of policy brief to help increase awareness of effective options being tested and calling on policy stakeholders to support and replicate these for the benefit of the poor.

ii). Critical policy makers and influencing groups include the Ministry of Agriculture and Cooperatives, Conservation Agriculture Task Force, media organisations (Panos Institute Southern Africa), Conservation Agriculture Association (CAA), ZARI, GART, Farmer Organisations (Cotton Association of Zambia, District Farmers' Associations, Chinsali Rice Growers Association, CARE Zambia, Seed Control and Certification Institute, ASAZ (based at Unza School of Agriculture), Task Force on National Rice Strategy Development, COMACO, SNV, private sector actors like agro-dealers etc . Mechanisms used include:- policy brief circulation, presentations to the NICs and the CAA, supporting CAA conference, Presentation to the Symposium on Agriculture at Unza, supporting Innovation Platforms meetings, supporting rice value chain meetings, interviews on National TV about RIUZ interventions, supporting radio programmes on community media outlets, participation and contribution to workshops/events organised by other stakeholders relevant to scaling up use of research out puts in CA and the Rice value chain. Also through signing MoUs with some of these for specific collaboration.

iii). A lot of interest in replicating the weed control (herbicide spraying) service provision by contractors (entrepreneurs) is currently being discussed with CARE in Southern province. They intend to develop more CA weed control service providers. Innovative radio programmes on some community media outlets have started to be supported by private sector (in Monze and Kazungula districts)- yet to see how this will pan out. The concept of District Rice value chain forum has now been included in the draft National Rice Development Strategy (NRDS) operational structure. The team is receiving inquiries about the CA tillage service contractors' model by one of the NGOs involved in empowering the poor with livestock to address poverty, we hope they can integrate the business concept into their social programmes. MACO (through the chairman of the CA task force) is

interested in replicating the CA Innovation Platform concept to other districts as it perceives this idea to be important in increasing adoption of CA in that there is evidence of enhanced collaboration, linkages, knowledge sharing and also in improvement of collective efficiency (addresses 'duplication') among stakeholders involved in promotion of conservation agriculture.

Organisational & Institutional Change

i). Has your project resulted in development of new working practices, regulations, functional changes in organisations, emergence of new partnerships etc. within your own project teams and also outside? What has been the effect of these changes?
 ii). Have there been any unintended changes / consequences?

i).

- Through innovation platforms, some community media actors have started linking up and partnering with private sector actors to sustain production and broadcast of conservation agriculture radio programmes. Therefore community radio stations have broadened sources of support to continue CA programmes.
- Rice value chain forum is one of the new working practices that have been embraced by stakeholders Chinsali. This has started fostering functional linkages among actors such as the one between Zambia Agriculture Research Institute (ZARI) and the forum to improve the local rice seed and participate in creating a sustainable local seed supply system to maintain seed quality.
- Recently some partners have expressed interest in adopting the RIUZ CA ripping and herbicide spraying contractor model and RIUZ Country team shall be following up on these new leads in an effort to actualise them.
- RIU facilitation has also enabled the development of a network of private sector actors' network through its support to the development of the Conservation agriculture tillage/weed control 'contractors' (entrepreneurs). The agro-dealers in Chipata and Monze are now linked to the contractors for supply of ripping equipment, herbicides and also inputs. These partnerships are taking CA services as close to the farm families as possible.
- RIUZ sharing of the interim lessons and successes of the rice value chain stakeholders' forum with the public sector and non-state actors has helped to include this structure in the draft the NRDS (currently being worked on) because of its importance in especially facilitating vertical and horizontal linkages in the rice value chain. This will help in the replication of the rice value chain fora to other districts. This has also contributed to sharing of advances in agronomical practices such as SRI among stakeholders like MACO extension, COMACO, ZARI, DRGA, DFAs etc, in Chinsali.

ii). One of the changes included the dropping of the concept of learning sites and the increase in the number of districts to test innovation platform concept to get research outputs around CA scaled up among farmers. Similarly the expansion in the use of community radio from the original two districts to 5 districts.

In supporting the rice value chain, the programme set out to help find a business solution to the key challenge of marketing in the rice value chain in Chinsali district. This intervention attracted a lot of community members to go into the growing of rice, but low yields remained a problem. Therefore attention shifted to finding a solution to the problem of low productivity of which poor quality seed was identified as one of the root causes of this. Therefore the programme decided to facilitate the local rice seed purification by facilitating linkages with research and the seed control and certification institute office. These additions are expected to add value to the creation of a sustained local seed supply system in the area.

Lessons learnt

i). What lessons have you learnt about how to put research into use and enable innovation in agriculture?

ii). Have you shared these lessons with others and if so with whom and how?

iii). Also, describe what has not worked and explain the reasons why not.

iv). What kinds of challenges did you face while upscaling/promoting new knowledge under this project and were you able to address these and if so how?

v). What kinds of challenges [technical, organisational, marketing, policy etc.] continue to remain and how you think these could be resolved?

i). Lessons learnt about putting research into use are as follows:-

- Facilitating development and strengthening of local private sector actors involved in the provision of services and products enables the end users to access and use research products and services easily, which is a long term business solution to getting research used by poor end users. For instance development and strengthening of local agro-dealers/entrepreneurs so that they participate in input/service provision is good for sustained supply of agro-inputs such as herbicides, seeds, appropriate equipment, draft power hire services for ripping and weed spraying services to the local community.
- Public sector participation in both the input and output market needs to be such that it limits distortional effects by being 'smart', targeted, limited/measured, consistent, and predictable so that it allows private sector players to grow and develop to a level where they can successfully provide long term business solutions to the challenges in the scale of use of research outputs among poor users. For instance public sector support in the provision of inputs could utilise the voucher system to enhance local agro-dealers' participation in the market.
- Scaling up use of research outputs in Conservation Agriculture which has attracted a good number of promoters from both public sectors and non-state actors requires that coordination and collaboration are prioritised to improve collective efficiency and effectiveness. It is important to share experiences, lessons and best practices among promoters, and harmonising of technical knowledge in order to reduce substandard and conflicting messages being passed on to farmers and also in addressing disparities in 'incentivising' adoption among farmers. There is a rare opportunity in the RIUZ initiated concept of CA district innovation platforms to achieve this as it brings together Conservation Agriculture stakeholders, especially with the embedding of IPs into the Agriculture Committees of the District Development Coordinating Committees for long term support.
- Innovation platforms that have regular participation of heads of stakeholder organisations/institutions are more effective than those IPs whose meetings are usually attended by delegated staff in that securing commitment and decisions making are delayed. Therefore heads of

stakeholder organisations need to take keen interest in the activities of the Innovation Platforms if there has to be a meaningful impact on getting CA scaled up among small scale farmers.

- In Zambia, alternative media (local community radio stations) is a relatively new concept whose potential in getting research into use is yet to be fully exploited. Research has shown that more and more people prefer to listen to these radio stations than to mainstream media (national media like ZNBC radio stations broadcasted from Lusaka). Supporting alternative media (local/community radio stations) in producing and disseminating a variety of innovative radio programmes (esp. Interactive & drama shows) is helping influence many farmers to put CA technologies into use. These programmes are able to improve the interaction between farmers, private sector (like input suppliers), researchers, extension experts etc. However partnership with private sector is critical for sustainability of dissemination of CA messages.
- Facilitating easy access to higher level technologies to address key challenges associated with the use of existing technologies for farmers such as the challenge of 'labour intensity/constraint' less addressed by hand hoe based CA tillage implements, which can be reduced enabling widespread access to ox-drawn based technologies such as a rippers using market based solutions, can have an impact on the adoption of CA technologies among farmers, and so on gender and child labour issues.
- Traditional and civic leaders are influential persons and targeting them in the dissemination process adds impetus to reaching out to the communities with regard to the scale of new technologies.
- Value chain forums can play an important role in enabling development of functional relationship between value chain actors that go a long way in addressing challenges in the value chain. For instance ZARI and the rice value chain forum in Chinsali partnered on the purification of the local rice seed cultivars. Also sharing of advances in agronomical practices such as SRI among stakeholders like MACO extension, COMACO, ZARI, DRGA, DFAs etc which is key to improving productivity among small scale rice farmers.
- 'Social enterprise' models such as COMACO require to be encouraged and supported to address cross-cutting environmental challenges through supporting community adoption of more viable alternative livelihoods. Sustainability of this model lies in its business concept which should be paid attention to so that once fully implemented, the model can remain supporting the communities in the long term.

ii). These lessons have been shared with stakeholders at different levels including at district and national (strategic/policy) levels. Stakeholders from relevant public sector departments (MACO, MLFD) at both district and national levels, private sector actors especially agro-dealers and social enterprises, NGOs involved in supporting small scale farmers in one way or another at both national and district levels, local government stakeholders, the media from both the mainstream and local media organisations, farmer organisations like DAFs, women groups, Cotton Association of Zambia, Rice Growers Association etc.

The methods of sharing these lessons have included:- Innovation Platform meetings/events, National innovation Coalition (NIC) meetings, Conservation Agriculture Association meetings, UNZA symposium on Agriculture with the theme "Harnessing the Potential of Agriculture", circulation of RIUZ 2010 Policy brief, ZNCB TV interviews and news, community radio interviews, RIUZ staff participation in a number workshops and events organised by other stakeholders, participation in national agriculture & commercial shows, circulation of RIUZ brochures, and also through other interactions between RIUZ staff and other stakeholders. iii). The programme envisaged to use 'learning sites' as hubs for learning by stakeholders and farmers. RIU initially supported the development of these sites in two districts of Monze and Chipata, which were a basically around demonstrations and field days. However, after the first season, RIUZ decided to drop this aspect as it turned out to be too conventional and so a "business as usual" thing and in addition there were some stakeholders who already 'specialised' in demos and field days, which formed the core activities of the 30 learning sites. Therefore RIUZ decided to leave these to other stakeholders and concentrate on more innovative interventions.

iv). Initially some stakeholders appeared not to want to collaborate presumably due to issues of attribution and accountability to their funders. They have tended to believe in working in isolation and so have not been willing to come to the platforms to interact with other stakeholders. However, RIUZ continued to work with willing stakeholders and as platforms have begun to yield positives outcomes these stakeholders have also begun to appreciate the role of the platforms in enhancing the scale up of CA among farmers and consequently have started to show willingness to participate

v). Challenges that still remain include:-

- Inadequate availability of CA implements from local suppliers (imported from Zimbabwe) This could be resolved by supporting a business solution to the development of a local manufacturing capacity of these CA tools as a long term solution to supply shortages
- The tendency by a few key actors not to embrace sharing of knowledge, experiences, lessons and plans among other things, to improve coordination, efficiency and collaboration through innovation platforms, presumably due to perceived problems associated with satisfying donor attribution in an apparent maintenance of their traditional funds flow, remains a challenge This could be resolved by continuous highlighting of evidence of successful scale up of use of CA technologies resulting from the coordination, collaboration, linkages and sharing of information, knowledge, best practices etc through fora such as innovation platforms and the NIC.
 - The perception of IPs by some stakeholders as a process of 'democratizing' CA promotion which, according to them, may increase other actors' participation which they believe could be 'detrimental' to the extension of 'correct' messages to farmers about CA To resolve these Innovation Platforms need to keep the momentum going by sharing, publicising evidence of success and lobbying for policy stakeholders to encourage participation in IPs. Continue emphasizing embedding of IPs in existing development structures like the DDCCs. There is also need for continued brokerage efforts in one form or another to continue securing buy-in from more stakeholders especially those 'sitting on the fence' so as to increase coordination.

Project Beneficiaries / Scale achieved

Please state the estimated number of people affected by your project. Please note that it is very important that the data entered here is supported by the data you have collected. In the table below an example is given, please use columns below this to enter your own information.

Project Output	Output No 1-			Output No2 -	
				GENERATED EVIDENCE	
	PROMOTED ENHANCED	DEMAND FOR AND PUT IN	NTO USE OUTPUTS OF	ABOUT GETTING	
	RNRRS AND OTHER RESE	ARCH FOR BENEFIT OF TH	RESEARCH INTO USE		
				AND SHARING LESSON	
Activities	Platforms	Mechanisms within	Mechanisms that	Lessons on approaches	
	created/strengthened	the market value	promote private	that enhance demand	
	to share best practices	chains that strengthen	sector participation	for research outputs	
	in the knowledge	linkages, reduce risks	in the knowledge	using the Innovation	
	market that enhance	and barriers to	market to service	platforms and other	
	demand/ use of RNRRS	diversification are	small holder farmers	initiatives documented,	
	and other research	identified and adapted	are in place. OP 4	analyzed and	
	outputs. OP5	for widespread use by		disseminated. OP 8	
		farmers and			
		intermediaries.			
Number & Type of	6 platforms created in	1 rice value chain	110 CA/spraying	4 Government wings, 10	
Indirect Beneficiaries	which at least 80	platform comprising of	service providers	NGOs and 12 private	
	stakeholders	at least 15 stakeholder	trained and able to	sector access lessons on	
	organisation participate	organisation	provide CA ripping	how to put research	
		representatives	services	into use for social and	
	54,000 CA farmer		5500 small scale	economic benefit.	
	households reached		farm households		
	through platforms and		access CA		
	radio programmes		ripping/spraying		
			services locally at		
			affordable fees.		
Male Beneficiaries	34,000	1,500	3,685		
(indirect and direct)					
Female Beneficiaries	20,000	1,000	1,815		
(indirect and direct)					
Total	54,000	2,500	5,500		
Please describe the	✓ 80 international and	✓ Reduction in seed	✓ 5500 HHs access CA		
benefits to the	local NGOS, private	needs by 95% from	ripping/spraying		
beneficiaries for	sector and	80-100 Kg per	services		

example what was	government wings	hectare to 5 Kg per	✓ 33,000 persons		
the impact/ result of	able to coordinate	hectare.	have enough food		
having access to good	and to harmonise CA		all year round		
quality potato seed	information as	✓ 2500 more farmers	\checkmark		
have on the farmers	indirect beneficiaries	access rice seed and			
in Gicumbe? Please		market			
try to quantify your	✓ 6 districts out of 72 in				
responses, so use	Zambia (8%) have	✓ At least 60% of			
numbers,	platforms in which CA	targeted farmers			
percentages etc.	stakeholders share	access extension			
when describing the	knowledge and	services on improved			
benefits.	resources needed for	rice production.			
	implementing CA				
	interventions				
	✓ 10% more				
	farmers reached by CA				
	stakeholders due to				
	sharing of intervention				
	areas than				
	concentrating in same				
	areas.				
Have you conducted	No IAS	No IAS	No IAS	No IAS	No IAS
an impact assessment					
study? What are the					
main findings? Kindly					
attach a copy of the					
impact assessment					
report.					

Social Exclusion & Gender

i). Please explain how the project has targeted women and other socially excluded groups, and provide evidence of the projects impact on gender

and social exclusion.

ii). Have you used the data your project has collected on gender and social inclusion to help shape project interventions?

i). Social exclusion and gender have been mainstreamed in all the interventions of the RIUZ. To begin with RIUZ targeted remote areas as one of the criteria for district selection where social exclusion and gender gaps are common place. In its DPAV system intervention RIUZ used an affirmative approach by declaring a minimum 30% inclusion of women to be developed as CA service contractors (entrepreneurs). The increase in the use of ripping and herbicide spraying services is aimed at finding a solution to two major issues of labour constraint problem (due to inadequate access to ox-drawn technologies) and high weed infestation which requires a lot labour if one is using hand hoe methods. Women and children are particularly affected more by these challenges and so increasing access to ripping and weed control services is helping to reduce agricultural labour burden for women and children. In the rice value chain over 40% of the beneficiaries of improved access to markets are women. In addition the number of women and socially excluded benefiting from the innovative radio programmes is estimated at more than 30%

ii).Initially there was no specific decision to deliberately focus on social exclusion and gender especially after the dropping of what would have been that Platform on Remoteness and Isolation following the restructuring that took place shortly after the initial implementation plan was done. Under the DPAV system intervention where RIU has developed the CA tillage and weed control contractors to serve clusters of farmers in their locales, RIUZ has emphasized that these contractors give special attention to women farmers so that at least 30% of the contractors' clients will continue to be women.

Expected and Unexpected Outcomes

i). We would like to identify theories of change that underlie project activities. By theories of change we mean 'a process of planned transformation (economic, social or political) including an articulation of the assumptions that lie behind its design and its goals'. Although theories of change were not made explicit early on in project activities, please identify theories of change / the underlying assumptions that your project was based on.

ii). Were the assumptions in your theories of change correct? Did the project go as you predicted it to? If not, what did cause the changes to take place in your project?

iii). Have there been any events or activities that have happened during project implementation that were never planned, but resulted in new, better or worse outcomes related to your project?

i). The theories of change that could be identified from the inception could be as follows:-

• Initially the plan to enable innovation in getting CA technologies to be put into use at scale included the set up of innovation platforms and learning sites in targeted districts which would form the basis for increased interaction, linkages, learning and sharing of knowledge and best practices among farmers and promoters (extension organisations). This plan was based on the assumptions that stakeholders were available

and willing to participate in platforms and learning sites, availability of resources to support the facilitation process and favourable operating and policy environment continued existence.

- The other theory of change that could be identified was the idea of facilitating value addition (adaptation) to key identified and selected initiatives/mechanisms (e.g voucher systems) that strengthen linkages, promote private sector participation, and reduce risks and barriers to demand/use of CA related RNRRS and other research outputs by the poor (farmers). Assumptions included the availability of private sector actors (including potential private sector actors) willing to participate, availability of resources to support the facilitation and the continued presence of favourable operating and policy environment.
- There was a further theory of change around research communication, that strengthening awareness creation about CA related RNRRS and other research outputs and their appropriate application, at learning sites (LSs), platforms and to wider audience could increase informed articulation of demand and enhanced use (adoption), as well as informed participation/contribution to related policy dialogue/formulation. Assumptions were as above.
- The final theory of change was around supporting analysis of accumulated evidence, documentation and sharing/dissemination of information/lessons on how to enhance demand for CA research outputs. It was envisaged that this would attract support from strategic and policy level actors to support and adopt proven mechanisms of scaling up use of research outputs. Assumptions were as above.

ii). The assumptions were correct. There were some changes following the technical review of RIU global programme so that focus for the country programme was streamlined to align it to the new programme wide direction. Fortunately RIUZ had not started implementing at the time of the changes that were inspired by the new programme wide direction. Initial ideas of platforms on knowledge market mechanisms, and remoteness and isolation were dropped to focus on Conservation Agriculture with a provision for flexibility, which later came be support to the rice value chain. In terms of conservation agriculture platform, the idea of learning sites was dropped after it became apparent that the room for enabling innovation around this concept was limited and more of the conventional approach of demos and field days which other partners were already doing.

iii). The focus of the country programme was initially on promoting the uptake of Conservation Agriculture technologies. But later the need to experiment supporting innovation in other subsectors with potential to have research outputs scaled up was discussed during the NIC meeting and a decision was made to invest in promoting the scale up of research outputs in the rice value chain using the flexibility fund initiative. The outcomes have been very good with tangible evidence in terms of number farmers being reached, volumes of traded paddy and processed rice, quantity of breeder's seed expected to be produced for seed multiplication, increased capacity of institutions to support establishment of local rice seed production and supply system in the Chambeshi flood plains etc.

When the project set out to develop a network of private sector CA service providers from among farmers themselves, the focus was initially on increasing adoption of CA technologies by enabling farmers to access ripping services, so that the problem of labour intensity faced by farmers when preparing their fields can be addressed and therefore increase use of CA. But along the way, it was discovered that whereas the issue of labour

intensity was being addressed the one for weed infestation remained a challenge. Therefore it was decided to include the weed control to be part of the CA package of services to be given by these entrepreneurs.

INVENTORY OF POLICIES EMERGING UNDER THE RIU PROGRAMME IN AFRICA AND IMPLICATIONS FOR INNOVATION

ACTIVITY/Program	Emerging Policy or Policy level	Emerging practice/evidence	IMPLICATION/IMPACT ON INNOVATION
	strategies being contributed		
	to.		
Innovation Platforms (IPs)	 Extension coordination and harmonization is increasingly being supported by the MACO as a way of improving effective delivery of extension services to farmers by all stakeholders Innovations platforms a means of interacting for information and technology sharing at district level. Brokered IPs are now embedded in the existing structure of the District Development Coordinating Committees' (DDCCs) Agricultural Sub-committees in all the 5 districts. 	 The Ministry of Agriculture and Cooperatives has formed a committee to look at guidelines for extension coordination and harmonisation for the country and RIUZ was nominated to be part of this committee because of its experiences with Innovation Platforms. National Task force on CA chair has indicated interest in taking on the Innovation platforms and replicating to other districts. 	 Significant increase in sharing experiences and best practices and lessons learnt among practitioners. Improved coordination and efficient delivery of services to farmers. Significant reduction in conflicting and outdated messages that sometimes result from lack of sharing information among practitioner/stakeholders. Increased use of research outputs and technologies among end users
Rice Stakeholders	Development of the National	Inclusion of the District Rice Forum in the	Increasing potential for opportunities to foster vertical and
forum	Rice Development Strategy	governance and M & E structure of the	horizontal functional business linkages and partnerships
	(NRDS). (Not RIUZ's initiation but	draft NRDS, an idea RIUZ initiated in	Including PPPs
	govt & other partners)		
System of Rice	Recognition and	2010/2011 growing season marked the	Farmers are on the way to changing from the old system to
Intensification (SRI)	intensification of rice production as alternative staple food and income crop	first for farmers in Chambeshi flood plains to demonstrate SRI. The results	SRI, hence improving productivity, household food security and incomes

		have been extremely good, comparing with the existing practices. Government, other stakeholders and farmers are keen to take up this technology to improve rice productivity.	
Innovation of Conservation Agriculture ripping and weed control Contractors (entrepreneurs)	 Increased involvement of private sector in CA promotion Increased support of farmers with better CA equipment from the technology ladder 	 Farmers being assisted to move up the 'technology ladder' from use of hand hoes to oxen, tractors and use of herbicides by government , FAO, Care International and Heifer International projects. A combined total of 110 ripping and weed control service providers developed in 4 districts in Southern Eastern provinces. 	 Increasing number of farmers putting conservation agriculture practices and technologies (minimum tillage, use of herbicides, crop rotation, soil cover, water harvesting, ox-drawn rippers, draft animals, etc) due to the definite business solution to the two major CA challenges of <i>labour intensity</i> and <i>weed infestation</i>. Definite impact on gender gap and vulnerability due to decreased burden of agricultural work for women and children that come with the use of hand implements. Increased hactarage put to CA by individual farmers (Each contractor is targeting to service a cluster of at least 50 farmers around them and therefore a total of at least 5,500 farmer households. This figure is set to increase in the medium to long term as contractors implement their business plans to buy additional oxen and sprayers for ripping and weed control business so as to reach more farmers). Initiating development of a network of private sector CA service providers to set in motion an example of innovation that can be replicated so that the country has a critical mass to drive significant uptake of conservation agriculture technologies among small farmers
Innovative use of community media (local radio stations) in promoting use of research outputs	 Use of Community Radio stations for technology and market information dissemination 	• Community radio stations in 5 district producing a variety of conservation agriculture radio programmes to complete other extension efforts among stakeholders. The types of radio programmes include interactive, direct response, drama and short radio features. These programmes	 Being a mass communication tool the relatively new concept of community media is making a significant contribution in transforming lives and changing mindset of people. More people are listening to local radio stations than mainstream (national) media as its perceived to be articulating local and relevant issues. Therefore the entire radius of coverage of the 6 community media outlets in 5 districts in Southern and Eastern Provinces are being impacted by these CA

		 are produced both in local languages and English. Brokerage is being done to create linkages between media outlets and private sector actors for sustainable programming, especially involving agro-dealer companies, seed companies and sometimes hotels. Brokerage is underway to get more local organisations to support production of innovative radio programmes to promote CA. 	programmes, with a combined estimated number of at least 54,000 farmer households.
National Innovation Coalition (NIC)	 Conservation Agriculture national stakeholder's initiative to come up with the Conservation Agriculture Association (CAA) which brings together stakeholders in CA including public sector actors, private sector actors, academia, NGOs, some cooperating partners, etc to share knowledge, experiences and best practices in order to push the CA agenda forward. The secretariat is GART. (Not RIUZ's idea, but has become part of it and co-supports in partnership with GART and others) There is also the National Task Force on CA that is chaired by MACO. (Not RIUZ's initiation but govt & other partners). Fortunately govt is already supporting CA at policy level. 	 Annual conferences conducted to bring together stakeholders to look at emerging best practices and successes in the promotion of CA. The CAA shall be holding its third conference this year. The April 2011 NIC meeting resolved to fuse into the CAA as part of the exit strategy since members of the NIC also form part of the CAA to avoid duplication of efforts so that all support can be consolidated around the CAA. 	 Improved sharing of CA information, knowledge, best practices, experiences, lessons, etc for better CA services to the farming community. Enhanced support to advocacy and lobbying as well as policy dialogue around CA.

Tanzania Country Programme

PROGRAMME BACKGROUND AND CHANGES IN RELATION TO COUNTRY STRATEGY AND PLAN

This report presents results, lessons and experiences from implementation of Research Into Use (RIU) Programme in Tanzania. The programme was implemented from June 2008 to June 2011. The major objective of the programme was originally stated as follows;

"To maximise the poverty reducing impact of Renewable Natural Resource Research Strategy (RNRRS) and other research outputs and, by doing so, significantly increase understanding of how the promotion and widespread use of research can contribute to poverty reduction and economic growth"

From June 2008 – July 2009, the programme was governed by the country strategy titled **"Demand Led Innovation"**. The initial focus of the strategy was to enhance demand for and use of research outputs by supporting activities that focused on improving the functioning of agricultural innovation systems i.e. through creation of innovation platforms and using a Zonal Innovation Challenge Fund (ZICF). Through innovation platforms, stakeholders were expected to work together to resolve system blockages and constraints around a set of issues or commodities; while the ZICF was expected to support generation of creative solutions (based on specific research outputs) to solve system constrains identified by innovation platforms. During the stated time, the programme supported the development and functioning of four innovation platforms (Dairy, Post Harvest, Mechanisation and Entrepreneurship (Poultry)) and an Information and Communications System component.

The Demand Led Innovation Process was abandoned in August 2009, following a series of Mid-Term and Programme reviews. Based on review recommendations the Zonal Innovation Challenge Fund and two platforms (Dairy and Post Harvest) were immediately closed; the Mechanisation Platform and the Information and Communication System component operated until June 2010; while the Entrepreneurship (Poultry) Platform continued to operate until programme closure - June 2011. During the November 2009 to June 2011 period, the focus of programme operations shifted from building the capacity of innovation platforms to demand and utilise specific research outputs and knowledge to brokering innovations in overall value chains. At this stage the programme employed a bottleneck approach where every challenge (whether based on research, knowledge or other constrains) was addressed to improve the functioning in a value chain. Emphasis was placed on impact at scale and strengthening stakeholder networks and relations with a greater focus on solving systemic challenges to allow innovations to take place. As a result the idea of establishing and supporting functioning of platforms slowly dissolved and it disappeared entirely as implementation intensified.

Due to these changes the programme developed a new framework to govern its operations – **"The Intervention Logic"**. The document redefined the programme's vision, approaches, activities and anticipated milestones for the 2009 – 2011 period. For this period, the programme's objective was;

> "To investigate how to improve the local innovation capacity for increased use of research outputs, new knowledge and technologies in order to develop profitable agribusiness enterprises."

This objective was supported by four strategic objectives, which were to (a) Enhance stakeholders' capacity to collectively innovate for increased efficiency and profitability of their respective agro-enterprises: (b) Improve exchange of agricultural information between information sources and targeted end users through a functional Public-Private Partnership: (c) Improve program communication and harmonisation for effective sharing and influencing local, national and international policy agenda: and (d) Ensure sufficient learning, evidence gathering, documentation and sharing of lessons.

During the given period, RIU Tanzania focused on

- Testing different solutions to unblock system challenges and promote innovation in the indigenous chicken industry in five districts in Coast region.
- Out-scaling lessons and experiments from poultry activities into Dodoma and Singida regions to increase impact at scale and collect more lessons.
- Down-scaling mechanisation activities in Morogoro region and facilitate transfer of activities to district councils by June 2010. The major focuses of activities in mechanisation were to enhance the demand, supply and use of mechanised services as well as linkages among stakeholders.
- \circ ~ Testing the information and communication system until June 2010.

LIST OF PARTNERS AND COLLABORATORS

In each implementation area, the programme worked with stakeholders, as listed on the table below.

Poultry (Entrepreneurship)		Mechanisation	
•	Farmers in Coast, Dodoma and Singida regions		Mvomero, Kilosa, Ulanga and
	Champions who are also farmers mainly in Coast region		District Agricultural and Livestock
1	13 Hatcheries in Coast, Dodoma, Iringa and Dar es Salaam regions		Development Officers (DALDO), District Mechanisation Officers, Ward and Village Extension
1	Egg producers (5 producers per hatchery) in Dar es Salaam, Coast, Iringa and Tanga regions		officers, Ward and Village Executive Officers, Community Development Officers.
	Parent stock farm in Coast region		SACCOs – Mvomero and Lupiro
1	40 poultry household advisors from Coast and Dar es Salaam regions		Service and repair garages
	Business and entrepreneurship trainers	1.1	Spare parts dealers
	Vaccine and drugs distributers and suppliers – Bytrade,	1.1	Fuel stations
	Farmers Centre, Multivet	-	Tractor owners
1	Feed producers and distributors – Dina Farm, Farmers Centre, TANFEED, VETA Singida		Inputs suppliers – Bytrade
÷	Rural agro-shops (one per district) – Mangana, Lameck, Minja, Sweya, Mbaga, Calvin Feeds	•	Dealers of agro-machinery – DEMACO
	Vocational Education and Training Authority (VETA) Singida		Fabricators of agro-machinery – Intermech

- The Ministry of Livestock Development and Fisheries (MLDF)
- The National Livestock Research Institute (NLRI)
- Veterinary Investigation Centre (VIC)
- Central Veterinary Laboratory (CVL)
- Animal Disease Research Institute (ADRI) Temeke, Dar es Salaam
- Local Government Authorities in Dodoma, Singida and Coast regions
- District Agricultural and Livestock Development Officers (DALDOs) and ward and village extension officers in Dodoma and Singida
- Temeke Municipal Council (for Livestock Movement Permit)
- Buyers holding ground facility owners, traders and consumers of indigenous chicken
- KukuDeal a business initiative that was handling contract farming and linkages around the poultry value chain
- Media Clouds FM, ITV,
- National Microfinance Bank (NMB)
- Transporters

Information and Communication

Ministry of Livestock Development and Fisheries

- Regional Administrative Secretary (RAS) Morogoro
- Sokoine University of Agriculture (SUA)
- Small Industries Development Organisation (SIDO) Morogoro
- Vocational Education and Training Authority (VETA) Morogoro
- Agricultural Seed Agency (ASA)
- Agricultural Research Institute (ARI) Ilonga
- Farmers cooperatives
- Farmers in Mvomero, Kilosa, Ulanga, and Kilombero districts
- Mechanisation Department at the Ministry of Agriculture and Cooperatives

1. KNOWLEDGE BEING PUT TO USE

The section below includes knowledge, products, processes methodologies, techniques, tools and resources that have been put to use in Tanzania. Knowledge and technologies used include those that were used by stakeholders as well as those that were used by the innovation broker (country programme). RIU Tanzania employed a household approach to reach farmers. The programme worked from the district, ward and village level, therefore most of the knowledge products and interventions were designed to fit the needs of entire households including women. It should be noted that, subsequent to the reviews, the programme focused on putting into use any knowledge, approaches, or techniques that will solve systemic challenges and allow innovations within the sectors rather than the previous focus of putting specific RNRRS knowledge products into use.

1.1 RNRRS GENERATED KNOWLEDGE USED

1.1.1 Mechanisation			
Research	Geographical	Research Output Description	
Output ID	focus		
CPP34	East Africa	Successful strategies for promoting new farming technologies	
NRSP20	Africa	Participatory systems put farmers' knowledge into Research	
CPP48	Africa	Simple labour saving ways to boost maize and rice harvests in South Africa	
LPP09	Africa	Shouldering the burdens of the poor	
CPP65	East Africa	More work for Oxen, less work for women and children	
CPH27	East Africa	Simple Transport Solutions Cut Drudgery and Improve livelihood	

1.2 NON RNRRS KNOWLEDGE, APPROACHES, METHODOLOGIES, TECHNIQUES AND TOOLS USED

A new approach to raising and keeping indigenous chicken for business was used by smallholder farmers. Farmers were introduced to new scales, where each farmer started keeping 100 Day Old Chicks (DOCS) during the first round and moved to 200 chicks in the second round. Farmers were introduced to a new concept of buying and raising indigenous day old chicks from hatcheries. Previously, most farmers depended on natural breeding and care for chicks. Increasing farmers' scales justified, necessitated and motivated the use of other knowledge and technologies in poultry management.

Improved approaches to poultry management were adopted by smallholder farmers. Farmers started practicing a semi-intensive management system. Improved management in this case refers to a combination of better feeding and better housing, while paying attention to the healthcare needs of the birds i.e. vaccination, disease treatment and control. Farmers acquired new knowledge in poultry housing specifically construction of appropriate housing that provides enough space with regard to density of birds per unit area, ventilation, temperature control, access to water and feeds, fenced space for free-ranging and protection from predators. Knowledge in general poultry management was used, this includes practicing and learning hygiene requirements, feeding and nutritional requirements, types of poultry diseases; vaccination requirements and schedules; disease treatment; and raising chicks from the first day to maturity without depending on the natural cycle i.e. laying hens. Prior to introduction of RIU's poultry interventions, indigenous chicken were kept in an extensive system (scavenging), without feed supplementation, disease control, or housing.

A new training approach was used by the programme to reach farmers with different literacy levels and time to participate. For the first time, poultry management certificate holders were used as household advisors to provide extension and poultry husbandry training in areas with poor availability of extension services. Household advisors were used as an alternative to other conventional training approaches that were not satisfying farmers learning and knowledge demands. Some of these conventional training techniques were theoretical and held for 3-4 days only. In

RIU's case, each household advisor provided onsite practical training to a maximum of 10 households for 30 days from the time farmers received chicks. The hands-on onsite training was convenient especially for women, the disabled and in cases where there were varying literacy levels among farmers. It also filled a large gap in districts and villages where the government extension system was weak.

Commercialising the production of chicken at farmers' level led to expansion and commercialisation of production in hatcheries, grandparent and parent stock farms, and egg production farms. As a result, these stakeholders started to use breeding and selection knowledge to produce better indigenous DOCs for the market. There are many types of breeds of indigenous chicken, and they have not been officially bred and selected for commercial production. As a result some breeds are performing very poorly i.e. takes a long time (up to 12 months) to gain weight to levels that are preferred by the market which has high cost implications for farmers. Cross-breeding and selection done at hatcheries and parent stock farms aimed to improve the ability of the birds to grow and gain market required weight within 3-4 months. Other techniques used to improve production include, management techniques to prevent and minimise inbreeding i.e. through exchange of cockerels and brood stock management. Hatchery owners and operators are now using new knowledge in production, care, storage, and incubation requirements for hatching eggs; spraying and sanitising hatching eggs; candling; moisture and temperature control for hatching eggs. Five hatcheries have started using new machines with larger hatching capacity (up to 7500 chicks per week) and improved and automated technology. Hatcheries without parent stock farms entered into contracts with egg producers (out-growers) as a new approach to increase chicks production through availability of larger quantities of fertilised eggs. As chicks production increased, hatcheries started using new and environmental friendly products (plastic chicks cages) to reduce costs, ease transportation of chicks to farmers and reduce chicks deaths during transportation.

Farmers acquired knowledge in entrepreneurship and business management. Through a four day training, farmers acquired knowledge on key components of how to run a business, enterprise management, record keeping, pricing, marketing, saving and reinvesting. The training consisted of a special component which focused on addressing attitudes, individual competency and personal development. An alternative approach to training was also used. Farmers were trained approximately a month and a half after they received chicks. The timing made it easier for farmers to capture lessons since they were already in business. Farmers also looked for solutions during the training rather than only absorbing what was being taught. They closely participated in sessions and guided some of the content with regard to what they preferred to learn according to their experiences. Such issues might have not emerged if the training was delivered before farmers started their enterprises.

A new approach to financing farmers and agribusiness was used through a contract farming model. Previously, contract farming was used only in crop farming. This is the first time that a contract farming model was used to support small indigenous chicken producers, thus encouraging their growth and the growth of the industry. An all-in all-out contract farming system provided farmers with all necessary inputs, support and a lump sum income from wholesaling. As farmers received lump sum payments they started using banking services which is encouraging their financial planning, budgeting, and saving. Previously over 90% of smallholder farmers working with the programme did not own bank accounts or use banking services.

Other approaches used include, an approach to link stakeholders through innovation platforms; and linking emerging rural enterprises with urban dynamics through a central broker (RIU) as well as using the broker to initiate, manage and handle relations among stakeholders.

Poultry feed manufactures used new knowledge and products in manufacturing and adding nutritional value to poultry feed. This includes use of acidifiers for controlling salmonella; using enzymes and premixes to increase nutritional value in manufactured feeds. Manufacturers for the first time have started using alternative feed ingredients such as soya and millet and are also producing special breeder's mash, which is now being used in hatcheries and parent stock farms for indigenous chicken.

New practices are being used by drugs and vaccines suppliers to reach and train clients on their products and how to use them. Bytrade (a drugs and vaccine supplier) has initiated a process of going to villages to train farmers on appropriate usage of poultry drugs. This is now possible due to the new organisational dynamics among farmers as well as their increased purchasing power.

A new approach to organising the indigenous chicken market is being used by KukuDeal and traders of indigenous chicken in urban areas through establishment of specific holding grounds. KukuDeal facilitates an all in – all out production system which makes it easier to organise the market and allows buyers and sellers to easily access mature chicken from defined places. Previously such a system was non-existent and buyers and sellers depended on collection of chicken from individual farmers in rural areas.

The bundling of demands and supply concept was used by farmers and tractor owners and operators in Morogoro region as a marketing tool for accessing and supplying mechanisation services and negotiating prices. Previously most smallholder farmers could not access or use mechanisation services due to high prices and inaccessibility. On the other hand, tractor owners never worked with smallholder farmers because of their low capacity to pay for such services as well as the poor organisation at farmer's level. By organising themselves and combining their demands for mechanisation services farmers became more attractive to work with, they were able to negotiate for reduction of prices by using their large numbers as a bargaining point. In Morogoro farmers were also introduced to block farming system through the district mechanisation officers and extension officers. Under this method farmers were mobilised to get together and group their land in a joint effort to reduce production costs and produce crops on large scale. The process was managed by farmers and extension officers with technical advice and supervision from mechanisation officers.

Access to mechanisation services enabled farmers to use farm machinery such as tractors, planters, weeders as well as other inputs such as herbicides and pesticides. Farmers were trained on appropriate ratios and spraying requirements when using herbicides and pesticides.

Garage owners, mechanics and spare parts dealers acquired new knowledge in appropriate machinery operation and service provision through vocational training. Training focused on imparting skills in service delivery, maintenance and how to operate tractors in different terrains. The main aim was to increase operating efficiency, reduce running and maintenance costs and increase the life span of machinery. The training also provided business and entrepreneurship skills to owners to enable them to provide their services efficiently, fairly and profitably and be able to repay loans used to buy machinery.

New approaches such as the bottleneck approach and new methodologies such as funding social enterprises were used by RIU to broker innovations at various levels. The broker employed the bottleneck approach where each and every challenge (whether based on research, knowledge or other constrains) was addressed as it emerged to improve the functioning in value chains. Funding rural and urban social businesses was also used as a methodology to incubate agri-businesses. This helped to increase availability of services as well as inputs and allow rural and urban producers to grow. The household approach was also used to easily reach farmers and integrate them into poultry keeping. The approach allowed overall learning as a household (at farmers level) rather than with each individual in a household.

2. PROJECT OUTPUTS

This section presents project outputs, status of their achievement and changes that have occurred during the implementation period (November 2009 – June 2011). It should be noted that, as a result of the recommendations from the reviews, poultry activities were implemented until programme closure (June 2011); while mechanisation activities and the information and communication component were implemented until June 2010. Although some of the outputs and sub-outputs still refer to platforms it should be noted that as implementation intensified the platform concept was slowly abandoned and the programme focused on strengthening stakeholder networks and relations with a greater focus on solving systemic challenges to allow innovations to take place. As a result the idea of establishing and supporting functioning of platforms slowly dissolved and it disappeared entirely.

2.1 POULTRY ACTIVITIES

Under this area, the programme piloted different approaches for developing commercial rural indigenous poultry enterprises in Coast region with a vision to upscale it to other regions during the June 2010 to June 2011 period. Due to very low capacity in commercial poultry rearing among smallholder farmers, extensive poverty, lack of investment and poor linkages among stakeholders; the programme focused on building innovation capacity of various stakeholders in poultry production by

- Building the capacity of smallholder rural farmers to care for larger poultry flocks (100+) this includes using graduates from livestock training institutes as household advisors for onsite 30 days mentoring for building specific skills in general poultry management, feeding, disease control and prevention. Through consultants provide training to enhance farmers' entrepreneurship and business skills, including sourcing for markets, inputs, budgeting and re-investing profits.
- Boosting indigenous chicks production capacity in local hatcheries and breeder farms (from 500 to 7,500 chicks per week) through provision of matching grants for purchase of incubators, generators, parent stock and advisory services.
- Facilitating establishment of necessary support systems and linkages among stakeholders in order to sufficiently
 provide basic poultry services like; veterinary drugs; feed and poultry equipment; extension and other Business
 Development Services (BDS); markets and marketing services.
- Facilitating investment in market development including value addition.
- Dealing with policy issues that are affecting operations in the subsector.

Output 1.1: A functional innovation platform has facilitated emergence and development of profitable poultry enterprises in Coast region hence the community's entrepreneurship capacity is enhanced.

Sub-output 1.1.1 A functional platform is stirring innovation processes towards the emergence and development of profitable poultry enterprises in the Coast region

Activities undertaken and/or changes in activities		Status of achievement: deviations and reasons for deviations	Management decisions and strategic direction taken that affected the project outputs
 Faci syst solv a. b. 	litate processes to build relevant capacities for em analysis, seeking and implementing solutions to e innovation challenges in poultry Conduct system analyses Review and finalize platform business plans and work plans. Business plans were required to guide the operations of the platform	A consultative meeting was held with Regional Authorities in Coast to identify the region's agricultural priority areas and/or commodities. The Regional Authorities identified elimination of extensive laziness and low motivation to engage in agri-business activities among the Coastal community as their major priority. These issues were hindering efforts to sustain most rural development initiatives in the region. The major	After the 2009 review, the programme revised its strategy and focused on a bottleneck approach, i.e. solving each system challenges within the poultry sub-sector as they were emerging. The concept of developing a business plan was therefore abandoned and the focus was put more on solving emerging challenges in production inputs and advisory service delivery.
c. d.	Organize regular platform meetings to review progress and conduct system analyses Conduct two platform system analyses to indentify platform capacity gaps, recommend	objective of activities in poultry was defined based on the recommendations. The programme's focus was to boost entrepreneurial and agribusiness capacity of the local population through commercial indigenous chicken keeping. Indigenous chicken was selected as a main	partnerships, and marketing within the poultry subsector. This allowed the programme to focus on developing the overall subsector.
e.	solutions and implement them. Organize district level meetings to identify district needs, priorities, solutions and implement solutions.	commodity because it requires minimum resources for investment e.g. land and capital investment, can be done by all age groups and genders, it is less dependent on agricultural seasons and provides quick returns throughout the year.	
f.	Facilitate processes to ensure the involvement of marginalized groups in platform initiatives		
g.	Expose platform members to relevant technologies, innovation and research outputs relevant to their themes	The programme and selected consultants conducted a functional analysis through a brainstorming meeting. Key functions for commercialising	
h.	Design a specific training programme that will prepare general crop and livestock farmers to be poultry farmers (training should focus on general knowledge and poultry farming, diseases, feeding etc. according to different needs)	chicken keeping were indentified. The programme conducted a stakeholder mapping to identify key actors who can work to perform these functions.	
i.	Train platform facilitators on community mobilization and monitoring and following up of platform activities at district level	First and second platform (stakeholder) meetings were organised where the major system challenges in the industry were identified. Through	
j.	Facilitate development and implementation of platform feedback mechanisms to members, communities and other stakeholders.	these meetings stakeholder networks were formally established, interim leaders (champions) were selected, core areas of focus (as presented under the summary in point 2.1) were identified and additional stakeholders were indentified.	

k.	Link platforms with regional and national level		
	processes as needed.		
		ToRs for community mobilisation were developed by the programme team. They were elaborated to district champions who were going to be the main mobilisers and facilitators at the local level. Meetings were organised at ward level in 5 districts (Rufiji, Bagamoyo, Kibaha, Mkuranga and Kisarawe) where farmers were introduced to the poultry initiative. Through introductory letters the programme introduced its activities and all district champions to the Local Government Authorities and the District Executive Directors (DED).	
		A meeting was held with district champions, chicks producers, vet drugs & feed suppliers. The meeting discussed how to introduce farmers into commercial poultry farming. Investment costs were calculated. Agreements on how to help farmers were made. Champions negotiated price of chicks with the chicks producer. It was agreed that farmers will be trained on proper chicken housing, feed requirements, vaccination and management of day old chicks.	
		District champions were financially supported to visit all wards and introduce RIU to Ward and Village Executives and to mobilise communities to start poultry keeping. Village mobilisation meetings were organized in all villages in the five districts. Champions were used to mobilise interested farmers to build appropriate chicken sheds for housing 100 birds using locally available materials. They were also introduced to basic poultry husbandry and disease management. They agreed to pay 40% of the initial cost of buying chicks and the program will lend them 60% to be repaid after sales. It was agreed that chicks will be given only after a good shed is built & the 40% is paid. The mobilization team involved RIU, champions, feed & vet drugs supplier and chicks producer. Interested households who wanted to engage in poultry keeping were registered through their champions. A house to house inspection of sheds was done. Prior to inspection each farmer was trained and given instructions on how to build an appropriate shed.	

	Under this output, the programme has established a network of 2,384 poultry keeping households; an agro-dealer in each district; a network of 40 poultry household advisors for provision of extension and husbandry advice to farmers; 13 hatcheries specialised in production of indigenous day old chicks; relations with the Ministry of Livestock Development and Fisheries for advice and regulation; linkages with 5 feed producers and 4 poultry drug and vaccine suppliers. 285 elders, disabled and groups with special needs have been reached by the programme.		
Sub-output 1.1.2: Solutions to unblock challenges in p experimented	Sub-output 1.1.2: Solutions to unblock challenges in provision of support services to poultry enterprises (hatchery, veterinary, feeds, DBS and extension and markets) have been experimented		
Activities undertaken and/or changes in activities	Status of achievement: deviations and reasons for deviations	Management decisions and strategic direction taken that affected the project outputs	
Facilitating processes to solve capacity problems in chick	Facilitating processes to solve capacity problems in chicks supply system in Coast region		
 Support at least 5 small hatchery units to produce at least 5000 chicks per week Engage consultants to map out existing hatcheries and conduct need assessment on required capacities Build relevant technical and basic capacities for effective hatching services and accessing improved parent stock. Provide full specialized BDS package including interest free credit facility to stabilize their business and increase production capacity. Introduce and communicate hatching technologies and innovations. 	The programme issued a public call on newspapers to identify existing hatcheries. About 25 chicks producers responded. A meeting with all hatchery owners, champions and RIU team was organised to communicate the programme plan and the demand for indigenous day old chicks. Champions negotiated chicks price on behalf of other farmers. Cost calculations were made and the price was set at TSH 1000/chick. Hatcheries that were willing to work with the programme and smallholder farmers based on the above price were registered with the programme for supply of chicks. More hatcheries continued to be identified as implementation continued. During the meeting a researcher from Sokoine University of Agriculture (SUA) was invited and made a presentation on hatchery hygiene and elaborated on performance of different indigenous	After assessment of requirements (financial, technical, knowledge) for breeding, the programme discouraged the idea of promoting village breeding centres. As the programme moved towards commercialisation of the overall poultry sub-sector, it was decided that the breeding function should remain in the hands of specialised hatcheries where the technical know-how is present and quality and quantities of chicks will be produced to levels that will satisfy the market demand.	
e. Mobilize interested entrepreneurs or farmers to open breeding centres within villages, wards or districts to enhance availability of services.	chicken breeds. The programme worked with 13 hatcheries specialised in indigenous chick production. 11 hatcheries existed prior to RIU, while 2 hatcheries in Dodoma and Iringa regions were established as a result of RIU. The programme selected 5 hatcheries (2 in Dar es Salaam, and one in Coast,	specialisation in different parts of the indigenous chicken value chain to achieve growth and a competitive advantage at a subsector level. Hatcheries and parent stock farms focused on breeding, selection and production of high quality day old chicks and hatching eggs. Chicks were sold to farmers immediately after hatching and farmers focused on production of chickens. Manufacturing of feeds and supply of drugs was handled by agro-dealers and input manufacturers and suppliers. While	

		Dodoma and Singida regions) and worked to build their production capacity. Each hatchery was provided with matching funds to boost their capacity from producing 500-2000 chicks to about 7500 chicks per week. The hatcheries were selected on the basis that they were ready to personally invest and expand their current capacities. Matching funds provided were used for purchase of larger and technologically advanced hatchery machines i.e. up to 10,000 chicks per week (these were procured by RIU from China); purchase of parent stock for laying eggs; and expansion of farm infrastructures i.e. sheds, feeding. The remaining 8 hatcheries received smaller loans to enable them to purchase parent stock or hatching eggs from their identified sources. Investing in hatcheries has increased production of day old chicks from 500-2000 chicks per week to 6,500-10,000 chicks per week.	advisory services were provided through government as well as private extension systems. After production, farmers were linked with buyers and traders who handled distribution to other markets and consumers.
		RIU facilitated hatchery mentorship in disease management and breeding strategies. RIU consulted the National Livestock Research Institute, The Ministry of Livestock Development and Fisheries to assist hatcheries in provision of advice on disease management and efficient breeding strategies to enhance their capacity, comply with government regulations and be able to compete effectively in the industry. RIU organised field visits to all hatcheries by 10 representatives from the ministry of livestock. This was part of directly linking the Ministry with hatcheries as well as showcasing the programme's achievements in this area to the government.	
 3 co in D es S a. b. c. d. 	ntracts signed to supply hatching eggs to hatcheries ar from the high eggs producing areas outside Dar alaam at profit Identify & mobilize egg producers in Tabora, Mbeya and Singida regions Link egg producers with hatchery units Build capacity to supply quality eggs (training, treatment package facilities and quality control mechanisms) to make sure that supplied eggs meet required quality. Establish contract farming for increased supply of quality eggs to the identified hatchery unit including establishment of backup circuit for supply of eggs from outside the program area e.g. Mbeya, Singida and Tabora	Two deviations were made in these activities. Collection of eggs from smallholder farmers in other regions was discouraged and abandoned due to complications and quality requirements for maintaining hatching eggs. Previous experiences from hatcheries showed that eggs collected randomly from different sources resulted in reduced hatchability rates and losses or production of very weak chicks. This was due to the fact that most of the breeders were unspecialised therefore there were complications including inbreeding, poor selection of eggs for hatching, production of immature eggs, poor feeding which led to poor embryo development; poor care, storage and transportation. These issues largely affected chicks production in hatcheries.	Focused on mobilising hatcheries to establish or expand parent stock farms or to enter into agreements with identified / specialised egg producers to ensure quality, disease control and traceability is possible.

	To ensure the quality, traceability and disease control requirements were met; the programme opted to promote establishment or expansion of parent stock farms for each hatchery to ensure a constant supply of quality hatching eggs. Hatcheries that could not establish parent stock farms were required to identify specialised egg producers (out-growers) that they can enter into agreements with for supply of eggs. Each hatchery (without parent stock) had a minimum of 5 out-growers for egg supply. In some cases RIU provided loans to hatcheries for purchase of larger consignments of hatching eggs. The loans were paid back in form of chicks supply which were distributed to farmers.	
 Develop direct linkages between farmers and hatcheries to enable at least 100 farmers in each district to do business with 5 hatchery units without involving RIU Develop efficient communication system and linkages between farmers and hatcheries. Facilitate farmers exchange visit to the hatcheries Provide information and knowledge on production, types, and care of indigenous chicken during mobilization. Facilitate meetings for the hatcheries to negotiate and market their hatcheries to villages and media Link transporters with hatcheries and farmers Set task force in each district which will take lead in organizing other farmers and link with chicks producers Link large breeders, researchers and information providers with small scale indigenous chicken farmers to enhance availability of information on breed types etc. 	 Farmers from all five districts in Coast region were directly linked with hatcheries through field visits organised by the programme. 358 farmers from Rufiji, Kibaha and Bagamoyo districts visited hatcheries in Dar es Salaam and Coast through a series of weekly visits. Farmers were introduced to chicks production process including selection, care and storage of hatching eggs; parent stock care; types of indigenous chicken; and production costs. Farmers got direct contacts with hatchery owners for future business relationships. Farmers were provided with a list of types/breeds of indigenous chicken that are suitable for commercial production through a comprehensive poultry booklet that was produced by poultry professionals through RIU. The booklet was given free of charge to each farmer that started poultry keeping. Two media appearances were organised and funded by RIU to market indigenous chicken hatcheries as well as raise awareness of the programme's support in the subsector. The appearances were televised through a 30 minutes weekly program (Uchumi Wetu – "Our Economy") on Tanzania Broadcasting Company (TBC). 	The programme promoted direct linkages between farmers and hatcheries to enable them to continue to do business independently after the first round of support from RIU. After hatchery visits it was identified that most farmers were unable to start new production cycles due to lack of capital for investment. This was caused by a number of factors including the fact that most farmers sold their previous flocks in small numbers (1-5) and the money was immediately used to cover other household needs (health, education, food) thus all their capital was used and none was left for reinvestment. In addition, unfavourable loan conditions from different sources made it impossible for farmers to access small loans that they could have used for investment in poultry production. Other challenges that prevented direct business operations between farmers and hatcheries include: Farmers were scattered in different areas. If they managed to raise money for purchase of chicks, their orders were done individually, posing a challenge to hatcheries that produced larger batches of chicks per week. Hatcheries required larger orders to be synchronised from one single source in order to reduce production as well as transportation costs. Farmers still didn't have enough capacity to self-organise themselves for accessing chicks and transporting them from urban hatcheries to their remote areas. On the other hand since most hatcheries were in the first stages of

		commercialising their production, they didn't have enough capacity to directly supply farmers in rural areas.
		These and other challenges led the programme to introduce a business initiative "KukuDeaL" to handle wider linkages and relationships in the poultry sub-sector (farmers, hatcheries, veterinarians, household advisors, agro-dealers, feed producers, vaccine and drug producers and distributors, traders and marketers of mature chicken, research centres, local and central government) as the sector and its stakeholders gained enough capacity to handle the linkages independently.
Linking stakeholders to enhance local capacity to supp	ly veterinary services	
 Identify and build capacity of at least 5 district level Vet services providers (one in each district) to provide services up to ward level at profit Identify existing vet service providers in each district as well as areas with no provider. Identify reliable wholesale suppliers of vet drugs to work with district agents. Conduct need assessment for the district agents to supply drugs up to ward level Support district agents to establish links and means of working at ward and village levels. Facilitate field visits to link the providers with farmers 	 5 agro-dealers (1 per district) were identified in each district and were introduced to farmers through field meetings. In each district the agro-dealer participated in village mobilisation meetings that were organised to introduce farmers to the programme, other stakeholders and poultry keeping. Due to their small capacity to stock and supply the new numbers of clients (approximately 500 new farmers in each district), agro-dealers were advanced with loans from the programme to enable them to buy the first consignment of inputs to meet the initial demands from farmers. In addition the programme had to stand as a guarantor between input manufacturers or importers and agro-dealers. This happened in cases where agro-dealers needed to buy larger consignments of inputs from manufacturers or importers on credit. Lending and guaranteeing agro-dealers enabled them to access the needed amounts of inputs to supply and meet farmers' demands at district levels. 	In cases where agro-dealers (who were the main suppliers of veterinary drugs in districts) did not have the capacity to purchase required amounts of inputs to supply farmers the programme took the position to provide loans or stood as a guarantor to enable them access required inputs. Most agro- dealers did not meet the requirements for accessing loans (lack of collateral etc) from financial institutions and credit facilities. Lending and guaranteeing agro-dealers enabled them to access the needed amounts of inputs to supply and meet farmers' demands at district levels.
	The programme linked farmers to the Veterinary Investigation Centre (VIC) for examination, diagnosis and post-mortem checks. This was a response to poor extension services especially in Rufiji district. In cases where farmers could not access the local government extension services	

	they had the option of directly contacting the VIC for services.		
	Bytrade (vet drug importer) was linked with household advisors through a meeting organised by RIU. Bytrade's veterinarian presented and discussed major poultry diseases and their treatment; issues related to drug preservation, handling and administration. The presentation and discussion was meant to update household advisors on new issues in the veterinary services, new diseases, new drugs in the market and new treatment policies. Currently there is no system to update veterinarians, extension workers and other professionals in the subsector on the above matters.		
 Facilitate processes to ensure programme farmers are able to procure vet services using different approaches relevant to them (joint order system, mobile centres etc) Identify available service providers for vaccination and treatment of chicken diseases in the districts and wards 	5 agro-dealers were identified and linked with farmers in all five districts for provision of veterinary services. Through a coupon subsidy scheme that was initiated by RIU, farmers were able to buy vet drugs to support their first production round. The programme had to fully support input provision during the first round to demonstrate their effectiveness and enhance their usage in the upcoming rounds. This was necessary since		
 Mobilize service providers and extension workers to provide information or training on vaccination, treatment, how and when to use both to poultry farmers 	were kept in an extensive system (scavenging).		
 Mobilize distributors of vaccination and treatment for poultry to provide information on vaccines and treatments and promote their use 	The programme deployed poultry household advisors to train new farmers on poultry diseases and treatment. Each household advisor		
d. Advocate service providers to use simple distribution channels that use simple transportation and storage methods	mentored/trained a maximum of 10 households on overall poultry husbandry for 30 days. The mentorship allowed farmers with no prior knowledge on poultry keeping or disease management to learn and independently raise over 100 chicks from day one. All farmers are using vet drugs and vaccines to treat and prevent poultry diseases.		
	Bytrade was linked with champions in districts and wards. Field visits were organised and held at ward level in Rufiji, Bagamoyo, Kibaha, and Mkuranga where Bytrade veterinarian held one day instructional training for all farmers. The veterinarian trained farmers on disease management especially on how to reduce incidences of common poultry diseases. Bytrade also marketed their products, supported the district agent and		
		established linkages with farmers for treatment and provision of veterinary advice through their trained veterinarians.	
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3	 Sensitise, train and link farmers to relevant regulatory authorities for reporting drug quality disputes. a. Identify all regulatory authorities dealing with quality and regulation of drugs and vet services b. Select platform members from each district to oversee the drug and vet issues in their localities c. Contract regulatory authorities to provide training to platform members and farmers on drug quality and regulatory issues d. Provide relevant support to make sure that they perform their functions successfully including facilitating meetings with regulatory authorities to control expired drugs and poor quality drugs that may harm chicken 	Through quarterly field monitoring visits, the programme collected drug quality issues from farmers and household advisors. Meetings were organised with the local government authorities at the district level. In Rufiji district, the programme facilitated a meeting between farmers and district authorities and extension workers. Champions presented key issues in vet drugs quality and availability. Poor quality of vet drugs and vaccines is among the biggest challenge in the subsector and farmers and hatcheries are paying the price. The government system for quality control is currently very weak and therefore the market is saturated with poor quality and fake drugs and vaccines.	Due to the fact that the quality control and regulatory system is weak, the programme decided to select one supplier to work with. This was an immediate solution to control and track the quality of drugs that were distributed to farmers.
E	nhancing local capacity to supply poultry feeds		
1	 Establish ward level feed supply systems in each district with links to large and medium scale feed producers a. Map poultry feed producers and distributors and conduct need assessment to assess current needs on the demand and supply sides 	A public call was issued through the print media to identify feed manufacturers and distributors. A national meeting was held in 2010 with 30 feed manufacturers and distributors and representatives from the Ministry of Livestock Development to identify issues and propose	Plans to introduce feeds supply systems through local agro- dealers up to ward level did not succeed due to difficulties in infrastructure which drove feed prices up as well as difficulties in quality control. Feeds were tempered along the distribution line

- b. Organise meetings to influence distributors to sell poultry feeds in the villages solutions to poultry feed production, availability, quality, prices and accessibility in rural areas.
- c. Support agents who are ready to supply feeds to

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by being mixed with maize or rice bran or other materials thus

reducing their nutritional value and in some cases reducing the

weight thus farmers were paying more while receiving less.

	 the remote areas Develop local capacity to produce and supply feeds up to the local level especially ward level i.e. involve and mobilise the private sector (local entrepreneurs) to make poultry feeds (these can be trained and acquire the relevant knowledge) Train and support farmers to access appropriate feed regime 	District level feed supply system was established in 5 districts in Coast region. Plans to introduce feeds supply systems through local agro-dealers up to ward level did not succeed due to difficulties in infrastructure which drove feed prices up as well as difficulties in quality control. Feeds were tempered along the distribution line by being mixed with maize or rice bran or other materials thus reducing their nutritional value and in some cases reducing the weight thus farmers were paying more while receiving less. These issues were beyond the programme's and farmers control. Alternatively, the programme opted to promote direct feed delivery from manufacturers to farmers at the district or ward level. District input suppliers were supported by the programme to access and buy larger stock of feeds for supplying rural farmers. The programme	These issues were beyond the programme's and farmers control. Alternatively, the programme opted to promote direct feed delivery from manufacturers to farmers at the district or ward level.
		stood as a guarantor between the urban feed manufacturers and district suppliers (agro-dealers). Financial assistance (loan) was provided to one district supplier in Coast region to enable him to increase his stock to meet farmer's demands.	
2.	 Train and introduce farmers to local technologies and innovations to produce alternative cheap feeds a. Train farmers and other service providers on how to make poultry feeds using the correct quantities and also using natural resources that maybe available in the areas 	Farmers were trained to produce alternative feeds and feed proteins through household advisors. Learning materials (the poultry booklet) provided farmers with information and instructions on making poultry feeds. Instructions and additional learning aids including videos on how to make termites were shown to farmers during field meetings.	As farmers increased the number of chickens kept from 100 to 200 and 300, it was difficult for them to produce enough alternative feeds to meet their daily needs. Farmers' capacity to collect essential ingredients for feed production as well as balancing feed formulas was low. This affected the quality of chicken. Most of the flock didn't get balanced feeds thus their growth rate and weight gain was poor hence fetching low prices
3.	 b. Identify and introduce local technologies and innovations to produce alternative cheap feeds Train at least 50 entrepreneurs to produce poultry feed proteins as a business (maggots, termites, lecaena) 	As farmers increased the number of chickens kept from 100 to 200 and 300, it was difficult for them to produce enough alternative feeds to meet their daily needs. Farmers' capacity to collect essential ingredients for feed production as well as balancing feed formulas was low. This affected the quality of chicken. Most of the flock didn't get balanced feeds thus	in markets. The programme opted to identify a feed manufacturer and work with poultry feed professionals to produce cheap but balanced feeds that can be used by farmers from the second month. If farmers were to fully improve and increase their production both in quality and quantity, it was necessary for them to access affordable alternative industrial

	a. b.	Promote general knowledge and understanding on the nutritional requirements for poultry, its importance and how to locally produce them Identify institutions/individuals who are currently producing poultry feed protein as business and who can train others Sample few farmers from each district and train them on how to produce poultry feed protein.	their growth rate and weight gain was poor hence fetching low prices in markets. The programme opted to identify a feed manufacturer and work with poultry feed professionals to produce cheap but balanced feeds that can be used by farmers from the second month. If farmers were to fully improve and increase their production both in quality and quantity, it was necessary for them to access affordable alternative industrial feeds. The move to introduce new cheap feeds through a specialised feed producer has resulted into a price reduction from Tsh 25,000 to Tsh 18,500 per 50kg bag of feed. This has allowed more farmers to afford the feeds thus concentrating on rearing than diversifying their limited time and financial resources on production of feeds.	feeds. The move to introduce new cheap feeds through a specialised feed producer has resulted into a price reduction from Tsh 25,000 to Tsh 18,500 per 50kg bag of feed. This has allowed more farmers to afford the feeds thus concentrating on rearing than diversifying their limited time and financial resources on production of feeds.
	d.	Use trained farmers to disseminate knowledge to other farmers		
4.	Faci equi mar a. b. c.	litate production and selling of locally made poultry ipment (feeders, drinkers) in at least three local kets. Provide training on creating and improving alternative local equipments using local materials that are available in the areas Mobilise entrepreneurs and businessmen to distribute and sell equipments in areas where they are required Identify local artisans who are involved in creating different equipments Link local equipment producers with poultry farmers	A set of feeding and drinking equipments (one feeder and one drinker) was provided by the programme to each farmer during the first round of production. These were used to show farmers the types of equipments that were needed as part of poultry keeping. The equipments provided were enough for 100 chicks for the first month. Farmers were required to produce more equipment using locally available materials to meet their needs. Training and information on production of alternative locally made feeders and drinkers were provided to all farmers through household advisors as well as through the poultry booklet.	
En	hanc	ing local capacity to provide Business Developm	ent Services (BDS) and extension services	
1.	Deve exte inno a. b. c. d.	elop and disseminate at least 3 types of poultry ension tools packaging poultry technologies and ovations to farmers in the 5 districts Gather relevant information on technologies, innovations and research outputs on poultry keeping. Inventorise existing poultry extension tools and tailor them to suit identified needs Facilitate development of a simple manual with lots of pictures and illustrations for farmers to read and discuss with the household advisor Use different approaches to disseminate the tools.	The programme team facilitated identification of different sources of information, compiled, printed and distributed a comprehensive poultry management booklet. The booklet includes pictures, illustrations and cartoons to support the content. The booklet was produced to ensure that farmers have a consistent source of information and reference whenever needed. It includes detailed information and instructions on types of indigenous chicken, benefits of keeping indigenous chicken as business, instructions on construction of appropriate chicken sheds, management of day old chicks, general management of poultry, sanitation requirements, vaccination, disease control, disease treatment, feeding and nutritional requirements, and record keeping. The book is distributed	

		guides, and handbooks for recording daily data. Every household advisor thoroughly goes through the booklet with farmers before they receive chicks. For farmers who could not read or write, the household advisor made thorough explanations on all instructions together with other members of the household who can read and write. These learning tools have proved to be very useful especially for slow learners who need to revisit the content often.	
2.	 Ensure at least 500 farmers have gained practical experience and skills to raise day old chicks a. Establish a competent human resource base to train farmers on how to raise day old chicks at household level b. Deployment of households level advisors for farmers' effective learning poultry farming by doing. c. Use household advisors to train farmers in general poultry husbandry d. Package and disseminate relevant innovation and technologies for raising day old chicks e. Subsidise at least by 40% initial costs of vaccines and feeds to ensure that every farmers gets the opportunity to learn by doing how to properly raise day old chicks f. Disseminate comprehensive extension materials to all farmers g. Introduce poultry in the existing "farmers' field schools" to overcome the shortage of extension services h. Design a specific training programme that will prepare general crop and livestock farmers to be poultry farmers (training should focus on general knowledge and poultry farming, diseases, feeding etc. according to different needs) 	2,384 farmers have gained practical experience and skills to raise day old chicks. The programme identified and deployed about 40 private household advisors to each district in Coast region. Each household advisor serviced about 10 households daily for a month. Practical training and mentoring was done at household level from the day farmers received chicks. Household advisors were accommodated by farmers as part of their contribution. RIU paid for their transport costs and monthly advisory fee of Tsh 250,000/. Their Terms of Reference for providing advisory service were developed by RIU. Prior to deployment into villages, all household advisors met with the programme field coordinator for clarification of tasks. The advisor arrived 3 days before the chicks and took each farmer through the poultry handbook to prepare them for management of their enterprise. The advisors helped farmers to inspect and fumigate the sheds before chicks arrived. In each area they worked with local champions to identify other learning needs and challenges among farmers as well as in operating the poultry enterprises.	As the programme introduced semi-intensive poultry keeping all farmers expressed lack of experience in raising day old chicks. At the same time the extension services in Coast region were generally poor and the number of extension workers in the districts was not enough to deal with the increased demand for advisory services. This required the programme to look for alternative ways of providing advisory services to farmers. Conventional training methods through theory classes or farmer field schools could not meet the knowledge demands and fit into the different learning capacities of smallholder farmers, specifically women, who had other tasks including caring for families and tending their agricultural activities. RIU decided to employ a different approach to training. The programme decided to use certificate level graduates from a government vocational training centre (Kibaha Education Training Centre). These were trained in poultry husbandry and have sufficient hands-on experience in poultry management but are not immediately integrated into the extension system since they do not meet the minimum requirement i.e. a Diploma. These were termed as household advisors and were required to provide daily hands-on training at each farmers home for a month. This approach enabled the programme to reach out to more poultry farmers, staying with them for a longer period of time and satisfying their knowledge and capacity development
3.	 Train at least 500 farmers on basic poultry keeping a. Promote exchange visits and learning among farmers between and across wards, villages and districts. 	Through a coupon subsidy scheme, the programme subsidised the initial costs for buying chicks, drugs, vaccines and drugs for one month. Farmers in Coast region received a 60% loan towards the purchase of the first 100	

	 b. Organise local joint meetings and learning events between and among farmers c. Identify outstanding poultry keepers that can be used to demonstrate good practices to other farmers 	chicks. It was important to the program that farmers go round the first production cycle so that all other relevant systems are allowed to emerge during the program lifetime. This means that sufficient numbers of chickens had to survive to the marketing stage. So RIU paid for all the vaccines and feeds during the delicate 1 month as a way of training farmers how the chicks should be cared for before they are able to fend for themselves. The total subsidy cost per household (including the utensils) is about 180USD. Feeds and drugs were provided through a coupon system which helped farmers to have ideas of prices, names of the drugs/vaccines, volumes and even develop a relationship with the local supplier. All these were recorded by farmers in the ledgers provided by RIU.	
4.	 Develop and test mechanisms for disseminating at least 3 types of Business Development Services (BDS) packages relevant to poultry a. Train all farmers on entrepreneurship in relation to commercial poultry keeping. b. Identify key BDS needs among the communities. c. Identify existing BDS providers who can work with poultry farmers. d. Facilitate development of appropriate BDS packages relevant for poultry farming e. Link BDS providers and farmers and facilitate development of sustainable mechanisms for providing the services 	Three consultants were contracted to conduct entrepreneurship training and business skills development to farmers in the five districts. Trainings were done at ward and district levels in Rufiji, Bagamoyo, Kibaha, Mkuranga and Kisarawe districts. A total of 1472 (752 males & 720 females) farmers were trained. Farmers acquired knowledge in entrepreneurship and business management, specifically knowledge on key components of how to run a business, enterprise management, record keeping, pricing, marketing, saving and reinvesting. The training consisted of a special component which focused on addressing attitudes, individual competency and personal development. An alternative approach to training was also used. Farmers were trained approximately a month and a half after they received chicks. The timing made it easier for farmers to capture lessons since they were already in business. Farmers also looked for solutions during the training rather than only absorbing what was being taught. They closely participated in sessions and guided some of the content with regard to what they preferred to learn according to their experiences. Such issues might have not emerged if the training was delivered before farmers started their enterprises.	
Fa	cilitating processes towards establishment of rel	liable poultry markets in Coast region	
1.	 Appraise and formulate marketing strategies for local chicken products a. Conduct rapid market appraisal for local chicken products b. Develop and implement a market strategy for 	RIU commissioned Match makers Associates Ltd to carry out a Market Study for Formulating an Indigenous Chicken Sub-sector Development Strategy. The study provided the programme with a comprehensive understanding of the poultry market in Tanzania. It assessed markets for	The programme initially planned to link farmers to markets in order to directly sell and do business. However operational challenges and findings from the Poultry Subsector Analysis Study necessitated the programme to implement an initiative

chicken inputs and products and recommended three strategies for

developing the subsector.

- b. Develop and implement a market strategy for indigenous chicken and its products
- c. Develop strategic partnerships for developing

that will boost the number of mature chicken that enter the

market. Thus the programme and KukuDeal focused on

sustainable and efficient market

- d. Identify existing markets in and outside the region
- Identify major traders and wholesalers of indigenous poultry in the country and development linkages between them and farmers
- f. Identify the market demand of indigenous chicken in both quality and quantity
- g. Identify price lists for poultry and poultry products from existing markets, traders and poultry farmers
- h. Identify potential markets for poultry and poultry products e.g. major markets, hotels, restaurants, schools, supermarkets, etc
- 2. Implement a contract farming system to support the growth of marketing system in the poultry subsector as well as of farmers and other stakeholders

(Note this is an additional activity introduced during the June 2010 period to respond to challenges in the subsector)

<u>Findings</u>

The study findings indicated that the sub-sector is still underdeveloped (it's developing at a 2.6% rate annually) but it is emerging steadily and stakeholders have recognised its potential to strengthen incomes. Indigenous chicken remains a niche product in the subsector with high end prices (high and medium income consumers). Its major markets are Dar es Salaam, Arusha, Mwanza and other regional towns. It's sold mostly in restaurants. The end market price for indigenous chickens is high (averaging TZshs 8,000 for live chicken and up to TZshs 12,000 for dressed chicken). These prices are however artificially high due to scarcity of indigenous chicken. If indigenous chicken production would increase by a rate higher that 2.6%, number of chicken for sale would increase and the price will fall. This will however increase and create a new and larger market with low income urban dwellers since the price will almost equal or below that of exotic chicken. Constraints that limit the indigenous chicken subsector development include poor knowledge of flock management, limited supply of inputs (especially DOCs), limited business knowledge of farmers, limited market access, poor market and handling infrastructure and limited sources of finance to make capital investments.

Implemented Strategies

The study proposed three models to overcome the challenges and develop the indigenous chicken industry. These included, development of the industry at the medium scale farmer level; commercialization of small-scale farmer (upscale smallholder farmer production); and ensuring access to regular supply of affordable inputs.

Based on these models, the programme designed a contract farming system that was implemented through KukuDeal to address model two and three. The need for contract farming was also justified by failure of farmers to go through the the next round of production due to lack of capital for re-investment. Thus RIU through KukuDeal implemented the

mobilising and financially assisting farmers to keep between 200-300 chickens under contract farming in order to obtain substantial numbers of matured chickens that could be used to develop an organised and integrated marketing system for indigenous chicken. The contract farming model was also seen as an avenue for development of the overall sub-sector which is inclusive of more small and medium producers (farmers and hatcheries).

	poultry contract farming model from June 2010 in four districts in Coast region.	
	Through contract farming 923 farming households and 285 farmers and individuals with special needs in Rufiji, Bagamoyo, Kibaha, and Mkuranga districts were provided with loans in terms on inputs (chicks, feeds, drugs, vaccines) and advisory service through household advisors for 3-4 months. The total flock was upgraded for each farmer from 100 to 200, moving them from small-scale ¹² to medium scale ¹³ . Farmers raised chicken for 3-4 months. KukuDeal provided a wholesale market for farmers. Farmers could sell up to 75% of their flock all at once. The remaining 25% was left for household consumption and to enable farmers to look for other lucrative markets independently.	
	The programme and KukuDeal mobilised farmers to keep between 200- 300 chickens in order to obtain substantial numbers of matured chickens that could be used to develop an organised and integrated marketing system for indigenous chicken. The contract farming model was also seen as an avenue for development of the overall sub-sector which is inclusive of more small and medium producers (farmers and hatcheries).	
	Through contract farming farmers have increased their production cycle from 1 to 3 cycles per year. Number of chickens raised per household has increased from 5-10 to 100 and now to between 200 and 300. At the end of each production cycle farmers are able to sell and get lump sum payments thus earning an additional income of approximately TZS 900,000/- (about \$600 for 200 chickens) just from their chicken enterprises.	
 Sensitise at least 500 farmers on identified key marketing strategies Organise community meetings to discuss the proposed strategy 	Four meetings were conducted Kibaha, Rufiji, Bagamoyo and Mkuranga districts with all farmers engaged in poultry keeping under RIU. Through the meetings farmers were introduced to KukuDeal; the contract farming	Most farmers still did not have enough capacity to negotiate with urban markets and traders. In most cases farmers fetched very low prices for indigenous chicken while middle-traders

 ¹² Small scale - from 1 to about 100 chickens per household
 ¹³ Medium scale - more than 150 chickens, but less than 500

	b. c.	Mobilise identified farmers and farmer groups to collectively sell their products at agreeable prices through the collection hubs Strengthen the capacity of groups and networks of poultry keepers in strategic business and marketing skills for collective marketing	concept and marketing of chicken through KukuDeal. Clear clarification of the working modalities in poultry contract farming were made by the programme team. Farmers and the team discussed and agreed on mechanisms for marketing chicken i.e. an all-in all-out system. In order to increase turn over and compete in the market it was agreed that farmers should reduce their production costs and reduce the price of chickens to	made large margins when selling in urban areas. KukuDeal linked farmers directly with the wholesale buyers (holding centres) to help them get a profitable wholesale market.
			Tsh 5,000/. KukuDeal was going to stand as a link between farmers and urban markets to reduce the operations through middle-traders and safeguard farmers' interests and organise the poultry market.	
			Farmers were informed of the location of the three holding centres in Dar es Salaam and Coast region where all matured chickens collected from farmers at the fourth month were delivered for access by traders, consumers and other markets.	
4.	Lobby	for designation and operationalisation of at least		
	1 dist	rict and 1 Regional Market for selling live	Investment in establishment of designated markets for poultry largely	
	indige	enous chickens and ensure these centres are	depended on availability of enough numbers of mature chickens every	
	KNOW	n to farmers Identify existing collection centres in the words	enterprises the programme focused on organising the marketing and	
	a.	and districts	trading chains as well as collection centres for chicken which can later be	
	b.	Identify collection centres that may need to be upgraded	developed into markets. The programme identified three holding centres in Dar es Salaam and Coast, where all chickens collected from farmers in	
	с.	Identify strategic places for setting up new collection centres	rural areas are kept for access by traders and other consumers.	
	d.	Mobilise entrepreneurs to set up new collection centres at the identified places		
	e.	Mobilise entrepreneurs and the local government	The programme identified and held a meeting with 14 poultry traders and	
		to upgrade existing markets	small scale buyers in Dar es Salaam to introduce them to the programme;	
			and establish working mechanisms with KukuDeal and major buyers.	
5.	Link v	vard farmer representatives to at least 2 marketing	All fears and the bad with 16 day Deed and the three heads's a sector of the	
	agent	s and facilitate farmers to do business with the	All farmers are linked with KukuDeal and the three holding centres where	
	agent	s Identify market agents for indigenous chickops	they can sell their matured thicken as designated in their contracts.	
	a.	within the district and outside the region		
	b.	Organise meetings and links between agents and		
		farm representative		
	с.	Monitor the process and document lessons in each		
		stage		

6. Tra me a. b. c.	in at least 500 farmers on product quality and asurements Contract relevant trainers on poultry product quality and measurements Organise field training sessions on poultry products quality and measurement. Formulate a system for monitoring the quality and prices of poultry products in each district	Farmers were trained on product quality specifically weight requirements for mature live birds through household advisors and through RIU team during quarterly field visits. Emphasis was placed on feeding in order to get the birds to gain at least 1 to 1.5kgs by the third month. In Rufiji district farmers were shown how to weigh their birds using a small hand held weighing scale. Mechanisms such as inspection by household advisors and inspection by champions were used to monitor quality of the chicken. Weight and health were the two major priorities since they largely determined marketability of the birds.				
 Intr tec pro a. b. c. d. 	roduce farmers to value addition concepts and hnologies relevant to poultry and ensure farmers are ocessing poultry products Contact institutions dealing with value additional trainings especially SIDO Develop training manual for farmers training Conduct TOTs for selected few farmers from each district who will disseminate information to others Monitor how farmers adopt the concept and practice it	The programme discouraged the idea of introducing farmers to processing processes. This was based on the analysis of the poultry subsector and the operations of different stakeholders in the value chain. Since farmers had just started to commercialise their enterprises it was cost effective for smallholder farmers to sorely focus and advance their skills in production instead of diversifying their attention to processing. The processing function was therefore promoted to specialised medium scale entrepreneurs who could better meet the investment requirements, as well as certification and hygiene requirements. One processor (Nzua	The programme discouraged the idea of introducing farmers to processing processes. This was based on the analysis of the poultry subsector and the operations of different stakeholders in the value chain. Since farmers had just started to commercialise their enterprises it was cost effective for smallholder farmers to sorely focus and advance their skills in production instead of diversifying their attention to processing. The processing function was therefore promoted to specialised medium scale entrepreneurs who could better meet the investment			
8. Fac buy a. b.	ilitate processes to enable at least 2 customers to processed poultry products from at least 50 farmers Identify companies that deal with processing, packaging and grading for poultry products e.g. MKUZA Identify existing associations for traders and	Enterprises) has invested and is buying live chicken, processing indigenous chicken and selling to end consumers.	requirements, as well as certification and hygiene requirements. One processor (Nzua Enterprises) has invested and is buying live chicken, processing indigenous chicken and selling to end consumers.			
c. d.	wholesalers of poultry products Link farmers with available processors to enable easy processing and packaging of poultry products Link farmer groups with identified associations of					
Sub-or	traders and wholesalers of poultry products					
Activiti	es undertaken and/or changes in activities	Status of achievement: deviations and reasons for deviations	Management decisions and strategic direction taken that			

1.	 Map areas of implementation in 7 districts in Dodoma and Singida regions. a. Map areas of implementation b. Stakeholder analysis and identification 	5 districts in Dodoma (<i>Mpwapwa, Chamwino, Kongwa, Bahi and Kondoa</i>) and 3 districts in Singida (<i>Singida Rural, Iramba and Manyoni</i>) region were mapped for implementation of poultry activities. Activities were however implemented in 6 districts (Dodoma – Mpwapwa, Chamwino, Kongwa and Bahi: Singida – Singida Rural and Manyoni). Implementation in two districts did not take place due to low response from farmers as well as challenges in infrastructure which doubled operational costs.	
		The programme held an introductory meeting with Regional Administrative Secretaries for Dodoma and Singida regions where entry points into the regions were identified. Field meetings were conducted by the programme team and inputs suppliers in each district to introduce the district authorities to the programme and the poultry initiative. Coordination of activities was done at District level. District Agricultural and Livestock Development Officers (DALDOS) were the main point of contact and coordination points for activities. Ward Executive Officers (WEOs) and Village Agricultural and Livestock Extension Officers (VALEOs) were responsible for mobilisation, identification and registration of farmers in villages. Feed, drugs, vaccines and chicks distributed to farmers through WEOs and VALEOs. The programme out-scaled the contract farming model in Dodoma and Singida regions as it was done in Coast region. Modifications were done in provision of extension services. The programme used government extension workers at the village level (VALEOs) to train farmers instead of using private household advisors. This was both cost effective and a long term solution since the extension system in the areas was stronger than in Coast region. 1176 farmers were reached in Dodoma and Singida regions.	
2.	 Solve chicks supply system capacity problems in 7 districts a. Map existing hatcheries in the areas b. Identify and mobilize egg producers and link egg producers with hatcheries c. Link large scale breeders, researchers and information providers with small-scale indigenous chicken farmers to enhance availability of 	Chicks were distributed to farmers from hatcheries in Dar es Salaam and Coast region. The hatchery in Dodoma region was still building its production capacity and could not meet all the chicks demands from farmers. Chicks transportation to Dodoma and singida farmers was done through the public transport system. Chicks distribution was coordinated by the programme up to the district level. At the district level, DALDOs, ward extensionists and VALEOs coordinated distribution to farmers.	

	information on breed types etc	Farmers were required to build a chicken shed and pay at least 40% of the cost for buying chicks as part of their commitment.	
3.	 Enhance local capacity to supply vet services in additional 7 district a. Identify existing vet service providers, wholesale suppliers for vet drugs etc in each district b. Link service providers with farmers c. Conduct need assessment for the district agents to supply drugs up to ward level d. Support district agents to establish links and means of working at ward and village levels. e. Facilitate field visits to link the providers with farmers f. Identify all regulatory authorities dealing with quality and regulation of drugs and vet services g. Select platform members from each district to oversee the drug and vet issues in their localities h. Contract regulatory authorities to provide training to platform members and farmers on drug quality and regulatory issues i. Provide relevant support to make sure that they perform their functions successfully including facilitating meetings with regulatory authorities to control expired drugs and poor quality drugs that may harm chicken 	In Dodoma and Singida regions, veterinary services were provided to farmers through the government extension system i.e. from the District Agricultural and Livestock Development Officer, District Veterinary Officers and VALEOs. The district extension system was also responsible for receiving vaccines from the Animal Disease Research Institute (ADRI) in Dar es Salaam and assisting farmers to administer them. In Singida region, community vaccinators were used for administration of vaccines. These were trained through the local government initiative. In all areas farmers were linked with their local extension system through VALEOs for provision of veterinary services. Veterinary drugs and supplies were purchased through RIU from two suppliers (Bytrade and Multivet) in Dar es Salaam. They were transported to district centres for distribution together with other inputs. Direct purchases were made from the two suppliers to control the quality of drugs distributed to farmers and also to reduce costs since they were purchased at wholesale cost.	
4.	 Enhance local BDS and extension capacities in additional 7 districts a. Gather relevant information on technologies, innovations and research outputs on poultry keeping. b. Inventories existing poultry extension tools and tailor them to suit identified needs c. Identify key BDS needs among the communities. d. Identify existing BDS providers who can work with poultry farmers. e. Facilitate development of appropriate BDS packages relevant for poultry farming f. Link BDS providers and farmers and facilitate development of sustainable mechanisms for providing the services 	In Dodoma and Singida regions farmers were linked with DALDOs and VALEOs for provision of extension services. VALEOs were engaged in mobilisation and identification of farmers who were interested to start poultry keeping. They continued to provide advisory services to farmers throughout the production cycle of four months. The programme team facilitated identification of different sources of information, compiled, printed and distributed a comprehensive poultry management booklet. The booklet includes pictures, illustrations and cartoons to support the content. The booklet was produced to ensure that farmers have a consistent source of information and reference whenever needed. It includes detailed information and instructions on types of indigenous chicken, benefits of keeping indigenous chicken as business,	

			instructions on construction of appropriate chicken sheds, management of day old chicks, general management of poultry, sanitation requirements, vaccination, disease control, disease treatment, feeding and nutritional requirements, and record keeping. The book is printed and distributed to every farmer together with chicks and record keeping forms and guides, and books for recording daily data. Farmers were helped by VALEOs to go through the content before receiving chicks. Learning tools have proved to be very useful especially for slow learners who need to revisit the content often.	
			Training on business and entrepreneurship was not done in Dodoma and Singida regions due to budgetary constraints.	
5.	Enha a.	ance local capacity to supply poultry feeds Map and conduct need assessment to assess current needs on the demand and supply sides	The programme identified and worked with five feed manufacturers – Calvin Animal Feeds in Dodoma; Vocational Education and Training	
	D.	up to the local level especially ward level i.e. involve and mobilise the private sector (local entrepreneurs) to make poultry feeds (these can be trained and acquire the relevant knowledge)	Dar es Salaam – to supply poultry feeds in Coast, Dodoma and Singida regions. Feed supply was coordinated by the programme up to district level where farmers were supplied directly through DALDOs. In both regions, the programme opted to directly work with feed manufactures to	
	C.	Design a specific training programme that will prepare general crop and livestock farmers to be poultry farmers (training should focus on general knowledge and poultry farming, diseases, feeding etc. according to different needs)	ensure quality is maintained and prices were reduced to lower farmers production costs.	
6.	Facil	itate development of reliable markets and business	DUL commission of Match molecus Accordings Ltd to come out a Market	
	skills a.	; Conduct rapid market appraisal for local chicken	Study for Formulating an Indigenous Chicken Sub-sector Development	
		products	Strategy. The study provided the programme with a comprehensive	
	b.	Develop market strategy for indigenous chicken and its products	understanding of the poultry market in Tanzania. It assessed markets for chicken inputs and products and recommended three strategies for	
	с.	Implement the strategy	developing the subsector.	
	d.	Develop strategic partnerships for developing sustainable and efficient market		
	e.	Identify existing markets in and outside the region	The diama	
	f.	Identify major traders and wholesalers of	Findings	
		Indigenous poultry in the country and development linkages between them and farmers	The study findings indicated that the sub-sector is still underdeveloped	

g. Identify the market demand of indigenous chicken in both quality and quantity	(it's developing at a 2.6% rate annually) but it is emerging steadily and stakeholders have recognised its potential to strengthen incomes. Indigenous chicken remains a niche product in the subsector with high end prices (high and medium income consumers). Its major markets are Dar es Salaam, Arusha, Mwanza and other regional towns. It's sold mostly in restaurants. The end market price for indigenous chickens is high (averaging TZshs 8,000 for live chicken and up to TZshs 12,000 for dressed chicken). These prices are however artificially high due to scarcity of indigenous chicken. If indigenous chicken for sale would increase by a rate higher that 2.6%, number of chicken for sale would increase and the price will fall. This will however increase and create a new and larger market with low income urban dwellers since the price will almost equal or below that of exotic chicken. Constraints that limit the indigenous chicken subsector development include poor knowledge of flock management, limited supply of inputs (especially DOCs), limited business knowledge of farmers, limited market access, poor market and handling	
	Implemented Strategies The study proposed three models to overcome the challenges and develop the indigenous chicken industry. These included, development of the industry at the medium scale farmer level; commercialization of small- scale farmer (upscale smallholder farmer production); and ensuring access to regular supply of affordable inputs.	
	Based on these models, the programme designed a contract farming system that was implemented through KukuDeal to address model two and three.	
	The contract farming system was out-scaled in Singida and Dodoma regions based on lessons and experiences from Coast region. In these regions each farmer kept a minimum of 100 chickens. The numbers of matured chickens produced were used by KukuDeal to organise the indigenous poultry market and develop an integrated marketing system.	

 Organise 6 quarterly platform meetings for planning and follow-up Prepare objectives and guidelines for each meeting Select and book venue and other services Identify outside facilitator, if needed Invite participants to the meeting Contract documentalist, and other service providers 	Investment in establishment of designated markets for poultry largely depended on availability of enough numbers of mature chickens every week. Since most farmers were just starting to commercialise their enterprises, the programme focused on organising the marketing and trading chains as well as collection centres for chicken which can later be developed into markets. Through KukuDeal farmers in Singida and Dodoma regions were linked with identified holding centres in Dar es Salaam and Coast, where all chickens collected from farmers in rural areas are kept for access by traders and other consumers. Through field meetings the programme identified possible markets in Dodoma town. Farmers in some districts (Bahi, Kongwa, Mpwapwa) were advised to sell directly to these markets and repay their inputs loans. As the concept of operating around platforms was dropped by the programme, platform meetings were replaced with planning meetings at the programme level; consultation with stakeholders; and follow-up meetings at the field level. Regional level meeting was organised with Dodoma and Singida RAS to inform them of the programme activities and define entry points and programme's operation in the regions. Meeting to introduce the programme at the district level were done in each district leaders. Through these meetings the programme and district authorities put together plans for operation in each district including stakeholder identification, coordination of activities, linkages with service providers and mechanisms for advisory service provision. 6 follow-up meetings at farmer's levels were done on the third month after farmers received chicks. These meetings were conducted by RIU team in each district and	
	they were meant to identify challenges farmers faced in production and put in place mechanisms for marketing and selling mature chickens to identified markets.	
Sub-output 1.1.4: Solutions at regional and national lev	el to solve hatcheries and markets bottlenecks have been experimer	ited
Activities undertaken and/or changes in activities	Status of achievement: deviations and reasons for deviations	Management decisions and strategic direction taken that affected the project outputs

- Identify and deal with blockages in hatchery services in order to improve hatchery units, stabilise their businesses and increase production capacity
 - Explore solutions to unblock challenges in provision of hatchery services for indigenous chicken

The programme issued a public call on newspapers to identify existing hatcheries. About 25 chick producers responded. A meeting with all hatchery owners, champions and RIU team was organised to communicate the programme plan and the demand for indigenous day old chicks. Challenges in chicks production were identified. They included unavailability of enough quantities of fertilised eggs for hatching; lack of specific breeds of indigenous chicken which can be used for egg or meat production; inconsistent power supply which affects production; access to finance for expanding production; poor feed quality; high feed prices; poor drugs and vaccines quality;

13 hatcheries were willing to work with the programme based on indicated prices for chicks (Tsh 1,000/-) that were affordable to farmers. Out of these, 11 hatcheries existed prior to RIU, while 2 hatcheries in Dodoma and Iringa regions were established as a result of RIU. The programme selected 5 hatcheries (2 in Dar es Salaam, and 3 in Coast, Dodoma and Singida regions) and worked to build their production capacity. Each hatchery was provided with matching funds to boost their capacity from producing 500-2000 chicks to about 7500 chicks per week. The 5 hatcheries were selected on the basis that the owners were ready to personally invest and expand their current capacities. Matching funds provided were used for purchase of larger and technologically advanced hatchery machines i.e. up to 10,000 chicks per week (these were procured by RIU from China); purchase of parent stock for laying eggs; and expansion of farm infrastructures i.e. sheds, feeding. The remaining 8 hatcheries received smaller interest free loans to enable them to purchase parent stock or hatching eggs from their identified sources. Investing in hatcheries has increased production of day old chicks from 500-2000 chicks per week to 6,500-10,000 chicks per week. All hatcheries without parent stock were advised and have contracted a about 5 out-growers (egg producers) to increase the number of available eggs for hatching in order to increase production of chicks.

RIU facilitated hatchery mentorship in disease management and breeding strategies to improve the breeds of indigenous chicken. All hatcheries have been linked with the Ministry of Livestock Development and

		Fisheries for advice and regulation.	
2.	 Facilitate processes to attract large private sector companies into indigenous chicks hatching business (e.g. nterchick) a. Identify large scale private sector companies in poultry industry b. Hold meetings with identified companies to explore possibility of working with the platforms to improve the problem of hatchery services 	The programme approached Interchick and Mkuza Chicks to explore possibility of production of indigenous chicks. Both companies were unable to meet the request. Interchick focused on production of exotic chicks, thus introduction of indigenous chicks production required new investments in setting up parent stock farms and the entire production line. Mkuza chicks produced indigenous chicks but it was unable to meet its existing demands. Due to these challenges the programme abandoned the plan of attracting large pirvate sector companies into indigenous chicks production. More attention was thus placed on building the capacity of the 13 existing small and medium indigenous chicks hatcheries to meet demands for day old chicks.	The programme approached Interchick and Mkuza Chicks to explore possibility of production of indigenous chicks. Both companies were unable to meet the request. Interchick focused on production of exotic chicks, thus introduction of indigenous chicks production required new investments in setting up parent stock farms and the entire production line. Mkuza chicks produced indigenous chicks but it was unable to meet its existing demands. Due to these challenges the programme abandoned the plan of attracting large pirvate sector companies into indigenous chicks production. More attention was thus placed on building the capacity of the 13 existing small and medium indigenous chicks hatcheries to meet demands for day old chicks.
3.	 acilitate processes to establish a functional national evel market for indigenous chicken a. Identify consultants to conduct a rapid market appraisal to study the existing market for indigenous chicken b. Facilitate processes of establishing a national level market for indigenous chicken 	RIU commissioned Match makers Associates Ltd to carry out a Market Study for Formulating an Indigenous Chicken Sub-sector Development Strategy. The study provided the programme with a comprehensive understanding of the poultry market in Tanzania. It assessed markets for chicken inputs and products and recommended three strategies for developing the subsector. <u>Findings</u> The study findings indicated that the sub-sector is still underdeveloped (it's developing at a 2.6% rate annually) but it is emerging steadily and	
		stakeholders have recognised its potential to strengthen incomes. Indigenous chicken remains a niche product in the subsector with high end prices (high and medium income consumers). Its major markets are Dar es Salaam, Arusha, Mwanza and other regional towns. It's sold mostly in restaurants. The end market price for indigenous chickens is high (averaging TZshs 8,000 for live chicken and up to TZshs 12,000 for dressed chicken). These prices are however artificially high due to scarcity of indigenous chicken. If indigenous chicken for sale would increase by a rate higher that 2.6%, number of chicken for sale would increase and the price will fall. This will however increase and create a new and larger market with low income urban dwellers since the price will almost equal or below that of exotic chicken. Constraints that limit the indigenous	

chicken subsector development include poor knowledge of flock management, limited supply of inputs (especially DOCs), limited business knowledge of farmers, limited market access, poor market and handling infrastructure and limited sources of finance to make capital investments.	
Implemented Strategies The study proposed three models to overcome the challenges and	
develop the indigenous chicken industry. These included, development of the industry at the medium scale farmer level; commercialization of small- scale farmer (upscale smallholder farmer production); and ensuring access to regular supply of affordable inputs.	
Based on these models, the programme designed a contract farming system that was implemented through KukuDeal to address model two and three. The need for contract farming was also justified by failure of farmers to go through the the next round of production due to lack of capital for re-investment. Thus RIU through KukuDeal implemented the poultry contract farming model from June 2010 in four districts in Coast region. Through contract farming farmers in Rufiji, Bagamoyo, Kibaha, and Mkuranga districts were provided with loans in terms on inputs (chicks, feeds, drugs, vaccines) and advisory service through household advisors for 3-4 months. The total flock was upgraded for each farmer from 100 to 200, moving them from small-scale ¹⁴ to medium scale ¹⁵ . Farmers raised chicken for 3-4 months. KukuDeal provided a wholesale market for farmers. Farmers could sell up to 75% of their flock all at once. The remaining 25% was left for household consumption and to enable farmers to look for other lucrative markets independently.	
The programme and KukuDeal mobilised farmers to keep between 200- 300 chickens in order to obtain substantial numbers of matured chickens that could be used to develop an organised and integrated marketing	

 ¹⁴ Small scale - from 1 to about 100 chickens per household
 ¹⁵ Medium scale - more than 150 chickens, but less than 500

	system for indigenous chicken. The contract farming model was also seen as an avenue for development of the overall sub-sector which is inclusive of more small and medium producers (farmers and hatcheries).	
	Investment in establishment of designated markets for poultry largely depended on availability of enough numbers of mature chickens every week. Since most farmers were just starting to commercialise their enterprises, the programme focused on organising the marketing and trading chains as well as collection centres for chicken which can later be developed into markets. The programme identified three holding centres in Dar es Salaam and Coast, where all chickens collected from farmers in rural areas are kept for access by traders and other consumers.	
	The programme identified and held a meeting with 14 poultry traders and small scale buyers in Dar es Salaam to introduce them to the programme; to publicise and link them with the three main buyers (holding centres) and establish working mechanisms with KukuDeal and major buyers.	
 4. Organise at least 4 meetings at the national level (including meetings for policy influence) a. Identify policy issues in poultry industry b. Identify relevant stakeholders, ministries, policy makers etc c. Hold meetings with stakeholders to find solutions for policy issues that affect the operations in poultry industry 	The programme organised and conducted a high level meeting with representatives from the Ministry of Livestock Development and Fisheries and Regional Administrative Secretaries from Dodoma, Singida, and Coast regions. The meeting communicated and informed ministry officials of policy challenges that are facing producers and other stakeholders in the poultry subsector. These included poor extension service on poultry; poor quality of poultry drugs and vaccines; high prices for poultry feeds; taxation of incubators and other hatching machines which in principal should be exempted as part of agricultural / livestock inputs exemption plan. The meeting resulted into identification of more areas for collaboration with the ministry. The Ministry expressed interest in collaborating with the programme in advisory, regulation and research activities specifically those that will inform farmers and hatcheries on better types of indigenous poultry breeds.	
	The meeting resulted into a major policy breakthrough where the parliament exempted import tax for incubators and other hatching	

machinery. After the programme communicated the taxation issue with the Ministry, the ministry worked with other relevant government ministries and departments to get the exemption. The programme organised and funded a meeting between the Ministry of Livestock Development and Fisheries; Hatchery Owners and Operators; Breeder Farm owners and farmer representatives (champions). The meeting was specifically held to allow the Ministry to introduce the above stakeholders to the new Animal Diseases Regulation for Hatcheries and Breeder Farms. Since the regulation was passed this was the first meeting where it was elaborated to stakeholders. The ministry's poultry division is currently collaborating with RIU supported hatcheries in the process of enforcing the new Regulation. The increased number of stakeholders in the poultry sub-sector as well as increased production scales has made it necessary for the government to closely enforce relevant regulations for disease control. On the other hand, local chicken breeders and hatcheries are in the final stages of creating their formal association. It is anticipated that as the sector expands, breeders and other stakeholders will need a formal organisation that can engage with the government in dialogue, policy and practice matters. In research practice, the programme's efforts to lobby and push for a national perspective towards characterisation of indigenous chicken breeds, resulted into development of a proposal to carry out a study to characterise indigenous chicken breeds. The proposal was developed by the National Livestock Research Institute (NLRI) and has already been submitted to the Tanzania Commission for Science and Technology (COSTECH)¹⁶ for funding. The institute plans to breed and select the best indigenous chicken breeds which can be promoted for commercial production (eggs and meat) and promote their availability and multiplication through establishment of parent and grandparent stock farms. RIU through MUVEK was listed as one of the major collaborators in utilising the results of this study through the production system it has created (i.e. farmers, egg producers, parent and grandparent stock farms

¹⁶ COSTECH is now responsible for the implementation of activities under the government green revolution framework known as KILIMO KWANZA (Agriculture first) Pillar 8 whose objective reads; "Agricultural research and training institutions to effectively utilize the Governments allocation of 1% of GDP to research and development".

and hatcheries). The outputs of the research will solve a major challenge (lack of characterisation and parent and grandparent stocks) in the indigenous chicken industry in Tanzania.	
The Country Coordinator held a briefing meeting with the President of Tanzania H.E. Jakaya Mrisho Kikwete. The President was briefed on the programme activities, progress and achievements made in the poultry subsector. As a result of the meeting, the government is considering to develop a National Poultry Strategic Plan specifically for development of the local chicken sector which will replicate the approach employed by RIU to other areas in the country. This was a directive given by His Excellency the President of the United Republic of Tanzania when he visited the ministry early this year. The move will have impact on the whole sub sector as it will set plans and focus on the poultry sector at the national level.	

2.2 MECHANISATION ACTIVITIES

Between December 2008 and June 2010 the programme worked in Ulanga, Kilombero, Kilosa and Mvomero districts in Morogoro region to test solutions that will enhance productivity of smallholder rice and maize farmers. Farm productivity among smallholder farmers in the target districts is limited by a number of factors including, low land cultivation which is a result of combined factors including low utilisation of mechanised services; lack of knowledge and poor access to other improved technologies; high prices for hiring mechanisation services; and a demand and supply deadlock between users and providers of agricultural mechanisation services. The core focus was to enhance productivity of smallholder farmers by

- a. <u>Unblocking the demand and supply deadlock in provision of mechanisation services</u>. This included organising and building farmers' capacity to demand and utilise improved farm machinery services through self-organisation and bundling of demands to enable them to buy services at affordable rates and expand their areas under cultivation. The programme also worked to enhance the farm machinery supply side by mobilising and supporting farm machinery owners to better organise themselves, reduce prices, increase reliability and profitability, and work with more smallholder farmers so that they can improve the profitability of tractors through a higher running time all year round. The goals under these interventions were to break through the demand-supply deadlock and reduce costs of ploughing for farmers; increase efficiency and availability of mechanisation services to smallholder farmers; encourage expansion of cultivated areas; and stimulate the use of other improved inputs and technologies.
- b. <u>Enhancing linkages with other service providers</u> (input suppliers, mechanisation and extension workers, storage and processing facilities, transporters, markets and service centres for farm machinery) to ensure necessary support systems are in place.

The major goal in mechanisation interventions was to enhance smallholder farmer's capacity to utilise farm machinery which was expected to boost other emerging needs related to access to improved inputs and output markets and other post harvest management practices, hence promoting innovation.

Output 1.2: A functional innovation platform has enhanced farm productivity of smallholder farmers through increased access to and capacity to utilise improved farm machinery opportunities in Ulanga, Kilombero, Kilosa and Mvomero Districts in Morogoro Region.

Activities undertaken and/or changes in Statu activities	tus of achievement: deviations and reasons for deviations	Management decisions and strategic direction taken that affected the project outputs
1. Organise 4 platform meetings for system A mee analysis, planning, and follow-up A mee a. Identify intervention priorities, agricu stakeholders, capacity gaps, solutions and resources needed to fulfil identified gaps All ke	neeting was held with regional authorities in Morogoro region where regional icultural priorities were indentified and analysed. Selection of intervention area omotion of agro-mechanisation) was done. key stakeholders in agro-mechanisation were identified through a stakeholder pping process conducted by RIU and district authorities.	Morogoro region was pronounced by the President of Tanzania as the National Granary in 2006. As a response to this, the region prepared strategies to implement the FAMOGATA operation with the objective of making Morogoro the National Granary through increased production of priority food crops including rice and maize. RIU activities in the region were set with reference to the regional priorities as defined by FAMOGATA. The linkage with the initiative assisted in implementation of activities as well as their

Sub-output 1.2.1: Platform's capacity to promote smallholder farmers access to improved farm machinery in rice and maize producing areas in Morogoro Region enhanced

		A brainstorming meeting, first and second platform meetings were held with key stakeholders to brainstorm, identify challenges and select possible solutions for addressing systemic challenges in accessing and utilising farm machinery and technologies among smallholder farmers. Key challenges, possible solutions and main entry points were defined (as indicated in the above summary). Selection of district champions (who were mechanisation officers) and a mobilisation work-plan was put in place.	District mechanisation officers were selected as district champions because the nature of mechanisation activities required the expertise that general farmers did not have. In addition, mechanisation officers were at a better and neutral level to organise and facilitate discussions between smallholder farmers and tractor owners and they had a higher ability and capacity to lead these processes and integrate them into district activities once RIU was phased out.
2.	Promote bundling of demands and supply of mechanisation and other services a. Collective community sensitisation by district level stakeholders to promote bundling of demands and supply among farmers and tractor owners.	The programme team in collaboration with district mechanisation officers identified all farm machinery owners and operators in the four districts. Meetings were organised in all four districts where the programme team and mechanisation officers introduced RIU and its activities in the region. Machinery owners were introduced to the concept of bundling of demands and the benefits of working with smallholder farmers (as their main clientele), and how they can create efficiency in service provision. At this stage, machinery owners discussed ploughing prices and how they can reduce prices if the areas for cultivation increased. A price list for ploughing in different wards depending on the type of soil and acreage was developed. Machinery owners in each district established their unions and developed clear working mechanisms for providing services to farmers.	Due to limitations in time, capacity and financial resources (on farmers' side) as well as considering lessons from previous interventions, the programme opted to promote bundling of demands and hiring mechanisation services from existing tractor owners in the districts rather than farmers buying their own machinery.
		The programme team, district mechanisation officers, machinery owners, platform champions and members organised and carried out farmers mobilisation meetings at the village level. The price list developed by tractor owners was used to show farmers price reductions when they buy services collectively. Farmers were introduced to the concept of bundling of demands and its benefits. Direct linkages between farmers and farm machinery owners were developed for negotiation and service provision. Before these meetings most smallholder farmers did not know of the existence of most tractor owners and did not know how to access them when they needed services.	
3.	 Facilitate identification of policy and practice issues and needs from farmers, tractor owners and other stakeholders for submission to relevant authorities for action. a. Assist farmers and tractor owners to influence local policies for increased access to agro machinery 	The programme team in collaboration with platform champions, farmers' and tractor owners' representatives identified key policy and practice issues in agro- mechanisation. These included, poor quality control for farm machinery, implements, lubricants, fuel and spare parts; low tractor population in districts; unfavourable conditions for accessing credit for acquisition of farm machinery; poor accessibility to information by farmers and tractor owners; poor awareness on available farm	

	technologies among farmers; and poor road infrastructure.	
	The programme identified all relevant stakeholders (agro-stockists, spare parts dealers, fuel suppliers, Ministry of Agriculture, agro –machinery importers) who could in one way or another address the challenges. The programme organised a national stakeholder meeting where farmers, tractor owners, and stakeholders presented, analysed and identified possible solutions for the challenges. The initiative helped to profile issues faced on the ground level to the national audience. A report of the meeting was submitted to the Ministry of Agriculture representatives for feedback and action.	
Sub-output 1.2.2: Smallholder farmers' access	o improved farm machinery has improved through bundling of demands and impro	oving machinery hire services in the target areas.
Activities undertaken and/or changes in activities	Status of achievement: deviations and reasons for deviations	Management decisions and strategic direction taken that affected the project outputs
 Mobilise and sensitise tractor owners in four districts of Morogoro region to package affordable tractor hire services for bundled demands from smallholder farmers and to work with smallholder farmers. Identify tractor owners that have formed fluid or registered groups Build capacity of tractor owners to 	The programme team in collaboration with district mechanisation officers identified farm machinery owners and operators in the four districts. Meetings were organised in all four districts where the programme team and mechanisation officers introduced RIU and its activities in the region. 216 machinery owners and operators were identified and invited to mobilisation meetings.	Mechanisation officers were used as main coordinators at district, ward and village levels to promote continuity of activities, linkages with other government initiatives and spreading the message to more farmers and villages during their daily activities.
 combine their hiring services so as to service a larger bundled area c. Facilitate visits and other logistics for tractor owners' representative to visit and mobilise farmers in their locale and to discuss and agree on modalities of how to communicate demand and access for services 	Machinery owners were introduced to the concept of bundling of demands and the benefits of working with smallholder farmers (as their main clientele), and how they can create efficiency in service provision. Calculations for costs and profits were made and price lists for ploughing were produced according to types of soil and acreage to be ploughed.	
 d. Mobilise and build capacity of farm implement service providers to respond to farmers' demands e. Stimulate acquisition of new farm implements to satisfy the demand of other services such as harrowing, weeding, etc 	In each district, machinery owners established their unions through which communications among themselves, with farmers and other service providers will be channelled.	

f. g.	Encourage tractor owners groups, association and individuals to advertise their services and prices over the local radios or through pamphlets and posters Mobilise and sensitise other owners of farm machinery such as churches, agriculture centres, and research centres as well, to package affordable tractor hire services for bundled demands from small holder farmers	Machinery owners, RIU Team, mechanisation officers (platform champions) and platform members organised and carried out farmers' mobilisation meetings in each village. Through the meetings farmers were introduced to the concept of bundling of demands. Illustrative posters developed by the programme and price lists developed by tractor owners were used to show farmers the overall concept of putting their demands together and specify price reductions when they buy services collectively. Direct linkages between farmers and farm machinery owners were formed during these meetings for negotiation and service provision. Demands for ploughing were directed at identified centres where machinery owners were located.	
		In each district, mechanisation officers who were also platform champions continued to link farmers and machinery owners and identify other existing machinery owners and link them with farmers as well as the tractor owners unions. The availability of mechanisation services continued to be advertised to smallholder farmers through the local extension system i.e. mechanisation officers.	
 Intro conduction tractivith a. b. c. d. 	oduce farmers in the four districts to the cept of bundling their demands for tor hire services and facilitate linkages machinery owners. Identify and select potential mobilisers to sensitise farmers Build capacity of village level facilitators to sensitise and mobilise farmers to bundle their demands Prepare appropriate materials for mobilisation and sensitisation on bundling demands and benefits of economies of scale wealth creation Identify areas suitable for block farming and develop intervention strategies. Focus in accessing relevant innovations and technologies	Each district had a mechanisation officer (who was also a platform champion), extension officers and a group of tractor owners to sensitise farmers to bundle their ploughing demands in order to cheaply access mechanisation services. Through village level meetings farmers the four districts were introduced to the concept of bundling of demands. Illustrative posters developed by the programme and price lists developed by tractor owners were used to show farmers the overall concept of putting their demands together and specify price reductions when they buy services collectively. Direct linkages between farmers and farm machinery owners were formed during these meetings for negotiation and service provision. Demands for ploughing were directed at identified centres where machinery owners were located. Key issues such as measurement of acreage, and payment mechanisms for services were discussed and local extension officers were to be used to specify/help with acreage measurements.	
e.	Develop mechanism for communicating demand in order to		

	f.	access supply of services Stimulate demand and facilitate access to existing and new farm machinery		
	g.	Conduct a short training and sensitisation on how to mobilise		
	h.	farmers to bundle their demands Sensitising and awareness raising on		
		importance of having properly measured acres		
	i.	Facilitate target groups to agree on common price list for each respective area		
3.	Intro	duce farmers to other types of farm		
	mac	hinery and implements besides tractors.	The programme funded training on the types and uses of farm machinery and	
	a.	Identify farm machinery and	implements. The training was prepared and conducted by a representative from the	
		implements to be introduced (i.e those	Ministry of Agriculture and Cooperatives. Through the training 40 farmers'	
		that are relevant for different wards in	representatives (platform members) from all four districts were introduced to types	
		the four target districts in Morogoro)	of machinery for maize and rice farming; now to select and use machinery according	
	۵.	Sensitise farmers on the benefits of	different stages such as land preparation ploughing planting wooding praving 8	
		planting, weeding, and harvesting	harvesting. Other concepts such as conservation agriculture, post-harvest	
	c.	Stimulate demand and facilitate access	management, processing and marketing were introduced.	
		to existing and new farm machinery		
	d.	Introduce the concept of bundling of		
		demand to access other types of farm implements for other activities in farming, in four districts	Through the Mechanisation Department of the Ministry of Agriculture and Cooperatives the programme developed a Catalogue and Directory of Farm	
	e.	Build capacity of village level	Machinery and Implements for distribution and use by rural farmers. The objective of	
		facilitators to sensitise and Mobilise farmers to bundle their demands for	the catalogue is to raise awareness on existing machinery and implements that can be used in agricultural activities. In addition the directory was meant to be a source of information, where, farmers, and tractor, owners, can easily access locations, and	
		other services other than ploughing	contacts of agro-machinery importers, distributors and fabricators and machinery	
	t.	Define a monitoring strategy on how to ensure quality and consistency on the	importers and distributors can easily market their products to potential clients in rural	
	-	way mobilization is being conducted	מו כמז.	
	g.	Re-visit the developed mechanism		
		access to supply of tractor services		
		and apply to other services in farming		

4.	 Promote hire of animal draught power in 6 wards where such services are relevant a. Identify areas where animal draft power can be promoted b. Design and strategise on how promotion will be conducted c. Conduct promotion activities on utilisation of animal draught power to farmers in identified areas 	Due to limited time for implementation of mechanisation activities, the programme did not implement this activity and instead focused more on promoting hire of farm machinery.	Due to limited time and resources for implementing mechanisation activities, more emphasis was placed on enhancing hiring of mechanisation services and building the local capacity (mechanisation officers, tractor owners and farmers) to facilitate the processes to enhance sustainability upon programme closure.
5.	 Work with district mechanisation officers to support and monitor the bundling initiative through the government extension workers and system a. Conduct meeting between district authorities and platform members and agree on the follow up plans to the villages b. Develop follow up visits by the government extension workers and district mechanisation officers and RIU team c. Follow up visits to the villages where tractor hire services are taking place and monitoring the responses to the farmers bundled demands d. Promoting and supporting the bundling of initiatives through district mechanisation officers 	Eight district mechanisation and extension officers were platform champions and members. They were key stakeholders in the identification of machinery owners, identification of farmers, coordinating mobilisation meetings at district, ward and village levels, and linking farmers, machinery owners and other input and service providers. During platform meetings four mechanisation officers volunteered to be platform champions and thus they led activities within their districts. Between December 2009 and June 2010 three field monitoring visits were made by the programme. Continuous monitoring of activities was done collectively among platform champions (district mechanisation officers) and progress was reported to RIU.	
6.	Build technical capacity for tractor owners and operators, garage owners, technicians and spare parts dealers. (This activity was introduced as the need arose during implementation)	12 tractor owners and 12 operators from four districts (6 per district) in Morogoro were trained on technical and business skills. During monitoring of activities, the programme identified key technical and business challenges in machinery operation and service provision. The Vocational Education Training Centre (VETA) in Morogoro was contracted to prepare and conduct the training modules based on identified needs. The training provided the group with skills on service delivery, maintenance and how to operate tractors in different terrains. The main aim was to increase operating efficiency, reduce running and maintenance costs and increase the life span of machinery. The training also provided business and entrepreneurship skills to owners to enable them to provide their services fairly and profitably and be able to repay loans used to buy machinery and service farmers efficiently.	

		Technical and enterprise management training was conducted for garage owners, technicians and spare parts dealers in Ulanga district through a mentoring programme. Based on challenges that were reported by tractor owners and operators, the programme identified and contracted a consultant to identify primary and urgent needs of garages and spare parts shops in the district. Based on the needs the consultant designed and conducted a short training course that was funded by RIU to address the technical and business skills of garage owners, technicians and spare parts dealers.	
7.	Facilitate business linkages between agro- dealers, spare parts suppliers and service providers (This activity was introduced as the need arose during implementation)	Bytrade (an inputs distributor based in Dar es Salaam) was linked with Mvunjapole (a local agro-dealer in Ifakara, Kilombero district) to enable direct supply of quality agro- inputs. Through this process, Mvunjapole became Bytrade's official distributor in Kilombero district and is able to order inputs from the supplier on credit and supplies are transported by Bytrade to the district using the public transport system. This linkage has eliminated the challenge of transportation and other costs for the small dealer resulting into reduction of prices for end products for farmers and has strengthened quality assurance due to none involvement of middlemen who temper with products. Farmers can now access needed inputs easily, faster and at reasonable prices.	
		Large spare parts suppliers in Dar es Salaam region was identified and linked with retailers in Ulanga district. The linkages aimed to improve the capacity of spare parts retailers and garage owners in the district to easily access quality spare parts and thus render quality services to tractor owners which will also result into better services for farmers.	
8.	Produce guidelines and reference materials	A National Farm Machineny Catalogue and Manufacturers and Dealers Directory has	
	 a. guide mechanisation officers and other stakeholders to mobilise farmers and tractor owners to bundle their demands b. Provide information on available farm 	A reactional Farm Machinery Catalogue and Manufacturers and Dealers Directory has been compiled. RIU contracted the Mechanisation Department of the Ministry of Agriculture and Food Security to identify dealers and manufacturers of farm machinery in Tanzania as well as the types of machinery available, including their usage and detailed descriptions and compile the information into a publication to be produced and distributed at district and ward levels. The catalogue and machinery	
	machinery, suppliers, their locations and contacts.	will contribute to increase availability of information, promote usage of machinery, create direct linkages and contacts and improving the knowledge of farmers on the	

(This activity was introduced as the need arose during implementation)	available machinery to help their decision making processes i.e. either buying or using.	
Sub-output 1.2.3: Platform has been handed ov	ver to relevant stakeholders for coordination and facilitation of activities	
Activities undertaken and/or changes in activities	Status of achievement: deviations and reasons for deviations	Management decisions and strategic direction taken that affected the project outputs
 Facilitate handing over of platform coordination and operation to stakeholders Identify relevant stakeholders to coordinate and lead platform activities Organise meetings with key stakeholders to strategize the RIU exit Engage identified stakeholders in all platform activities to facilitate smooth transfer of the platform 	A final meeting to phase out mechanisation activities in Morogoro region was held between the programme team and eight district mechanisation officers. The programme handed over mechanisation activities to district mechanisation officers who are also district champions. Mechanisation officers had already integrated some of RIU initiated activities into their district plans. i.e. (a) Mobilisation for bundling of demands and supply of mechanisation services was continuing under similar initiatives (Block Farming) planned under FAMOGATA and Kilimo Kwanza at district levels. In all districts mechanisation officers continued to link stakeholders and lead coordination of activities using the same networks created by RIU i.e. clusters of farmers and tractor owner unions within the districts. (b) Mvomero district added training programmes for tractor owners and operators to its district agricultural plans. (c) Mechanisation officers continued with the role of linking stakeholders - farmers, tractor owners, input suppliers, extension workers and spare parts dealers – as part of their daily activities.	

2.3 INFORMATION AND COMMUNICATION ACTIVITIES

In this area the programme planned to design and test a business oriented information generation and dissemination system for brokering linkages between providers of agricultural information and knowledge; users; and intermediaries. The main purpose was to improve exchange of agricultural information between information sources and targeted end users; and at the same time experiment and learn how availability of information can stimulate and support demand and use of information and technologies to unblock agricultural system challenges. The system was expected to be linked to information bottlenecks that are present within the two key areas (poultry & mechanisation) as well as other information access bottlenecks within the agricultural sector. Through the system the program planned to experiment on generation and validation of content; repackaging content into forms that can be easily used by target groups; facilitate dissemination and uptake of developed print and electronic information by other stakeholders through other channels like, newspapers, newsletters, TV and radio programs, mobile

web, spoken web etc,; and facilitate uploading of all developed content to a reliable website for further reference by other actors including extension workers, media, general public, etc. The program took the coordination, facilitation and brokerage role in the system. During a country programme review meeting with Central Research Team (CRT) members, it was agreed that the program will develop and test the system but RIU will fund the first round (until June 2010) to get the system off the ground, then a mechanism for supporting the system – possibly through the private sector – should be put in place.

Output 2.1: Functional AGRO-INFO-COM system has been developed through a Public-Private-Partnership				
Sub-	outputs and activities undertaken and/or changes in activities	Status	s of achievement: deviations and reasons for deviations	Management decisions and strategic direction taken that affected the project outputs
1. §	 a. Engage consultants to develop a business plan for the system and share it. b. Identify and sensitise relevant stakeholders (individuals or institutions) to be part of the content development team in the context of DFID's RNRRS outputs c. Organise meeting with identified stakeholders and discuss their roles in the system d. Develop Terms of Reference for content development team e. Develop a team for content validation f. Identify funding mechanisms for content development and agree upon among the interested public and private parties 		Identified and mobilised relevant stakeholders: The programme supported and funded processes to identify and mobilise relevant stakeholders who can develop content, repackage information for use in different medium and disseminate information to targeted users. Names and contacts were obtained and were used to invite stakeholders to a brainstorming meeting.	Following a series of RIU reviews, the programme had to put on hold Info Comm activities from May 2009 to October 2009. Thus implementation and further consultation with stakeholders (especially those who could fund the system) was postponed.
2. 5	 g. Identify potential funders and organise meetings to discuss funding possibilities b. Develop memorandum of understanding and commitments a. Agree on working modalities and timelines for activities with content developers b. Identify priorities of each agro ecological zones and/or commodity c. Select agro-ecological zone to pilot the system and commodity to be piloted d. Link with the selected team to develop content for identified commodities e. Select sources of information for content generation (RNRRs, NARs etc) f. Synchronise content by season Develop and validate information packages (content) based on priorities in each agro-ecological zone and/or on selected commodities 	b. (Organised the first brainstorming meeting: All identified stakeholders were contacted and invited to a preliminary brainstorming meeting in May 2009 for system's analysis as well as developing a framework for the system's operation. Private sector stakeholders showed interest and were willing to participate in the system if content is reliably generated. The main output of the brainstorming meeting was a first conceptual framework for setting up the system. The conceptual framework divided the system into three subsystems (content generation, repackaging and dissemination) and identified roles and tasks for each sub-	After the review results the programme conducted an internal review meeting to determine how the system will be set up, at this point the decision of selecting a consultant(s) to thoroughly analyse the agricultural information sub- sector and develop a detailed concept note and business plan for the system came up. This was based on the need to get a much detailed analysis and design the system to address the identified challenges.
F		S	system.	

Output 2.1: Functional AGRO-INFO-COM system has been developed through a Public-Private-Partnership			
Sub-oi	utputs and activities undertaken and/or changes in activities	Status of achievement: deviations and reasons for deviations	Management decisions and strategic direction taken that affected the project outputs
a. b. c. d. f. g. h.	Identify relevant stakeholders and establish a competent team (including mass communication specialists, journalists, documentalists, graphic and layout designers, printers, photographers, cartoonists, translators, webmasters, etc.) responsible for re- packaging validated content Invite stakeholders to a brainstorming / introductory meeting Develop Terms of Reference for information packaging and brokerage Agree on working modalities and coordination of activities within the sub-system – including selecting activity coordinator for the sub-system Funding mechanisms for repackaging content developed and agreed upon by interested public and private parties Identify possible financers from the private sector and organise a meeting to present the concept Repackage developed content into different forms that can be accessed and used by target groups At least 10,000 copies on 1 theme has been designed and printed ready for dissemination	c. The programme planned for implementation and further stakeholder consultation (specifically those who could fund the system) to begin by June 2009. However, this was not possible due to a series of RIU reviews. All activities were therefore put on hold until October 2009, when the programme received review results.	
3. Su ag <u>Pla</u> a. b. c. d. e. f.	b-output 2.1.3: A functional community-led system for disseminating and communicating ricultural information developed anned activities Relevant stakeholders responsible for disseminating re-packaged content identified and sensitised Terms of Reference for information dissemination developed Teams responsible for dissemination at national, village and household levels established Identify all dissemination points / outlets Establish a private sector managed website that is owned by the government to up load the content developed. Identify potential actors to develop and manage the website, including content and structure; select one stakeholder to handle web-development; Organize meeting with the selected company and develop plan: Establish terms for website management: Upload all content developed in the website and update it on daily basis Disseminate at least 10,000 copies of one theme through local institutions		

Output 2.1: Functional AGRO-INFO-COM system has been developed through a Public-Private-Partnership				
Sub-ou	itputs and activities undertaken and/or changes in activities	Status of achievement: deviations and reasons for deviations	Management decisions and strategic direction taken that affected the project outputs	
g. h.	Share and disseminate repackaged / developed content through different channels like Nokia managed XL Browser SMS facility, (ii) Community radio international program, (iii) Tanzania Broadcasting Corporation (TBC), and (iv) Local FM radios and District based TV station Sensitise & publicise information dissemination channels to the public			
i. j.	Work with platforms to publicise availability of information and distribution channels. Engage platform mobilisers and facilitators to publicise available information and distribution channels. Identify different medium and use them to publicise information available and distribution channels At least 5 poultry technology and entrepreneurship skills disseminated in five schools in each district. Identify schools with interest to learn and potentials to acquire basic poultry technology skills. Develop simple literatures and self explanatory books most pictorial stories. Disseminate in the schools and find methodologies to collect feedback on their usefulness			
 Issuart aguno 5. Scr 6. Org con 	ue a public call for expression of interest for consultants/organisation to analyse the ricultural information and communication situation in Tanzania and develop a concept te and design the system based on the findings reen and select consultants/organisation to handle the task ganise meetings with consultants/organisation to agree on working modalities and ntract them to begin the work	The programme resumed info-comm activities in November. In December 2009, the programme issued a public call for expression of interests to develop the concept note and design the system (business plan). The call was distributed through mailing lists and was published in three newspapers in December 2009 and January 2010. Until the deadline, the programme received only 9 responses. The response was generally poor.	After several attempts to recruit consultants/organisation to develop the concept note and design the system failed, the programme management called off the search and decided to develop the concept note internally based on information challenges in poultry; test the system and	
(Note that these activities were added after the review results and after an internal programme review meeting as indicated above)		After the deadline, the team conducted an internal screening for received expression of interests. Out of the 9 expression of interests, only one submission from Techno-Brain consultants fully captured the concept. Challenges from submissions 	continue to develop the system's framework based on the lessons.	

Output 2.1: Functional AGRO-INFO-COM system has been developed through a Public-Private-Partnership			
Sub-outputs and activities undertaken and/or changes in activities	Status of achievement: deviations and reasons for deviations	Management decisions and strategic direction taken that affected the project outputs	
	 Apart from Techno-Brain, the rest of the submissions were too theoretical, they lacked the practicality of a simple system and a business sense. Most submissions were based on expectations of donor funding for operations and would therefore result into the system failing to self-finance and operate itself in absence of donor funding. Most budgets were too high, ranging between USD 30,000 for development of concept note alone to over USD 10,000 for developing both the concept note and the business plan. Time for completion of the task was also too long, most consultants proposed between two to four months. In February 2010, the programme invited Techno-Brain to present a detailed plan and budget for the assignment. Although the plan was satisfactory, the budget i.e. USD 30,000 for developing the concept note alone was beyond the programme allocated budget for the overall task. Discussions to negotiate reduction of consultancy fees were not successful, hence the programme decided to drop Techno-Brain and proceed with the second best submission from the Management Development and Consultancy Bureau - University of Dar es Salaam Business School. The aim was to clarify the task and provide them with detailed information for 		

Output 2.1: Functional AGRO-INFO-COM system has been developed through a Public-Private-Partnership			
Sub-outputs and activities undertaken and/or changes in activities	Status of achievement: deviations and reasons for deviations	Management decisions and strategic direction taken that affected the project outputs	
	 revision of their proposal to reflect RIU's expectations. Experiences and challenges After the first meeting, the consultants revised their proposal. However, the revisions did not reflect changes that the programme required. Therefore a second meeting was called to clarify requirements especially capturing the business and self-financing capacity of the system. Consultants revised and resubmitted their proposal which still did not reflect the concept that the programme is looking for. By the end of April, the programme decided to call off the search, and develop the concept note internally based on information challenges in poultry. 		
 Develop the concept note internally based on information challenges in poultry Identify and contract consultants to develop the content Develop the first content for dissemination 	Concept note for the system was developed based on information bottlenecks in the poultry subsector – specifically access to right information on poultry disease management and control. The system was formed and linked as an independent part of KukuDeal to ensure its continuation upon RIU's exit. The system was expected to work as a main channel of new information and technologies and continue to coordinate all information related activities; identify and synthesise information bottlenecks and seek appropriate solutions from stakeholders; coordinate content production, repackaging, distribution and facilitating dialogue around the produced information to stimulate its use.	The programme decided to form and link the system as an independent component of KukuDeal to ensure its continuity upon RIU's exit.	

Output 2.1: Functional AGRO-INFO-COM system has been developed through a Public-Private-Partnership			
Sub-outputs and activities undertaken and/or changes in activities	Status of achievement: deviations and reasons for deviations	Management decisions and strategic direction taken that affected the project outputs	
	meeting was held to discuss and agree on content requirements. The first draft of the "National Guideline for Poultry Disease Management" was produced. Two technical consultative meetings were organised to review the content. The meeting included a larger group of poultry professionals. The review resulted into additional comments and finalisation of the English draft. The English draft was translated into Kiswahili (since it is the major language used by farmers and other producers). The Kiswahili draft was finalised.		

3. PARTNERSHIPS

Originally the programme's plan was to identify and link stakeholders through innovation platforms. It was anticipated that through their interaction, different partnerships will be formed to deal with system challenges in different value chains. However due to low capacity (financial, technical, organisational etc...) of most stakeholders in the platforms, most partnerships were identified, initiated and facilitated by RIU. In a few cases (e.g. hatcheries and egg producers) partnerships were initiated by stakeholders. In all activities, partnerships and linkages among stakeholders were formed on a needs basis. As implementation continued, and partnership networks grew, the programme promoted open-ended partnerships where partners could join and leave activities based on the needs and relevance at the time or based on their capacity to deliver what was needed by other stakeholders. Since the system was being built, some partners freely left activities as they became irrelevant, others dropped or were dropped by stakeholders due to capacity problems, efficiency, poor quality, problems in their own management. New partners continually joined activities as their services or expertise was needed. In some cases, partners that left rejoined activities after they adjusted their capacity (especially in input provision).

The changes in the way partners interacted caused the platform structure and concept to slowly dissolve until it naturally disappeared and partners continued to identify themselves through their informal local networks rather than a regional or national platform. This occurred mostly in poultry activities. Compared to platforms, the smaller local informal networks were easier and cost effective to manage, both for the programme and the stakeholders. The programme focused its attention on implementation, monitoring activities and collecting lessons at the district and ward level.

The major success factor in this area was a combination of approaches in strengthening existing partnerships as well as developing new partnerships and linkages. The unusual step of promoting businesses and profitability in partnerships made it possible for partnerships to be revived, emerge and continue. The "creation of business" approach rather than the long-established "non-profit" approach was an important strategy to solve production and other challenges among smallholder rural farmers, hatcheries, inputs suppliers as well as traders. For instance, since farmers kept larger flocks of chicken, they were able to attract agro-dealers and traders, who knew that they would make money. This increased availability of services and inputs which has helped to speed up the innovation process. In addition, the open ended approach to partnerships provided flexibility, accountability, and efficiency to respond to changing needs.

Presence of RIU as a neutral central stakeholder who brokered, negotiated, linked, funded and shared knowledge with partners created an enabling environment for partnerships and linkages to be formed and develop along the entire value chains. Because of its capacity, the programme was also able to initiate and manage multiple partnerships at the same time to deal with different challenges in both poultry and mechanisation. This ensured that even in cases where stakeholders were unable to form partnerships, RIU could initiate and manage those partnerships, while stakeholders gained enough capacity or position to take them over. More often, RIU contributed to capacity development of one or more stakeholders in order to strengthen their position to allow for more equal partnerships. Since most stakeholders were small-scale, it was necessary for some partnerships to be managed through a central hub i.e. RIU. This proved to be very efficient in cases where one stakeholder has to deal with or provide services to many stakeholders that operated individually and were not organised enough e.g. one hatchery serviced over 500 smallholder farmers. This also ensured that the smaller stakeholders in the chain e.g. farmers were able to better identify themselves through the central hub e.g. RIU, since there was transparency, trust, and coordinated dialogue around problems and operations. As a result of these factors, most partnerships were informal - based on verbal agreements (no formal contractual agreements) with an exception of contract farming.

4. POLICY AND PRACTICE CHANGES

Key policy makers and policy influencing groups in agriculture and livestock sectors include the Ministry of Livestock Development and Fisheries; the Ministry of Agriculture and Cooperatives; the Parliament; and the National Livestock Research Institute. The programme organised field visits, round table meetings and submitted progress reports to policy makers at different levels to engage them and inform them of programme activities.

The programme has previously engaged with the Ministry of Livestock Development and Fisheries to work on waivers for import tax for breeding machinery. Breeding machinery was not included in the list of exempted agricultural inputs as required in the current procedures. This matter was first communicated to the Ministry's representatives through a roundtable briefing meeting on the programme's activities in the poultry sub-sector. The Ministry followed up with relevant government department and within a few months, the parliament passed a ruling to exempt import tax for incubators and other hatching machinery.¹⁷

The ministry has also worked with the programme to introduce RIU supported hatcheries and farmers to the new Animal Diseases Regulation for Hatcheries and Breeder Farms. The ministry was prompt to respond to the request by the programme. However, none of the stakeholders' comments could be used to amend the Regulation. The ministry's poultry division is currently collaborating with RIU supported hatcheries in the process of enforcing the new Regulation. The increased number of stakeholders in the poultry sub-sector as well as increased production scales has made it necessary for the government to closely enforce relevant regulations for disease control. On the other hand, local chicken breeders and hatcheries are in the final stages of creating their formal association. It is anticipated that as the sector expands, breeders and other stakeholders will need a formal organisation that can engage with the government in dialogue, policy and practice matters.

In addition, being aware that the poultry sector is now a promising economic sector and the challenges in faces, the government is in the process of developing quality standards and regulations for manufacturing poultry feeds, traceability and animal welfare. The government also considers the development of a National Strategic Plan specifically for development of the local chicken sector which will replicate the approach employed by RIU to other areas in the country.

At the district, ward and village level, the government extension workers are more and more engaged in providing advisory services for poultry keepers. This is influenced by the increased numbers of poultry in their areas as well as the growth of farmers from small (between 1-100 chickens) to medium scale (between 150-500 chickens). Before the RIU intervention more focus was given to provision of advice for large stock keepers (cattle, goats, and sheep) and crop farmers.

In research practice, the programme's efforts to lobby and push for a national perspective towards characterisation of indigenous chicken breeds, resulted into development of a proposal to carry out a study to characterise indigenous chicken breeds. The proposal was developed by the National Livestock Research Institute (NLRI) and has already been submitted to the Tanzania Commission for Science and Technology (COSTECH)¹⁸ for funding. The institute plans to breed and select the best indigenous chicken breeds which can

 $^{^{\}rm 17}$ Reference: PDF file in Kiswahili: Tanzania Budget 2010-2011 Page 50 (ix) and (x)

¹⁸ COSTECH is now responsible for the implementation of activities under the government green revolution framework known as KILIMO KWANZA (Agriculture first) Pillar 8 whose objective reads; "Agricultural research and training institutions to effectively utilize the Governments allocation of 1% of GDP to research and development".
be promoted for commercial production (eggs and meat) and promote their availability and multiplication through establishment of parent and grandparent stock farms. RIU through MUVEK was listed as one of the major collaborators in utilising the results of this study through the production system it has created (i.e. farmers, egg producers, parent and grandparent stock farms and hatcheries). The outputs of the research will solve a major challenge (lack of characterisation and parent and grandparent stocks) in the indigenous chicken industry in Tanzania.

Training institutions are also responding to the growth in the subsector. The Open University of Tanzania has introduced a Diploma course in poultry to cater for the increased needs in the subsector. An organisation such as the Tanzania Social Action Fund (TASAF) has adopted RIU's scale i.e. distributing a larger number of chickens – up to 100 to farmers. The Fund hasn't however gone beyond to broker or provide other services for farmers as it was done by RIU.

In mechanisation, all the four District Councils in Morogoro region integrated some of RIU's activities into their district plans upon phasing out of the programme. The district councils and mechanisation officers are now directly engaged in mobilisation and organisation of farmers, tractor owners and other input suppliers under the bundling of demand and supply concept. Training programs for tractor owners and operators were also being incorporated in district agricultural plans. District councils are now focused more on working with the supply side (tractor owners) than previously when they were focused on working only with the demand side (farmers). Since mechanisation officers were platform champions and were leading all processes at the district and ward levels, they continued to implement most activities left behind as part of their duties. In addition, the same networks of farmers and tractor owners that were created during RIU are being used by mechanisation officers to facilitate the implementation of complementary initiatives (Block Farming) planned under FAMOGATA¹⁹ and KILIMO KWANZA²⁰ initiatives at district level. The thinking approach to promoting access to mechanisation services has also changed from increasing its use to lowering costs through bundling of demands and block farming.

¹⁹ FAMOGATA (Fanya Morogoro Ghala la Taifa) acronym for Make Morogoro the National Granary

²⁰ KILIMO KWANZA (Agriculture First) – a national green revolution framework

5. ORGANISATIONAL AND INSTITUTIONAL CHANGES

5.1 FORMS OF ORGANISATIONAL AND INSTITUTIONAL CHANGES

TRANSFORMATION OF THE LOCAL CHICKEN INDUSTRY

Before 2008, the Tanzania indigenous chicken industry was not well organized. It had no significant commercial value; it was not attractive for private sector investment; and was not viewed as a commercial activity that can improve rural livelihoods. The number of chickens raised was very small and transactions in the industry were limited, informal and not recorded. The introduction of RIU interventions resulted in the transformation of the industry to a viable economic activity that is boosting household incomes and building business networks that include local and smallholder producers. The number of chickens produced as well as production cycles per farmer have increased and triggered a business sense in the industry. As a result hatcheries, drugs and feed suppliers have increased and improved their production and supply to respond to these new business opportunities. Transactions along the value chain have also been formalised and have increased as a result of increasing rural producers. The poultry sub-sector now offers income security for a range of stakeholders. Rural farmers are able to produce up to 200 chickens three times a year, earning an additional annual income of approximately TZS 900,000/- (about \$600 for 200 chickens) just from their chicken enterprises. One of the institutional factors in sustaining this new promising economic reality in the poultry sector is the increasing capacity of farmers to influence the business processes by engaging in partnerships and using their newly acquired negotiation and entrepreneurial skills.

NEW MARKET SYSTEM

Major changes have occurred in the indigenous chicken inputs and outputs markets. Changes in the market have occurred due to the demands that were present and that were created at different levels in order to make the chicken industry more self-driven and market oriented. For instance the high consumer demand for local chicken in urban markets made it necessary for introduction of new production scales and improved techniques at farmers' level. The increase of chicken production at farm level (from 10 to over 100 chickens per farmer) necessitated investment in hatcheries for production of Day Old Chicks (DOCs). As production and number of rural farmers increased, the supply system for support services and inputs (drugs, feeds, vaccines and advisory services) developed to respond to the rising demands. At the same time that the chicken industry was catching up, KukuDeaL was created to deal with trading linkages in urban areas as well as sort out production challenges at farm level through contract farming. As a result of the coordinating and operations at different levels of the value chain, a well defined market system for inputs and outputs has evolved in the subsector.

NEW FORMS OF FINANCING AGRI-BUSINESSES

New financing mechanisms were developed by RIU to provide security and allow several stakeholders to invest in their new as well as existing agri-businesses. This played a critical role in the success of the development of the poultry sub-sector. Smallholder farmers were able to access flexible and interest free loans through a contract farming system. Farmers' loans were provided in terms of inputs (chicks, feeds, drugs) rather than cash and were paid back after farmers made their sales. In addition, KukuDeal made guaranteed arrangements to buy all chickens from farmers upon maturity, thus reducing farmers' repayment risks and securing their incomes.

At the hatchery level, soft loans were provided through RIU for expansion of production. These were paid back in terms of chicks to farmers. Besides the soft loans, the guaranteed demand and sales of day old chicks through KukuDeal contracted farmers trigged the production of more chicks by hatchery owners. The guaranteed demand and market stimulated investment by hatchery owners in improving and increasing their hatching capacity and quality of chicks. The same occurred for feed and drugs suppliers.

The contract farming system created two major advantages for producers and input suppliers in the value chain. They all had a guaranteed market for their products and they got access to relatively large amounts of cash at the time of selling. This financing mechanism temporarily reduced the level of risks for farmers, hatcheries and input suppliers in the value chain. All risks were initially absorbed by RIU and KukuDeal as they took the financing and operational roles in the value chain. This is among the major factor that allowed the sub-sector to take off on a commercial basis. However, the emerging KukuDeal is faced with the challenge of continuing to finance its processes as it waits for other investments in the value chain to mature.

In mechanization activities, new financing arrangements were also developed. New pricing mechanisms for hiring mechanisation services were created by organising farmers and tractor owners. Through joint meetings, price calculations for different acreage were prepared as a basis for price negotiation. Tractor owners were eventually able to have transactions with individual smallholder farmers, but the fact that smallholder farmers became better organised provided the possibility for accessing mechanisation services on a credit base. They could either make an agreement with the tractor owner for payment at harvest or the group could provide a credit to the farmer, with his harvest as collateral. This system was nonexistent before RIU.

OLD STAKEHOLDERS & ORGANIZATIONS DOING NEW ROLES

The boost in the local chicken industry resulted in a revival of the extension system to support farmers. As the number of small poultry keepers increased, so did the demand for more knowledge. At the same time, the number of extension officers at district level was too limited to deal with the increased demand for advisory services. RIU engaged private household advisors to provide initial advisory services to smallholder farmers under the umbrella of the extension officers. Household advisors hold a certificate in poultry management but were not utilised through the government extension system, since they did not meet the minimum qualification requirement (diploma in poultry management). The use of household advisors in rural areas where there is weak extension system enabled the programme to reach out to more farmers, train them for a longer period of time (30 days) and satisfy their knowledge and capacity development demands. In areas where the government extension system was working well, district councils as well as ward and village extension officers were involved in the new role of coordinating inputs supply and providing advisory services to poultry farmers. Since poultry keeping was previously done at a very subsistence scale, extension workers mostly provided advisory services on crops and large animals like cattle and goats.

While the poultry sub-sector continued to pick up, more agro-shops, veterinary drug stockists and large scale suppliers such as Bytrade started working directly with smallholder poultry farmers; providing training and product demonstration services. Previously, most of these input suppliers worked with medium and large scale crop farmers or large-stock (cattle, goats, and sheep) keepers. The growth of hatcheries and other producers has made it necessary for the Ministry of Livestock to work closely with hatcheries to enforce the new Regulation for Animal Diseases for Hatcheries and Breeding Flocks.

The increase in poultry population has made it necessary for the government to increase its levels of vaccine production and take up new roles such as hatchery inspection to ensure compliance with regulations. The Animal Disease Research Institute is working directly with District Agricultural and Livestock Development Officers in vaccine delivery and distribution to farmers. Poultry drugs and vaccine importers are increasing the volumes of imported inputs while introducing new products to meet the new demands.

In mechanisation, district mechanisation officers who were also platform champions took up the coordination roles that were previously handled by RIU. Upon phasing out of RIU activities in Morogoro region,

mechanisation officers had integrated some of the activities that were implemented by RIU in their district plans. They are now engaged in mobilisation and organisation of farmers and tractor owners in order to facilitate accessibility and affordability of mechanised services. Mechanisation officers are using the same networks of farmers and tractor owners that were created through RIU's initiative. Tractor owners are increasingly working with smallholder farmers to provide mechanisation services compared to previously when they worked with medium and large scale farmers.

NEW STAKEHOLDERS & ORGANIZATIONS DOING NEW ROLES

In 2008, RIU was a new stakeholder in the poultry sector. RIU has now demonstrated the importance of having an innovation broker in the poultry value chain ready to solve different kinds of bottlenecks. Because of its brokering role, RIU has been able to establish necessary infrastructure to stimulate efficient private and public sector engagement in the indigenous chicken industry. RIU's activities resulted in the creation of networks of poultry farmers which are better organised for inputs and service provision, capacity development as well as influencing policy and practice processes in the sub-sector. Indigenous chicken hatcheries were transformed both in numbers and capacity. Prior to RIU's, hatcheries produced low quantities of chicks to satisfy their own demands and they were not linked with other stakeholders in the industry. The indigenous chicken hatcheries have now been transformed into organisations dealing with large chicks demands and their number has increased from just 4 to about 13 hatcheries in three regions. Growth of hatcheries stimulated emergence of new stakeholders such as parent stock farmers and specialised egg producers who are working and linked with hatcheries to supply parent stock and fertilised eggs for hatching. At an institutional level, KukuDeal has evolved as a new stakeholder that is handling different linkages around the value chain. As chicken production increased new stakeholders in production such as Nzua Enterprises have emerged. Transporters are also playing new roles in transporting chicks and matured chickens to and from farmers. New niches in feed production have emerged, for instance, due to demands, Dina Farm (a feeds producer) set up a new line producing breeders mash for hatcheries and alternative low-cost feeds for farmers.

The increase of actors in the poultry sub-sector and its commercialization has resulted in the Government engaging stakeholders to promote *poultry societies* that are organized enough to work with the Government to resolve the challenges of the poultry sector. The hatchery owners and other stakeholders are underway to register the *Tanzania Breeders Association* and the *Tanzania Poultry Association* respectively these will all be established to lobby and defend the needs of stakeholders in the poultry value chain.

The establishment of local farmers' networks and unions of tractor owners has played an important catalysing function in agricultural mechanisation, leading to increased acreage and productivity. The organisation of farmers and the consequent bundling of farms have led to a significant decrease in mechanisation costs. At the same time, the organisation of tractor owners has led to improved and more reliable and timely service delivery. In addition, the organisation eased price negotiations and alternative forms of financing farmers' mechanisation needs.

NEW RESEARCH PRACTICES

Throughout its operations, the programme invested in improving utilisation of existing knowledge by establishing relations between different stakeholders, reviving and investing in private household advisors and government extension workers. The increased knowledge and skills of stakeholders played an important role in the innovations at farmer's level. By using improved poultry management systems, farmers have been able to improve the quality of chickens produced and to shorten production time from over 12 months in an extensive system to three to four months in a semi intensive system.

At the national level, major changes have occurred in research. The National Livestock Research Institute (NLRI) has developed and submitted a proposal to the Commission for Science and Technology (COSTECH) for

carrying out a study to characterise indigenous chicken breeds. This will be the first time that the NLRI has carried out such a study at the national scale. The breeds selected will be promoted for commercial production (eggs and meat) and multiplication through establishment of parent and grandparent stock farms. The outputs of this activity will solve major challenge (lack of characterisation and parent and grandparent stocks) in the indigenous chicken industry.

5.2 UNINTENDED CHANGES AND CONSEQUENCES

Originally it was expected that RIU will handle brokerage of activities in the indigenous chicken value chain and as the sub-sector grew stakeholders – mostly the private sector - will slowly pick up roles and the sector will operate on its own. This theory did not materialise since the subsector was still very fragmented and most of the stakeholders still don't have enough capacity to take over and continue to operate within the subsector independently. As a result RIU has been the main link in the system, coordinating all activities and taking most of the risks in funding and brokering. The programme also ended up doing the majority of logistical work including coordination of chicks and inputs supply, finding suppliers etc. This has resulted into increase in overhead expenditures to carry out the tasks but has also strengthened the quality of inputs and services provided since the programme was directly monitoring them.

6. LESSONS LEARNT

6.1 LESSONS

Lessons and approaches from RIU activities were shared at different periods during implementation with the Central Government, donors, research and academic institutions, other development partners, the media and the general public. In March 2011, the Country Coordinator shared RIU's activities and lessons through a briefing meeting with the President of Tanzania H.E Jakaya Mrisho Kikwete. Other stakeholders whom the programme has shared its experiences and lessons include the Permanent Secretary - Ministry of Livestock Development and Fisheries and heads of departments; Tanzania Agricultural Donor Group; the Irish Embassy; Sokoine University of Agriculture (SUA); Rural Livelihood Development Programme (RLDC); Regional and District Authorities; Organisations for the Disabled and people with special needs and the general public. The general public was informed mostly through a radio campaign, a series of TV programs and interviews, newspaper articles and RIU's website. The rest of the stakeholders were informed through meetings either organised by RIU or their relevant departments/units.

IMPACT ON POVERTY

For agricultural interventions to impact on poverty and offer income security for stakeholders they need to increase and improve the current scales of production, specifically of smallholder farmers. During its operation, RIU succeeded to build the necessary infrastructure and environment for the emergence and growth of rural agri-businesses. Through different mechanisms, the programme managed to successfully build the knowledge and production capacity of farmers; supported the development of privately owned medium scale hatcheries; worked with input suppliers and advisory service providers to reach rural producers; and helped smallholder farmers to do business with urban suppliers and markets and vice versa. As a result the indigenous chicken industry is now transformed into a significant economic activity. It is better organised with significant commercial value, it's attractive for private sector investment and is boosting incomes for smallholder rural producers. For instance, by radically up-scaling farmer's production, farmers became more attractive to private sector suppliers. Hatcheries, drugs, vaccines and feed suppliers saw the business sense in working with smallholders and automatically started to respond to new business opportunities in rural areas. Since there was a significant shift in their production capacity, farmers saw the economic value of their enterprises and they would also automatically seek services and knowledge on how to manage them. In mechanisation, as farmers put together their demands for mechanisation services they became more financially attractive for business with tractor owners and other service providers.

In addition to scale, a shift from complete 'non-profit' oriented activities to 'social business models' - *such as the KukuDeal contract farming initiative* – is necessary to overcome challenges in innovation systems and create some level of sustainability. Such social businesses have to be backed-up with higher levels of technologies even in rural areas in order to support the growth and transformation of agricultural production. Small-scale technologies that are both time and cost inefficient (e.g. natural breeding, the use of small kerosene incubators, small processing machines, small tilling machines etc...) are locking farmers and other producers in small unproductive cycles with outputs that cannot compete in any markets. Resources should be invested to promote and put in place technologies that are productive, cost and time efficient. Small producers in rural areas should also be linked and assisted to profitably work with stakeholders who use improved technologies in order upgrade their productivity.

SOCIAL INCLUSION

Solutions to overcome agricultural innovation challenges have to respond to the context in which communities operate. For RIU, a combination of factors such as, selection of indigenous poultry as the primary product; the use of household advisors; the use of local champions who are also farmers; implementation of the programme at district, ward and village level; and the financial support provided through interest free loans, ensured that all groups within the communities got a chance to participate regardless of their age, gender or availability of vast resources. In some cases, vulnerable groups were not outright involved from the beginning but efforts were made later on to engage them through their associations and networks. KukuDeal identified a number of Organisations for the Disabled, elders and people with special needs and held meetings which identified mechanisms for reaching such groups. KukuDeal signed contracts for poultry keeping with 285 households where a member was disabled, elderly or belonged to groups with special needs. This was used as an approach to help such households earn an income that can be directed to solving financial and social challenges that are associated with caring for people with special needs.

GENDER

An enabling environment has to be present to enable women to get involved in agricultural innovations. However, even when women are not able to out-rightly engage in certain activities, the innovation system has to be flexible enough to accommodate them once they are ready. The informal networks and partnerships (rather than formal groups) created by RIU at the local level provided such an opportunity. Women were able to join networks and start poultry keeping after they evaluated the benefits. This created a greater sense of ownership of their enterprises. On the other hand, using local female champions at the district, ward and village levels motivated other women to join the networks and start poultry keeping.

Participation and engagement in agri-businesses is dependent on the types of households that women come from. The types of households (e.g. polygamous, monogamous, female headed households) that women belong to, influence the ownership of the agro-enterprise, their ability to invest, decision making, sharing of income and labour. A key success factor in participation in activities was the household approach used by the programme to reach farmers. Using the household approach largely eliminated the resistance that might have occurred from defining the intervention as targeting a specific group (men, women or youth); especially in a Coastal community. The holistic approach to poultry keeping at household level ensured that it was perceived as a route to income generation for the whole household, thus participation was increased from both groups, roles were shared and conflicts and resistance was minimised. The choice of commodity (local poultry) ensured more participation by women, since poultry keeping did not require vast resources (e.g. land) that are mostly owned by men in rural settings.

To enable innovations along the whole system and not just for women, RIU ensured that the business principles and practices remained the same. The programme focused on addressing barriers to achieving those principles and practices among women instead of going backward and changing the principles and practices to fit their challenges. In addition the barriers were addressed as they arose instead of pre-determining them. Since most women are producers in rural systems, they suffer the most when innovation systems, on the other hand, when the innovation systems work, they benefit the most

LEADERSHIP

It is essential to have a central broker that can facilitate innovation processes; stand as a cross cutting innovation driver and uphold a wider sector/industry development vision; and work with various stakeholders to solve challenges that are blocking the realisation of such a vision. Through brokering, negotiating, linking, funding and sharing knowledge, RIU created an enabling environment through which innovations took place and social enterprises emerged. Flexibility in funding and in operations was a catalysing factor that ensured necessary solutions were explored and implemented. Flexibility in operations and re-planning whenever necessary was also necessary to reflect the new needs and new challenges on the ground.

SUPPORT BETWEEN PRIVATE AND PUBLIC SECTORS

Increasing farmers' access to farm machinery is very crucial in agricultural development as it enhances up-take of other technologies and innovations. However it is a multidimensional task that needs commitment and flexibility to pursue. While it is obvious that farmers need to mechanize certain tasks if they are to increase productivity and ensure product quality, the need has often been under supported by many development actors claiming it to be a private sector role. However, RIU has learnt that the private sector alone cannot solve the problem without receiving significant support from the public sectors. The private sector needs easily accessible financial services, business and technical skills, functional rural infrastructure, quality parts and machinery; quality, available and affordable fuel and lubricants; etc. All these are linked to farmers' productivity, but unfortunately not found in most typical agricultural development plans. Getting <u>able</u> partners to work with RIU in enhancing the private sector's capacity to efficiently provide agro-machinery services to rural farmers, has always posed great challenges. Hence more public support is needed to support the private sector if farmers are to mechanise agriculture.

6.1 ACTIVITIES AND CONCEPTS THAT HAVE NOT WORKED AS EXPECTED

Operating through Innovation Platforms and the National Innovation Coalition

The initial strategy for RIU was to enhance demand for and use of research outputs, new knowledge and technologies by supporting activities focused at improving the functioning of agricultural innovation systems. One of such activities was the creation of innovation platforms through which knowledge and technologies could be continually demanded and utilised. It was expected that through such platforms creative solutions (based on research outputs, knowledge or technologies) can be produced to solve system challenges. Under this concept, RIU supported the development and functioning of the Poultry (Entrepreneurship) and Mechanisation Platforms.

After a few months of operation, RIU revisited and revised its ideas concerning operations around the platform especially in poultry activities. Considering the marginalised and subsistence nature of the indigenous chicken industry, the programme had to abandon the idea that partnerships and activities had to revolve around platforms. Platforms became more expensive to maintain and platform meetings to do system analyses were too costly to hold. Some platform members just did not have the time to sit in platform meetings. Also in some cases, not all members of the platform were needed to debate and find a solution to a particular problem. For example, when there was shortage of indigenous day old chicks, it was practical for RIU management to issue a public call for supply of chicks from other producers than to have a platform meeting to get recommendations. As operations intensified, most challenges required spontaneous and quick solutions and, in such cases, operating around the platform philosophy was not practical.

Because of the above challenges and the fact that the indigenous chicken industry was just being built (hence the actors had very weak capacity), RIU focused on promoting and strengthening networks and linkages among stakeholders in the industry rather than "creating specific platforms". As a result, partnerships and linkages among stakeholders were formed on a needs basis i.e. who was needed at what time to solve what challenge. At the same time, the programme assumed the overall responsibility of dealing with all challenges at a subsector level. This meant that the role of the programme also shifted from facilitating emergence and functioning of platforms to brokering innovations and solving challenges around the entire value chain. This allowed the programme to effectively address issues stepwise, tackling smaller as well as larger issues within the main challenge. The shift in focus allowed a national perspective and approach to develop the poultry subsector.

Developing a public-private based information generation and communication system

The programme planned to pilot a business oriented information generation and dissemination system for brokering linkages between providers of agricultural information and knowledge; users; and intermediaries. The system's goal was

"To improve exchange of agricultural information between information sources and targeted end users; and at the same time experiment and learn how availability of information can stimulate and support demand and use of information and technologies to unblock agricultural system challenges".

The programme supported and funded processes to identify and mobilise relevant stakeholders who will directly perform various functions within the system. The programme took the lead role in coordination, facilitation and network brokerage within the system. The first brainstorming meeting was held in May 2009 with identified stakeholders and it resulted into the first conceptual framework for setting up the system. The framework divided the system into three parts responsible for content generation and validation; content repackaging; and content dissemination. Implementation of the system was planned for June 2009. However, activities were put on hold until October 2009 due to a series of RIU Reviews. After reviews, it was decided that the system will be tested until June 2010.

After resuming activities in November 2009, the programme through an internal review meeting planned to engage a qualified external team of consultants to thoroughly analyse the agricultural information subsector and use the findings to develop a concept note and business plan for the system. A public call for expression of interest was issued by the programme in December 2009. Responses were very poor, until the deadline the programme had received only 9 responses. An internal screening of submitted responses was conducted and only one submission fully captured the vision of the expected system. Most submissions were too theoretical and lacked practicality of a simple independent system that can generate business. In addition most budgets including the one from selected consultants were beyond the programme's budget for the activity and the time allocated for completion of the task was too long (between two to four months). Discussions to negotiate reduction of fees and time were unsuccessful. The programme explored an option of revisiting other submissions; clarified the tasks with interested consultants/teams and requested them to revise their concepts to reflect RIU's expectations. The re-submitted concepts did not meet RIU's expectations. By the end of April 2010, the programme decided to call off the search and develop the concept internally; test the system and continue to develop the system's framework based on the lessons.

The system started its operations in June 2011 and it was linked to information bottlenecks within the poultry sub-sector. It was formed and linked as an independent part of KukuDeal to ensure its continuation upon RIU's exit. The system was expected to work as a main channel of new information and technologies and continue to coordinate all information related activities; identify and synthesise information bottlenecks and seek appropriate solutions from stakeholders; coordinate content production, repackaging, distribution and facilitating dialogue around the produced information to stimulate its use.

By July, the programme partnered with consultants from the Ministry of Livestock Development and Fisheries to produce the first content. The first content was a 'Guideline for Management and Control of Poultry Diseases'. The English and Kiswahili drafts of the guideline have both been produced and are waiting final validation processes from Ministry representatives before they are made available to farmers and other users.

Use Journalism Students to Promote Dissemination of Knowledge and Technologies in Rural Areas

The programme planned to pilot the use of journalism students from the School of Journalism and Mass Communication to promote dissemination of knowledge and technologies to rural areas. The programme team had a brief informal meeting with representatives and a few students at the School of Journalism and Mass Communication to explore the possibility of working together to form a system for communicating available technologies and demands from the programme and farmers respectively through the School's owned and run media (TV, Radio and Newspaper). The programme's aim under this initiative was to promote the desire and build the capacity for journalists to communicate and cover more agricultural and developmental issues. The plan was to start with distribution of available information from RIU activities and later on move to other sources of agricultural information and technologies. A more concrete plan was expected to be drawn once the school year began i.e. November 2010. Due to limited time (January – June 2011) for operationalisation of this activity as well as failed attempts to meet with the School's leadership, the activity was cancelled.

Introducing Mobile Phone Banking Services for Smallholder Farmers

The programme planned to pilot the use of mobile phone banking service (Vodafone M-PESA) to enable farmers to pre-pay for advisory services and production inputs. The mobile money transfer service is already operating under Vodacom Tanzania, and provides users with simple, affordable, fast, convenient and safe ways to deposit, save and transfer money and pay for utilities and products through their mobile phones. Its use by rural farmers is however low because the nature of services required by rural populations is currently not well catered for. By introducing the service, the programme aimed to provide solutions to some of the bottlenecks related to credit and savings schemes and access to input supplies among farmers. Through the service, the programme hoped that farmers would have efficient, accessible, flexible and convenient means for safeguarding micro-savings, especially in cases where conventional banking services are not available: Prepay for veterinary services and inputs including drugs, feeds and chicks to assure access to services when required: and be assured of quality of inputs and advisory services from a reliable service provider. The programme implemented initial processes to set up collection accounts under KukuDeal and other inputs suppliers through which farmers can prepay for inputs and vet services. This concept was developed at the same time that contract farming was being introduced. As contract farming was operational and farmers could access inputs directly under the contract farming system, the mobile banking services became irrelevant, specifically the prepayment for inputs. In addition, as farmers finalized their production round under contract farming, they were paid in lump sums for amounts up to Tsh 800,000. This necessitated most of them to open bank accounts. Since the numbers of farmers were many, the programme asked for special assistance from the National Microfinance Banks within their districts. As a result of being under contract farming and having access to banking services the mobile phone banking system became irrelevant.

6.2 OPERATIONAL CHALLENGES

Feed Availability and Prices

Availability, quality and prices of poultry feeds were major challenges for farmers as well as the programme. Fluctuations in feed prices affected farmers' production costs. Feed prices increased during the dry seasons due to scarcity of major feed ingredients. The scarcity negatively influenced the quality of feeds. In some cases it created delays in feed manufacturing and delivery. Such delays interfered with distribution schedules to farmers where feeds were sometimes delivered late causing frustration among farmers. On the other hand, delays and made it very costly for service providers to service poor farmers in remote areas, hence it discouraged suppliers to work with farmers in such areas. The programme continued to identify and work with several manufacturers to overcome the problem and in some cases; loans were provided for purchase of ingredients for feed manufacturing to ensure that feeds were available when needed.

Poor Quality of Inputs and Advisory Services

The poor quality of feeds, drugs and vaccines also pose a significant challenge to producers i.e. hatcheries and farmers. The system for standards and quality control is very weak at the moment. As a result the market is overloaded with poor quality inputs. This largely affects the operations for producers. In some cases, farmers have lost their flocks either because of using poor quality drugs or vaccines; others have produced chickens that were below the market required weight due to poor quality of feeds and so on. The government regulatory systems are not organised enough to strictly control the quality of inputs that are entering the market. As a result, farmers, and hatcheries or in some cases RIU and KukuDeal have had to pay the price.

Poor Availability of Day Old Chicks

From November 2010, RIU replicated the poultry initiative in Singida and Dodoma regions. A few modifications were done in provision of advisory service. In these regions the district, ward and village extension officers took over the role of providing advisory services to farmers compared to Coast region where it was done by private household advisors. The nature of the poultry initiative (i.e. supporting development of profitable rural enterprises and the involvement of the local private sector in providing support services) allowed it to be easily replicated and scaled-up. One of the major challenges during scaling up was availability of day old chicks to meet farmer's demands. As a result, during out-scaling the programme could not roll out activities per region, and had to gradually roll out in each district. This delayed the time used to reach farmers.

Weak Systems for Advisory Services, Regulation and Disease Control

Support systems for inputs, disease control and advisory services were generally weak due to the small size of the chicken industry. As RIU introduced its interventions, the demand for such services and inputs boomed abruptly beyond what suppliers could deliver. This caused shortages of poultry drugs and some vaccines because the quantities that were imported by dealers were still based on old numbers. Moreover inputs dealers were still reluctant to increase their production or importation quantities at first fearing that the demand is only temporary.

As the initiative expands and more stakeholders join two main issues emerge. First is the ability to control and regulate the operations of the stakeholders to ensure that quality and quantity requirements are met. Until now, RIU and KukuDeal have been closely monitoring the quality of inputs, outputs and advisory services provided in the three regions. As the initiative expands, the question will be how to monitor such issues at a national scale. The second issue is availability of financial capital to support farmer's initial start-ups which are given in form of input loans. Each farmer requires a loan of about TZS 500,000/- (including overhead costs) to complete a production round of 200 chickens in four months.

Market and Marketing System

The market and marketing infrastructure for indigenous chicken is still being developed and organised. Before RIU's interventions, the market system was mostly informal, with fragmented input suppliers, traders and farmers. It has been a major challenge for KukuDeal and its buyers and traders to coordinate the market linkages in the urban areas. There are fluctuations in customer's requirements e.g. in terms of quantities, requirements i.e. either live or processed birds etc... While production at farm level is still being stabilised, it will take KukuDeal sometime to be able to effectively organise the urban markets for indigenous chicken and to meet the fluctuating demands.

Attitudes and Psychosocial Barriers to Innovation

The main constraint to innovation in different areas of programme intervention has been the limited or lack of motivation by farmers and other small producers to engage in or use new knowledge, methods, and approaches to improve agribusinesses. One of the major reason behind this constraint is the poverty which many times kept individuals occupied with survival strategies thus they kept postponing getting involved in collective marketing, entrepreneurship, self-organisation and increasing capacity and quantity of production.

Poverty is the main constrain because technology and new practices have a cost e.g. chicks, vaccines, feeds etc... These base cover costs have to be met before the farmer is able to innovate. In addition, negative attitudes and cultural behaviours which do not promote quick responses, competitiveness and achievement motives in the influence people against innovation especially in Coast region. Such issues delayed responses to interventions, crisis and in most of the cases a lot of time and resources were used by the programme to intensively mobilise and convince target groups to achieve buy in.

7. PROJECT BENEFICIARIES & SCALE ACHIEVED

The section below presents the number of direct and indirect beneficiaries and scale achieved from RIU's interventions between November 2009 and June 2011 for output 1.1 and between November 2009 and June 2011 for output 1.2 and 2.1.

Project Output	Output 1.1: A functional innovation platform has facilitated emergence and development of profitable poultry enterprises in Coast region hence the community's entrepreneurship capacity is enhanced.	Output 1.2: A functional innovation platform has enhanced farm productivity of smallholder farmers through increased access to and capacity to utilise improved farm machinery opportunities in Ulanga, Kilombero, Kilosa and Mvomero Districts in Morogoro Region.	Output 2.1: Functional AGRO-INFO-COM system has been developed through a Public-Private-Partnership	
Number & Type of Indirect Beneficiaries	 15,378 household members²¹ of farmers, hatchery owners, egg producers, feed producers, parent stock farm owner, VALEOs, household advisors, inputs providers, & transporters. 	 402 *6=2,412 household members of farmers, 216*6=1,296 tractor owners, 14*6=84 garage owners, 10*6=60 spare parts dealers and operators TOTAL = 3,852 	Not defined (The National Guideline for Poultry Disease Management has been developed but not	
Number & Type of Direct Beneficiaries	 2,384 farmers (poultry keepers) in Coast, Dodoma and Singida regions 13 indigenous chicken hatchery owners in Dodoma, Dar es Salaam, Coast and Iringa regions 25 producers of hatching eggs (out- growers) – 5 per hatchery 1 parent stock farm owner 5 feed manufactures 4 poultry drug and vaccine importers and suppliers 5 agro-shop owners in Coast region 40 household advisors 74 Village Agricultural and Livestock Extension Officers (VALEOs) in Dodoma and Singida regions 4 traders of indigenous chicken 3 owners of collection centres (holding centres) for indigenous chicken 1 processor for indigenous chicken 3 transporters of indigenous chicken and chicks, feeds and drugs 	 216 tractor owners and operators in 12 wards in four districts. (11 Females & 205 Males) 402 farmers in 11 ward centres in four districts. (131 Females & 271 Males) 40 farmers' representatives. (4 Females & 36 Males) 14 garage owners, technicians and spare parts dealers. (Males) 4 district mechanisation officers (Males) 1 agro-dealer in Ifakara (Male) 1 inputs supplier (Bytrade) 1 Spare parts supplying company and 2 Garage equipment supplying companies 	distributed to farmers due to budget constraints. Efforts to raise funds from the private sector to cover mass production and distribution of the guideline were unsuccessful)	
Male Beneficiaries (indirect and direct)	8,928 (1,393 direct beneficiaries + 7,535 indirect beneficiaries ²²)	2,477 (531 direct + 1,964 indirect)		
Female Beneficiaries (indirect and	9,013 (1,170 direct + 7,843 indirect beneficiaries)	2,043 (146 direct + 1,888 indirect)		

²¹ (Total Beneficiaries 2,563 x 6 (estimated number of households) = 15,378²² Sex ratio for indirect beneficiaries is based on a ratio of 96 males per 100 females. Found on Tanzania National Bureau of Statistics 2002 Census Results in Brief – Mainland at

http://www.nbs.go.tz/index.php?view=article&catid=57%3Acensuses&id=115%3Acbbara&option=com_content&Itemid=82

Project Output	Output 1.1: A functional innovation platform has facilitated emergence and development of profitable poultry enterprises in Coast region hence the community's entrepreneurship capacity is enhanced.	Output 1.2: A functional innovation platform has enhanced farm productivity of smallholder farmers through increased access to and capacity to utilise improved farm machinery opportunities in Ulanga, Kilombero, Kilosa and Mvomero Districts in Morogoro Region.	Output 2.1: Functional AGRO-INFO-COM system has been developed through a Public-Private-Partnership
direct)			
Total	17,941	4,520	
Please describe the benefits to the beneficiaries for example what was the impact/ result of having access to good quality potato seed have on the farmers in Gicumbe? Please try to quantify your responses, so use numbers, percentages etc. when describing the benefits.	 At household level 2,384 farming households in Coast, Dodoma and Singida regions have kept improved indigenous chicken as a commercial activity i.e. there are 2,384 commercial rural poultry enterprises that are operational. Farmers' scale of production increased from 1-10 to between 100 and 300 chickens. This has upgraded farmers from being small scale poultry keepers i.e. 1-100 chickens to medium scale poultry keepers i.e. 150- 500 chickens. The number of production cycles for each farmer has increased from 1 production in about 18 months to 3 production cycles in 12 months. 14,304 members²³ of the farming households have benefited from an increased income from the poultry activities. Their livelihoods as beneficiaries (family members) have improved from living under less than 1 USD a day to an additional annual income of approximately TZS 900,000/- (about \$600 for 200 chickens) from chicken enterprises alone Farmers and their household members have gained the following capacities Both technical skills and financial capacities to raise and benefit from around 200 chickens. To specify types of vaccines, veterinary drugs and feeds needed for the enterprise, and demand and pay for them from private service providers, To order and procure day old chicks from different hatcheries in the country, Sufficient knowledge, skills and management and general poultry feeding, disease control and management and general poultry husbandry, To produce or procure poultry feeds from different sources 	 216 tractor owners and operators in 12 wards in four districts were mobilised and introduced to the concept of bundling of mechanisation services. This has improved their operational efficiency and reduced operational costs incurred by servicing individual farmers. 402 farmers in 11 ward centres in four districts were introduced to the concept of bundling of demands for accessing mechanisation services. Farmers are aware of the service providers in their areas. The bundling of demand concept has enabled them to access and use mechanisation services since they are cheaper. Farming households in the four targeted Districts in Morogoro, have used mechanised services through tractor hire services and other modern farming tools as part of phasing out the hand hoe and drudgery in farming 40 farmers' representatives were trained on the types and use of farm machinery from land clearing, ploughing to post harvest. 14 garage owners, technicians and spare parts dealers have acquired new skills in technical and enterprise management. This has helped to improve service provision to farmers. Farmers have increased their acreage from 0.4 acre to between 1-4 acres. Costs for ploughing by tractors have been reduced from Tsh 50,000 to between Tsh 25,000 and Tsh 40,000 depending on the type of land and acreage to be ploughed to ease their affordability by farmers. 	Anticipated benefits to beneficiaries

²³ One household is estimated to have 6 members

Project Output	Output 1.1: A functional innovation platform has facilitated emergence and development of profitable poultry enterprises in Coast region hence the community's entrepreneurship capacity is enhanced.	Output 1.2: A functional innovation platform has enhanced farm productivity of smallholder farmers through increased access to and capacity to utilise improved farm machinery opportunities in Ulanga, Kilombero, Kilosa and Mvomero Districts in Morogoro Region.	Output 2.1: Functional AGRO-INFO-COM system has been developed through a Public-Private-Partnership
	 either from the market or from own sources. To speculate, approach, bargain and participate in the local chicken market at profit. To identify system blockages, search and apply innovative solutions to unblock them. At Service Providers level 1. There are 13 medium scale indigenous chicken hatcheries producing indigenous day old chicks where interested poultry keepers can order and buy chicks at anytime and at volumes they want. This is an increase of 11 hatcheries. Hatcheries production capacity has increased from 500-2000 chicks per week to 6,500-10,000 chicks per week to 6,500 mere stablishment of about 25 egg producers. 2. There is one input supplier (agro-dealer) in each of the five districts in Coast region servicing farmers at the district, ward and village levels. Their business volumes have increased with about 500 new clients in a district. 3. 2,384 farming households have access to extension services provided at household level for about 30 days continuously by experts deployed to live with the household members and give them practical training. 	 Farmers are aware of proper acreage measurements and are using them when hiring ploughing services. Farmers and tractor owners have a mechanism for communicating demand and supply of mechanisation services through the tractor union centres or representatives in each ward. In all program villages tractor owners and farmers are communicating and doing business together. All villages have the names and contacts of at least 10 reliable tractor owners that have made agreements with farmers for provision of ploughing services Tractor owners have formed four unions (organised groups) (one per district) for purpose of meeting the demand of services requests. Four mechanisation officers (one per district) have taken up the programme's activities and integrated them into district activities. 	
	At subsector level 1. Before 2008, the Tanzania indigenous chicken industry was not well organized. It had no significant commercial value; it was not attractive for private sector investment; and was not viewed as a commercial activity that can improve rural livelihoods. The number of chickens raised was very small and transactions in the industry were limited, informal and not recorded. The introduction of RIU interventions resulted in the transformation of the industry to a viable economic activity. Now there are defined producers		

Project Output	Output 1.1: A functional innovation platform has facilitated emergence and development of profitable poultry enterprises in Coast region hence the community's entrepreneurship capacity is enhanced.	Output 1.2: A functional innovation platform has enhanced farm productivity of smallholder farmers through increased access to and capacity to utilise improved farm machinery opportunities in Ulanga, Kilombero, Kilosa and Mvomero Districts in Morogoro Region.	Output 2.1: Functional AGRO-INFO-COM system has been developed through a Public-Private-Partnership
	(farmers, hatcheries, & breeding farms); system for provision of extension services and inputs and output markets. The number of chickens produced as well as production cycles per farmer have increased and triggered a business sense in the industry. As a result hatcheries, drugs and feed suppliers have increased and improved their production and supply to respond to these new business opportunities. Transactions along the value chain have also been formalised and have increased as a result of increasing rural producers. The poultry sub-sector now offers income security for a range of stakeholders. Rural farmers are able to produce up to 200 chickens three times a year, earning an additional annual income of approximately TZS 900,000/- (about \$600) just from their chicken enterprises.		
Have you conducted an impact assessment study? What are the main findings? Kindly attach a copy of the impact assessment report.	The impact assessment study has not been collected through monitoring and learning	n conducted. The above results are based	d on data that was continuous ne.
Evidence Index*			

*Make sure that all information provided here correlates with the evidence you have collected. Please include the evidence as separate attachments to this report and label the attachments appropriately.

8. SOCIAL INCLUSION & GENDER

8.1 STRATEGIES USED TO ENSURE INCLUSIVENESS OF STAKEHOLDERS

Poultry

When the programme started its activities in Coast region, the main focus was to work to enhance the entrepreneurship capacity of the poor. The selection of agricultural priorities to experiment on focused on selecting a product that will guarantee participation by all groups, regardless of gender, age, and availability of resources including financial and land. Indigenous chicken was selected for this reason. The programme focused its activities at the district, ward and village levels to ensure that all relevant stakeholders were reached and mobilised to participate. Through village mobilisation meetings carried out by the programme, input suppliers and champions, all stakeholders interested to engage in poultry keeping were registered. Through various platform meetings, selection of system solutions in poultry keeping were primarily based on concerns and challenges of poor farmers at the local level i.e. district, ward and village. The household approach used to enrol farmers into poultry keeping ensured that all members of the household got a chance to participate in activities, especially the learning on poultry husbandry at the household level.

Where needed, the programme provided appropriate support to ensure that vulnerable stakeholders are engaged in poultry keeping. For instance, the use of household advisors for 30 days onsite mentoring was a response to low and varying literacy levels among farmers; it ensured that every household including women and/or the handicapped who could not leave their homes to attend training elsewhere got the necessary practical training within their homes. The programme contributing a loan of 60% of the total cost for buying chicks ensured that even farmers who were unable to raise enough money at that particular time were able to buy chicks, raise them and repay costs after selling. Feeding equipment, learning resources such as poultry booklets, provision of initial input support of feeds, vaccines, and poultry drugs ensured that farmers were able to access important tools and inputs to enable them to innovate.

In order to ensure that proper housing does not become an obstacle to poor farmers, the programme selected and recommended a number of simple and cheap housing models. Every interested farmer was visited and advised on how best to come up with a good shed using what s/he could afford. This ensured that each farmer was assisted to build an affordable shed with proper size, aeration, free from leakages and as much as possible secured. The elderly were assisted by their fellow farmers. This process was very helpful in ensuring that nobody was left out.

Initiatives such the contract farming model system KukuDeal, provided easy access to affordable credit for starting poultry enterprises. Since most farmers could not meet the high requirements to acquire loans from banks and other credit institutions, the system provided an alternative route to acquisition of credit. Availability of ready wholesale markets provided farmers with assurance for selling their products. In particular, the market system that was pre-arranged by KukuDeal helped groups such as women, the elderly and the handicapped who didn't have enough capacity to source for urban markets and negotiate with traders. In some cases, special contracts were set aside, with different terms to accommodate the needs of single mothers, widows and other vulnerable groups.

Mechanisms such as the coupon scheme for feeds, vaccination and drugs ensured that all farmers were able to get the necessary inputs for at least a month and within that month they were trained on how to produce alternative local feeds, including breeding termites and maggots, planting cereals and green vegetables, and building larger but cost effective fences using cassava sticks to allow safe free ranging during the day in order to reduce feeding costs.

Supporting local entrepreneurs to set up supply systems up to the district level ensured that even farmers in the most remote areas were reached and had access to inputs. Provision of business and entrepreneurship training at the district level ensured that most poor farmers who lack such skills and motivation are able to get the necessary training that may help them to plan, budget and sustain their poultry enterprises.

The program used District champions who are also farmers to lead all processes at local levels. They were engaged in every step and they communicated with their fellow farmers for ideas and decisions on how to carry out different activities. Champions became a very important link between the programme and farmers; ensuring that the needs of the poor members of the communities were communicated to the programme. As champions continued to get exposure at district and national level processes and institutions, and as they continued to link with different stakeholder inside and outside their locality, they were more empowered and stood out as inspiration to other members of the community.

The programme held regular meetings at ward level for monitoring and training purposes. This ensured that all farmers within the ward were able to attend and present their opinions.

Meetings were organised with representatives of groups of people with special needs (elderly, mentally and physically handicapped). Through the meetings the programme and representatives out in place mechanisms for identifying and reaching households whose members belonged to a vulnerable group. In each area, the programme organised a specific intervention to reach vulnerable groups that were interested to start poultry keeping. These groups were provided with loans and full support (inputs and advisory) to enable them to run their poultry enterprises. For members that could not physically perform tasks, family members were asked to help. Options were provided for single mothers and physically handicapped farmers to hire labour for assistance. This was given in form of a loan which was deducted after sales.

Mechanisation

Mechanisation activities targeted smallholder rice and maize farmers. The main focus was to help poor smallholder farmers to access and utilise farm machinery and other technologies to increase their productivity. Smallholder farmers' incentive to mechanise and increase farm yields was mainly motivated by the desire to increase household income, household food security, and improve their standard of life. Selection of priorities during the regional meeting focused on solving challenges that affect the majority of poor farmers i.e. access to mechanised services. During systems analysis and selection of solutions, the programme ensured that simplest and most affordable solutions were selected to benefit the majority of poor farmers. It's for this reason that the programme opted to promote hiring of mechanisation services from existing tractor owners rather than mobilising farmers to acquire loans to buy farm machinery that they were unable to buy and don't have the technical skills and capacity to maintain them.

Awareness creation and mobilisation of farmers was conducted at the village level to ensure that all groups were reached with the information and were able to participate in the processes. On the other hand, sensitisation and discussions with tractor owners aimed at finding mechanisms for reducing ploughing prices for smallholder poor farmers. Facilitating availability of tractor hire services at the local levels, i.e. district, ward and village was introduced to ensure that all farmers were able to access the services when needed. Formation and selection of platform members ensured that there is enough representation of poor farmers so that their voices and issues were represented and addressed thoroughly during system analysis. Introduction of simplified weeding technologies such as use of herbicides provided relief for women who spend a generous amount of hours weeding the fields manually. In most rural settings weeding is done mostly by women and children.

9. EXPECTED AND UNEXPECTED OUTCOMES

9.1 UNDERLYING ASSUMPTIONS

Within 20 months of operation (November 2009 – June 2011) RIU has been able to completely transform the operations in the poultry subsector, specifically the indigenous chicken industry. The programme's initial assumption was that by commercialising and increasing farmers' production and unblocking challenges in the production systems, new knowledge, technologies and research will be demanded and used by stakeholders. This has proved positively in poultry activities. As farmers' scales were upgraded, so did the increase in use of improved methods for husbandry, feeds, vaccines, drugs, and business knowledge and banking services. This stimulated increased production in hatcheries, use of breeding knowledge and techniques to improve the quality of chicks produced etc... On the other hand, new products were introduced to cater for these new and emerging needs. Production of breed's mash was initiated by a feeds producer to service indigenous chicken hatcheries. Production of alternative feeds for the second to fourth month was introduced to help farmers' access feeds and improve the quality of chickens that reach the market. As the sector and actors were being transformed, partnerships were possible since most stakeholders and commercial opportunities were visible. However, the response from the financial sector (banks and other lending institutions) has not evolved as the programme imagined. The programme expected that as stakeholders grew, financial institutions will open up and accommodate agri-business stakeholders in provision of credit but their response was very low. When RIU was out-scaling its successful lessons interventions, there was an expectation that other organisations and partners in the development sector will adopt the lessons or approaches and collaborate in complementary activities. This was however not possible. Most organisations could not easily adjust their plans or explore and accommodate proposed interventions. This was mostly due to their systems i.e. more time was required to plan and integrate the proposed activities in their plans.

9.2 EXPECTED AND UNEXPECTED OUTCOMES

Shift in Programme Focus: The shift in programme focus as a result of the 2009 reviews created unexpected impacts for the programme. By focusing on fewer activities – i.e. mainly poultry – the programme was able to get closely involved in solving every bottleneck to enable the subsector to emerge successfully. The attention on a particular subsector and commodity pushed the programme to pursue a national vision for its development.

Increasing Farmers Scales: Increasing the number of chickens kept by farmers has been the major trigger in changes that have occurred around the poultry subsector. As more rural producers entered poultry keeping and increased their production to about 10 times, other support services mushroomed and grew to support the needs that were emerging from farmers. This triggered the growth and availability of services as well as inputs.

Investing in Private Hatcheries and Input Suppliers - The programme had no expectation of directly funding indigenous chicken hatcheries when it introduced poultry activities in Coast. The programme expected that there were enough indigenous chicks that were produced in the market and the major challenge was the demand. Once enough numbers of farmers were mobilised, it was discovered that the problem was in the supply of chicks. At the time none of the hatcheries met the basic conditions for accessing loans from financial institutions. This necessitated the programme to lend hatcheries in order to increase production of day old chicks. The availability of enough numbers of day old chicks has enabled the programme to reach more

farmers. This has also shortened farmers production cycles compared to cases when they have had to depend on natural breeding. Investing in hatcheries has resulted into their fast growth, from producing 500-2000 chicks per week to 6,500-10,000 chicks per week. Growth of hatcheries has also created emergence of other enterprises such as the out-grower schemes for hatching eggs and parent stock farms for indigenous chicken.

Use of Private Household Advisors for Provision of Advisory Services: As the programme introduced semiintensive poultry keeping all farmers expressed lack of experience in raising day old chicks. At the same time the extension services in Coast region were generally poor and the number of extension workers in the districts was not enough to deal with the increased demand for advisory services. This required the programme to look for alternative ways of providing advisory services to farmers. Conventional training methods through theory classes or farmer field schools could not meet the knowledge demands and fit into the different learning capacities of smallholder farmers, specifically women, who had other tasks including caring for families and tending their agricultural activities. RIU decided to employ a different approach to training. The programme decided to use certificate level graduates from a government vocational training centre (Kibaha Education Training Centre). These were trained in poultry husbandry and have sufficient handson experience in poultry management but are not immediately integrated into the extension system since they do not meet the minimum requirement i.e. a Diploma. These were termed as household advisors and were required to provide daily hands-on training at each farmers home for a month. This approach enabled the programme to reach out to more poultry farmers, staying with them for a longer period of time and satisfying their knowledge and capacity development demands.

Supporting logistical operations: As the programme implemented poultry activities it took more coordination and logistical roles than previously anticipated. Due to the low capacity of stakeholders in the subsector (since the subsector was just establishing itself), the programme has to assume logistical and coordination activities that could have been done by suppliers. This increased operational costs for the programme especially overhead costs. In all cases the programme had to go an extra mile and invest in feed production or purchase drugs and vaccines on credit to ensure that farmers had reliable supplies.

Poultry contract farming: RIU and KukuDeal implemented a contract farming system to support the growth of marketing system in the poultry subsector as well as of farmers and other stakeholders. The contract farming system was not previously planned. It arose later on during implementation. The system became necessary to solve production challenges among farmers (availability of inputs, credit, and production of better quality and more quantities of chicken. The system was also seen as an avenue to develop the poultry subsector especially the marketing system. Implementation of contract farming has resulted into increased production at farmer's levels, in hatcheries, in input provision and an emerging organised and integrated market for indigenous chicken. Through the scheme, KukuDeal has emerged as an institutional legacy that will continue to coordinate, link and work with stakeholders in the poultry subsector.

10. ANY OTHER COMMENTS

10.1 MEDIA COVERAGE

The programme organised a number of media appearances and coverage to communicate its activities to farmers, the government, other development programmes, agri-businessmen and women as well as the general public as presented on the table below.

Date	January 2011
Туре	Television
Station	ITV (Independent Television)
Notes	30 minutes evening TV programme
	Four appearances to introduce the RIU programme to the general public and other stakeholders, show case the programme's achievements and market RIU supported hatcheries.
Date	December 2010 - January 2011
Туре	Radio
Station	Clouds FM
Notes	Power Breakfast (morning show 6am - 9am) Jahazi (evening show 4pm - 7pm).
	RIU funded the media campaign to raise awareness of its poultry activities. Station national listenership of 12% (source: Clouds FM State of the Market). Available in 15 regions in mainland Tanzania. In Dar es Salaam the station reaches about 90% of people aged between 18-35 years (source: Synovate 2009 Media Survey)
Date	December 2010
Туре	A series of comics produced in Kiswahili based on stories from poultry farmers in Coast region by Tanzanian Zumba Pius
Titles	5 titles: Migodi ya Dhahabu; Inawezekana; Je wajua?; Maarifa; Danda Bora
Notes	Raising awareness of poultry husbandry and success stories from Coast region Audience: poultry keepers and other farmers
Date	18 December 2009
Туре	Newspaper
Source	The Guardian
Notes	RIU indigenous poultry project - commercialising indigenous chicken production. Featured, 1/8 of a page
Impact	The Guardian is the most widely circulating English language newspaper in Tanzania - positive coverage
Date	18 December 2009
Туре	Newspaper
Source	The African

Annex 8 Final reports from RIU Africa Country Programmes

Notes	RIU indigenous poultry project - commercialising indigenous chicken production. 1/4 of a page
Date	28 December 2009
Туре	Newspaper
Source	The Citizen
Notes	RIU indigenous poultry project - commercialising indigenous chicken production. 1/2 of a page
Date	24 December 2009
Туре	Newspaper
Source	Mwananchi
Notes	RIU indigenous poultry project, commercialising indigenous chicken production. 1/2 of a page
Date	24 December 2009
Type	Television
Source	ITV (Independent Television)
Notes	2 minutes on local news, 7pm

Annex 9 Business plan template for Best Bets

Research Into Use (RIU)²⁴

Business Plan Template

20th of October 2009

Introduction

This document is the template applicants should use to prepare a short business plan.

Please follow the structure and page restrictions presented here to ensure that your business plan meets RIU's submission requirements. Each section has a word or page restriction which is intended to help you bring out the key content and messages of your business plan. [However, you may include additional annexes as you think necessary.]

The template should be completed in Arial font, using a font size of not less than 11 point. The use of jargon is actively discouraged.

Business plans should be presented in MS Word format and should be emailed to Christine Wheeler (<u>c.wheeler@nrint.co.uk</u>) by midday on Friday 20th of November 2009. Receipt of business plans will be acknowledged.

Electronic submissions are sufficient - you do not need to post a hard copy of your business plan to RIU.

²⁴ Research into Use (RIU) is a DFID-funded programme aimed at catalysing agricultural innovation as a follow-up to DFID's £220m investment in the Renewable Natural Resources Research Strategy (RNRRS). It represents a shift in emphasis away from generating new knowledge and towards ensuring that existing research with potential is promoted and scaled up successfully to achieve lasting development impact.

A. Basic information

Title of your initiative:

Name(s) of consortium members:

Country / countries where proposed activities will be implemented:

Summary of initiative. This should describe exactly what you are intending to do and what you will deliver. In describing what you will do you should include a maximum of three quantifiable objectives. You should also articulate how your initiative will create a sustainable market for the inputs you propose and a sustainable market for the deliverables. (250 words max):

B1. Problem / target constraint to be addressed

Description of the problem/target constraint to be addressed by the technology / product you propose to produce, distribute and/or promote. Please state the pro-poor objective of the technology, and the estimated number of farm households potentially impacted by the target constraint in the locations where you plan to make the product available. **One half page max**.

B2. Opportunity to address problem identified

Description of the opportunity to address the problem identified – how will your initiative effectively sustain the value chain to which your proposal relates? You should also articulate why the opportunity you describe here has not received funding previously. **One half page max**.

C1. Technology / product – technical, regulatory and commercial

Please provide a brief technical description of the technology / product you propose to produce, distribute and/or promote. Please also state any certification or regulatory approvals achieved / to be achieved, and provide a summary of any commercialisation / licensing agreements for the production or distribution of the product that are being developed or are already in place. **One page max**.

C2. Estimated size of demand for the product / technology

Please provide a description of the potential size of the market / demand for the product / technology (i.e. the number farm household / other user you expect to adopt the product / technology). Please constrain your estimate by the budget (grant) available for production, distribution or promotion activities, and the assumed capacity for making the product available in rural areas (e.g. through agro-dealer shops etc, if relevant). **One page max.**

C3. Technology / product – cost and profitability

Within the scope of your initiative please state the expected unit cost of the product / technology at the point at which the farmer (or other user) buys / accesses it. Please also provide a brief analysis / description of the expected profitability of the product for each adopting farmer, showing a simple calculation of the expected input costs and output volumes and prices each farmer would need to achieve in order for the product to be profitable to adopt. In short, you should explain what incremental difference funding this initiative will make. **One page max.**

D1. Implementation activities and outputs

Please provide a description of the production, distribution, and/or promotion etc activities to be implemented using the RIU grant (and/or any other committed funding), and the expected outputs of each activity. This description should articulate how you will deliver on each of the objectives you specified earlier in the summary of your initiative in Section A. You should also specify your proposed exit strategy indicating how this venture may continue post RIU funding. **One page max**.

D2. Timing of activities and outputs

Please provide a Gantt chart showing the expected timing of the activities and outputs presented in the previous section to deliver on your specified objectives. A template is provided below (please delete the example contents below before completing)²⁵.

	Jan – Mar 2010	Apr – Jun 2010	Jul – Sept 2010	Oct – Dec 2010	Jan – Mar 2011	Apr – Jun 2011
Activities						
Activity 1: [name]						
Activity 2: [name]						
Activity 3: [name]						
Etc						
Outputs						
Output 1: [name]					31/3/11	
Output 2: [name]						
Etc						

At present, the RIU has funding until 30th June 2011. There is the possibility of an extension until June 2012 but a decision on this will not be made until June 2010. For the purpose of this exercise you should articulate your activities for the period January 2010 to June 2011.

²⁵ Please add / remove rows and columns to / from the template as necessary.

E. Role of consortium members

Please describe of the roles of consortium members by identifying which consortium member will perform each activity listed in the previous section. **One page max**. Please also provide summary CVs of the consortium members in Annex 1.

F. Budget forecast (financial proposal)

Please provide details of the capital and operating costs by activity (stated in the previous section), and by quarter. Please use the following table to present the financial information²⁶. If activities will be implemented in more than one country, please also present estimated costs per country. **Please present your budget forecast in GBP Sterling (£)**.

	Jan – Mar 2010	Apr – Jun 2010	Jul – Sept 2010	Oct – Dec 2010	Jan – Mar 2011	Apr – Jun 2011	Total Budget (£)
Activity costs							
Activity 1: [name]							
Activity 2: [name]							
Activity 3: [name]							
[]							
Management costs							
Total							

²⁶ Please add / remove rows and columns to / from the table as necessary.

G. Risks and mitigating strategies
Please provide details of any risks potentially impacting upon your proposed implementation activities and outputs, and the mitigating strategies you propose to use to manage identified risks ²⁷ . 250 words per risk and mitigating strategy max .
Risk 1:
Mitigating strategy:
Risk 2:
Mitigating strategy:
Risk 3:
Mitigating strategy:
Risk []:
Mitigating strategy:

Annex 1: Summary CVs of consortium members

Please provide summary details of the work experience and qualifications of the consortium members. **One page per summary CV**

 $^{^{\}rm 27}$ Please add / remove rows to / from the table as necessary.

Annex 10 The Independent panellists for the RIU Best Bets - Nairobi 2009

RIU has assembled a high-calibre group of independent panellists to review the short-listed proposals at the Nairobi Best Bets event. All are leaders in their respective fields and their individual skills and experiences are highly complementary.



Facilitator and chairman of the RIU Best Bets panel, **Muchuri Wahome** is the managing director of Deacons (K) Limited, the leading fashion chain store in the region, and a non-executive director of Scan Group, the largest marketing agency in East and Central Africa. In addition to a range of voluntary and leadership roles, he has also hosted a popular talk-show on Kenya television.



Judi Wakhungu is the Executive Director of the African Centre for Technology Studies in Nairobi, Kenya. Her research interests include science, technology, and innovation; agriculture and food security; biodiversity and natural resource management; energy and water security; and gender issues in science and technology. Judi serves on several national and international boards, task-forces, and committees including the

African Conservation Centre, High-Level Consultative Group (United Nations Environment Program– Global Environmental Outlook (GEO-4), the International Assessment of Agricultural Science and Technology for Development (IAASTD), Legatum Centre at MIT and the World Bioenergy Association.



Patrick Oketa is chief investment officer at the Kampala-based African Agricultural Capital (AAC). AAC is a venture capital investment fund established by the Rockefeller Foundation, the Gatsby Charitable Foundation and Volksvermogen NV to invest in small and medium-sized agriculture-related businesses in East Africa. Patrick has a wealth of experience in private equity and project financing gained from many years of working with projects and entrepreneurs across Africa. Previously he was

responsible for the administration of the US\$100 million Actis Agribusiness Fund.



Ali A. Mufuruki is chairman and CEO of the Infotech Investment Group in Tanzania, which has business interests in real estate, retail, advertising, IT and telecommunications services. Ali is the Founding Chairman of The CEOs' Roundtable of Tanzania, a policy dialogue forum that brings together CEOs of the top 50 companies in Tanzania. He is also a member of the Presidential Investors Roundtable that advises the President of Tanzania on a wide range of economic policy issues. Ali, a mechanical engineer by training, sits on the

board of a wide range of for-profit, non-profit and philanthropic organizations.

Project Title: Empowering Millions of Small-holder Farmers throughout East Africa to put Research Into Use: a private sector-led extension service to address climatic threats to food security

Lead Project Organisation: FIPS-Africa

List of Partners:

Well Told Story Ltd; University of Exeter; Bangor University; Minjingu Mines & Fertilizer Ltd; Athi River Mining Ltd; Leldet Ltd; Pannar Seed Co; OshoChemical; KARI-Kakamega; KARI-Katumani; KARI-Naivasha; Selian ARI; Horti-Tengeru; AVRDC; Agriculture Seed Agency (ASA),; Dryland Seed Co; WesternSeedCo;InternationalPotatoCenter(CIP);AgriseedCo;EastAfricanSeed Co; Olerai Ltd; Assia Pharmaceuticals

Knowledge being put to use

Identify and describe all theknowledgeproducts/processes that have been put to wider use in this project. This can refer to methodologies, techniques, tools and resources etc. Please refer to section 2.6 and 3.1 of your full proposal to answer this section. Please also provide data on the number relevant to, or designed primarily for use by, women.

RNRRS generated knowledge used: R5237, R6642, R7429, R7404, R8219, R8220 (work conducted by FIPS and work on small packs and maize disease resistance, numerous other projects contributed towards diseases resistance in cassava, sweet potato, sorghum as well as animal health etc which are also promoted by FIPS)

Non RNRRS generated knowledge used:

Outputs from work with FIPS supported by USAID, Rockefeller Foundation and CIDA.

Innovations being put into use include:

Crops

- From International / National Research Institutions: Improved varieties for sweet potato, cassava, beans, cowpeas, pigeon peas being used together with optimal agronomy.
- From Private sector: improved varieties of maize, vegetables (tomato, cabbage, butternut etc), improved blends of fertilizer, together with optimal agronomy, including spacing, micro-dosing of fertilizer and manure, soil tillage methods and seed priming.

(improved varieties of crops typically include more than one of the following: increased yield, early maturity, disease resistance, drought tolerance,

good taste, improved vitamin A content).

• From UK Universities: methodologies for promotion of seed priming and soil management have been developed together with academics from UK Universities and promoted among smallholder farmers.

Livestock

- From Public Sector Research Institutions: Improved breeds of chickens, goats, rabbits with fast growth and increased final body weight, together with improved husbandry.
- From Private sector: vaccines for chickens against Newcastle disease.

Project Outputs

Project Output Title	Status of achievement	Deviations if any	Reasons for the deviation
1 Establish and train	Achieved, 142 VBAs	VBAs have not been established	Time was invested instead in transferring the approach to
networks of Village Based	have been established	in Uganda	Rwanda through the RIU Rwanda country programme
Advisors	(Kenya and Tanzania)		
2 Review options for	Achieved, both have		
bringing soil management	been successful		
and seed priming into the	although seed priming		
FIPS approach	most successful in		
	combination with		
	other inputs		
3 ADDITIONAL		Explore options for VBAs income	So that the FIPS approach is less donor dependent
		generation -	
4 ADDITIONAL		Support for the FIPS logistics and	So that FIPS becomes a more efficient organisation, able
		administration - Achieved	to operate on a wider scale, accessing more research
			outputs and with more accessible baseline information
			and information on its impact.
Activities undertaken for putting knowledge into use

Briefly describe the nature of specific activities you have adopted in your project to achieve the outputs stated above, please refer to the Project Log frame to answer this section. Did you have to use any new activities [other than what you have committed in the log frame] or modify these activities and if so explain the reasons for the same.

FIPS-Africa is also working to provide appropriate inputs to farmers in quantities that they can afford. FIPS is providing legumes (beans, cowpea, pigeon pea, soya), vegetables (tomato, butternut squash), poultry, seed priming and soil management methods. In order to reach large numbers of farmers, quickly and cost-effectively, FIPS-Africa uses a *Village Approach* combined with a *Small Pack Approach*. This means that large numbers of farmers (everybody within target villages) are invited to try out the improved inputs on small areas of land but on their own farms. This reduces risk for farmers, increasing exposure for the inputs, and accelerates rate of adoption. Depending on the input, agro-ecology, risk averseness (and economic empowerment) of the farmers, it may take many seasons for the farmers to incrementally scale up their adoption to large areas of their land, with knock-on impacts on yield and food security.

Partnerships

i). Have all partners listed in your project proposal contributed as expected in the project? Did you have to drop some of the partners and bring in new partners to achieve the objectives of your project? Kindly describe your experiences in this regard.

i). The project was initially envisaged as a collaboration with Well Told Story (makers of Shujaaz), however on the advice of RIU management these two elements were separated to some extent but a relationship was maintained throughout the project.

Other partners taken in to the project were:

- Agriculture Seed Agency (ASA), Dryland Seed Co., Western Seed Co, Agriseed Co., East African Seed Co., Simlaw Seed Co. for supply of seed.
- International Potato Center (CIP) for supply of improved varieties of virus free seed potatoes.
- Real IPM for collaboration on priming enabled technologies and GroPlus.

Policy change

i). Have you engaged with policy makers in this project and what has this experience been like?

ii). Who are the critical policy makers /policy influencing groups that are essential for up-scaling your interventions? What mechanisms were used to engage with policy makers?

iii). Please detail policy changes to which your project has contributed, for example have any other organisations adopted or promoted lessons

derived from your project?	
i). Not Applicable	

Organisational & Institutional Change

i). Has your project resulted in development of new working practices, regulations, functional changes in organisations, emergence of new partnerships etc. within your own project teams and also outside? What has been the effect of these changes? ii). Have there been any unintended changes / consequences?

i).

The work of Dr David Priest has supported FIPS-Africa to develop its systems to prepare FIPS-Africa for scale. There has been particular focus on systems for reporting, monitoring, evaluation, budgeting for operations at scale, proposal preparation in addition to standardising certain field methodologies. A major effect of this has been to relieve the burden of this work from the managing director, freeing him to work on FIPS-Africa's strategy, operational management and further innovation.

The most recently recruited VBAs have been taken on on a self-employed basis (earning their own income from activities). This is to motivate them to reach more farmers and also help FIPS-Africa to work at larger scale for less cost.

Village Based Advisors (VBAs)_have also opened bank accounts for the first time. This has had the effect of simplifying FIPS-Africa's payment and financial systems. It may also allow VBAs to apply for credit/loans from banks or input suppliers.

ii). An unintended consequence of self-employed VBAs is that it is more difficult to motivate VBAs (who are of low education standard and unpaid) to report on activities carried out. FIPS-Africa has a large range of activities and there is a risk that reporting may become too burdensome.

Lessons learnt

i). What lessons have you learnt about how to put research into use and enable innovation in agriculture?

ii). Have you shared these lessons with others and if so with whom and how?

iii). Also, describe what has not worked and explain the reasons why not.

iv). What kinds of challenges did you face while upscaling/promoting new knowledge under this project and were you able to address these and if so how?

v). What kinds of challenges [technical, organisational, marketing, policy etc.] continue to remain and how you think these could be resolved?

i).

Lessons learnt include:

The following concepts work:

- Unique mass dissemination approach through building capacity at the village level (Village Based Advisor concept).
- Non-exclusive *Village Approach* to reach the whole target population.
- Simultaneous *Multi-Technology Approach*, ensuring that there are appropriate research outputs available for different types of households (wealth level) or agro-ecological zones.

Additional lessons include:

- Provision of advice is most effective when tied to inputs
- Provision of advice on changing crop management methods must be simple and practical and take into consideration labour requirements. It is important to realise how difficult it is to dig an acre of land by hand and if methods make this more difficult then farmers will need to see a clear quick and large impact on crop growth.
- Use of small packs continues to work to motivate experimentation and increase rate of adoption
- Extension staff should be incentivised to reach more farmers
- It is appropriate for projects to promoting multiple technologies at the same time because not every technology is suitable for every farmer type within a promotion area or for every promotion areas. By promoting multiple technologies, there can be something suitable for everyone. Further, if a farmer has successfully adopted one technology and it has had a positive impact on her life, then she will be more willing to experiment with other technologies.
- FIPS-Africa needs to manage its own risk by limiting the amount of commercial packs of inputs provided to VBAs at a time. VBAs should receive a limited number, bank the cash and then be provided with more for sale.

ii). These lessons are shared with RIU during meetings with program officers and with other development players at workshops, meetings and conferences.

- iii). None of the technologies haven't worked. However, FIPS-Africa has learned that
 - Not all research outputs will work everywhere.
 - Technical methodology of innovation and method for dissemination need to be fine tuned to the particular promotion zone according to farmer behaviour, agro-ecology etc.
 - Certain technologies are more easily adoptable by more empowered farmers (maize and fertilizer) whereas other technologies can be adopted by the poorest(improved varieties of sweet potato and cassava).
 - If methodologies become too complex then they will not work. They must be kept simple.

iv). We have experienced challenges in reporting of activities. FIPS-Africa continues to develop its systems. However, we have to be aware that poor, self-employed, VBAs of low education have limited capacity and motivation to report.

Managing data for reported activities and baseline surveys and impact evaluations is time consuming and complex. We are improving our systems to manage this but the work needs to continue.

v). A database proposal was prepared which will simplify data management and compilation for reported activities. However, the cost means that it will have to be budgeted separately in a proposal.

Project Beneficiaries / Scale achieved

Please state the estimated number of people affected by your project. Please note that it is very important that the data entered here can be supported (this is why there is a column called Evidence Index where you should list where verification can be sought on the data, e.g. database)

Project Output	Number & Type of	Number & Type	Male	FemaleBen	Total	Evidence Index*
	Indirect	of Direct	Beneficiari	eficiaries		
	Beneficiaries	Beneficiaries	es (indirect	(indirect		
			and direct)	and direct)		
Farmers benefitting	710,000	142,000			852,000	
from access to						
improved inputs and						
knowledge						
VBAs in employment	142					

Poverty reduction, environmental impact & Income generation

i). Describe your achievements here.

- ii). How much has the base line data collected in the beginning of the project helped shape your project activities? Has that data been analysed and do you have a copy of the baseline report?
- iii). Have you conducted an impact assessment study? What are the main findings? Kindly attach a copy of the impact assessment report

Make sure that all information provided here correlates with the evidence you have collected. Please include the evidence as separate attachments to this report and label the attachments appropriately.



Technologies giving Transformational Change in Farmers' Lives



No fertilizer, maize streak virus, local variety = no yield

Photographs 1a & 1b



Improved variety with virus resistance and improved fertilizer = high yield



Local variety susceptible to cassava mosaic virus disease = no food for farmer Photographs 2a & 2b



Improved high yielding variety with disease resistance and drought tolerance = food + money for farmer



Improved varieties of sweet potato (right) give farmers plentiful food after 3 months even in dry areas where maize can fail.

Local varieties (left) will give very small yields after 6 – 8 months , in part due to sweet potato virus disease.



yield of beans from a small 25 gram packet, provided by FIPS-Africa.

Farmer shows his

Photograph 4

i).

292

Photograph 3

The impact of the FIPS-Africa program is

- Capacity of 144 Village Based Advisors developed to promote improved technologies and knowledge.
- More than **78,000 on farm demonstrations** had been completed within first 2 seasons (12 months). Expect to reach 144,000 by the end of the project period through additional promotion activities during this 3rd season.

Social Exclusion & Gender

i). Please explain how the project has targeted women and other socially excluded groups, and provide evidence of the projects impact on gender and social exclusion.

ii). Have you used the data your project has collected on gender and social inclusion in deciding or shaping the project interventions?

i). FIPS-Africa has prioritised the important food security crops which are primarily the traditional crops of women in Kenya and Tanzania. These crops (sweet potato, cassava, beans, cowpeas etc) are the priority for FIPS-Africa above maize (which is also promoted) because

- They are women's crops and the food produced is therefore more likely to go to the family.
- They can be multiplied on farm, so do not need to be bought each year, thus providing longer term and cheaper impacts on food security
- They are cheap to obtain and suited to the FIPS-Africa village and small pack approaches allowing us to reach more farmers more quickly.
- They provide protein and carbohydrate being good for the diet.
- They do not require the addition of expensive inputs (fertilizer etc) making them more suited to adoption by poor people, including women who may not have control over the family's expenditure.

The data collected by FIPS-Africa program (previously provided to RIU in the file "FIPS AFRICA SUMMARY OF ACTIVITIES UNDERTAKEN FROM JULY 2009 for RIU.docx") on dissemination of inputs to male/ female famers shows for most of our activities the women are the primary beneficiary in more than 50% of reported cases. This has validated our approach.

Activity	Number	Proportion of recorded primary beneficiaries
		female
FIELD DAYS	861	52% female
CASSAVA SALES	115,600	80% female
SWEET POTATO VINE SALES	269,867	50% female
CASSAVA BULKING SITES	8568	61% female
SWEET POTAO BULKING SITES	13,988	47% female
POULTRY VACCINATION	106,341 BIRDS VACCINATED	58% female
POULTRY DYE	7256 BIRDS DYED	55% female

Unexpected Outcomes

Have there been any events or activities that have happened during project implementation that were never planned, but resulted in new, better or worse outcomes related to your project?

Our partners from East African Seed agreed to produce small packets of vegetable seeds for sale. We then produced even smaller packs for dissemination and experimentation by farmers at negligible risk. In particular promotion zones, butternut squash pumpkins or tomatoes performed extremely well – giving substantial food and/or income to smallholder farmers from only 1 g of seed. Butternut squash is particularly exciting because it requires few inputs, stores well and tastes good providing options for food security. It is also of high value (1 pumpkin sells for 0.40 USD and a 10 seed pack can produce up to 300 pumpkins. The cash benefit from tomatoes can be high but they do not store well and require careful management and spraying against diseases.

Project Title: Shujaaz Youth Communications Initiative

Lead Project Organisation: Well Told Story

List of Partners: FIPS, RIU Best Bet teams, CABI, Farm Africa,

Knowledge being put to use

Identify and describe all the knowledge products/processes that have been put to wider use in this project. This can refer to methodologies, techniques, tools and resources etc. Please refer to section 2.6 and 3.1 of your full proposal to answer this section. Please also provide data on the number relevant to, or designed primarily for use by, women.

RNRRS generated knowledge used:

Including: R6619, R5539, R7571, R8312, R8439, R8407, R7966, R6762 and the projects listed for Aquashops

The specific RIU topics covered are:

Advantages of bale making; benefits of fruit drying; advantages new variety sweet potatoes, improved sweet potato storage, advantages of new variety maize, reasons to select seeds from strong plants, benefits of planting good strong seeds, best seed storage, reasons for seed soaking, ways to home made poultry feed, poultry pens, urban farming (Kale in a sack), chicken vaccines, army worm control, rabbit farming, methods of fish farming, methods of fish drying

Unfortunately we don't know the RNRRS numbers for most of the innovations we have featured. They either come from the RIU Handbook (no RNRRS numbers are mentioned and our Handbook CD doesn't open) or have been proposed directly by RIU staff or other RIU partners. So some may be RNRRS and some not...

Non RNRRS generated knowledge used: We are not sure which is which - See above

Project Outputs

Project Output Title	Status of achievement	Deviations if any	Reasons for the deviation
1 Production of a monthly	Achieved	None	N/A
comic book which promotes			
agricultural research which			
farmers can adopt.			
2 Production of additional	Achieved	We added an additional Twitter	New opportunity to increase audience and engagement
material website, facebook,		feed	
radio programme			
3 Constructing mechanisms	Achieved	None	N/A
for the readers to provide			
feedback and enter into			
dialogue with the research			
expertise			

Activities undertaken for putting knowledge into use

Briefly describe the nature of specific activities you have adopted in your project to achieve the outputs stated above, please refer to the Project Log frame to answer this section. Did you have to use any new activities [other than what you have committed in the log frame] or modify these activities and if so explain the reasons for the same.

Shujaaz includes comic books, radio, a website, Facebook, Twitter and email communications. It is based around a set of Kenyan youth facing the problems of the country and looking for ways to increase their income and strengthen their livelihoods. The Comic Books have been distributed through the Daily Nation newspapers and the Safaricom Mpesa kiosks, accompanying daily radio programmes have been broadcast on a national syndication network of partner FM radio stations. The team has worked with FIPS, Best Bet team leaders, RIU staff and the RNRRS research outputs database to incorporate relevant research into engaging, relevant storylines with a clear call to action, combined with the information necessary for audiences to take action and to encourage feedback from the audiences. The audience feedback is shared with the information providers so that further follow up can take place and with the readers so that they can see how the information provided has been utilised, thus inspiring more individuals to take action.

Partnerships

i). Have a	all partners listed in your project proposal contributed as expected in the project? Did you have to drop some of the partners and bring in
new part	ners to achieve the objectives of your project? Kindly describe your experiences in this regard.
i)	FIPS were to be the main information provider, and they have contributed extensively to the project, but as the project has progressed additional sources of information have been used drawing on the wider network of RIU Best Bet partners, and numerous other inter- related organisations whom we have accessed via the RIU network.
Policy	change
i). Have y	you engaged with policy makers in this project and what has this experience been like?
ii). Who	are the critical policy makers /policy influencing groups that are essential for up-scaling your interventions? What mechanisms were used
to engag	e with policy makers?
iii). Pleas	e detail policy changes to which your project has contributed, for example have any other organisations adopted or promoted lessons
derived f	rom your project?
i)	Shujaaz is widely read and listened to in Kenya, including at the level of Ministers, senior civil service and other policy makers. In August 2010 Shujaaz was visited by MPs from the UK International Development Select Committee. In May 2011 Shujaaz was awarded the One World Media award presented by the Minister for International Development, Alan Duncan MP, who engaged extensively with the project.
ii)	In June & July 2011, as part of another Shujaaz-based campaign, a pack of novelty items copies of Shujaaz comics carrying RUI stories and a letter were sent on two separate occasions directly to more than 100 MPs and policy-makers. The extremely targeted list of policy-makers was developed in consultation with stakeholders, targeting decision-makers in the agriculture sector, and related departments and ministries including Planning, Finance, Northern Kenya and others. Preliminary impact research on this activity indicates that significant attention and influence has been achieved by this means.

Organisational & Institutional Change

i). Has your project resulted in development of new working practices, regulations, functional changes in organisations, emergence of new partnerships etc. within your own project teams and also outside? What has been the effect of these changes?

ii). Have there been any unintended changes / consequences?

i). Extensive partnerships have been established between Shujaaz/Well Told Story and the private and public sector in Kenya (including with Google, Nokia, USAID, GTZ, etc), leading to the significant scaling-up of Shujaaz production and the delivery of materials to wider and larger audiences. As a result Shujaaz has reached and influenced ever more individuals and momentum has increased such that it is likely that Shujaaz will expand into Uganda and/or Tanzania, and possibly also Ethiopia in 2012.

We also believe that we have had a direct positive influence on the research teams we have worked with, many of whom have come to see new possibilities and potency of communications in their work.

Very significant numbers of audience members have adopted the technologies and research ideas presented in Shujaaz. 36% of fans say they have taken action based on the Shujaaz stories and a further 32% say they have spoken to others about ideas from Shujaaz. In this increased public discourse pressure is created for policy change.

Lessons learnt

i). What lessons have you learnt about how to put research into use and enable innovation in agriculture?

ii). Have you shared these lessons with others and if so with whom and how?

iii). Also, describe what has not worked and explain the reasons why not.

iv). What kinds of challenges did you face while upscaling/promoting new knowledge under this project and were you able to address these and if so how?

v). What kinds of challenges [technical, organisational, marketing, policy etc.] continue to remain and how you think these could be resolved?

- Although a lot of research is deemed validated when research has proven effects the question of inputs distribution is often unanswered.
 The Shujaaz team has not felt happy to incorporate such research in storylines unless they can advertise where the farmers can access these inputs in sufficiently numerous locations. Information-based research inputs do not have this constraint and therefore the reported uptake has been greater.
- ii) Lessons have been shared with the RIU, and in most cases also with the research partners themselves, who have been involved with campaign and story design.

iii). As above, what has less successful has been the promotion of research requiring access to inputs where there has been insufficient work done on input distribution. This applies to improved sweet potato vines, disease resistant cassava, army worm traps. In these cases we were able to raise public awareness, but not deliver people to solutions at the scale we wished.

iv). As above, our media reach a national audience, therefore if we are encouraging uptake of inputs, they too should be available nationally, or at the very least in affected areas. In several cases we worked closely with the information providers to ensure that either access was improved, or follow-up information was available. Eg we established an automated SMS system to provide constituency-specific information on locations to buy improved sweet potato vines.

v). As above, when using national-scale media as in our case, it is necessary to find innovations that are at national scale to promote. Generally we observe a disconnect between research and input distribution supply chains, except in cases where RIU has established an enterprise partner to address this.

Project Beneficiaries / Scale achieved

Project Output	Number & Type of	Number & Type	Male	FemaleBen	Total	Evidence Index*
	Indirect	of Direct	Beneficiari	eficiaries		
	Beneficiaries	Beneficiaries	es (indirect	(indirect		
			and direct)	and direct)		
1 Production of a	At least 10 million	More than 1.52m	c.60% of	c.40% are	10m/1.52m	Shujaaz Impact Study conducted by
monthly comic book	Kenyans have been	Kenyans can be	Shujaaz	female		Synovate, October 2010
which promotes	exposed to Shujaaz	described as	audiences			
agricultural research		Shujaaz "core	are male			Shujaaz Assessment, conducted for RIU,
which farmers can		audience" who				April 2011
adopt.		are known to				
		have followed				
		Shujaaz closely				
		and discussed and				
		applied ideas and				
		innovations.				
2 Production of	Ditto At least 10	Ditto – more than	Ditto the	40% of	10m /	Shujaaz Impact Study conducted by
additional material	million Kenyans	1.52 million	audience	total	1.52m	Synovate, October 2010
website, facebook,	have been exposed	Kenyans can be	splits	beneficiarie		
radio programme	to ShujaazFM radio	described as	60/40%	s are		Shujaaz Assessment, conducted for RIU,
	programmes	Shujaaz "core	male/femal	female		April 2011
		audience" who	е			
		are known to				

		have followed				
		Shujaaz closely				
		and discussed				
		and applied ideas				
		and innovations.				
		New media – ie				
		Facebook, SMS				
		etc – have				
		accounted for				
		more than				
		250,000 audience				
		conversations				
		during the first 7				
		months of 2011,				
		and close to				
		100,000 SMS text				
		messages				
3 Constructing	Facebook, Twitter	more than	We have	We have	Estimated	Based on Facebook, Twitter and SMS
mechanisms for the	and SMS have been	250,000 specific	not been	not been	more than	traffic records at Well Told Story.
readers to provide	established as	conversations	able to	able to	20,000	
feedback and enter	active channels for	have taken place	disaggregat	disaggregat		
into dialogue with	audience	on the Shujaaz	e this	e this		
the research	interaction with	Facebook page	audience	audience		
expertise	Shujaaz and its	since monitoring	by gender,	by gender,		
	content. More than	started in January	since this	since this		
	10,000 Kenyans	2011; but it is	informatio	informatio		
	follow Shujaaz on	impossible to say	n is not	n is not		
	Facebook. We	how many	disclosed	disclosed		
	estimate more	individuals have	by users.	by users.		
	than 10,000	taken part in				
	individuals have	these. Close to				
	interacted by SMS	100,000 SMS text				
	(it is hard to be	messages have				

۶ ۲	precise, since many	been received,			
l	users do not	ditto, individual			
	declare their	numbers are			
i	identities)	impossible to			
		determine.			
		Twitter is rapidly			
		emerging as a			
		new medium for			
		audience			
		interaction,			
		gaining more			
		followers daily –			
		currently 1,000.			

Poverty reduction & Income generation

i). Describe your achievements here, and please refer to the details in your logframe, for example '2000 farmers from Nawaparashui in Nepal have increased their income by 20%'.

ii). How much has the base line data collected in the beginning of the project helped shape your project activities? Has that data been analysed and do you have a copy of the baseline report?

iii). Have you conducted an impact assessment study? What are the main findings? Kindly attach a copy of the impact assessment report Make sure that all information provided here correlates with the evidence you have collected. Please include the evidence as separate attachments to this report and label the attachments appropriately.

i). At least 1.52 million young Kenyans have been directly exposed to Shujaaz messages and content, together with role model-based inspiration and motivation. Furthermore, 8.5 million comic books containing specific guidance on RIU-informed innovations have been published and distributed nationally. Feedback evidence confirms that these are still in circulation and being read again and again. This constitutes a very large scale resource that will continue to inform positive behaviour change and poverty reduction going forward.

ii). The Shujaaz project was initiated with the RIU BB project. As such the base-line for the reach and impact of project itself was that nothing existed before. No specific baseline research exists.

iii). Two impact assessment studies have been done, one by Synovate in October 2010, and one by RIU Assessment team in April 2011. The Synovate

report is attached. The final RIU report has not been seen yet, figures and analysis quoted derive from a late draft of the report.

Social Exclusion & Gender

i). Please explain how the project has targeted women and other socially excluded groups, and provide evidence of the projects impact on gender and social exclusion.

ii). Have you used the data your project has collected on gender and social inclusion in deciding or shaping the project interventions?

i). The target of the project is to reach and transform marginalised Kenyan youth, focused in rural and urban slums. The majority of those reached by the project have only primary education or less.

ii). Since receiving audience data late in 2010 we have taken a more gendered approach to story creation, specifically considering gender perceptions and representations in all content. In our next research we hope to see an increase in female audiences (up from the current 40%) and we will look for base-line information on gender perceptions for future comparison.

Unexpected Outcomes

Have there been any events or activities that have happened during project implementation that were never planned, but resulted in new, better or worse outcomes related to your project?

The scale of Shujaaz has far outstripped our expectations due to its popularity and the arrival of new partners.

Shujaaz has recently demonstrated that it can be used in concert with advocacy activities to leverage the power of its large youth audience to pressure policy makers. This has many exciting future implications.

Project Title: Promoting yield improvement through farmer-applied biocontrol seed treatments in maize, sorghum and millet.

Lead Project Organisation: The Real IPM Company (K) Ltd.

List of Partners:

CAZS Natural Resources, Bangor University, Wales; Greendown House Ltd, UK; University of Hohenheim, Germany; KARI, Kibos Station, Kenya

Knowledge being put to use

Identify and describe all theknowledgeproducts/processes that have been put to wider use in this project. This can refer to methodologies, techniques, tools and resources etc. Please refer to section 2.6 and 3.1 of your full proposal to answer this section. Please also provide data on the number relevant to, or designed primarily for use by, women.

RNRRS generated knowledge used:

R6395, The Development and Testing of Seed-Priming to Improve Stand Establishment, Early Growth and yield in Semi-Arid Zimbabwe and India.(1995-99)

R7189, Cultivar competitiveness and interactions with on-farm seed priming for integrated weed management

R7440, (99-03) The physiological basis for the effects of on-farm seed priming in tropical crops: interactions with seedbed physical conditions R7438 (99-06) Participatory promotion of on farm seed priming

Non RNRRS generated knowledge used:

Research from University of Hohenheim and IITA isolated the fungus that was the basis of the proposed biocontrol and undertook its characterisation and undertook imited field testing in West Africa. In addition IITA also identified other strains of the fungus and worked on these as a comparison.

Project Outputs

Project Output Title	Status of achievement	Deviations if any	Reasons for the deviation
1 Registration of Stop Striga	Not achieved	Focussed instead on seed priming	Registration procedure took a longer time than was
bioherbicide			anticipated. StopStriga is a non indigenous fungus to
			Kenya, and the regulatory authorities restricted its use to

			greenhouse pot trials. Though correctly the regulatory authorities were cautious and this caused condierable delays.
2 Registering of farmers for conducting demonstrations (50,000)	Over achieved		Very popular and so in the end over 50,000 farmers were recruited.
3 Establishment of an SMS database	Achieved		The data base gave the location, address, telephone number and name of the farmer. It was the basis for extensive farmer based trials and a results orientated internet data base was created to display this information and report the farmer's reports of the product.
4 Promotion of packs	Achieved		
5 The establishment of a support network and training.	Under achieved	Training was done, but did not require such an extensive network as originally planned	Achieved outputs without such an extensive network of extension officers trained and promoting technology.
6 Promoting the technology through radio programs and advertising, and communication via an SMS messaging service. Establish an SMS data base of up to 48,000 participants.	Achieved		A data base of over 50,000 small scale farmers was established. A series of radio messages were relayed and the technology was tested by over 42,000 farmers.
7 Support for farmers in three successive waves of plantings in Nyanza province by distribution of small scale technology packs to 48,000 farmer households.	Achieved		Plantings one (50 farmers, April 2010), Planting 2 (3,000 farmers, Nov 2010) and Planting three (42,000 farmers, April 2011).

Activities undertaken for putting knowledge into use

Briefly describe the nature of specific activities you have adopted in your project to achieve the outputs stated above, please refer to the Project Log frame to answer this section. Did you have to use any new activities [other than what you have committed in the log frame] or modify these activities and if so explain the reasons for the same.

Stop Striga has been building the demand for its products through registering farmers for demonstrations. Farmers have been identified through the traditional leadership structures culminating in the organisation of 'barazas' at which farmers register. This information, including mobile phone contacts, has been incorporated into an innovative database which enables Real IPM to communicate with and receive communications from farmers. The team are now moving from demonstrations to marketing and are learning lessons based on their first product, GroPlus.

Partnerships

i). Have all partners listed in your project proposal contributed as expected in the project? Did you have to drop some of the partners and bring in new partners to achieve the objectives of your project? Kindly describe your experiences in this regard.

All partners have contributed to the project activities and outputs. There was less use of KARI Kibos and the University of Hohemhiem, due to the less activity involved in trialling StopStriga whilst the work on seed priming and the data base building using mobile telephone technology was increased. The registration of StopStriga was and is very slow, however it is unlikely that any additional partners would have speeded this process up unless including the regulators them selves though this is unlikely.

Policy change

i). Have you engaged with policy makers in this project and what has this experience been like?
ii). Who are the critical policy makers /policy influencing groups that are essential for up-scaling your interventions? What mechanisms were used to engage with policy makers?
iii). Please detail policy changes to which your project has contributed, for example have any other organisations adopted or promoted lessons derived from your project?

i) Four policy makers have been involved, firstly KEPHIS (Kenya Plant health Inspections Service), enabling the importation and trial use of StopStriga; secondly PCPB (Pest Control Products Board) that regulates and authorises the use of pest control products, who were

responsible for allowing the use of StopStriga, thirdly the KBS (Kenya Bureau of Standards) for registering and permitting the sale of the priming fertiliser seed treatment and finally the Provincial Administration of Nyanza province. In all cases the process has been transparent and reasonably enabling. However the time taken, especially working with PCPB has been extremely lengthy and this was underestimated at the outset of the project. In hindsight, three years is the minimum time companies are currently experiencing in product registration in Kenya which is much more than other countries in Africa. The Provincial Administration has been critical to the recruitment of the 50,000 farmers and they were particular collaborative.

- ii) The critical policy makers were as above, KEPHIS, PCPB and KBS. It has been critical to fully brief the relevant authorities. Therefore though slow, time must be allowed to work through official channels and ensure that all are brought into the frame. In the past making short cuts has been counter productive. Regulators have in the past been accused of taking inducements to push products through the registration process, however this is artificial and does not test the true nature of the legislation. Policy makers were not found to be obstructive however they were cautious, slow and conservative in their approach.
- iii) Many organisations have been surprised at the number of farmers recruited through the Provincial Administration and the chief's "barazas" onto the SMS data base. This is a clear lesson and mechanism that could be exploited for other projects trying to access smallholder farmers. This approach might not be affective in all provinces but this will be evaluated in different provinces in Kenya. The development of a bioherbicide is the first in Kenya (and probably Africa). Again policy makers have been sensitised to this new technology and their regulations and procedures tested. This is on going as StopStriga has yet to be authorised for use yet.

Organisational & Institutional Change

i). Has your project resulted in development of new working practices, regulations, functional changes in organisations, emergence of new partnerships etc. within your own project teams and also outside? What has been the effect of these changes? ii). Have there been any unintended changes / consequences?

i). The project has developed a new methodology for companies interested in selling inputs to resource poor farmers in Western Kenya. This has involved the Provincial Administration (PA) as well as the development of the use of SMS and mobile technology. The exciting development has been the speed of recruiting small-scale rural farmers to the mobile phone data base, and then delivering information through this process. This has been a major achievement and discovery. At the outset of the project the use of the PA, and the use of the Chief's "barazas" was not envisaged. The use of radio has been shown to be useful in recruiting farmers but as effective as the Chief's barazas. The distribution of inputs to isolated small-scale farmers is a challenge and the limitations of the "Agrovet" system are being discovered. These being they are not evenly distributed, farmers having to to travel 15 – 20 kms to the nearest Agrovet. Also they can be part-time, have limited stocks and lack product knowledge, therefore not always a

reliable distribution system.

ii).The points are well described in the above section (6 i). However the Agrovet was seen as a major vehicle for accessing/supply inputs to small-scale farmers and this will probably not be as effective as thought at the beginning of the project. Promotion and dissemination through meetings promoted and organised by SMS messaging are more effective and depending on the Agrovet system to provide inputs.

Lessons learnt

i). What lessons have you learnt about how to put research into use and enable innovation in agriculture?

ii). Have you shared these lessons with others and if so with whom and how?

iii). Also, describe what has not worked and explain the reasons why not.

iv). What kinds of challenges did you face while upscaling/promoting new knowledge under this project and were you able to address these and if so how?

v). What kinds of challenges [technical, organisational, marketing, policy etc.] continue to remain and how you think these could be resolved?

i) The project has learnt a lot about communicating with farmers in Western Kenya, that the traditional systems through the PA have been the best way for contacting farmers and getting them registered onto an mobile phone data base. However what has made this project such a success has been the integration of the old (PA network) combined with the new mobile telephone technology.

ii) These lessons have been shared with RIU. The project has had significant coverage on the RIU web site and also shared with other "Best bet" projects like FIPS. Also sharing has occurred with TSBF CIAT project based in Nairobi.

iii) There have been problems with the StopStiga, both on its registration and its efficacy. The efficacy problems may be a result of this being the first time this product has been used in Kenya and some fine tuning of the application technology is required.

iv) There was a need to make the phosphate seed priming fertiliser application system workable for small-scale farmers with the resources they had, to be reliable under a variety of conditions, to make applicable to different types of seed types and to develop a process easy to follow by the semi-literate farmer whose main language was Luo. In addition a product had to be developed that farmers would want to buy, therefore it had to be demonstrated that it worked and the farmer wanted to buy the product. Packaging and marketing the product at an affordable price was a challenge. By using technologies such as glues from the paper industry and marketing and packaging skills have developed an attractive and affordable product. Access to affordable fertilisers that have been imported for the high value horticulture industry n Kenya have enabled cross over of products after reformulation and optimising use.

v) Registration of StopStriga remains the future challenge. The prime way to address this issue is to continue to work with the authorities and channels that have already been established and be patient.

Project Beneficiaries / Scale achieved

Project Output	Number & Type of	Number & Type	Male	FemaleBen	Total	Evidence Index*
	Indirect	of Direct	Beneficiari	eficiaries		
	Beneficiaries	Beneficiaries	es (indirect	(indirect		
			and direct)	and direct)		
Registered farmers	250,000	50,000	51%	49%	300,000	Mobile telephone data base
GroPlus distributed	225,000	45,000	51%	49%	270,000	Names of person receiving packs

Assumption: for every direct beneficiary there are five indirect beneficiaries.

Poverty reduction & Income generation

i). Describe your achievements here, and please refer to the details in your logframe, for example '2000 farmers from Nawaparashui in Nepal have increased their income by 20%'.
ii). How much has the base line data collected in the beginning of the project helped shape your project activities? Has that data been analysed and do you have a copy of the baseline report?
iii). Have you conducted an impact assessment study? What are the main findings? Kindly attach a copy of the impact assessment report
Make sure that all information provided here correlates with the evidence you have collected. Please include the evidence as separate attachments to this report and label the attachments appropriately.
i) 45,000 farmers have received GroPlus packs at a retail value of 130 Ksh each. A retail total value of 5.8 million shillings or 45,000 GBP. 54 % of the farmers reported improved growth and yield based on telephone survey.
ii) No base line study was conducted as the project was only 18 months in duration.
iii) A telephone survey has been conducted of farmers attitudes and to assess the impact of using this technology.

Social Exclusion & Gender

i). Please explain how the project has targeted women and other socially excluded groups, and provide evidence of the projects impact on gender and social exclusion.

ii). Have you used the data your project has collected on gender and social inclusion in deciding or shaping the project interventions?

- i) The project did not specifically target women, but small-scale farmers. In an assessment of the farmers who registered in our data base, 49% were women.
- ii) In view of the short nature of the project, currently no adjustments were made on project interventions with respect to social exclusion and gender issues.

Unexpected Outcomes

Have there been any events or activities that have happened during project implementation that were never planned, but resulted in new, better or worse outcomes related to your project?

Recruitment of farmers. In the initial project recruitment of farmers was planned in numerous ways. An unexpected and beneficial aspect of the project was that recruiting through the Provincial Administration and Chief's "barazas" was very effective mechanism of reaching rural small scale farmers in Nyanza province.

The recruitment of Agrovets for the distribution and selling of inputs (GroPlus) to small scale farmers was found to be more problematic than expected.

Any Other Comments

Please include any other comments that you would like to include and which you feel don't fit in elsewhere.

The establishment of a mobile telephone data base of over 50,000 farmers is a major platform for communicating with farmers in rural locations. This is a major achievement and will be a very important future mechanism to pass technical and commercial information to farmers in the future. The fact that this data base has been created in 15 months is a major achievement.

Project Title: Biological Control Agent Registration in Ghana

Lead Project Organisation: The Real IPM Company (K) Ltd

List of Partners:

Kenya Biologics; Environmental Protection Agency (Ghana); Pest Control Products Board (Kenya); CABI; NRI; Greendown House

Knowledge being put to use

Identify and describe all theknowledgeproducts/processes that have been put to wider use in this project. This can refer to methodologies, techniques, tools and resources etc. Please refer to section 2.6 and 3.1 of your full proposal to answer this section. Please also provide data on the number relevant to, or designed primarily for use by, women.

RNRRS generated knowledge used: R7449, R7960, R7441, R8300, R7249, R8430

Non RNRRS generated knowledge used:

Use of *Metarhizium* and *Trichoderma* as BCAs (ICIPE); Safety tests on *baculoviruses* (Shriram Institute, India); Production and Formulation knowledge (Dupont, USA)

Project Outputs

Project Output Title	Status of achievement	Deviations if any	Reasons for the deviation
1 Registration of 4 BCAs for	Achieved		
use in Ghana			
2Devlopment of a	Over achieved	Distributor identified and	Registration process proceeded faster than expected
distribution network for		marketing has commenced for	due to flexibility and positive approach of regulators and
BCAs		some BCAs at the end of May	efficacy testing organisation. Two products licensed.
		2011	
3 Improved clarity on	Achieved through		
registration protocols	improving clarity of		
	forms and awareness		

raising ac	tivities	

Activities undertaken for putting knowledge into use

Briefly describe the nature of specific activities you have adopted in your project to achieve the outputs stated above, please refer to the Project Log frame to answer this section. Did you have to use any new activities [other than what you have committed in the log frame] or modify these activities and if so explain the reasons for the same.

The main activity was working on the registration: obtaining export licence from Kenya and import from Ghana, providing the required information and providing samples so that efficacy tests could be conducted.

In addition visits to Ghana have identified potential markets and actual distributors for the products which will enable the products to be marketed. The team has worked in liaison with the EPA (Environmental Protection Agency of Ghana) to refine their registration administration and a guide developed to assist others interested in registering a biological control agent in Ghana.

Partnerships

i). Have all partners listed in your project proposal contributed as expected in the project? Did you have to drop some of the partners and bring in new partners to achieve the objectives of your project?Kindly describe your experiences in this regard.

- i) The partnerships have worked very well and none have been dropped. As the time frame of the project was short this focused everyone's attention in achieving the aims. Also partners were chosen with key functions and had clear mandates.
- ii) The main new partners added have been the pesticide distributors interested in marketing BCAs, this have been Wienco and Agropharm West Africa Ltd, both as distributors. These were identified and contacted by the Real IPM and Kenya Biologics as our distributors.
- iii) The team has been in discussion with a number of other companies interested in using their products e.g. Unilever but as yet a way forward has not been identified.

Policy change

i). Have you engaged with policy makers in this project and what has this experience been like?

ii). Who are the critical policy makers /policy influencing groups that are essential for up-scaling your interventions? What mechanisms were used to engage with policy makers?

iii). Please detail policy changes to which your project has contributed, for example have any other organisations adopted or promoted lessons

derived from your project?

i). The main thrust of the work has been in the working with those implementing the policy (EPA) previously developed under the RNRRS, testing how appropriate it is and giving the regulatory authority experience in the registration process. The team have also reassured the regulatory authorities in Kenya (KEPHIS – the Kenyan Plant Health Inspection Service) that exporting Kenyan isolates is not a threat to Kenya.

ii). Within Ghana the EPA as a regulatory authority was critical partner. This was achieved by regular dialogue and open discussion with them with frequent meetings. The attractiveness of BCAs to the farmer can be boosted by customer demands and we have seen this with policy and standards developed by the European market over the last 10 years. Farmers had express the concerns about conventional pesticides widely in the media and from their customers. A major export (Blue Skies products) was contacted prior to the beginning of the project and their needs identified. Scaling up the good registration practice in West Africa would need to be done with ECOWAS (and/or the AU) and should include CILSS in the discussions.

iii). It is too early for this but these are the first BCAs to be registered for agricultural use in Ghana. Already there is talk of their registration being expanded for use on other crops and the team have attempted to facilitate future registrations of BCAs.

Organisational & Institutional Change

i). Has your project resulted in development of new working practices, regulations, functional changes in organisations, emergence of new partnerships etc. within your own project teams and also outside? What has been the effect of these changes?
ii) Have there been any unintended changes / consequences?
i) The project has resulted in the EPA and the Ghanaian registration committee for the first time working with the private sector in the registration of BCAs in Ghana. Two Kenyan companies have forged relationships with the regulators, distributors and potential customers in Ghana forming new South-South linkages. The effect has been very positive and it is hoped will lead to expansion of this market in the future. The University of Ghana, Crop Science Department who undertook the efficacy testing, have also report they have learnt from the exercise of working with Biopesticides.
ii) The willingness and goodwill between the Kenyan and the Ghanaian partners is more than could have been hoped for and there are high hopes that there will be further BCAs registered and marketed in Ghana. The project has also recognised the importance of getting the biopesticides recognised by the organic certification authorities. Currently three certification bodies have been approached to see they would be willing to recognise these products in organically certified crops.

Lessons learnt

i). What lessons have you learnt about how to put research into use and enable innovation in agriculture?

ii). Have you shared these lessons with others and if so with whom and how?

iii). Also, describe what has not worked and explain the reasons why not.

iv). What kinds of challenges did you face while upscaling/promoting new knowledge under this project and were you able to address these and if so how?

v). What kinds of challenges [technical, organisational, marketing, policy etc.] continue to remain and how you think these could be resolved?

- i) The approach of regulators in different countries varies considerably. Just because one country has more experience does not mean that they are easier to work with. There is a need to maintain good practice where it is in place and encourage it where it is not. This has enabled the registration to proceed well even though the producers are not located in Ghana.
- ii) The project only commenced in mid 2010. The lessons have been shared with the RIU. The lessons will also be shared with the pest Control Products Board of Kenya and the Indian authorities.
- iii) The main disappointment has been with the lower levels of interest amongst the distributors in the virus BCAs which are more target specific. Yet there are large markets for tomatoes and kales, two of the target crops. There are a very large number of low cost generics in the market place in Ghana. This presents competition and distributors are reluctant to take on products that can not compete in price with the generics. It is therefore important to involve the exporters to place pressure on their distributors to adopt more environmentally friendly products. Expanding the market for products is also an incentive for distributors. Therefore increasing the registered area to beyond Ghana has great potential for addressing this issue of increasing the market potential.

See iii However Kenya Biologics were able to address this problem with the help of a distributor with knowledge of virus based BCAs. Although this distributor realised that the current market is small for these products he realised that Ghana will not be able to continue using obsolete pesticides for many years to come. We have made a flexible agreement to relieve the distributor of obligations in sales quantities.

iv) The biggest challenge is in terms of increasing the market size through getting other countries to recognise Ghana's registration of these products and also getting the products on to other crops (extension of label).

Project Beneficiaries / Scale achieved

Project Output	Number & Type of Indirect	Number & Type of Direct	Male Beneficiari	FemaleBen eficiaries	Total	Evidence Index*
	Beneficiaries	Beneficiaries	es (indirect	(indirect		
			and direct)	and direct)		
Output No 1- 4 BCAs						
registered for sale in						
Ghana						
Baculovirus for	104,000 family	27,000 small-	50%	50%	131,000	Sales data,
tomato crops after	members	scale farmers of				
three years		tomato				
Baculovirus for	8.000 family	2,000 small scale	50%	50%	10,000	Sales data,
cabbage crops after	members	farmers of				
three years		cabbage				
Cocoa and fruit crops	320,000 family	80,000 small scale	50%	50%	400,000	Sales data,
for mealy bug control	members	cocoa and fruit				
		growers				
Cocoa and fruit crops	320,000 family	80,000 small scale	50%	50%	400,000	Sales data,
for phytothphora	members	cocoa and fruit				
control		growers				

Poverty reduction & Income generation (including health and environmental benefits)

i). Describe your achievements here,

ii). How much has the base line data collected in the beginning of the project helped shape your project activities? Has that data been analysed and do you have a copy of the baseline report?

iii). Have you conducted an impact assessment study? What are the main findings? Kindly attach a copy of the impact assessment report Make sure that all information provided here correlates with the evidence you have collected. Please include the evidence as separate attachments to this report and label the attachments appropriately.

i) There were no biological control agents approved for use in any crops grown in Ghana.

ii) A copy of the approved list of pesticides is available that is the reference as base line data.

iii) The project has been going nine months. The first launch of a commercial product will be on 7 April. It is difficult to assess the impact until we have launched the product and see the potential uptake of the product by growers.

Social Exclusion & Gender

i). Please explain how the project has targeted women and other socially excluded groups, and provide evidence of the projects impact on gender and social exclusion.

ii). Have you used the data your project has collected on gender and social inclusion in deciding or shaping the project interventions?

i) The virus products are targeted against pests on crops in which women are major farmers and have great exposure to pesticides e.g. cotton, tomato and cabbage.

ii). There has not been enough time to collect data on gender although this will be important in the marketing of these products.

Unexpected Outcomes

Have there been any events or activities that have happened during project implementation that were never planned, but resulted in new, better or worse outcomes related to your project?

The speed at which the biopesticides have passed through the registration process has been a surprise. This has resulted in considerable optimism about the registering of future biopesticides. The registration of biopesticides is but the first step in their adoption by growers. The next step which is now beginning is the marketing and commercialisation of the products. There is considerable market potential in Ghana (the area and value of crops like pineapple and cocoa) and therefore there does seem commercial potential.

Any Other Comments

Please include any other comments that you would like to include and which you feel don't fit in elsewhere.

At the beginning of the project, though it would not be initially possible to complete the registration of two products in cocoa, this was seen as a major long term objective. The length of time registering products in cocoa is lengthy because of the required approval and field trials by CRIG (Cocoa Research institute of Ghana). However a major step in this process has been achieved, in that both the Metarhizium products and the Trichoderma product have been registered in Ghana on other crops and a precedent has been set. The extension of label to cocoa from pineapple (Trichoderma) and Papaya (Metarhizium) to cocoa is not such a great leap!

Project Title: Aqua Shops: Aquaculture Development through Building Services, Sharing Best Practice and Supporting Policy

Lead Project Organisation: FARM Africa

List of Partners:

University of Stirling; Moi University; Imani Development Ltd., Ministry of Fisheries Development

Knowledge being put to use

Identify and describe all the knowledge products/processes that have been put to wider use in this project. This can refer to methodologies, techniques, tools and resources etc. Please refer to section 2.6 and 3.1 of your full proposal to answer this section. Please also provide data on the number relevant to, or designed primarily for use by, women.

RNRRS generated knowledge used:

R6759, R8100, R8334, R8363 (all based in India, the Best Bet was the first transferral of these research outputs to Africa)

Non RNRRS generated knowledge used:

Also built on the STREAM and NACA initiatives in fish farming in Asia

Project Outputs

Project Output Title	Status of achievement	Deviations if any	Reasons for the deviation
1. Aqua Shop Market study;	Achieved		
Finalise and Promote			
System; Links with Service			
and goods suppliers			
2.Set up Franchisor and lead		It was not possible to set up a	For a franchisor to operate profitably, high volumes of
shop; Engage franchisees		franchisor due the current	inputs and supplies must be moved. Availability of quality
	Partly Achieved	environment that Aquacultute	seeds at the right time is very key to the sub sectors

		operate in Kenya. However,	growth. Support to Jewlet Enterprises to produce quality
		systems to develop the sector	seeds was to address persistent unavailability of the
		were set in motion by providing	same.
		support to Jewlet Enterprise to	
		scale up quality seed	
		multiplication. The enterprise	
		also has potential to become a	
		franchisor in the future. Potential	
		Franchisees were engaged and	
		after vetting and interview 6 best	
		candidates were picked	
3. Engage Franchisees; start-	Achieved	Organisational M&E to be	
up and ongoing support to	Continuous M&E	undertaken by Imani Devt from	
Franchisees; M&E	undertaking during	14 th to 17 th June and by FARM	
	regular field visits	Africa from 27 th to 30 th June	
4. Information needs	Achieved		
assessment; development,			
sourcing, translating,			
adapting & testing of			
information packages			
5. Roll out of information	Achieved		
packages with each batch of			
franchisees; ongoing M&E			
review and revision of			
information packages			
6. Assessment of Sharing	Achieved		
best practices through			
information packages			
7. Development of	Achieved	Although this was not originally	To ensure that all Aqua Shop operates within the
standards for fish farm		conceived as an output it became	confines of a given standard of inputs and services; to
inputs		a priority that had to be achieved	ensure that clients get the same services from whichever
		before the shops could be	Aqua Shop they visit
		opened	

8. Catalogue of key input	Achieved		
suppliers developed and			
provided to the aqua Shops			
9. Training modules on	Achieved	Development of curriculum was	
business management and		not a planned output but was	
Aquaculture services and		deemed necessary as an essential	
products developed;		standard and guideline material	
collated into Aqua Shops		for future use and sustainability	
Operators Training			
curriculum			
10. Training of Franchisees	Achieved		
in business management			
and Aquaculture products			
and services			
 Initial stakeholders' 	Achieved	Draft regulation on licensing of	To promote law, order and accreditation measures in the
consultative meeting to		AquaShops developed. It will be	operations of Aqua Shops
bring Understanding on the		subjected to stakeholders'	
Likely Policy, Structural and		validation before it is gazetted	
Regulatory Changes			
necessary for Aquaculture			
Development in Kenya;			
Engaging in consensus			
building process with policy			
players resulting policy			
change priorities;			
Submission and follow up of			
findings and policy change			
priorities with government			
decision making bodies			
12. Geo-referencing	Achieved	Output not planned for initially	
mapping exercise to identify		but become necessary tool for	
the most viable aquashops		decision making in locating aqua	
locations vis- a- vis		Shops	

surrounding fish farms/ponds undertaken			
13. Developed Aqua Shop logo, used for branding the aqua Shops	Achieved	Not originally a planned output. For ease of Aqua Shops identification. Also as a marketing strategy for the Aqua Shops services and products	
14. Operational guidelines and standards for the establishment, set up, storage, display facilities and minimum technical qualifications required to run the aquashops developed 1.	Achieved		
15. Farmer group Support through training in best fish farm management practices, and Organisational Development	Achieved	Activity deemed necessary to improve on farm management by farmers which was very wanting; to strengthen clusters and to stimulate demand for Aqua Shops services	

Activities undertaken for putting knowledge into use

Briefly describe the nature of specific activities you have adopted in your project to achieve the outputs stated above, please refer to the Project Log frame to answer this section. Did you have to use any new activities [other than what you have committed in the log frame] or modify these activities and if so explain the reasons for the same.

The team had to develop the business foundations for the Aquashops. Identifying the required inputs (eg feed) and then working with the Kenyan Bureau of Standards to agree standard for them.

Farmer training stimulated individual demand as well as developing farmer groups which would comprise the initial market for each Aqua Shop.

Franchisees were sought, selected and trained through a course developed by Moi University for this project. Links with the Directorate of Fisheries have been critical throughout as it is they who are funding a massive expansion of fish farming infrastructure (particularly ponds) throughout the country.

Partnerships

i). Have all partners listed in your project proposal contributed as expected in the project? Did you have to drop some of the partners and bring in new partners to achieve the objectives of your project? Kindly describe your experiences in this regard.

i) Due to a change of staff at NR International their role in the project reduced for policy development. FARM-Africa staff in conjunction with Kenyatta University and Stirling University took a more active role in this area than was originally envisaged.

Policy change

i). Have you engaged with policy makers in this project and what has this experience been like?

ii). Who are the critical policy makers /policy influencing groups that are essential for up-scaling your interventions? What mechanisms were used to engage with policy makers?

iii). Please detail policy changes to which your project has contributed, for example have any other organisations adopted or promoted lessons derived from your project?

- i) The team worked extensively with the Kenyan Bureau of Standards to develop quality standards for fish farming inputs so that Aqua Shop customers would know they were purchasing inputs of a known quality. The experience has been very positive.
- ii) Project has supported drafting of the Aqua Shops Licensing regulations which will soon be subjected to stakeholders' validation. With the recent establishing of the Ministry of Fisheries the active engagement of the Director of Fisheries has resulted in his enthusiastic support of Aquashops throughout and he is keen to see scaling up of this initiative. The project addressed an unfulfilled gap in the Government policy as it coincided with a massive investment in fish farming by the government of Kenya.
- iii) Discussions have been started with GATSBY on how the Aqua Shop concept can be adapted to fit into their planned interventions
- iv) Project participated actively during the development of National Aquaculture policy, ensuring that the policy priorities presented by stakeholders were adequately addressed by the policy;

Organisational & Institutional Change

i). Has your project resulted in development of new working practices, regulations, functional changes in organisations, emergence of new partnerships etc. within your own project teams and also outside? What has been the effect of these changes?

- ii). Have there been any unintended changes / consequences?
- i) Operational guidelines and standards for the establishment, set up, storage, display facilities and minimum technical qualifications required to run the Aqua Shops developed
- ii) Aqua Shops Operators Association formed
- iii) Farmer groups formed to provide support and marketing services to members;
- iv) Partnerships between certified input suppliers and Aqua Shops franchisees

Lessons learnt

i). What lessons have you learnt about how to put research into use and enable innovation in agriculture?

- ii). Have you shared these lessons with others and if so with whom and how?
- iii). Also, describe what has not worked and explain the reasons why not.
- iv). What kinds of challenges did you face while up-scaling/promoting new knowledge under this project and were you able to address these and if so how?

v). What kinds of challenges [technical, organisational, marketing, policy etc.] continue to remain and how you think these could be resolved?

- i) Adaptation of the research may be necessary during implementation
- ii) Various forums including workshops, meetings, emails, etc been used to share lessons and create awareness on the initiative
- iii) Establishing a franchisor did not work as planned in the project proposal but has been adapted
- iv) Prolonged drought and resultant water scarcity in project areas slowed down use of Aqua Shops services;
- v) Scarcity of quality seeds and affordable feeds remains a challenge and may slow down the sub-sector's growth. There is need to encourage private Sector participation in the production of these two important inputs and also need to adapt/formulate affordable yet effective feeds which can perform in the pond system that majority of the farmers use;
- vi) Market oriented clusters formation at farmer level and production planning to ensure consistence supplies would address marketing challenges
- vii) Improved fish farming husbandry practices would improve the yield at farm level and at the same time increase demand for the aquashop services. This can be achieved through capacity building and mentoring;
- viii) Lack of management skills by the farmers, in accessibility to high value markets, weak clusters, low supplies of quality fish feeds; through strengthening of farmer groups, training of farmers in best management practices and increasing the supplies of quality seeds through Private-Public Partnerships and scaling up Aqua shops to provide services and inputs to farmers

Project Beneficiaries / Scale achieved

Project Output	Number & Type of Indirect Beneficiaries	Number & Type of Direct Beneficiaries	Male Beneficiaries (indirect and direct)	Female Beneficiaries (indirect and direct)	Total	Evidence Index*
Output No 1- Upto Six Franchisees in Kenya Serving six outgrower groups each, with approximately 15 members each,	3153 farmers benefit from Aqua Shops services;	552 farmers benefit from project training programmes; 6 franchisees	2270 & 398 5 male franchisees	883 & 154 1 female franchisees	3,705 6	Refer to Training & Workshop reports
supporting in total up to 1,000 out growers						
	12,000,000 additional seeds per year from Jewlet Enterprises; this will supply 12,000 farmers operating 300M ² ponds with seeds	12,000 fish farmer households; 30 employees on the farm; 6 AquaShops	These are anticipated supplies and so have not disaggregate in terms of males & females at this point			

Poverty reduction & Income generation

i). Describe your achievements here, and please refer to the details in your logframe, for example '2000 farmers from Nawaparashui in Nepal have increased their income by 20%'.

ii). How much has the base line data collected in the beginning of the project helped shape your project activities? Has that data been analysed and do you have a copy of the baseline report?

iii). Have you conducted an impact assessment study? What are the main findings? Kindly attach a copy of the impact assessment report Make sure that all information provided here correlates with the evidence you have collected. Please include the evidence as separate attachments to
this report and label the attachments appropriately.

i) Project had proposed 1,000 farmers being reached, project has reached 3,153 instead

ii) The market research report was used to provide baseline information

iii) An impact assessment has not yet been done. An evaluation is planed for the month of June 2011

Social Exclusion & Gender

i). Please explain how the project has targeted women and other socially excluded groups, and provide evidence of the projects impact on gender and social exclusion.

ii). Have you used the data your project has collected on gender and social inclusion in deciding or shaping the project interventions?

i) Approximately 28% of the project beneficiaries were women, the rest men

ii) Land ownership is male dominated; women and youth do not own land. Hence more men benefited from the project support even though women provide the actual labour on the farm – further work in processing and marketing will/can include more women and youths in the upper end of the value chain where the basic factors of production that contribute to their exclusivity are not necessary

Unexpected Outcomes

Have there been any events or activities that have happened during project implementation that were never planned, but resulted in new, better or worse outcomes related to your project?

Aqua Shops launch – Resulted in significant local, national and international awareness creation about the Aqua Shops initiative. Subsequently the project received substantial number of enquiries on the concept and the possibility of locating Aqua shops in other areas outside the project area

Annex 11 Final reports from RIU Best Bets portfolio

Project Title: Aqua Shops: Building Services, Market Linkages, sharing best Aquaculture practices and Supporting Policy for Aquaculture Development in Kenya (July 2011-June 2012)

Lead Project Organisation: FARM Africa

Knowledge being put to use

Identify and describe all the knowledge products/processes that have been put to wider use in this project. This can refer to methodologies, techniques, tools and resources etc. Please refer to your country strategy documents to answer this section. Please also provide data on the number relevant to, or designed primarily for use by, women.

RNRRS generated knowledge used:

R6759, R8100, R8334, R8363 (all based in India, the Best Bet was the first transferral of these research outputs to Africa)

Non RNRRS generated knowledge used: Also built on the STREAM and NACA initiatives in fish farming in Asia

Project Outputs

In this section we would like you to describe the status of achievement of your stated (knowledge) outputs and also the changes (if any) that have taken place to your project outputs. Kindly explain the reasons for the changes (if any) that have occurred.

In the activities section briefly describe the nature of specific activities you have adopted in your project to achieve the outputs. Did you have to use any new activities or modify these activities and if so explain the reasons for the same.

Project Output Title	Activities undertaken /changes in activities	Status of achievement	Deviations if any and the reason for the deviation.	Please provide a brief description of the management decisions and strategic direction taken that affected the project outputs.
1. 6 – 10 publications in relevant format (e.g. laminated cards) and language	 100 Targeted farmer beneficiaries and 6 Aqua Shop franchisees were consulted in order to know their aquaculture related information needs; The survey revealed that farmers need for information was diverse. Farmers identified the following areas of information gaps, which if availed could improve their farming and business orientation: i). How to cut costs and increase profit, ii). How to process fish hygienically; iii). Value addition, iv). Feed rations v). How to develop an investment plan; vi). Marketing – how to develop a marketing plan, identify marketing channels in order to meet marketing goals, vii). How to keep predators away, viii). Water quality management; ix). Fish transport Aquaculture technical expert with experience in manual development was competitively recruited to develop the manual 3. The draft manual was peer reviewed by aquaculture experts, aqua shop franchisees and farmers 	An Aquaculture Extension manual which covers all the information gaps highlighted by farmers during the consultations has been finalised and is currently undergoing final formatting before being mass produced.	The original output of publishing 6-10 publications was varied and instead a more holistic manual covering all farmer and Aqua Shop information needs has been developed. This was particularly useful as a means of standardising aquaculture technical information that was previously regarded as a challenge. The manual covers more than 20 aquaculture topics as opposed to 6-10 topics oroginally planned. Farm Africa was, however, able to use the available resources to get double the results.The content of the manual was peer reviewed by a number of experts and approved to be of quality and relevant to the information needs	Key information gaps were identified and compiled into one manual. More gaps will be identified and more manuals developed. The comprehensive manual developed was used by the farmers to: • enhance both private and public extensionist and farmer technical knowledge on aquaculture • standardise the way extension information is disseminated • standardise the content of technical information disseminated. The format of the manual will be finalised by the Farm Africa communications department.

Project Output Title	Activities undertaken /changes in activities	Status of achievement	Deviations if any and the reason for the deviation.	Please provide a brief description of the management
				decisions and strategic
				direction taken that affected
				the project outputs.
	and their input used to enrich the		of the stakeholders. Once	
	final manual		finalised, the manual will	
			be an easy to read and	
			carry manual available	
			through the Aqua Shops	
			and interested farmers will	
			be able to access it as a	
			whole document or copy	
			sections that are relevant	
			to them. The manual can	
			also be used by	
			Government extension	
			staff.	
2. Broadcast Media i.e. How	1. Terms of reference was	Completely achieved	N/A	N/A
To's and marketing aquaculture	developed and a competent			
(and Aqua Shops). Looking at a	expert in documentary production			
documentary style video that	competitively hired;	The documentary on making		
shows the process of fish	2. A profile of beneficiaries to be	fish farming pay has been		
farming as a business	documented was undertaken	produced and it is easily		
principally for marketing to	3. A script was developed,	accessible to farmers through		
investors. Targeted at farmers	shooting for the documentary	the Aqua shops.		
will be small spinpets for	documentary entitled: Agua Shon			
cortain aspect o g how to make	– Making Fish Farming Day was			
it a business, effective feeding	produced			
etc.	4. A documentary shooting of the			
	aqua shop project activities by BBC			
	Horizon in Samia District			
	dedicated to 'Food Sustainability'			

Project Output Title	Activities undertaken /changes in activities	Status of achievement	Deviations if any and the reason for the deviation.	Please provide a brief description of the management decisions and strategic direction taken that affected the project outputs.
	titled " <u>establishing sustainable fish</u> <u>farms and a sustainable livelihood</u> <u>for farmers along the shores of</u> <u>Lake Victoria"</u> . The episode will incorporate fish supplies and the sustainable farming initiatives that are taking place around Lake Victoria in Kenya as a result of the work of Aqua Shop project initiative. The documentary was broadcasted through BBC world wide channel and Bloomberg with viewership of almost 350 million audience			
3. 2 – 3 local radio programmes using established radio culture for distributing information on cropping and livestock keeping	A profile of key aquaculture players to participate in the radio programme was developed; Quotations from 2 radio stations with wide coverage were received	5 aquaculture personalities were profiled and consulted on their availability to participate in the programme, and they were affirmative; Quotations from Radio Citizen and KBC for the planned programmes received Aqua Shop operators have participated in several local radio interview programmes, educating the public on best fish husbandry practices	It was not possible to actualise the programme due to the cost implication. The costs quoted by the radio stations were too high and the project finances were not able to accommodate. Inflation and the resultant increase in cost affected the project budget	Due to the cost implication, selected farmers were to be involved in local interview programmes on fish husbandry.
4. Policy brief in relation to Fish Feed Standards on regulations and legislation to operationalise the Minister of	Key stakeholders consultations under the guidance of Kenya Bureau of Standards (KEBS), Kenya Marine and Research Institute and	Tilapia feed standards, both complete and complimentary have been finalised and gazetted;	None	

Project Output Title	Activities undertaken /changes in activities	Status of achievement	Deviations if any and the reason for the deviation.	Please provide a brief description of the management decisions and strategic direction taken that affected the project outputs.
Fisheries' role in aquaculture – this will be drafted by RIU team and published by the Ministry of Fisheries.	expert nutritionists was convened to develop draft fish feeds and hatchery operation Standards. The draft standards were subjected to committee negotiations under the chairmanship of KEBS; A final standard for complete and complementary tilapia feed was developed and validated in a wide stakeholder forum and is already gazetted; Final standards for catfish feed, tilapia seed and hatchery operation standards awaits stakeholders' validation and gazettement.	A final catfish feed and tilapia seed standard awaits validation.		
5. Baraza's – informal meetings at markets used to market products and services.	Informal meetings were organised and held at various villages within the Aqua Shops catchment areas. Aqua Shop operators, Ministry of Fisheries officers in charge of the targeted areas and Farm Africa project staff took part in the barazas. The main purpose of the barazas was to market aqua shop services and products to the farmers, link the aqua shop operator with the farmers and for the farmers to air out their aquaculture related needs besides	Six barazzas were held in Ogembo, Kisii, Nyakoe, Mumias, Malava and Lurambi areas reaching 606 farmers. This has served as an effective platform for the stimulation of demand for Aqua Shop services and products and for the aqua shop operators to get first hand exposure to the level of operations and needs of the targeted farmer clientele.	None	None

Project Output Title	Activities undertaken /changes in activities	Status of achievement	Deviations if any and the reason for the deviation.	Please provide a brief description of the management decisions and strategic direction taken that affected the project outputs.
	the aqua shop operator knowing where farmers within their catchment were located.			
6. Feasibility study of Aquaculture Sub sector to generate more information for the Aqua Shop franchisor financials.	Desktop research and interviews with key aquaculture stakeholders' was undertaken to reveal the status of aquaculture nationally. The data captured was used to generate a draft aqua shop franchisor financials and business plan.	A draft Aqua Shop franchisor business and financial plan has been developed.	These were not finalised due to change of contractual arrangements with H20 mid way through the project cycle and the withdrawal of funds by RIU initially meant for the accomplishment of the activity	Farm Africa plans to find financial resources to finalise this activity. The study will be part of prerequisite steps in developing the aqua shops into full franchises.
7. Four (4) trainings targeting 200 farmers on business orientation & market planning; 2 marketing models developed; 11 Aqua shop operators trained on post harvest technology & production planning	5-day training sessions were convened in 7 locations,Samia, Nyakach, Kisii, Kakamega, Gucha, Malava and Mumias. Training was facilitated by Farm Africa, Aqua Shop Project staff, entrepreneurs and Ministry of Fisheries personnel within the localities. Identification and selection of farmer representatives for the training was done by the Aqua Shop entrepreneurs in close collaboration with the local ministry of Fisheries Officers.	7 training sessions on market planning, husbandry practices and enterprise business management were held, reaching a total of 392 farmers. Farmers were able to identify peak seasons for fish demand and were trained on how to plan their production regime in order to maximise their returns from their enterprises. Two marketing models were developed i.e. selling fish through Aqua Shops and contract buying. Marketing through Aqua Shops was trialled and	Post harvest training for Aqua Shop operators was deferred and will be undertaken jointly with Food Standards Agency in Oct. /Nov. 2012.	Farm Africa and Food Standards Agency (FSA) UK have entered into a partnership where FSA is to provide technical expertise to Aqua Shop project beneficiaries on post harvest technologies and also look into the possibilities of accessing the EU market with farmed fish. The plan is to train Aqua Shop entrepreneurs as ToT who are to cascade down the technical knowledge to fish framers within their locality

Project Output Title	Activities undertaken /changes in activities	Status of achievement	Deviations if any and the reason for the deviation.	Please provide a brief description of the management decisions and strategic direction taken that affected the project outputs.
		farmers were able to realise an average of 33% increment in prices offered. 720 farmers marketed their fish through Aqua Shops.		
8. One (1) financial package relevant to the sub sector developed; Minimum of 9 Groups linked to selected financial institutions.	Selected finance Institutions were invited to all farmers training forums to sensitise farmers on the loan products they provide. Aqua Shop project team provided to selected finance institutions detailed aquaculture practice information necessary for customising sub sector relevant financial package.	2 Micro Finance institutions namely Equity Bank and Kenya Women Finance Trust have customised Ioan packages for fish farmers. The banks are currently using Aqua Shops as platforms for farmers sensitisation and Ioan applications. 100 farmers drawn from 4 groups have received Ioans for investing in their fish farms. Farmers, including Funyula Aqua Shop enterprise, were trained by Equity Bank/FIKA in collaboration with Master Card on budget and credit management.	Loan defaulting among some groups members have made the financial institutions shy away from giving more loans to group members. Group members were finding it difficult to start repaying the loans they were accessed immediately due to limited cash flow.	Negotiations are in place with the financial service providers to provide a loan package for farmers which will enable them to start repaying once they harvest their fish.
9. Maps showing fish farmers locations vis –a – vis local trading centres developed;	Two counties, Kakamega and Kisii, in Western Kenya with high aquaculture potential were selected for scale out. GIS mapping of fish ponds location vis-a-vis local trading centres was undertaken.	GIS map identifying 6 trading centres namely Mumias, Malava, Ogembo, Lurambi, Kisii town and Nyakoe as central places where fish farmers within the catchment areas can be reached		

Project Output Title	Activities undertaken /changes in activities	Status of achievement	Deviations if any and the reason for the deviation.	Please provide a brief description of the management decisions and strategic direction taken that affected the project outputs.
Clear guidelines on qualification criteria for franchisees.	Adverts targeting entrepreneurs with interest in setting aqua shops and required expertise was developed and posted in public places; A total of 15 applications were received; they were subjected to vetting and 6 qualified entrepreneurs were selected	conveniently have been developed Clear guidelines and selection criteria in place and documented		
management and aquaculture technical issues 5 new Aqua shop franchises established;	6 entrepreneurs were taken through an intensive training programme on aquaculture products and services and business management. Mobilisation of the Aqua Shop entrepreneurs. Selection criteria developed.	6 new Aqua Shop franchisees were established after undergoing pre requisite training and given initial support. Training report in place. The requirements for the establishment of a franchise have been clearly stipulated and documented.		
Data template for performance monitoring developed	Data template for capturing information on Aqua Shop sales turnover, purchases, clientele: location, type and number of fish	Quarterly monitoring data being submitted by the Aqua Shops; Submitted data being		

Project Output Title	Activities undertaken /changes in activities	Status of achievement	Deviations if any and the reason for the deviation.	Please provide a brief description of the management decisions and strategic direction taken that affected the project outputs.
	stocked, date of stocking, expected date of harvest, and overhead costs were developed in consultation with Aqua Shop entrepreneurs. The aqua shop entrepreneurs were trained on how to capture the required data and populate on the templates.	analysed and used for making strategic decisions necessary for improvement of Aqua Shop and farmer operations.		
10. Monitoring and evaluation	Quarterly monitoring of fish farmers and Aqua Shop operators to determine progress, success and challenging factors were undertaken on quarterly basis throughout the project period. Field visits were done.	Monitoring reports in place Documentation of follow up monitoring information in place	Plans for an external end of project evaluation had budget shortfalls.	The end of term evaluation will be conducted using other sources of funds

Partnerships

i). Have all partners listed in your project proposal contributed as expected in the project? Did you have to drop some of the partners and bring in new partners to achieve the objectives of your project? Kindly describe your experiences in this regard.

ii). When working to strengthen and enhance relationships what do you think worked well?
i). The project partners listed in the proposal contributed as expected.H2O Venture Partners contracted to support franchise development and commercialisation exited the partnership six months into the project. Finances for undertaking these activities were also withdrawn by DFID-RIU. As such, the project ended without thorough information and documentation on the commercialisation aspect of the franchise. However the project team worked very closely with the Ministry of Fisheries Development, both the Research (Kenya Marine and Fisheries Research Institute) and management arm to accomplish a number of milestones and to influence policy changes. There was also close collaboration with Kenya Bureau of Standards (KEBS) in the development of standards, suppliers of aquaculture inputs both in Kenya and Uganda, radio stations which led to the creation of awareness of the aquaculture enterprise through interviews, microfinance institutions notably Equity Bank and Kenya Women Finance Trust (KWFT) which equipped the farmers and aqua shop entrepreneurs with financial knowledge and opened doors for access to credit.

ii). The partnerships worked well due to :

Open communication channels with regular feedback in instances where the partners and stakeholders had a role to play.

Inclusion of partners in the implementation of project activities relevant to their areas of operations and expertise. The project organised forums to support the private sector partners market their services to the farmers and other stakeholders hence creating a market linkage.

Workshops and barazzas provided an opportunity for partners and stakeholders to network, share and disseminate information.

Regular visit and backstopping to the various partners by the project staff ensured that the partnership momentum already created is maintained.

Agreeing on milestones, key activities to be implemented to realise the milestones, timelines and responsible persons meant that the partners were able to work towards the same goals and objectives without duplication of efforts. Having a coordination office to check on progress and provide logistical support helped to ensure that activities were implemented in a timely and effective manner.

Policy change

i). Have you engaged with policy makers in this project and what has this experience been like?
ii). Who are the critical policy makers /policy influencing groups that are essential for up-scaling your interventions? What mechanisms were used to engage with policy makers?
iii). Please detail policy changes to which your project has contributed, for example have any other organisations adopted or promoted lessons derived from your project?

i). The project engaged with policy makers in the formulation of standards for key aquaculture inputs namely feed and seeds. There were in-depth consultations with policy makers on the justification

and rationale of having these standards in place done and a road map towards development of these standards was drawn. The experience gathered here was that influencing policy is possible when the key policy makers engage directly and give input in addressing the policy gap

ii). Ministry of Fisheries technical arm, Researchers from Kenya Marine Fisheries Research Institute, Kenya Bureau of Standards, Moi University Fisheries Department and Private Sector Association of Feed and Seed Providers. Consultative forums were used to engage these policy makers.

iii). Development of both complete and complimentary feed standards for tilapia fish. These standards have been adopted and gazetted and are guiding the entire national aquaculture sub sector in Kenya. The feed standards are available to all interested citizens on application at the Kenya Bureau of Standards at a subsidized cost. Before Farm Africa support, there was no standard to guide the fish sector and many private manufacturers of feeds produced sub standard feeds and charged exorbitant prices

Organisational & Institutional Change

i). Has your project resulted in development of new working practices, regulations, functional changes in organisations, emergence of new partnerships etc. within your own project teams and also outside? What has been the effect of these changes?

ii). Have there been any unintended changes / consequences?

i). New partnerships between the private entrepreneurs operating Aqua Shops and those providing essential services to the farmers has emerged. There has been partnership with key input suppliers like Ugachick in Uganda, Jewlet hatchery in Rachuonyo, Ugafeeds in Kenya, Dominion hatchery, Crop King hatcheries, Sigma feeds, Miller Corporation of Kenya in Nakuru and Monassa Nets in Kisumu among others emerged. There has been a very strong working relationship with the Ministry of Fisheries which is the mandated authority for all matters related to fisheries in Kenya. The project has revealed to the Aqua Shop entrepreneurs a key business opportunity within the aquaculture sub sector and how to design their services in order to meet the gaps experienced by fish farmers. In this way, the project has developed new working practices for the fish industry in Kenya.

ii). The Ministry of Fisheries has identified the Aqua Shop initiative within their Vision 2030 flagship project as one of the key strategic activities necessary for propelling and enhancing the contribution of aquaculture towards the realisation of Kenya Vision 2030.

Lessons learnt

i). What lessons have you learnt about how to put research into use and enable innovation in agriculture?

ii). Have you shared these lessons with others and if so with whom and how?

iii). Also, describe what has not worked and explain the reasons why not.

iv). What kinds of challenges did you face while up scaling/promoting new knowledge under this project and were you able to address these and if so how?

v). What kinds of challenges [technical, organisational, marketing, policy etc.] continue to remain and how you think these could be resolved?

i) The aqua Shop concept has been adopted from the original RIU support in Orissa – India where the NGOs and government were running the Aqua Shops. However, in Kenya the Aqua Shop concept has been adapted to bring on board private entrepreneurs to ensure sustainability and

continuity. Lesson learnt is that adaptation of concepts to local needs and situation is necessary during implementation of innovations to ensure sustainability.

- Various forums including workshops, meetings, emails, and media among others have been used to share lessons and create awareness on the initiative. The lessons were shared with aqua shop operators, ministry of fisheries, fish farmers, private entrepreneurs and Kenya bureau of standards.
- iii) Establishing the commercial viability of the Aqua Shops franchise did not work as planned due to change of partnership during project implementation. However, Farm Africa has already put in place modalities to accomplish this.
- iv) Scarcity of quality and affordable fish feed remains a challenge and may slow down the subsector's growth. There is need to encourage private sector participation in the production of important aquaculture inputs and also need to adapt/formulate affordable yet effective feeds which can perform in the pond system that majority of the farmers use. Continued provision of subsidy by the government to the fish farmers is creating a dependency syndrome amongst the fish farmers and killing business acumen amongst the beneficiaries.
- v) Husbandry practices amongst the farmer beneficiaries are still rudimentary impacting negatively on pond productivity and accrued income; the aqua shop entrepreneurs still require backstopping services and training on certain aspects of aquaculture before they can become competent in disbursement of technical services; weak clusters and lack of cooperation in fish production and marketing remain; there is a slow uptake of credit facilities due to apprehension on collateral requirements; and low quality of input supplied and over reliance on government input subsidies are some of the key challenges that still persist.

Means of resolving:

Training and mentoring programmes focusing on technical aquaculture information, husbandry practices and business skills has the potential to resolve the existing knowledge gaps necessary for any aquaculture enterprise to succeed; Strengthening farmer based marketing institutions through promotion of cluster based production, production planning and marketing and also direct linkage to premium markets has the potential to resolve this challenge for organised marketing.

Increased participation of Private-Public Partners of input producers in standard and quality development and enactment of self regulation in terms of adherence these standards should be pursued .

Alternative financing mechanisms that do not necessarily require collateral for example promoting table banking amongst the small holder farmer groups or trialling credit scheme through aqua Shops where farmers are given input credit to be paid back upon fish harvest should be explored.

This will help address the challenge of capital which fish farmers would always present as the problem preventing them from engaging in fish farming.

Engage the government and work out an exit plan from the subsidies. Dialogue with the Policy makers to improve their understanding on the negative impacts of subsidies on the development and sustainability of the aquaculture sector.

Project Output Number & Type of Indirect Beneficiaries	Output No 1- Aquaculture Extension Manual The entire Aquaculture industry will benefit	Output No2 – documentaries': Making Fish Farming Pay & BBC Documentary The entire Aquaculture industry will benefit	Output No 4 – Policy brief on fish feed standards The entire national Aquaculture industry	Output No 5: Informal meetings/ barazas 3,030 general community members were reached through barazzas	Output No 7: Trainings on business orientation, marketing models & production planning Trainings on business orientation, marketing models and production planning benefitted none indirect beneficiaries due to the nature of the training	Output No 8 - Financial packages Package developed being used nationally and applies to all fish farmers. Within project area. 100 farmers acquired credit.	Out No 9: Aqua Shops established 12(aqua shops) 16,890 beneficiaries who included small holder farmers household members and community members were reached through the establishment of aqua shops
Number & Type of Direct Beneficiaries				606 small holder farmers	695 small holder farmers	100 small holder farmers	3378 Small holder farmers
Male Beneficiaries				Direct: 455	Direct:522	14 (Direct)	(Direct) 2534
(indirect and direct)				(Indirect)2275	(indirect)2610		(indirect)12670
Female Beneficiaries				Direct: 151	Direct:173	86 (Direct)	(Direct) 844
(indirect and direct)				(indirect)755	(indirect)865		(indirect)4220
Total				3636	4170	100	20,268
Please describe the	Improved	Information	Standardised	Awareness on	Learnt improved	Scale up of	Ease of
benefits to the	knowledge	sharing for	approach on	aquaculture	husbandry practices.	fish farming	accessing
beneficiaries for	and skills of	capacity	tilapia fish	related services			aquaculture

example what was	farmers and	building.	feeds.	within their	Easy access to	inputs, services
the impact/ result of	aqua shop	_		localities; roles	fish farming	and approval of
delivering the output.	entrepreneurs	Creation of		and location of	inputs	concepts and
Please try to quantify	Development	awareness on		aqua shops;		franchises
your responses, so	of a systematic	fish farming		briefing on best		
use numbers,	and	Initiated		fish husbandry		
percentages etc.	standardised	interest in		practices.		
when describing the	manual for	undertaking fish				
benefits.	farmers.	farming as a				
		business				
Have you conducted						Impact
an impact assessment						assessment not
study? What are the						yet done
main findings? Kindly						
attach a copy of the						
impact assessment						
report.						
Evidence Index*	These should be	annexes to your re	port			
	-GIS Mapping of	fish farmers location	ons			
	-Guidelines and	qualifications crite	ria for Aqua shop	s operators		
	-Training report	of aqua shop opera	ators			
	- Fish Feed stand	dards				
	Construction Co					
	-Case study: Sau	ii Odenyo – Funyula	a Aqua Shop			

Social Exclusion & Gender

i). Please explain how the project has targeted women and other socially excluded groups, and provide evidence of the projects impact on gender and social exclusion.

ii). Have you used the data your project has collected on gender and social inclusion to help shape project interventions?

- i). Despite fish farming being a male dominated sector, Farm Africa managed to ensure that almost a third of the project beneficiaries were women, approximately 28%. This was achieved through sensitisation and awareness creation during public barazzas where women and youth were encouraged to take an active role in aquaculture related activities. All project sponsored forums gave priority to these marginalised groups.
- ii) Land ownership is male dominated; women and youth do not own land. Hence more men benefited from the project support even though women provide the actual labour on the farm. Further work in processing and marketing can include more women and youth in the upper end of the value chain where the basic factors of production that contribute to their exclusivity are not necessary. Borrowing from the capture fisheries, men go fishing at night and when they fish, women dry the fish or smoke the fish or freeze the fish, likewise in aquaculture it is possible to involve both women and youth at the end of the value chain, by forming fish selling cooperative societies where all the fish is collected and bulked before being sold to the local or international markets.

Expected and Unexpected Outcomes

i). We would like to identify theories of change that underlie project activities. By theories of change we mean 'a process of planned transformation (economic, social or political) including an articulation of the assumptions that lie behind its design and its goals'. Although theories of change were not made explicit early on in project activities, please identify theories of change / the underlying assumptions that your project was based on.

ii). Were the assumptions in your theories of change correct? Did the project go as you predicted it to? If not, what did cause the changes to take place in your project?

iii). Have there been any events or activities that have happened during project implementation that were never planned, but resulted in new, better or worse outcomes related to your project?

i). The Aqua Shop project was based on a social enterprise theory of change. The project was therefore to influence and catalyse the development of a win-win situation between the entrepreneurs and farmers creating impact at business and social levels. The project identified community entrepreneurs who have business interests and who have brought social change within their communities by taking the lead as change agents.

The project contributed to the development of a policy brief on feed standards with other stakeholders. The policy has been gazetted and it is meant

for farmers country wide.

The project has developed two marketing models for the fish farmers. The models have enabled the fish farmers to sell their fish easily through the aqua shop and have increased the market prices by 33% reaching 720 farmers. The project has also developed a model on contract buying and has identified markets for selling fish and the best periods to do this.

Fish farmers and Aqua Shop entrepreneurs knowledge and skills in fish farming have increased through training and capacity building.

ii). The assumptions were correct to an extent even though creating a completely working win-win situation is not very easy to uphold. This has been observed in instances where the aqua shop entrepreneurs ignore laid down standards of inputs and service delivery in order to realise higher revenues. The aqua shop operators wanted to make high profit margins which were not equal to services provided.

iii). Continued supply of subsidy by the government to the farmers impacted negatively on the productivity of farmers and the sales from Aqua Shops; Aqua Shops operators are entrepreneurs who would wish to make profits at the end of the day, one of their key inputs is fish feeds and fish seeds, so if the farmers can get these key inputs from the government at a subsidised price, then it means the Aqua Shops will not be in Business. Therefore, it necessary for the government to involve the Aqua Shops as their outlet points of these subsidies for the duration of subsidizing since it is a onetime effort. This may lead to the aqua shops not being relevant and hence force the farmers to go back to their former status..

The broadcast by BBC Horizons created awareness and generated interest at an international level.

Annex 11 Final reports from RIU Best Bets portfolio



Aqua Shop fish farmers feeding fish - linked to Namboboto Aqua Shop, Samia district, Busia County



An Aqua Shop entrepreneur, Owaka Agro Dealer & Aqua Shop displaying products on sale at his Aqua Shop

Project Title: Safe and Affordable Armyworm Control Tools (SAACO-Tools) for poor farmers in East Africa to protect their crops against devastating armyworm outbreaks

Lead Project Organisation: CABI

List of Partners:

Eco Agri Consultancy Services Ltd, Tanzania (EAC); Ministry of Agriculture and Food Security, Tanzania (MAFSC); Ministry of Agriculture, Kenya (MoA) Natural Resources Institute, UK (NRI); Lancaster University, UK (LU); Desert Locust Control Organisation for Eastern Africa, Ethiopia (DLCO-EA); Pest Control Products Board, Kenya (PCPB); Tropical Pesticides Research Institute, Tanzania (TPRI); Bajuta International, Tanzania (Bajuta); Juanco SPS, Kenya (Juanco) Ministry of Agriculture and Rural Development, Ethiopia (MoARD)

Knowledge being put to use

Identify and describe all theknowledgeproducts/processes that have been put to wider use in this project. This can refer to methodologies, techniques, tools and resources etc. Please refer to section 2.6 and 3.1 of your full proposal to answer this section. Please also provide data on the number relevant to, or designed primarily for use by, women.

RNRRS generated knowledge used: R5270, R6746, R6762, R7966, R7954, R8407 (on the development of pheromone based forecasting traps and their utilisation by communities and on the identification and use of the natural SpexNPV for the control of armyworm)

Non RNRRS generated knowledge used: Approaches have been further refined through donor support, e.g. use of Spex NPV through DFID/ BBSRC funding, community based forecasting through SADC and USAID funding.

- (i) Local newspapers (Print): The East African, 14th -20th June 2010; Daily Nation, 25th May 2010; Business Daily, 7th June 2010)
- (ii) On-line media: All Africa, 3 June 2010; Africa Science News Service, 10th June 2010; Africa Press International, 19th May 2010
- (iii) "Putting Research into Use: Community Based Armyworm Forecasting in Kenya" A paper prepared for the 12th KARI bi-annual conference, November 2010.
- (iv) Shujaaz: <u>http://shujaaz.fm/index.php?option=com_content&view=article&id=93&Itemid=101</u>
- (v) Naked Scientists: <u>http://www.thenakedscientists.com/HTML/podcasts/africa/</u>

Project Outputs

Project Output Title	Status of achievement	Deviations if any	Reasons for the deviation
1 Pheromone protocol	Achieved with a very		
developed	straightforward		
	protocol developed		
	and agreed.		
2 Forecast tool supply chain	At time of writing –		A slight delay caused by a delay with the process of
established	partial and underway,		establishing pheromone registration. The process of
	distributor and		developing registration requirements and procedures
	producers signed up		for introduction of semio-chemicals involved many
			stakeholders, meetings and workshops before
			acceptance.
3 Spex NPV production	Achieved. The		
established in Tanzania	timeframe was very		
	tight but the team has		
	done very well.		
4 Training of trainers	Achieved. 112 Tot		
courses	trained in Kenya, 40 in		
	Tanzania		
5 CBAF established in 120	Achieved		
villages			
6 NPV registration data	Achieved.		
submitted	Government of		
	Tanzania has		
	approved and		
	supports the use of		
	NPV		
7 SACCO tools developed in	Achieved in both		
government plans	Kenya and Tanzania		
8. Marketing strategy	Achieved in both		

Kenya and Tanzania –	
Elgon Kenya and	
Bajuta International	
arranging for	
importation of	
SAACO tools from	
Russell IPM	

Activities undertaken for putting knowledge into use

Briefly describe the nature of specific activities you have adopted in your project to achieve the outputs stated above, please refer to the Project Log frame to answer this section. Did you have to use any new activities [other than what you have committed in the log frame] or modify these activities and if so explain the reasons for the same.

The community based forecasting (CBAF) element has required the following activities: 1) Training of trainers so that there is the expertise to establish community based traps, these will stimulate demand for inputs as well as proving the concept to the Ministries in which this approach is to be embedded. 2)In Kenya developing a registration protocol so that the pheromone can be legally imported into Kenya and marketed within Kenya (this is not necessary in Tanzania) 3) Achieving government commitment (including financial) to ensure that there is continual use of these products after RIU funding (and therefore upscaling) which will provide a certain level of market stability for the inputs. The supply chain of inputs is now being developed. 4. Creation of awareness through field days to assure community understanding and ownership of CBAF activities to ensure sustainability The production of Spex NPV has required the purchase of land and a facility to be constructed. This has all gone as planned and the new facility has been set up and equipment commissioning began in May. The team have done some trial been harvesting armyworm for the production of NPV but due to the low number of outbreaks in 2011 a full harvesting programme could not be undertaken as planned. However importantly harvesting techniques were validated in the trials and improved methods for mass harvesting developed. The team have also been working closely with the appropriate policy makers in Ministry of Agriculture and Food Security (MAOFS) in Tanzania to obtain their support and involvement in the use of NPV both in conjunction with CBAF and its commercial sale.

Partnerships

i). Have all partners listed in your project proposal contributed as expected in the project? Did you have to drop some of the partners and bring in new partners to achieve the objectives of your project?Kindly describe your experiences in this regard.

- Partnerships have operated at different levels, for example the link with Ethiopia has been more informative than activity based. During the development of registration protocols for the pheromone certain relationships were more important but now there is a great emphasis on the links with the supply chain actors and the Ministries of Agriculture which continue to give support to the initiative and the supply chain. This relationships have also worked well because of a clear understanding of the need to fight a common enemy (armyworm) that traverses boarders i.e. has no boundaries and is erratic in occurrence. An additional distributor, Elgon Kenya, has joined the team, they come with good enthusiasm. In the process of identifying a supplier / manufacturer for the pheromone traps and lures; Russell IPM was identified. However the Pest Control Products Board requires that there be a local agent. Elgon Kenya was identified as a local agent for Russell IPM.
- ii) The Spex NPV component has been active in identifying and linking to potential customers for SpexNPV. The Tanzanian MoAFS Plant Health Service wishes to procure SpexNPV for its pest control operations. It is also proposing to adopt SpexNPV as the cornerstone of a new project to evaluate strategic national control of armyworm. There have already been requests from a private large scale business Kilombera Plantations Ltd who want armyworm forecasting services and NPV control for 5000 ha of rice which has in recent years been heavily attacked by Armyworm. Expressions of interest in procuring SpexNPV have also been received from the Government of Malawi .Detailed discussions are also underway with Dr Yene Belayene of USAID to support use of SpexNPV in the already established USAID funded CBAF locations in primary outbreak areas of Tanzania.

Policy change

i). Have yo ii). Who ar	ou engaged with policy makers in this project and what has this experience been like? re the critical policy makers /policy influencing groups that are essential for up-scaling your interventions? What mechanisms were used
to engage	with policy makers?
iii). Please	detail policy changes to which your project has contributed, for example have any other organisations adopted or promoted lessons
derived fro	om your project?
i)	The team has spent a lot of time with policy makers on both the development of pheromone registration protocols in Kenya and getting the support of the Governments of Kenya and Tanzania to scale this approach up. The team have invested a lot of time in these relationships and although progress may be considered to be slow it has also been highly effective.
ii)	The teams built on personal relationships, conducted themselves in a very polite manner and invested the time in the relationships with the policy makers. The critical policy makers were within the Ministries of Agriculture in Kenya and Tanzania
iii)	

iii). **Registration**: Development of a Government of Kenya approved simple (no cost, fast) procedure for the registration of pheromones. This will facilitate the commercialisation of other pheromones for lepidopteran pests in Kenya.

Registration: Development of a Government of Tanzania approved simple (low cost, fast) procedure for the registration of SpexNPV. **Policy**: Draft inclusion of community based armyworm forecasting on the GoK permanent secretary (agriculture)'s contract meaning that getting CBAF adopted is a key objective for him. Already the impact of this is being seen with mention of government funds being made available for CBAF. **Policy**: There has been a change in mindset with the Government of Kenya now recognising that CBAF has an important role to play in providing data on armyworm status to add to that from the national network of traps. This will enable more accurate forecasts to be made and control better pinpointed.

Policy: In Tanzania government support has been both financial in terms of adding additional sites for CBAF. CBAF has been integrated into district agricultural development plan (DADPs), thus ensuring longer term sustainability. GoT has also committed to using SpexNPV in its armyworm control programmes to show farmers its efficacy.

iv) SpexNPV component has liaised closely with Dr Katagila and her staff at plant health services of MOAFS through a series of personal meetings, briefings and explanatory leaflets as well as presentations at a recent armyworm workshop and farming training workshops to ensure policy framework to facilitate SpexN PV registration and adoption is favourable. The PHS staff recently visited the new SpexNPV production facility and at the recent armyworm workshop June 8th in Arusha confirmed their very strong support for SpexNPV adoption and commercial production both for local use and export to other African countries. PHS has been very favourably impressed at the speed at which the new SpexNPV production has been established and the high quality of the plant whose facilities are in their view superior to any in Tanzania. There has been a presentation on SpexNPV to National Plant Protection Advisory committee, responsible for advising government of Tanzania on plant protection matters headed by Professor Kalunde Sibuga , the committee have agreed to recommend Government adoption of SpexNPV and support registration of SpexNPV.

Organisational & Institutional Change

i). Has your project resulted in development of new working practices, regulations, functional changes in organisations, emergence of new partnerships etc. within your own project teams and also outside? What has been the effect of these changes? ii). Have there been any unintended changes / consequences?

i).Rather than develop new relationships the team have developed stronger relationships which have brought about the changes described in section 5. New working practices have been developed. In Kenya the Plant Protection Services Division (PPSD) issues regular 'alerts' to staff in areas where CBAF activities are undertaken to pay special attention to CBAF activities. PPSD also supplies pheromone lures for the CBAF traps and the front line staff in the CBAF areas provide regular back stopping to the farmer forecasters. Similarly, in Tanzania the Ministry of Agriculture staffs at the district

and village level now pay special attention to CBAF areas in terms of back stopping. Additionally, there is a pledge for funding of CBAF activities.

ii). There are no unintended changes that I know from CBAF.

Lessons learnt

i). What lessons have you learnt about how to put research into use and enable innovation in agriculture?

ii). Have you shared these lessons with others and if so with whom and how?

iii). Also, describe what has not worked and explain the reasons why not.

iv). What kinds of challenges did you face while upscaling/promoting new knowledge under this project and were you able to address these and if so how?

v). What kinds of challenges [technical, organisational, marketing, policy etc.] continue to remain and how you think these could be resolved?

i). Putting research into use involves team work. Additionally, all team members need to understand the genesis of the research findings and what they are meant to achieve. Key beneficiaries require to be made to own the processes and be able to provide support within their means. Appropriate linkages are of essence. To this end linkages between the key beneficiaries and crucial stakeholders is important. Public-private-partnerships are important and have to be made and maintained. Similarly, linkages with other relevant organization at local and international level are required. Support by the local administration is crucial. Support from stakeholders need to be sought strategically. Involving persons in Key positions in government is paramount for purposes of policy influencing. Creation of awareness to all concerned stakeholders has been found to be an important approach to assure sustainability of the linkages. This involves indication of roles, expected support and economic importance of the armyworm problem. Similarly, production and distribution of publicity materials, indicated in section 1, has been noted to create further awareness and encourage and maintain linkages.

ii). We plan to share these lessons with other organizations that have interest in putting research into use particularly for purposes of enhancing welfare of the farming community. Meetings with policy makers have been conducted to indicate lessons. At these meetings interested stakeholders are invited. Similarly, key persons in governments have been requested to pass lessons identified to interested stakeholders for uptake. iii). None

iv). Dealing with processes that require decisions at high government levels. Scenarios involving public interest and hinging on welfare. We were able to overcome all these by having meetings and consultations with relevant authorities, respecting protocol and involving concerted and targeted dialogue

v). Further policy influencing, communication, promotion and supply chain management. These will be addressed through the same approaches indicated above given that this is for sustainability and expansion of the approach to other countries for purposes of harmonization across the region and beyond.

A key issue is to address indentified needs to which customer exist, MAFSc adopted a policy for using alternative bio-control methods in 2004, NPV

facility address a long-time objective

Project Beneficiaries / Scale achieved

Project Output	Number & Type of	Number & Type of	Male	FemaleBenef	Total	Evidence Index*
	Indirect	Direct	Beneficiaries	iciaries		
	Beneficiaries	Beneficiaries	(indirect and	(indirect and		
			direct)	direct)		
Output 5		80,080 in Kenya	Approx	Approx		These figures come from the number of
		benefitting through	40,000	40,000		people in the communities that are now
		forecasting				utilising CBAF
	The full impact of	25000 in Tanzania	12500	12500		These figures come from the number of
	NPV facility will be	benefiting through				people in the communities that are now
	felt after NPV is	forecasting under				utilising CBAF
	produced and	RIU. The number is				
	distributed to	bigger if previous				
	farmers	initiatives by other				
		project are				
		considered				

Poverty reduction, environmental impact & Income generation

i). Describe your achievements here,.

ii). How much has the base line data collected in the beginning of the project helped shape your project activities? Has that data been analysed and do you have a copy of the baseline report?

iii). Have you conducted an impact assessment study? What are the main findings? Kindly attach a copy of the impact assessment report

Make sure that all information provided here correlates with the evidence you have collected. Please include the evidence as separate attachments to this report and label the attachments appropriately.

i).120 communities conducting CBAF in Kenya, 40 communities conducting CBAF in Tanzania. Registration requirements for semio-chemicals and procedures for introduction of straight chain lepidopteran pheromones developed. Governments of Kenya and Tanzania willingness to support CBAF ii).Baseline exists in terms of the frequency of armyworm infestations, and areas of damage. The economic importance of the armyworm depends on

the stage the crop is at when it is attacked and market prices. This has been mapped out by Imperial College and models to measure benefit under different conditions constructred.

iii). Impact assessment is yet to be conducted for CBAF

The establishment of the SpexNPV facility is the first commercial biological pesticide plant in Tanzania (only the third in Sub Saharan Africa outside RSA). The provides the only source of environmentally safe affordable armyworm control in Africa. Its establishment is also a platform for developing a new business in safe pest control products and active discussions are underway already to enlarge the range of products to be produced to support improved pest control both by poor farmers and export agribusinesses in Tanzania. The biotech facilities in Tanzania are unique and well adapted for production of other biotechnology products urgently need by Tanzanian export agriculture sector such as plant tissue culture for bananas, pineapples and potatoes for which customers (including USAID Tanzania Agriculture productivity project) have been identified.

These developments will provide a small number of jobs directly in the production but the production of new pest control and biotechnology products will have greater impact through strengthening the export sector of Tanzanian horticulture by providing inputs (biopesticides and tissue culture stocks) needed to strengthen export competitiveness and which Tanzania currently lacks.

Social Exclusion & Gender

i). Please explain how the project has targeted women and other socially excluded groups, and provide evidence of the projects impact on gender and social exclusion.

ii). Have you used the data your project has collected on gender and social inclusion in deciding or shaping the project interventions?

i).Before the start of CBAF activities meetings are held at the villages, where the communities democratically elect the prospective community forecasters, who are eventually trained and given the forecasting pack, pheromone lures and traps, and mandated to conduct forecasting. During the election the arrangement is such that one male and one female forecaster are elected in each village.

Unexpected Outcomes

Have there been any events or activities that have happened during project implementation that were never planned, but resulted in new, better or worse outcomes related to your project?

None from CBAF

Sokoine University of agriculture staff visited the SpexNPV facility and want to assign undergraduates to work in the unit under training placements for advanced training in biotechnology. Tanzanian Horticultural Association have asked EAC to develop courses on farmer training in biocontrol for commercial horticulture to be based at the new facility.

Any Other Comments

Please include any other comments that you would like to include and which you feel don't fit in elsewhere.

Further support required is building capacity in other areas, follow-up in areas conducting CBAF to assure sustainability, provision of SAACO-Tools to those not able to purchase their own in the initial phases, facilitating communication among the stakeholders, further policy influencing to assure government support and lobby support from other interested stakeholders especially for control. Harmonize the approach for region-wide usage, especially in Ethiopia and Malawi.

It is recommended that SpexNPV be integrated into CBAF initiatives in Tanzania so that farmers with forecasting capacity can also be provided about affordable armyworm control.

Project Title: Transfer and Dissemination of Emerging Agricultural Technologies of New Rice for Africa, (NERICA): Improving Access to Quality Seed through Public-private partnership in Uganda

Lead Project Organisation: National Crops Resources Research Institute (NaCRRI)

List of Partners: CABI, Nalweyo Seed Company (NASECO), Centre for Agriculture Inputs International (CAII) Seed Company

Knowledge being put to use

Identify and describe all the knowledge products/processes that have been put to wider use in this project. This can refer to methodologies, techniques, tools and resources etc. Please refer to section 2.6 and 3.1 of your full proposal to answer this section. Please also provide data on the number relevant to, or designed primarily for use by, women.

The RIU Best Bet Project on Improving Access to Quality NERICA Rice Seed through Public-private partnership in Uganda has been implemented in partnership with contract farmers (out-growers) for CAII and NASECO seed companies.

- 1. Trainings are done in groups ranging from 10 to 20 farmers per group, depending on their localities. To increase company capacity to produce and deliver larger volumes of improved quality seed, additional out-growers were recruited, trained and participated in seed production activities. A "Farmer Field School" (FFS) approach was adopted during farmer training. Farmers were first trained at study plots located at central places, and thereafter they would go to their individual plots to put in practices whatever they had learnt from the study plots. Trainings were usually done on the major field operations and at the various growth stages of the rice crop. The major training included: site selection; land preparation; field marking; testing for seed viability; planting (methods of planting and spacing/seed rate); fertilizer types and application; thinning; rouging; crop protection against pests, birds, diseases, and weeds; harvesting and postharvest handling. All operations, techniques and/or tools were demonstrated in a participatory way at the study plots to give farmers a feel of each activity, in order to enhance their learning ability and ultimately a higher adoption rate. Farmers were highly responsive to the intervention; this was manifested by more farmers, particularly women, being compelled to join the project, in order to have a chance of getting trained and ultimately producing NERICA rice seed for increased household income. Under this arrangement, 500 farmers (50% are women) have acquired hands-on experience in all aspects of rice seed production and were able to produce rice seed individually. Farmers in the project areas are currently considering rice seed production as a major opportunity to enhance household food and income security. They have been enticed by NERICA's positive attributes namely earliness, good yields, and tolerance to drought and shattering; NERICA 4 is the most predominant variety in these areas.
- 2. A Quality Rice Seed Production Manual was developed and disseminated to key farmer leaders and extension agents in the various technology

uptake pathways in Uganda. In hard copies of the manual were shared with rice stakeholders in Zambia and Kenya. An electronic version of the same manual was also shared with Mozambique. The manual was also made available to the public through the Research Into Use (RIU) website (<u>http://www.researchintouse.com/news/110217rice.html</u>). A total of 2,000 copies were printed and distributed. More copies will soon be printed and distributed in Southern Sudan and Northern Uganda through a new project on upscaling NERICA rice technologies funded through Association for the Strengthening of Agriculture Research in Eastern and Southern Africa. Numbers of those who have used the electronic version cannot be quantified, but it is assumed to be substantial.

- 3. A Quality Rice Seed Discovery Learning Manual although currently undergoing printing adds to the knowledge products which strengthens the training processes in the project areas and beyond. A total of 2,000 copies will be printed in May. However, like the seed production manual, electronic copies will also be made available.
- 4. Radio programmes and talk shows a series of radio programmes and talk shows have been developed and aired on FM radios in the project areas in Uganda and beyond. These have generated a lot of interested and resulted in farmers looking for high quality/certified NERICA rice seed produced through the efforts of the project. The radio programmes were also used to create awareness for NERICA rice production and the quality seed produced through the project activities.
- 5. Rice seed health video were disseminated through the project in the different areas where rice is grown, and were also aired on national television (Uganda Broadcasting Corporation). In addition, the videos were shared with other rice stakeholders in Uganda.
- 6. Quality rice seed production videos were translated into 5 local languages (Ateso, Luganda, Lugbara, Luo and Runyakitara) in Uganda and 2 regional languages (Swahili and French) for ease of understanding by farmers in the different areas and ofcourse the region, hence translation into Kiswahili and French.
- 7. Use of demonstration plots: demonstration plots were one of the major processes used in disseminating NERICA production technologies and awareness raising in Uganda. The demonstration plots were set up in accessible areas and in places which could be seen by people using roads. These too attracted a lot of attention among rice producing and non-rice producing people in Uganda. People could not believe that rice could grow in upland areas NERICA is an upland rice, hence can grow where maize is grown.

RNRRS generated knowledge used:

R8439, R8480

- 1. The Final Technical Report for the project entitled "Promotion of Quality Kale seed in Kenya (R. R8439, ZA0663" (<u>http://www.dfid.gov.uk/r4d/PDF/Outputs/CropProtection/R8439_FTR.pdf</u>)
- 2. The Final Technical Report for the project entitled "Good Seed Initiative (GSI) sharing the learning from CPP programmes into pro-poor seed systems in East Africa (R No. 8480 (ZA No. 0690))". In addition, a participatory training manual, 'Discovery Learning Exercises for improving the quality, health and dissemination of farmer-saved & farmer-traded seed' in East Africa was also greatly used especially in the development of the Discovery Rice Learning Manual.
- 3. Seed related posters produced by the two projects were also used in the project.

Non RNRRS generated knowledge used:

- 1. DFID core support for the development of NERICAs through WARDA.
- 2. The Swedish Development Corporation (SDC)funded Good Seed Initiative.

Project Outputs

Project Output Title	Status of achievement	Deviations if any	Reasons for the deviation
1 Farmers trained as out	For CAII Seed	With CAII the number of	CAII being a new Seed Company, most of its out growers
growers to produce quality	Company, the number	participating farmers has	trained had no other major economic activities, and were
seed rice	of farmers trained so	doubled, while for NASECO the	producing NERICA rice seed for their first time and hence
	far is 400, which is	number is below the target, but	they were overwhelmed by the opportunity, hence
	double the number	to the target to be reached by	required training of more farmers. On the other hand,
	(200) anticipated,	last quarter of the project.	out growers under NASECO's area of operation were
	however, with		engaged in production of seed for other crops other than
	NASECO we intend to		rice. Therefore, they had limited time for the NERICA Best
	hit the target of 450		Bet project, as they had to allocate time to different
	this season.		enterprises. Nevertheless, those who participated were
			operating on a large scale and their seed production was
			high.
2 NaCCRI producing 5MT of	This output was fully	The quantity of seed produced	There was supplementary support by government of
seed per year	achieved. 3.2 MT and	was greater than projected.	Uganda for increased seed production to meet increased
	4.3 MT were produced		demand for quality rice seed.
	in 2010A and 2010B,		
	respectively		
3 Companies producing	A total of 857.1 MT of	A total of 311.1 MT were	The major reasons were:
1400MT of rice seed a year	seed has so far been	produced in 2010B (303.1 MT by	 Prolonged drought in the two project areas that
	produced in 2010.	NASECO and 8 MT by CAII).	led to crop failure and low yield.
			 Most of the out growers for CAII were newly
		In 2010 A, a total of 546 MT was	recruited and were growing rice seed for the first
		produced as follows: 90MT and 4	time and due to land constraint they were
		MT of foundation seed was	sparing small plots for rice seed cultivation, as
		produced by NASECO and CAII	opposed to the bigger plots for out growers
		and 450 MT of certified seed was	under NASECO where land is not very limiting

		produced by contract out	
		growers for NASECO and 2 MT by	
		out growers for CAII	
4 Market share of direct	Rice seed health video	The impact of the information	It took some time to develop and print some of the
sales to farmers through	was aired on the	material is yet to be fully realized,	information materials
agro-dealers (currently less	National TV (Uganda	nevertheless, the production of	
than 10%) increased to 30%	Broadcasting	NERICA has increased from about	
by end of project	Corporation) to	45,000MT in 2009 to 53 MT in	
	increase awareness on	2010. This is attributed to among	
	importance of quality	other things, increased access to	
	seed production.	seed as the number of new	
		farmers has increased, and	
	Radio shows were	awareness raising.	
	conducted in major		
	rice growing areas		
	Quality rice		
	production manuals		
	were developed,		
	published and		
	distributed to		
	stakeholders in the		
	rice seed value chain		
	Quality rice seed		
	production videos		
	were translated into 5		
	local languages (Ateso,		
	Luganda, Lugbara, Luo		
	and Runyakitara) in		
	Uganda and 2 regional		
	languages (Swahili and		
	French).		

Information materials		
are used for training		
by extension agents,		
Training of Trainers,		
NGOs and Seed		
Producers and agro		
dealers		

Activities undertaken for putting knowledge into use

Briefly describe the nature of specific activities you have adopted in your project to achieve the outputs stated above, please refer to the Project Log frame to answer this section. Did you have to use any new activities [other than what you have committed in the log frame] or modify these activities and if so explain the reasons for the same.

Farmer groups have been trained in the production of quality seed rice through a Farmer Field School approach. This approach has also stimulated local demand for the rice varieties and shown a more productive methodology for the cultivation of rice. The team maintain discussions with seed companies as to increasing production of seed rice and its marketing. Farmers are appreciating the seed production principles involved in Best Bet. However, they are yet to apply these principles on other crops especially maize and beans, in subsequent seasons. Based on the results obtained from observing proper husbandry practices such as timely: land preparation, weed control, fertilizer application, right seed rate, farmers have observed that through these practices land is optimally utilized and ultimately appropriate yields can be obtained per unit area. Additionally, the principle of FFS seems to be effective, since it empowers farmers to immediately apply the knowledge and skills acquired from the training, to their individual fields.

- 1.1 Source breeders' seed from WARDA NERICA rice seed for the different NERICA varieties was imported from WARDA, now the Africa Rice Centre (AfricaRice) after acquiring and sending to AfrcaRice an import permit from Uganda.
- 1.2 Grow basic seed in isolation plots at the Namulonge research station, ensuring that plots are managed to remove off-types, and maintained weedand disease-free. Existing and newly imported NERICA basic seed was planted at Namulonge, NaCRRI's Head Quarters, cleaned up through rouging off types taking the rice through the necessary basic seed production processes, harvesting, drying, processing and winnowing. The seed were then distributed to the two seed companies for production of Foundation Seed, which is used for production of Certified Rice Seed by companies, mostly through contract seed growers trained through the project.
- 1.3 Plots monitored by National Seed Certification Service the National Seed Certification Service is the only authorised government institution for certifying different seed types, e.g. basic, foundation and certified. The groups representatives inspected NERICA rice seed produced by NaCRRI

(basic seed), the two seed companies (foundation seed), and the rice seed produced through the companies' contract seed growers (certified seed) at all rice growing stages.

- 1.4 Crop harvested and processed to provide foundation seed. Processing includes tests for germination rates and absence of seed-borne diseases, to ensure conformity with certification requirements. The activity included cutting the ripe rice plants, threshing, winnowing, and submitting the winnowed rice to the National Seed Certification Service for carrying out viability and seed health tests. This activity was carried out not only at NaCRRI, but at seed company sites, and contract farmers' farms.
- 2.1 Develop training modules adapted to local conditions, and print training materials training modules were developed and used during training sessions such as training of trainers' workshop (mostly for seed company staff and agriculture extensionists), and farmer training. Training materials were printed and used during training sessions.
- 2.2 Identifying new farmer groups to act as out-growers and establish a core group of key farmers to train groups with the support of seed company extension staff. New farmers were recruited by both NASECO and CAII seed companies through their extension staff. The project trained the new contract rice seed farmers some of whom did not even grow rice before. Some saw the demonstration plots and asked to join in the rice seed production programme.
- 2.3 Train seed key farmers and company extension staff in four modules: key company staff was trained using a training of trainers module. This training equipped key company staff to be able to train contract rice seed growers in their company in proper rice seed production procedures. Training covered the following topics: Rice seed production and improving access to quality rice seed; site selection and land preparation; introduction to nutrient management in rice; upland rice cultivation; basic principles of fertilisers application; establishing Farmer Field Schools (FFS); facilitating groups and participatory sessions; facilitating FFSs; disease and pest management in rice field and during storage; integrated disease management in rice; rice growth stages; and weed management in seed rice.
- 2.4 Companies supervise and monitor farmers groups seed companies were able to supervise and monitor farmer groups with backstopping from NaCRRI and CABI especially in farmer training activities. Companies were able to supervise their contract farmers who were engaged in production of rice seed. The companies provided foundation seed, which was planted by farmers through the supervision of trained company agriculture extension staff. The certified rice seed would then be bought by the seed companies for treating and selling.
- 2.5 NaCRRI and CABI backstop seed company extension staff NaCRRI and CABI were able to backstop company extension staff through as they implemented farmer training activities, running of FFS plots and back stopped them in all processes for rice seed production in order to build their capacity.
- 2.6 Agree contracts between seed companies and out-growers, and produce seed to desired quantity and quality as a result of the training. The two seed companies and out-growers agreed contracts with contract seed growers on an annual basis.
- 2.7 Seed is processed and packaged by company and delivered through their agro-dealer networks. NERICA rice seed both produced by the seed companies and their contract farmers was processed and treated with a fungicide seed dressing and packaged using packaging materials with company label, and sold to either distributors, or government institutions such as National Agriculture Advisory Services (NAADS). Rice produced

by farmers was bought from farmers before processing.

- a. Develop information materials for farmers, extension and agro-dealers to provide details of management practices and costs and benefits as well as to raise awareness of the value of good quality seed and good seed management. Information materials were developed for extensionists, farmers and agro-dealers. The information materials provided details on proper management practices for production of NERICA rice seed. Some of the materials also served for awareness of upland rice, NERICA among potential farmers and other stakeholders. The information materials include: the Quality Rice Discovery Learning Manual with exercises on rice seed quality and plant health, seed selection and seed treatment, seed production and access to new varieties, and management strategies to improve the production and storage of seed; quality rice seed production manual; posters on NERICA rice upland rice for farmers and traders the posters are outlining the characteristics of the NERICA rice varieties and are used as a quick reference by agro-dealers.
- b. Translate key materials, including videos on "Rice Seed Health", into local languages and distributed. Quality rice seed production videos were translated into 5 local languages (Ateso, Luganda, Lugbara, Luo and Runyakitara) in Uganda and 2 regional languages (Swahili and French).
- c. Prepare content for magazine radio programmes. Content for radio magazine was prepared.
- d. Air local radio programmes and talk shows involving key stakeholders (farmers, extension workers, researchers, private seed companies, millers and representatives of regulatory agencies). Radio programmes and shows were aired in all major rice growing areas of Uganda last year and this year.

Partnerships

i). Hav new pa	e all partners listed in your project proposal contributed as expected in the project? Did you have to drop some of the partners and bring in artners to achieve the objectives of your project? Kindly describe your experiences in this regard.
i)	The partners have remained as originally planned. CAII was the newest partner and the longer they worked with the team the faster they understood what was expected. In addition, through the project activities, there was strengthened collaboration with the National Seed Certification Service of the Crop Protection Department of the Ministry of Agriculture, Animal Industry and Fisheries in inspection and
ii)	certification of the rice seed in the project areas. Seed Produced by NaCRRI through the Research Into Use Support was also given to other seed companies that benefitted from access to improved seed and information materials for training by their extension staff.

Policy change
i). Have you engaged with policy makers in this project and what has this experience been like?

ii). Who are the critical policy makers /policy influencing groups that are essential for up-scaling your interventions? What mechanisms were used to engage with policy makers?

iii). Please detail policy changes to which your project has contributed, for example have any other organisations adopted or promoted lessons derived from your project?

i). Policy makers have been engaged in activities of seed production and developing some of the information materials. The National Rice Development Strategy provides framework for coordinated activities for enhanced rice research and production in the country. Quality rice seed is emphasized as one of the drivers for increased rice production to achieve self sufficiency. Policy makers where therefore engaged through the National Rice Development Strategy and the National Agriculture Advisory Service, both of the Ministry of Agriculture.

ii). The critical policy makers are the Department of Crop Production and rice steering committee made of the top management in the Ministry of Agriculture, Animal Industry and Fisheries. The best bet team provided the policy makers with project updates in meetings and feedback from rice seed videos.

iii). The National Agricultural Advisory Services (NAADS) staff use information materials developed from the project. There has been great acceptance by NAADS of information materials produced by the best bet, and they are now being used in their programmes away from project areas.

Organisational & Institutional Change

 i). Has your project resulted in development of new working practices, regulations, functional changes in organisations, emergence of new partnerships etc. within your own project teams and also outside? What has been the effect of these changes?
 ii). Have there been any unintended changes / consequences?

- i) The other seed companies and farmer groups which were not partners initially benefitted from seed produced through the best bet and information materials generated.
- ii) The project, though towards the end, has adopted the development of a NERICA rice brand, this was after sharing experiences with the Zambian RIU Country Programme.

Lessons learnt

i). What lessons have you learnt about how to put research into use and enable innovation in agriculture?

The Farmer Field School (FFS) approach has proven to be an effective way of disseminating upland rice seed production technologies. The exponential effects of this approach seem to be working effectively, in that you begin training a few farmers who get hands on experience, which experience, is translated into individual plot establishment and management. This process empowers farmers to own the intervention; this has been a critical attribute towards enhancing the adoption of upland rice (NERICA) technology. In addition to these lessons, farmers have also noted the following:

- They have observed that planting in lines is a beneficial practice as it enhances execution of subsequent operations such as weeding, fertilizer application, rouging, and harvesting. They particularly emphasized the ease of rouging, as off-types can distinctly be identified when in lines.
- Furthermore, farmers indicated that yields can easily be estimated in fields planted in lines as compared to the hassle encountered in broad casted fields with uneven growth.
- Higher yields per unit area, arising from the uniform utilization of nutrients, light, space and other resources were also experienced when rice was planted in lines.

ii). Have you shared these lessons with others and if so with whom and how?

The lessons learnt have been shared with non-participating farmers, local leaders and NAADS officials at Sub-county level through Farmer Field Days and meetings.

iii). Also, describe what has not worked and explain the reasons why not.

An exponential increase in rice seed demand, because the farmers' capacity to purchase rice seed over the counter is still low, and therefore some farmers are still embracing the culture of recycling their seed from previous seasons.

iv). What kinds of challenges did you face while upscaling/promoting new knowledge under this project and were you able to address these and if so how?

Seed quality control at farmer level is still a big challenge as the seed regulatory authority (seed certification services is still thin on the ground considering the very many seed companies operating in Uganda) is overwhelmed by the volume of work.

v). What kinds of challenges [technical, organisational, marketing, policy etc.] continue to remain and how you think these could be resolved?

i). Branding of NERICA to increase its competitiveness on the market compared to imported rice; this ought to enhance its production and

productivity and consequently the use of quality seed. This can be resolved by expanding the intervention to cover the entire rice value chain, from quality seed production to grain processing.

ii). Increasing the farmer purchase over the counter compared to seed purchase by Government and NGO agencies. This can be enhanced through continuous farmer sensitization on the benefits attributed to the use of quality seed from reliable sources.

iii). Increasing awareness on the importance of quality rice seed production and use. Can be resolved through continuous sensitization via print media, videos, TV documentaries and radio talk shows.

iv). Improving the quality of seed sold by all seed companies and other seed producers. This can be resolved through collective efforts involving key stakeholders especially farmers, Seed Companies, the Seed Certification Services and Researchers.

Project Beneficiaries / Scale achieved

Please state the estimated number of people affected by your project. Please note that it is very important that the data entered here can be verified, for this reason please note in the column labelled Evidence Index how this data can be verified.

Project Output	Number & Type of	Number & Type of	Male	Female	Total	Evidence Index*
	Indirect	Direct	Beneficiaries	Beneficiaries		
	Beneficiaries	Beneficiaries	(indirect and	(indirect and		
			direct)	direct)		
5 MT of Foundation		Two collaborating	-	-	9 Seed	Seed dispatch record Book (NaCRRI),
Seed produced by		seed companies			producers	planting returns to Seed Inspection,
NaCRRI		(NASECO, and				Ministry of Agriculture, Animal Industry
		CAII); One NGO,				and Fisheries
		four Farmer				
		groups, three				
		Zonal Agricultural				
		Research and				
		Development				
		Institutes (NARO-				
		ZARDIs), and 3				
		other Seed				
		Companies				
		dealing in rice				
		seed production.				
1400MT of Certified	Over 100 Agro-	Contract farmers,	Benefits cut	Benefits cut	300 people	Seed production contracts and seed

Seed produced by	input dealers	200 and 30 under	across gender	across gender.	sells receipts
Seed Companies	(stockists)	NASECO and CAII,			
(NASECO, and CAII)	countrywide,	respectively.			
	transporters,				
	taurpline and				
	packing materials				
	dealers.				
Market share of direct	Traders,	Key actors in the			Significant increase in rice acreage from
sales to farmers	transporters, local	rice seed value			45,000 hectares in 2009 to 53,000
increased by 30%	government	chain namely: Rice			hectares in 2011 as indicated in
	leadership in the	seed and grain			Production statistics.
	project districts of	farmers, stockists,			
	Namutumba,	rice processors			
	Iganga, Mayuge,	(millers), and Seed			
	Bugiri, Hoima,	Companies.			
	Kibaale, Masindi				
	and Kasese.				

Poverty reduction & Income generation

i). Describe your achievements here, and please refer to the details in your logframe, for example '2000 farmers from Nawaparashui in Nepal have increased their income by 20%'.

ii). How much has the base line data collected in the beginning of the project helped shape your project activities? Has that data been analysed and do you have a copy of the baseline report?

iii). Have you conducted an impact assessment study? What are the main findings? Kindly attach a copy of the impact assessment report Make sure that all information provided here correlates with the evidence you have collected. Please include the evidence as separate attachments to this report and label the attachments appropriately.

i) Although it is premature to discuss the achievement of the overall goal at this time, it can be expected that achievement of the project can directly contribute to the improvement of the livelihood of rice producers, as evidenced by the increased cash inflows among participating households.

Social Exclusion & Gender

i). Please explain how the project has targeted women and other socially excluded groups, and provide evidence of the projects impact on gender and social exclusion.

ii). Have you used the data your project has collected on gender and social inclusion in deciding or shaping the project interventions?

i) The NERICA Best Bet project embraces all rice seed farmers irrespective of their gender. Our records reveal that the proportion of women among the participating farmers is equal to that of men (1:1). However, by the nature of the crop, most of the labour is provided by women for planting, weeding, rouging, harvesting, threshing and winnowing, and youths are involved in transporting and guarding rice crop against birds during grain filling stage. It is therefore important that during training at these crop stages women are involved. Our trainings also indicated that groups with majority women were more committed

Unexpected Outcomes

Have there been any events or activities that have happened during project implementation that were never planned, but resulted in new, better or worse outcomes related to your project?

The major negative outcome encountered was the sale of rice seed as grain by some farmers. During the 2010B and 2011A, Uganda experienced a general food shortage resulting from the unreliable rainfall received in 2010B, consequently the value of rice grain rose above the projected price for seed; therefore the participating Seed Companies were constrained by the drought incidence.

Project Title:Control of Sleeping SicknessLead Project Organisation:University of Edinburgh

List of Partners: MINTRACS (University of Makerere); 3V Vets; NRI; IKARE

Knowledge being put to use

Identify and describe all the knowledge products/processes that have been put to wider use in this project. This can refer to methodologies, techniques, tools and resources etc. Please refer to your country strategy documents to answer this section. Please also provide data on the number relevant to, or designed primarily for use by, women.

RNRRS generated knowledge used:

PCR based tools developed and applied (Coleman/Welburn et al RNRRS - AHP)

RAP technology developed trialled and tested under AHP/LPP commercialised (Welburn/Torr/Vale/Eisler – AHP/LPP)

RAP technology validated at local scale (village) level tested under RNRRS – expanded to control cattle movement driven epidemic in Uganda in 7 districts of Uganda (Weburn/Eisler AHP).

Non RNRRS generated knowledge used:

Evolved model for Animal health provision in post conflict zones of Uganda - AFRISA/MINTRACS/3 V vet partnership.

The problem of spread of SS and TBDs in Uganda function of un-restricted animal movements as a direct result of post conflict resolution and aid based incentives to restock region and decentralisation of the Veterinary Services in Uganda (World Bank and DfID). This privatisation led to a lack of any veterinary care being available in local communities.

Project counterbalances this by establishing vet practices and services in these regions both to

- a) Public good prevention of spread of SS, AAT and TBS by MINTRACS and AFRISSA.
- b) Private good providing affordable service to poor communities spray persons (replacing Dips) and general veterinary care (quality affordable drugs for trypanosomiasis, ECF and other TBDs and helminthiasis).

Project Outputs

Project Output Title	Activities undertaken /changes in activities	Status of achievement	Deviations if any, and the reason for	Please provide a brief description of the management decisions and strategic direction taken that affected the
			the deviation.	project outputs.
1 MINTRACS	Establishment of	MINTRACS	None	Structure established
	Framework for Public	established		Website of services established
	Private One Health	as function		Director appointed and secretariat established
	Engagement in Uganda	of AFRISA		Board established that incorporates Head of Vet and HH
				services and Speciosa Wandera, (previously deputy PM) and
				now policy advisor to President Museveni.
				Support (250,000 US secured in trypanocidal drug commitment from CEVA Sante Animale)
				Support from IKARE for Roll on Promotion of joined up PPP
				250,000 bood of cottle treated to eliminate reconveir of
				infection in cattle
				Reinforcement of Policy for treatment of cattle at point of sale
				is under ongoing discussion with stakeholders.
2 3V Vets	Roll out of 3 V vet network	3 V vets in	None	3V vets in place and selling to local communities in
	to Soroti and Serere	place		Kabaramiado, Dokolo, Soroti, Serere, Lira, Apac and Amolitar.
				Model working – IK Business experience invaluable to young vet entrapreneurs.
				All 7 vets making money and all phase I vets have repaid start
				up.
				Territories established to provide balanced business return for
				vets and sprayers.
				Over 80 Spray persons in employment and making good wage.
				Two 3V Vets taken back into government service to collaborate
				with the DVO in post-privatised system.
				Some issues with distribution of Vectacid to poor communities

				but gradually being overcome. Issues between the main distributer Coopers and Ceva in terms of timely orders and payments. Alternative products to Vectacid are in market place and can be used. Assessment of 3V system (perceptions of communities DVOs 3Vs and Stakeholders) has been undertaken and is being
				written up.
3 Animal Health	 i) Efficacy of cattle mass treatment in Dokolo and Kabaramiado Animal Health ii) Undertake village level in HAT+ and HAT- risk villages at fixed distances from market epicentres 	i) Mass treatment baseline complete ii) Sample design calculations undertaken and samples taken	i) One year follow up in progress j) Analysis imminent	Analysis of samples and publications need to be finalised – (anticipated end July). SOS phase 1 and follow up papers in progress. Decided to do follow up at 1 year post treatment to caputure maximum impacts and evaluate sustainability. Cross sectional survey of trypanosomiasis and tick-borne diseases has been carried out in this site along with a study on knowledge, attitudes and practices.
4 Human	Parallel under-reporting	Completed	Under write up	Cross sectional survey of HAT has been carried out in this site
Health	disease burden survey with MoH and WHO			along with a study on knowledge, attitudes and practices.
5 Market Assessment	 i) Risk assessment for market trade, cattle flow and herd dynamics. ii) Assessment of awareness of PS and NGO actors engaged in Market trading as to disease risks, regulatory frame works. iii) Collection of Records of Market traffic and samples taken monthly at Markets x 12 m to confirm policy 	Completed	Under write up	3 papers in preparation cpvering items I,ii,iii, v.

6 Socio- Economic	reinforcement at point of sale. iv) Confirmation of infection status at high risk markets, Dokolo and Kabaramiado and other markets identified as significant on northern major trade route. v) Assessment and feedback of compliance of actors with MAIFF policy. i) Comparative Socio- economic impacts of Interventions against Trypanosomiasis Nigeria and Uganda	Completed for Uganda	In progress in Nigeria	Completed for Uganda – impacts of animal health treatment for human SS control between \$100-200M in savings. Animal impact cost estimates are being calculated. Assessments for Nigeria are underway in Jos and Kachia Grazing Reserve, inhabited by sedentary Fulani herdsmen. Comparative data from this site will permit investigation of the impact of seasonal migration, persistence of disease and associated introduction of infections. A cross sectional survey of trypanosomiasis and tick-borne diseases has been carried out in this site along with a study on knowledge, attitudes and practices.
7. Validation	Validation for Translation of RAP Technology to Tanzania i) Modelling RAP impact. ii) Real time - System analysis Tanzania	Completed for Tanzania Torr Vale and Hargrove		Papers in press and examination of feasibility for TZ and elsewhere in Uganda nearing completion.

8. Public *	i) Public and Private sector	i) Actors	This will be taken	MINTRACS
Private Sector	actors interests and take-	identified,	forward in RIU Phase	SOS PPP
	up in E Africa (Zambia and	interviewed	II.	This will be taken forward in RIU Phase II for Tanzania and
	Malawi and Tanzania)	and		Kenya and Zambia.
	ii) Public and Private sector	recruited for		This is underway in Nigeria
	actors interest and take up	Phase II Za		
	in W Africa (Nigeria and	ii) Roll out		
	Rwanda)	Vet services		
		underway in		
		Kachia,		
9. Promotion	i) A series of learning and		In progress	A series of reports and peer reviewed publications.
&	impact policy publications			Presentations at all One Health Conferences, House Of
Dissemination	will be prepared within the		See outputs from	Commons, WHO, FAO, EU.
	operational timeframe of		previous output and	
	RIU funding		dissemination report	

Partnerships

i). Have all partners listed in your project proposal contributed as expected in the project? Did you have to drop some of the partners and bring in new partners to achieve the objectives of your project? Kindly describe your experiences in this regard.

All original partners are still engaged in the activity. Additional partners have been recruited in Nigeria via the Nigeria Country platform and also from Private sector contacts.

ii). When working to strengthen and enhance relationships what do you think worked well?

Getting away from a research focus and moving academia towards a mode 2 – operational approach is successful. South South Partnership development has been strong.

Policy change

i). Have you engaged with policy makers in this project and what has this experience been like?

MOH, MAIFF, DfID, EU, WHO. Interesting and supportive. MINTRACs is a good platform for engagement with stakeholders in Uganda.

ii). Who are the critical policy makers /policy influencing groups that are essential for up-scaling your interventions? What mechanisms were used to engage with policy makers?

MINTRACTS deals with all Uganda policy makers as they are represented on the board of AFRISA.

iii). Please detail policy changes to which your project as contributed, for example have any other organisations adopted or promoted lessons derived from

Yes Nigeria and COCTU have adopted our frameworks. South-South knowledge transfer for One Health disease management in post privatised vet sector invaluable.

Organisational & Institutional Change

i). Has your project resulted in development of new working practices, regulations, functional changes in organisations, emergence of new partnerships etc. within your own project teams and also outside? What has been the effect of these changes?

MINTRACS deals with all Uganda policy makers as they are represented on the board of AFRISA. New way of getting vets (classically who wish to work in city) to engage with the private sector, important for youth unemployment, The president of Uganda has contributed 500,000 US to MINTRACS – promotion of youth employment.

ii). Have there been any unintended changes / consequences?

The institutional change at Makerere and new linkages using the trainee vets as a human resource for disease control has been an unexpected bonus

Lessons learnt

i). What lessons have you learnt about how to put research into use and enable innovation in agriculture?

ii). Have you shared these lessons with others and if so with whom and how?

iii). Also, describe what has not worked and explain the reasons why not.

iv). What kinds of challenges did you face while upscaling/promoting new knowledge under this project and were you able to address these and if so how?

v). What kinds of challenges [technical, organisational, marketing, policy etc.] continue to remain and how you think these could be resolved?

i). Champions are important for linking the private and public sectors. The private sector is more capable of making a reactive response. Adherence to deadlines and task objectives, setting deliverable targets has been crucial (otherwise good ideas moulder).

ii). Yes, this is an example of how well thought out research can be delivered to those that need the research. None of the work was science for science sake and perhaps that is why the RNRRS outputs have been implemented.

iii). 3V vets fill a need, treating animals to get rid of reservoir of sleeping sickness is a sensible and has a large impact. Together these two Public and private enterprises have additional benefits – controlling tick borne diseases and offering One Health Solutions in a Post Privatised framework.

iv). The lack of business knowledge in vets needed to be addressed, there are simply not enough entrapreneurs and support for them.

v). Getting a clear pathway for vet service provision and assigning roles for government in this process would improve efficiency. DVO and Ministry could be more proactive at monitoring traffic through markets. NGOs and civil society should always be aware of government animal movement policies and adhere to them in terms of veterinary regulations.

Project Beneficiaries / Scale achieved

Please state the estimated number of people affected by your project. Please note that it is very important that the data entered here is supported by the data you have collected. In the table below an example is given, please use columns below this to enter your own information.

Project Output	Output No 1-	Output No2 –	Output No3.	Output No 4	Output No 5
	Households benefit from	Indirect households	Risk of sleeping	Risk of overlap of two	Businesses established
	improved animal health	benefit from improved	sickness removed	forms of sleeping	
		animal health	from 7 districts of	sickness averted	

			Uganda		
Number & Type of Indirect Beneficiaries	150,000 cattle being treated RAP per month 50,000 cattle keeping households (direct use of RAP)	200,000 households indirect – benefit from improved animal health from neighbours in villages using technology	All persons coming into contact with tsetse infected parts of these districts.	All Uganda All cattle keeping households in Serere and Soroti treated to eliminate trypanosmiasis 250,000 head	7 vets in practice 80-100 spray persons in employment
Number & Type of Direct Beneficiaries	All members of household		70% total population, men women and children in Soroti Kabaramiado, Lira, Apac, Dokolo, Amolitar and Serere		Circa 100 small businesses established in post conflict districts of Uganda.
Male Beneficiaries (indirect and direct)					
Female Beneficiaries (indirect and direct)					
Total	50,000	200,0000	70% population of Soroti, Serere, Kabaramiado, Dokolo, Lira, Apac and Amolitar		
Please describe the benefits to the beneficiaries	Improved animal health, improved calf survival, more milk, greater cattle weight gain. A vet service.	Improved animal health, improved calf survival, more milk, greater cattle weight gain, less tick and tsetse challenge. A vet service.	Risk of sleeping sickness averted.	Gvnt of Uganda/ international community saved 100- 200 million dollars.	
Have you conducted an impact assessment	In progress			Gvnt of Uganda saved 100-200 million pounds,	

study? What are the			
main findings? Kindly			
attach a copy of the			
impact assessment			
report.			

Social Exclusion & Gender

i). Please explain how the project has targeted women and other socially excluded groups, and provide evidence of the projects impact on gender and social exclusion.

ii). Have you used the data your project has collected on gender and social inclusion to help shape project interventions?

i) Decision support card for vets, AH workers and Fulani cattle keepers. Mostly men.

Restricted application of insecticide and model systems for AH care – Mostly men but impacting on women in household in terms of milk production.

Decision support card for vets, AH workers and Fulani cattle keepers. Mostly men.

Restricted application of insecticide and model systems for AH care – Mostly men but impacting on women in household in terms of milk production.

Women in particular benefit from the effects of the improved nutrition as they keep income derived from the sale of dairy products and farming.

Sustainable control of sleeping sickness risk offers protection for 70% of the populations in the 7 Districts who are exposed to this risk. Men, women and children.

ii). Yes

Expected and Unexpected Outcomes

i). We would like to identify theories of change that underlie project activities. By theories of change we mean 'a process of planned transformation (economic, social or political) including an articulation of the assumptions that lie behind its design and its goals'. Although theories of change were not made explicit early on in project activities, please identify theories of change / the underlying assumptions that your project was based on.

ii). Were the assumptions in your theories of change correct? Did the project go as you predicted it to? If not, what did cause the changes to take place in your project?

iii). Have there been any events or activities that have happened during project implementation that were never planned, but resulted in new, better or worse outcomes related to your project?

i). Better take up than expected

ii). Yes and yes

iii). Cattle weighing belts developed by CEVA to aid accurate live weight estimation and therefore accurate drug dosage were trialled and adapted for use on Zebu and White Fulani Cattle. These have since been put into use by field teams during surveys.

Decision support card developed for Zebu cattle Uganda/Kenya systems, being adapted for animal health [AH] evaluation of White Fulani cattle. Large AH assessment underway in Kachia and Jos to prioritise clinical signs.

Restricted application Protocol will be trialled as intervention against trypanosomiasis in Nigeria, Kenya and modelled in Tanzania

Any Other Comments

Please include any other comments that you would like to include and which you feel don't fit in elsewhere.

Partners in Nigeria are keen to learn from Ugandan colleagues from the Stamp Out Sleeping Sickness Campaign in Uganda (supported by DFID Research into Use). Collaboration has been established with Ibaden University, and Jos Universities to Stamp Out Samorre in Nigeria, learning from the experiences in Uganda. See http://www.researchintouse.com/resources/riu1008launchmeeting-SOS.pdf

Livestock underpin poor rural livelihoods across sub-Saharan Africa, but animal health is constrained by both epidemic and endemic diseases. The former are managed by national and regional control programmes whereas individual farmers control endemic diseases, with communities and local

organisations providing support in decentralised and privatised systems. Animal trypanosomiasis constitutes a major endemic problem in tsetseinfested regions, reducing livestock product yields and devaluing farmers' investments - costing livestock producers and consumers an estimated US\$1340 million annually.

The Jos Plateau in North-Central Nigeria is a major cattle keeping area, holding ~ a million cows (7% of the national herd) owned by settled pastoralists practicing seasonal migration. This area became tsetse infected in the early 1980's and trypanosomiasis is a recent problem.

While trypanosomiasis can be seen as a dual constraint to rural development its control presents a double benefit: improvements in livestock health having positive outcomes for human health well-being and development.

Novel integrated control strategies based on an understanding of the epidemiology of trypanosomiasis in domestic livestock can impact on subsistence farmers and pastoralists for whom simple and practical decision support tools are needed for livestock management and district and national level policy makers requiring decision support for endemic disease control. Business and enterprise can make a significant impact in these systems, offering a both technology and service to regions where poor livestock keepers have NO quality (trust based) animal health service provision in the post privatised era.

List details (title, authors, date of publication, *etc.*) of publications during reporting period. Indicate whether papers/publications have been peer-reviewed externally and/or are open access. Specify whether lead author is a developing country researcher (in bold)

Conference Papers

ICOPA 2010 XIIth International Congress of Parasitology, Melbourne, Australia, 15-20 August 2010

Effect of land use patterns and seasonal migration on the epidemiology of trypanosomiasis in a previously tsetse free area - the Jos Plateau, Nigeria.

Ayodele Majekodunmi, K. Picozzi, M. Thrusfield, A. Fajinmi & SC Welburn

13th Association of Institutions for Tropical Veterinary Medicine Conference, Thailand, 23-26 August 2010 1. Farmer knowledge, attitudes and practices of African animal trypanosomiasis on the Jos Plateau, Nigeria Ayodele Majekodunmi, Alexandra Shaw & Sue Welburn 2. Seasonal variation and the effect of land use patterns and on the epidemiology of trypanosomiasis in a previously tsetse free area - the Jos Plateau, Nigeria Ayodele Majekodunmi, K. Picozzi, M. Thrusfield, A. Fajinmi & SC Welburn World Health Organisation Third International Neglected Zoonoses Meeting Geneva, 22-24 November 2010 **Communities and Zoonoses** SC Welburn All Party Parliamentary Group on Malaria and Neglected Diseases, The House of Commons, London, 8 February 2011 Controlling Sleeping Sickness in Uganda through a DFID and private sector partnership SC Welburn 1st International Congress "One Health" Melbourne, Australia, 14-16 February 2011 One Health beyond the confines of Emerging Disease: A Public Health template for dealing with the forgotten diseases? One Health and the Forgotten Diseases SC Welburn Building Institutions Through Equitable Partnerships for Global Health, Royal College of Physicians, London, 14-15 April 2011 Interdisciplinarity for One Health

SC Welburn

A number of peer reviewed publications are in preparation for the second reporting period.

Infomedia – requests for research information (infomedia is the means used to share knowledge, e.g. newspaper, TV, radio, mobile phones, websites, magazines). This indicator is about measuring outreach in line with spend on research communications. It measures the **requests** for research information as opposed to the production of research information.

Data	Number & Details
Keyword/thematic area/headline statements	Total number of places where the keyword/thematic area/headline statements appears as a result of
from research appearing in infomedia	requests
actual radio interviews	http://www.agfax.net/radio/download.php?i=358
actual television interviews	Project film (by Nik Wood) aired on NTA Nigerian national network news
	http://www.researchintouse.com/tv/riutv035bb-sleepingsickness.html
	http://www.researchintouse.com/tv/riutv036bb-sleepingsickness-suewelburn.html
actual features in newspapers, magazines, other similar publications	http://www.researchintouse.com/tv/riutv035bb-sleepingsickness.html
	http://www.researchintouse.com/tv/riutv036bb-sleepingsickness-suewelburn.html
	http://www.researchintouse.com/news/101029cowpeas.html

infomedia websites that provide links to	http://www.researchintouse.com/tv/riutv035bb-sleepingsickness.html
research programme ²⁸	http://www.researchintouse.com/tv/riutv036bb-sleepingsickness-suewelburn.html
	http://www.researchintouse.com/news/101029cowpeas.html
Other - please state	http://www.researchintouse.com/news/101111beanfeast.html
	http://www.researchintouse.com/news/101029cowpeas.html
	http://www.researchintouse.com/news/100607bigwin.html

²⁸ To find which websites link to your site, use the 'link' function in Google. Type an entry in Google search: Link:www.link:www.yourwebsite.ac.uk - site:www.yourwebsite.ac.uk. This will return the number of links currently indexed by Google that point to your website minus the number of links that arise from the site itself.

Project Title:	Clean Seed Yam Production
Lead Project Organisation:	Missionary Sisters of the Holy Rosary
List of Partners:	University of Surrey, Agriculture, IITA

Knowledge being put to use

Identify and describe all the knowledge products/processes that have been put to wider use in this project. This can refer to methodologies, techniques, tools and resources etc. Please refer to section 2.6 and 3.1 of your full proposal to answer this section. Please also provide data on the number relevant to, or designed primarily for use by, women. The target group primarily comprised farmers living along the banks of the Niger/Benue and other groups mentioned who farm 'in land'. Initially it was believed 250 households could embrace this clean seed yam technology, something well known to DDS and already acquainted with its mandate and procedures. That this number of households would embrace this technology is certain provided the conditions matched the economic and social needs of the households. Through encouraging and enhancing the linkages and careful monitoring it will be possible to increase the number by a further 300 the following year so as to reach an estimated 3,000 household benefitting from the technology over the next four to five years increasing both ware (food) yam and high quality planting material. Already the carrying forward of the technology to neighbouring states has begun as farmers in Amoke, Idomaland, Benue state can carry on with the production of clean seed yam but funded by another NGO. Women are interested but are taking a long hard look before ant commitment but the interest is there. There is an increasing awareness of the linkages between a food supply that is affordable and a reliable source of clean planting material available locally. The potential effects on cartels will be that these will suffer as there will not be the same demand. Given this scenario seeds and food quality are guaranteed and savings will be made as long distances will no longer be necessary to purchase planting material. With more education growers find means of combating the need to sell off their produce too early. The new Business Plan takes all these factors into account. The enthusiasm of the DDS staff is a serious consideration as they now see the full potential for producing both the seeds and ware yams. For them you cannot have one without the other. Here again the Business Plan shows the need to plan your profit and the sacrifices that have to be made so there are funds for the following year. The temptation to show off is receding as each realises how much your good or bad luck is decided by oneself. There are debates and discussion around clean seed yam and people are now thinking clean seed yam. Women are in on this act and if they can get credit for the land cultivation and heavy farm work they can overcome the cultural problem which forbids women to engage in land cultivation and heavy farm work such as staking etc. There is potential for at least 10 women to be in the programme in 2012.drawn from membership of DDS farmers Councils and other sources.

Another major consideration in terms of inclusiveness is that clean planting material will be available for riverine and inland areas. DDS farm lyegu will produce for the inland areas and Edeke for the flood plains.

In this context also I would like to mention another very important development is that yam producers are coming by boat to Edeke to purchase seed

yams. This is interesting as Edeke continues to buy planting material but it does have a surplus of types used in Iboland. Of course it is also cheaper to buy and safer to transport ware yams from Edeke and already there is a trading pattern in yams between Edeke and Iboland. We know for certain there are Ibo yam producers in Edeke. Ware yam and clean seed yam production has put Edeke on the trading route and it remains for it to be developed as much as possible. These possibilities are being pointed out by the DDS staff.

RNRRS generated knowledge used: R5259, R5345, R5346, R5983, R5688, R5738, R5735, R6691, R6694, R8278, R8416 (a lot of research which previous to this work was sitting on the shelf because a successful model for getting it into use had not been identified). This is now changing. The reports have been dusted and information and action are now is in full flight as many see the present intervention as an unique chance to get on top of poverty. The intervention is different in its shape and form to what was previously done. This is for entrepreneurs who can break with the belief that there will never be enough good seed yams and that the power to make this change lies within their power. Knowledge, skill, determination and credit based on a good business plan that will bring the required liberation. I would suggest that DDS staff be among the entrepreneurs in 2012.

Non RNRRS generated knowledge used: Additional expertise from DDS (donors from Ireland and Germany) and IITA (multi-donor)

Project Outputs

In this section we would like you to describe the status of achievement of your stated outputs and also the changes (if any)that have taken place to your project outputs. Kindly explain the reasons for the changes (if any) that have occurred. Please refer back to sections 2.6 and 3.1 of your full proposals.

Project Output Title	Status of achievement	Deviations if any	Reasons for the deviation
1 Establishment of seed	Achieved	Over achieved. Have we become	Additional farmers have copied the approach and
yam producers as		victims of our success?	schools have also requested assistance to set up seed
entrepreneurs trained in			yam producing units.
good agricultural and			
business practice			
2 Provision of credit to seed	Achieved		
yam entrepreneurs			
3 Raising awareness of this	Achieved		
approach within and			
outside Nigeria			
4 Field days and field trips	Achieved		
organised.			
5 Special trips for women to	In progress		

sites in Edeke and seed		
farm lyegu.		
6 Proposed phone in for	In progress	
information on clean seed		
yam. Radio Kogi		
7Benue growers have all	Achieved	
the help needed for now		
and going ahead with the		
job of becoming		
entrepreneurs.		

Activities undertaken for putting knowledge into use

Briefly describe the nature of specific activities you have adopted in your project to achieve the outputs stated above, please refer to the Project Log frame to answer this section. Did you have to use any new activities [other than what you have committed in the log frame] or modify these activities and if so explain the reasons for the same.

The team have built on the legacy of the RNRRS, identifying farmers who were worked with previously and exploring with them the constraints to the establishment of a seed yam enterprise. Entrepreneurs and project staff have used this knowledge to agree the areas of focus for training. Contact and non contact farmers have been included in the training which primarily focus on the development and implementation of business plans by seed yam entrepreneurs but also backed up with reviewing the agronomic practice and the access to inputs required. Investigating the role of women is a big change and women show the desire to engage within the tradition that does not allow them by showing that even that too need not last forever. Seeds of many types are being sown but please let there be help for them to mature. Training is a huge contributory factor for putting knowledge into use. The training in IITA and 3 weeks inldah are having a transformative effect.

Partnerships

i). Have a). Have all partners listed in your project proposal contributed as expected in the project? Did you have to drop some of the partners and bring in						
new partr	new partners to achieve the objectives of your project? Kindly describe your experiences in this regard.						
i)	A strength of the team is that they have worked together well before and for this pilot that experience has served them very well. The						
	office in Abuja headed by Ugbe Utiang is also a most welcome addition to the partnership family and having his much needed expertise						
	is a bonus not enjoyed previously.						

Policy change

i). Have you engaged with policy makers in this project and what has this experience been like?

ii). Who are the critical policy makers /policy influencing groups that are essential for up-scaling your interventions? What mechanisms were used to engage with policy makers?

iii). Please detail policy changes to which your project has contributed, for example have any other organisations adopted or promoted lessons derived from your project?

i).Realising the Best Bet was a pilot the team presented their approach to the Bill and Melinda Gates Foundation who feel that the RIU approach is the methodology that they would like to fund for a much bigger programme.

ii). The Best Bet has encouraged DDS to change their loan application process to a far more business plan orientated approach.

iii). Besides BMGF there is the possibility of help of start up capital for say DDS staff who are born entrepreneurs and who know the system of production and marketing best suited for all namely growers and end users.

Organisational & Institutional Change

i). Has yo	. Has your project resulted in development of new working practices, regulations, functional changes in organisations, emergence of new						
partners	artnerships etc. within your own project teams and also outside? What has been the effect of these changes?						
ii). Have	i). Have there been any unintended changes / consequences?						
i)	The team members have developed a far more business approach to the process of getting research into use, which is one which the						
	farmers are appreciating and responding to.						

Lessons learnt

i). What lessons have you learnt about how to put research into use and enable innovation in agriculture?

ii). Have you shared these lessons with others and if so with whom and how?

iii). Also, describe what has not worked and explain the reasons why not.

iv). What kinds of challenges did you face while upscaling/promoting new knowledge under this project and were you able to address these and if so how?

v). What kinds of challenges [technical, organisational, marketing, policy etc.] continue to remain and how you think these could be resolved?

i)	Opportunities were created when funding became available for the current intervention. Otherwise all the work done since the 1970s would be lost. The opportunity was on time any later many of the farmers would have left farming or lost interest.
ii).Shared	d with the RIU team and with many engaged in dev. In many parts of Nigeria.
ii)	Anything tried within the time frame of June 2010 to now has worked.
iv).	
v).There	has to be careful monitoring as to quantity and variety needed. Liaising with Ute is highly critical.

Project Beneficiaries / Scale achieved

Please state the estimated number of people affected by your project. Please note that it is very important that the data entered here is supported by the data you have collected and stating how DFID could verify it (evidence index).

Project Output	Number & Type of	Number & Type	Male	Female	Total	Evidence Index*
	Indirect	of Direct	Beneficiari	Beneficiari		
	Beneficiaries	Beneficiaries	es (indirect	es (indirect		
			and direct)	and direct)		
Output No 1- 20	20	Seed yam				
farmers trained and		entrepreneurs in				
supported in seed yam		6 States in Nigeria				
business skills						
Output No 2-		10,000 (the				
production of seed		amount of				
yam		planting material				
		divided by the				
		average				
		requirement for				
		small scale				
		farmers). Approx				
		a million seed				

		yam will be produced		
Output No3 –	131,000 (number			
production of ware	of times the			
yam	average annual			
	production [8,000			
	tonnes])			

Poverty reduction & Income generation

i). Describe your achievements here, and please refer to the details in your logframe, for example '2000 farmers from Nawaparashui in Nepal have increased their income by 20%'.
ii). How much has the base line data collected in the beginning of the project helped shape your project activities? Has that data been analysed and do you have a copy of the baseline report?
iii). Have you conducted an impact assessment study? What are the main findings? Kindly attach a copy of the impact assessment report
Make sure that all information provided here correlates with the evidence you have collected. Please include the evidence as separate attachments to this report and label the attachments appropriately.
i).

ii).

iii). Impact assessment has to be real. Too soon.

Social Exclusion & Gender

i). Please explain how the project has targeted women and other socially excluded groups, and provide evidence of the projects impact on gender and social exclusion.

ii). Have you used the data your project has collected on gender and social inclusion in deciding or shaping the project interventions?

i). The barriers to womens' involvement in the yam sector are reducing; this project has involved them more than previous initiatives.

ii). This always has to be done ina nuanced way as otherwise it has the potential for conflict. I have described it above.

Unexpected Outcomes

Have there been any events or activities that have happened during project implementation that were never planned, but resulted in new, better or worse outcomes related to your project?

There has been a great enthusiasm for the approach. Farmers previously trained are producing seed yam but at a low level, this programme is giving them the opportunity to become larger scale entrepreneurs. Farmers who have not received material support have still informed the team how much they appreciate the technical training. Though to be expected, more farmers including women will become household sufficient in yams in the next few years. I am wondering if some are not hedging their bets as they try to see what will be the overall impact when there is available seed yam of high quality at an affordable price resulting in ample supply of better and nutritious food all year round. If they grow their own seed and ware yam and have some for sale will self reliance be within their reach? These questions are floating around and within many minds. Let us be agreeably surprised by the unexpected outcomes

Annex 12 Research Into Use Programme End of Project Report

Project Title: African Parliamentary Support for Agriculture: pilot capacity building programme in Rwanda
Lead Project Organisation: Natural Resources Institute
List of Partners: Concern World Wide, Local consultants
Project Period: March 2011 to November 2012
Reporting date: January 2013

Knowledge being put to use

Identify and describe all the knowledge products/processes that have been put to wider use in this project. This can refer to methodologies, techniques, tools and resources etc. Please refer to section 2.6 and 3.1 of your full proposal to answer this section. Please also provide data on the number relevant to, or designed primarily for use by, women.

RNRRS generated knowledge used:

The purpose of this project was to strengthen the capacity of the Rwandan Parliamentary Committee on Agriculture, Livestock Production and the Environment in its roles of policy-making, representing the population and oversight: by increasing its ability to call on and use research knowledge on agriculture; by increasing its own capacity to gather information on and understand the situations of smallholder farmers; and by facilitating processes of self-evaluation and planning.

It did not make use of specific RNRRS research outputs, but aimed to create pathways (a strengthened Committee) through which they and a range of other agricultural knowledge could be used.

The project also built on earlier RiU-funded work with Parliamentary Agriculture committees, and on Work funded by the Livestock Production Programme on Pastoralist Parliamentary Groups in 2003.

All methods used were relevant to women – we were conscious that 6 of the 10 committee members are women and that the role of women in agricultural production in Rwanda must be fully recognized for development to take place.

Non RNRRS generated knowledge used:

The project relied – in its capacity building component and in the collection of evidence – on the methodologies of Participatory Rural Appraisal (PRA) and Rapid Rural Appraisals (RRA). In particular PRA was seen in its original sense of bringing about changes in the learning practices of those using the method, and in communication between farmers and privileged outsiders, not just as a cost-effective means of gathering information, though it does allow the investigators to collect data and feed it into the policy discussions and design of a project or service and improve it.

Project Outputs

In this section we would like you to describe the status of achievement of your stated outputs and also the changes (if any) that have taken place to your project outputs. Kindly explain the reasons for the changes (if any) that have occurred. Please refer back to sections 2.6 and 3.1 of your full proposals.

Project Output Title	Status of	Deviations if any	Reasons for the deviation
	achievement		
Strengthening work	Capacity of the	None	
of the Agricultural	committee		
Committee on	strengthened.		
legislative scrutiny			
and oversight, and			
representation			
dimensions of their			
responsibilities.			
Strengthening work	Capacity of the	None	
of MPs in their	committee		
constituencies on	strengthened		
increasing access to			
knowledge, resources			
and methods for			
sustainable			
agricultural			
production			
Effective use of	Capacity of the	None	
agricultural science	committee		
and technology	strengthened		
through better			
informed decision-			
making at the			
committee level and			
in constituencies			
Monitoring and	This topic was	This topic was not	Due to time constraints and the
performance of	not addressed	addressed	recent developments in
implementation of			Rwanda, priority was given by
CAADP, Maputo and			the committee to other topics
other international			
agreements			
Focus on gender	Capacity of the	None	
issues in agriculture,	committee		
including support to	strengthened		
women			
parliamentarians,			
women's caucuses			
and women farmers			

Development of the	Capacity of the	None	
Committee	committee		
Secretariat and other	secretariat		
parliamentary	strengthened		
institutional capacity	through on the		
to support the work	job training		
of the Agriculture			
Committee			
Strengthening	This topic was	This topic was not	This requires longer term inputs
effective	not addressed	addressed	to follow through on the
parliamentary			capacity building of the
committee work,			committee per se to produce
including links to			evidence that this has resulted
parliament's strategic			in positive changes to
development plans			parliament's strategic
and budgets			development plans and budgets.

Activities undertaken for putting knowledge into use

Briefly describe the nature of specific activities you have adopted in your project to achieve the outputs stated above, please refer to the Project Log frame to answer this section. Did you have to use any new activities [other than what you have committed in the log frame] or modify these activities and if so explain the reasons for the same.

This project is innovative in that it takes as its premise that research outputs such as those from the RNRRS will not find sustainable use unless parliaments understand the need to have strategies and polices based on evidence and knowledge, and support this through appropriate legislation and funding. Thus the nature of the activities adopted in this project was to strengthen the capacity of the Rwandan Parliamentary Agriculture Committee through three main activities.

- a) An initial agriculture committee self-evaluation
- b) A trial technical enquiry
- c) Trial district agricultural sector appraisals

The self-evaluation took place in March 2012 and was attended by all committee members, the committee clerk, NRI and a local consultancy firm. Using a SWOT analysis, the committee highlighted its priorities for this project. They decided to assess the situation on agricultural research and extension, and land rights and housing using the methods of PRA. Other trainings were requested on the international agreements relating to agriculture and innovative finance, which were subsequently organized.

Two PRAs were organized in May and October on the topics of agricultural research and extension, and land rights and housing respectively. The 10 committee members and committee clerk were trained on the topics of PRA and RRA, the tools and methods developed as part of the RNRRS; and verbal and non-verbal communication prior to commencing the field work. By using these methods and going directly to the community instead of their representatives, the committee had first-hand access to information from farmers and their needs. For the PRA on agricultural research and

extension, 7 sectors in the district of Huye (Southern Rwanda) were visited. Furthermore, the committee organized an interview on a banana farm and interviewed the staff of 3 centres of the Rwanda Agricultural Board, which is in charge of agricultural research and extension in the country. In total 811 people participated (58% male, 42% female); 96 are working with the local administration and 715 are farmers and from the private sector and civil society. The findings of this PRA were shared with the headquarters of the Rwanda Agricultural Board. For the PRA on land rights and housing, the committee engaged with over 1,000 people, with 242 coming from the local administration (77% male, 23% female) and over 1,200 farmers (approximately 50% male, 50% female). Taking place in Eastern Rwanda, the PRA covered 8 sectors in the districts of Kayonza and Kirehe; and additional visits took place to the border regions, a model village and a village on the border of a national park.

Following the field work, a feedback session was organized in Kigali after each PRA to evaluate the functioning of the teams and strengthen the capacity of the committee members. They were asked to reflect upon the methodologies and share lessons within the group. A writeshop was organized to collect and structure the findings of the PRAs.

The technical enquiry was organized at the end of the first PRA. Prior to the enquiry, a local consultant was commissioned by the project to carry out a desk review of the major institutions policies and issues in agricultural research and extension in Rwanda. Informed by this, the committee shared the findings of the PRA with the headquarters of the Rwanda Agricultural Board (RAB) and discussions took place to address and improve the services delivered by the RAB to farmers.

Additionally, NRI facilitated a workshop for the Rwandan Parliamentary Agriculture Committee by AGRA (Alliance for a Green Revolution in Africa) to alert them to the overall objectives of this organisation and in particular to the AGRA programme for facilitating small scale farmers access to funding via its Innovative Finance initiative.

In terms of sharing the findings, the Committee plans on presenting the findings to a full session of the Rwandan Parliament. A short visit to the Senate indicated that they too are interested. Finally, a lunchtime seminar on this project was organized for the staff of NRI (around 50 people attended), and the findings will be integrated in NRI's MA on Rural Development Dynamics.

Partnerships

i). Have all partners listed in your project proposal contributed as expected in the project? Did you have to drop some of the partners and bring in new partners to achieve the objectives of your project? Kindly describe your experiences in this regard.

Concern Rwanda was consulted throughout this project and was involved in the initial agriculture committee self-evaluation. For operational reasons, they were not involved in the PRAs. A local consultant nominated by the Chair of the Rwandan Parliamentary Agriculture Committee was used extensively throughout the project both for logistical activities and to facilitate meeting with the committee etc. The partnership between NRI staff who visited Rwanda for specific activities and a high level local consultant continuously on the ground proved highly effective. Besides this, the

regional DFID office based in Kigali was kept up to date on the activities and was visited on multiple occasions.

Policy change

i). Have you engaged with policy makers in this project and what has this experience been like? ii). Who are the critical policy makers /policy influencing groups that are essential for up-scaling your interventions? What mechanisms were used to engage with policy makers?

iii). Please detail policy changes to which your project has contributed, for example have any other organisations adopted or promoted lessons derived from your project?

As stated above, this project is designed to engage with policy makers in terms of the Rwandan Parliamentary Agriculture Committee. The experience has been entirely positive and the commitment of the Rwandan Parliamentary Agriculture Committee to this work has been exemplary. For example, on two occasions 8 and 9 out of the 10 committee members respectively dedicated a full week of their time in rural districts of Rwanda undertaking hands on participatory rural appraisals. Besides this, the project's frequent interaction with the Chair of the Rwandan Parliamentary Agriculture Committee is worthy of particular note.

Time constraints however prevented attention to the engagement of the Rwandan Senate. Rwanda is bicameral and the Senate has a committee that has a role in Agriculture and kindred matters. It is not clear how this works and there was no evidence that this issue has been explored. The leadership of the Senate has indicated that he would welcome being involved in any future activity.

Organisational & Institutional Change

i). Has your project resulted in development of new working practices, regulations, functional changes in organisations, emergence of new partnerships etc. within your own project teams and also outside? What has been the effect of these changes?

ii). Have there been any unintended changes / consequences?

As a result of the project, the Rwandan Parliamentary Agriculture Committee has gained confidence in its function and abilities and as a result will be able to adopt new ways of working to strengthen the quality of agricultural-related legislation in Rwanda. Two statements made by Committee members during an evaluation after the second PRA illustrate this well:

"The 2 PRA's have helped the committee to master the evaluation tools on the various themes".

"These exercises allow us to deepen our knowledge of the reality of the country and guide the parliament in the role of control on the governmental action."

The partnership between the Rwandan Parliamentary Agriculture Committee and NRI has strengthened and will continue to look for further opportunities to work on climate change, which is a major issue in Rwanda, innovative finance, capacity strengthening of the clerks' department, interactions with the Rwandan Senate, etc. Furthermore, the Rwandan Parliamentary Agriculture Committee has the opportunity to develop relationships with the DFID office in Kigali and AGRA, and plans on making closer links with the Rwandan Environment Management Authority on climate change and environment.

Lessons learnt

i). What lessons have you learnt about how to put research into use and enable innovation in agriculture?

ii). Have you shared these lessons with others and if so with whom and how?

iii). Also, describe what has not worked and explain the reasons why not.

iv). What kinds of challenges did you face while up-scaling/promoting new knowledge under this project and were you able to address these and if so how?

v). What kinds of challenges [technical, organisational, marketing, policy etc.] continue to remain and how you think these could be resolved?

This was a pilot project designed to test the concept that Parliamentary Agriculture Committees can be strengthened by actively working with them to demonstrate how, by getting to know the needs of their constituents better and by launching appropriate evidence-based inquiries, they can be better informed on agricultural issues related to their country's development. Through this means Parliamentary Agriculture Committees should be able to make a positive contribution to improving the quality of necessary legislation and be better informed to argue the case for investments in the agricultural sector in addition, for example, to health, education etc. The project has had a positive impact on the overall capacity of the Rwanda Parliamentary Agriculture Committee but further inputs would be required to monitor the effect of this on the quality of future legislation and levels of government funding for agriculture.

The lessons on the PRA methods and tools were shared firstly within the committee. They were further shared with the NRI staff during a lunchtime seminar and will be shared with the MSc students that undertake the Rural Development Course.

With the PRAs, challenges include:

- differences in status of the politicians, the local and international facilitators
- the practical organization, logistics and targeting of the participants by local government units, which resulted in larger than expected participation and the difficulty of testing the various tools such as transect, calendar, network analysis and so on.

More generally, a challenge was the political situation in Rwanda from mid-2012 onwards and the subsequent hesitation about working in Rwanda of some major donors. By being aware of these challenges, by undertaking additional research on the culture, language and by the use of good people skills and intercultural communication, the relationship between the committee and NRI solidified and excellent results were achieved.

Project Beneficiaries / Scale achieved

Please state the estimated number of people affected by your project. Please note that it is very important that the data entered here is supported by the data you have collected. In the table below an example is given, please use columns below this to enter your own information.

Project output	Number and type of indirect beneficiaries	Number and type of direct beneficiaries	Male beneficiaries (direct and indirect)	Female beneficiaries (direct and indirect)	Total	Evidence index*
Strengthening work of the Agricultural Committee on legislative scrutiny and oversight, and representation dimensions of their		11 (10 committee members and 1 committee clerk)	5	6	11	
Strengthening work of MPs in their constituencies on increasing access to knowledge, resources and methods for sustainable agricultural production						
Effective use of agricultural science and technology through better informed decision-making at the committee level and in constituencies						
Monitoring and performance of implementation of CAADP, Maputo and other international agreements	n.a.	n.a.				
Focus on gender						

issues in agriculture, including support to women parliamentarians, women's caucuses and women farmers			
How the Committee Secretariat and other parliamentary institutional capacity can be developed to support the work of the Agriculture Committee			
Strengthening effective parliamentary committee work, including links to parliament's strategic development plans and budgets			

*How can DFID verify these figures?

Poverty reduction & Income generation

i). Describe your achievements here, and please refer to the details in your logframe,
ii). How much has the base line data collected in the beginning of the project helped shape your project activities? Has that data been analysed and do you have a copy of the baseline report?
iii). Have you conducted an impact assessment study? What are the main findings? Kindly attach a copy of the impact assessment report

Make sure that all information provided here correlates with the evidence you have collected. Please include the evidence as separate attachments to this report and label the attachments appropriately.

Not applicable

Social Exclusion & Gender

i). Please explain how the project has targeted women and other socially excluded groups, and provide evidence of the projects impact on gender and social exclusion.

ii). Have you used the data your project has collected on gender and social inclusion in deciding or shaping the project interventions?

The Rwandan population of around 11 million has almost the same numbers of men and women. The "working population" aged between 15 and 64 is 55% of the total.

Population according to age and sex	male	%	female	%	total	%
0-14 years	2,454,924	22%	2,418,504	21%	4,873,428	43%
15-64 years	3,097,956	27%	3,123,910	27%	6,221,866	55%
65 years and over	110,218	1%	164,913	1%	275,131	2%
total	5,663,098	50%	5,707,327	50%	11,370,425	100%

Table 1: population in Rwanda according to age and sex (Source: Indexmundi, 2011 estimate)

Around 73% of the Rwandan population depends on agriculture for its income and most farming is at a smallholder level, with 24% of the Rwandan population living below the poverty line.²⁹ In terms of land ownership, the land law that was passed in 2005 and the subsequent land registration since 2009 now gives to women the same rights as to men in terms of land ownership.

The PRA on land rights and housing in particular focussed on acquiring information on women's rights and gender. It looked at the access of women to land, and whether the laws are being implemented. The PRA on agricultural research and extension targeted both men and women as both are depending on agriculture.

In terms of participation, the PRAs resulted in a consultation of over 2,000 people. There was a significant difference in the participation of women working in local government, where women (25%) were not as well represented as men (75%). It would be interesting to verify whether this 25% is representative of the overall percentage of women working in the local administration. If it is not representative, and assuming the overall figure is higher, investigations should be made why the PRAs were not able to involve more women from local government.

Participation of the local	malo	0/	fomalo	%	total	%
PRA on agricultural research and	male	70	Ternale	70	iotai	70
extension	65	19%	31	9%	96	28%
PRA on land rights and housing	188	56%	54	16%	242	72%
total	253	75%	85	25%	338	100%

Table 2: participation of the local administration in the PRAs (source: own data)

As for the participation of the population, private sector and civil society (although the great majority of the participants are farmers, working on their own land or on the consolidated lands), this was more equally distributed at 52% men and 48% women.

²⁹ http://uk.oneworld.net/guides/rwanda/food_security

Table 3: participation of the population, private sector and civil society in the PRAs (source: own data)

Participation of the target group	male	%	female	%	total	%
PRA on agricultural research and						
extension	405	21%	310	16%	715	37%
PRA on land rights and housing*	600	31%	600	31%	1200	63%
total	1005	52%	910	48%	1915	100%

*: numbers of participation are estimated

The committee itself consists of 6 women and 4 men, and the female members all have links with the National Council of Women. Honorable Uwimana for example was Deputy Coordinator of the National Council of Women in Mudasomwa District, in 1999 and Chairperson of Profemmes/Twese hamwe in the Southern Province from 2006-2008. Another committee member (Hon. Murekatete) was coordinator of the Women's National Council, Rwanda's largest women organization. All 6 female committee members as well as the president of the committee Hon. Bazatoha also participate in the Parliamentary forum for women, where all issues on gender are discussed.

Unexpected Outcomes

Have there been any events or activities that have happened during project implementation that were never planned, but resulted in new, better or worse outcomes related to your project?

Further work planned as an extension of this project including a workshop on agriculture and innovative financing initiatives for the whole of the Rwandan parliament have been delayed by the political sensitivities of external donor agencies to Rwanda's recent interactions with neighbouring counties in the region.
Annex 13

Net Present Impact (NPI): Outcome Measures for Private Enterprise-Led Development

Summary

Any impact measurement for donor initiatives aiming to promote private sector enterprises to deliver sustainable development must meet two conditions: (i) it must be standardised to allow comparison between different enterprises, deploying different business models in different sectors, and (ii) it must value the future potential impact of the social enterprise, as the basic premise of private-sector led development is that profitable enterprises can deliver impact into the future without the need for continued donor backing.

The Disability Adjusted Life Year (DALY) is an example of an impact measurement used to evaluate health care interventions but the DALY equivalent for economic development has yet to be adopted. We propose that *Net Present Impact* (NPI) fulfils the necessary criteria and will be adopted by the new programme as the primary measure of impact. Within NPI, impact is defined as additional increases in all household incomes attributable to the activities of the enterprise. NPI is then calculated as the historical impact achieved by the enterprise plus the discounted summation of projected future increased income of all households benefiting from the commercial activities of the enterprise. NPI logically flows from, and is compatible with, DCED standards, supported by DFID and other leading DFIs for social enterprise evaluation (DCED 2010).

For a given enterprise, the NPI is presented as a single monetary dollar value. For a programme, the NPI is a sum of all portfolio enterprise NPIs. The NPI may also be weighted by the baseline household poverty level of the beneficiaries, the *poverty-weighted net present impact* or wNPI, to improve impact measurement in terms of poverty alleviation. The proposed wNPI addresses the limitations of open-ended qualitative impact measures and is a more relevant indicator of poverty alleviation than traditional enterprise indicators such as company turnover or jobs created. The data required to calculate NPIs are integral to the planning and routine operations of an enterprise and captured under DCED compliant standards. NPI is therefore a convenient measure for enterprises to track and project impact and is amenable to external audit.

From DCED Standards to Net Present Impact

DCED standards will be adopted at the programme level and by each social enterprise created and commercially nurtured under the new programme. Under this standard the commercial activities of an enterprise are mapped through a causal results chain to impact.

Our primary measure of impact is increased income of targeted households relative to a baseline income in the absence of the enterprise. The households include enterprise employees, customers directly interacting with the enterprise and indirect beneficiaries of the products and services offered by the enterprise.

For each enterprise, the business planning, and subsequently operational activities, will generate estimates of the additional monetary benefit received by each type of household targeted by the enterprise, relative to a baseline situation. The business plan will also project how the enterprise activities will scale through time and so how the total number of household beneficiaries will

increase. For commercial business plans it is common practice to make detailed projections five years into the future. For each year of enterprise operations, the impact is simply the product of the attributable, additional monetary benefit per household and the number of beneficiary households. The NPI is a combination of the historical impact achieved by the enterprise plus the discounted sum of all the projected annual estimates of impact, with the final year impact inflated by a terminal multiplier that accounts for the on-going business activities beyond year five. The discounting captures the risks and uncertainty of the enterprise delivering against the business plan projections and weights nearer-term impact more highly than more distant impact.

As the company matures, the baseline comparison against which the attributable, additional household income is calculated, as well estimates of the dollars values to different beneficiary households may need to be revised. The NPI methodology, as well as the component estimates of historical and projected impact, may be audited along DCED standards.

The methodology for NPI closely mirrors the standard procedure for calculating the Net Present Value (NPV) of a commercial enterprise based on discounted annual profits. In a similar way, the NPI calculations treat the beneficiary household as an "enterprise" and track through the additional income in terms of "profit" to the household. NPV is a fundamental standardised measure of enterprise value used in the investment sector. NPI has the potential to fulfil a similar role for social impact.

Poverty Weighted Net Present Impact, wNPI

The impact of an additional dollar of income on poverty alleviation at the household level will vary with the underlying poverty level of the recipient household. The NPI methodology enables us to weight impact by the underlying poverty of the target beneficiaries. This can be done based on (1) an understanding of the baseline distribution of poverty in the target beneficiaries and (2) by weighting the relative value of an additional \$1 of disposable income at the household level.

Each enterprise will undertake baseline surveys as part of the DCED accreditation procedure, allowing the frequency distribution of the household income of the enterprise-targeted beneficiaries to be estimated. An example is shown in Figure 1.

The logic behind the weighting function is that for the very poorest household (where baseline household annual income approaches \$0) the additional \$1 income has its maximum \$1 value; as baseline household income increases the relative poverty-alleviating value of the additional income decreases, approaching \$0 in the very richest households.

A theoretical relationship of the weighting function is also shown in Figure 1. The shape of this function may be determined empirically by regressing estimates of the multidimensional poverty index (MPI), developed by the DFID-supported Oxford Poverty and Human Development Initiative (OPHI, Alkire & Santos 2010) and adopted by the UN as a poverty measure, against household income. Initial analysis will focus on Ugandan datasets in collaboration with OPHI researchers (Levine, Muwonge & Batana 2012) but efforts will be made to characterise the relationship in other target countries in East Africa.

An example: Sarura Commodities

Sarura, meaning "harvest" in Kinyarwanda, is a Rwandan company offering crop storage and trading services, known as "warrantage" to small-holder maize and bean growers. Informed by the lessons learnt from the RIU Programme, Sarura works closely with small-holder farmer co-operatives to: consolidate their harvest into warehouses and store to international standards; secure bank financing against the consolidated inventory enabling an upfront payment to farmers at the time of harvest; trade the stored commodities when prices have risen significantly post-harvest; and use the profits from the sale to repay the bank, provide a second payment to farmers and cover the cost of operations with a margin allowing Sarura to continue trading and to grow. In this way, the warrantage system allows poor farmers to share more equitably in the post-harvest value of their crop and so increase their profitable household income. The Sarura DCED results chain is shown in Figure 2.

From baseline surveys and the operational activities of Sarura in Harvest B 2012, it is calculated that an average farmer gains an additional ~\$22 profit per harvest through working with Sarura relative to a baseline of selling their crop either before or at harvest. The Sarura business plan projects the number of farmers benefiting from the warrantage services over the first 5 years of operations. From the same baseline surveys we can also estimate the frequency distribution of the household income of the Sarura client base. It is then possible to weight the impact by baseline poverty using the relationships shown in Figure1. Table 1 shows the business plan projections and the calculated NPI (~\$33m without discounting) and wNPI (\$25m without discounting), as well as the effect of discounting (NPI ~\$10m and wNPI ~\$8m, both with discounting).

As noted above, these calculations will be collected as part of the routine business planning of estimates of the baseline scenario, and so attributable household profit; the wealth distribution of beneficiary households will also be updated based on Sarura's operational experience, with the wNPI process and results open to external audit by DCED-approved consultants.

To deliver its business plan at scale and so deliver projected wNPI, Sarura is looking to raise around \$1.2 million in risk capital/debt financing with a total programme cost in the development of Sarura (including the pilot work funded through RIU that provided the proof of concept that Sarura is commercialising) of around \$1.7m. The NPI can be compared to the primary counterfactual of direct cash transfer of total programme costs to the poorest households. The projected discounted wNPI gives ~5x leverage over the null hypothesis of direct cash transfer; if business successfully delivers at scale then impact will be 15x on full programme costs.

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Figure 2. Sarura DCED results chain. For NPI and wNPI calculations only the household benefiting from the direct experience of the warrantage services are included in the calculations.



	Year 1	Year 2	Year 3	Year 4	Year 5
Farmer harvests per year	8,000	42,480	81,700	98,900	117,837
Impact per year, \$					
Unweighted	\$173,992	\$880,837	\$1,776,898	\$2,150,982	\$28,191,330
Weighted	\$134,815	\$682,502	\$1,376,800	\$1,666,653	\$21,843,589

Table 1a. Annual business plan projections of scaling Sarura and impact estimations. Year five includes the additional of 10x terminal multiplier of annual impact.

Table 1b. NPI and wNPI calculations for Sarura based on a 5-year business plan projects, a 25% discount rate and 10x terminal multiplier in year five.

	Undiscounted	Discounted
Net Present Impact (NPI)	\$33,174,040	\$10,051,891
Poverty weighted Net Present Impact (wNPI)	\$25,704,360	\$7,788,542

FarmNet Executive Summary

Summary

FarmNet's vision is that smallholder farmers will enjoy equal access to competitive markets for their crops and be free to trade them. To achieve this, FarmNet will provide a platform to connect smallholder farmers to credit and to premium markets to increase their returns from agriculture.

Driven by the strong demand from large, premium off-takers like P4P to be able to trace their crop purchases back to individual smallholders, FarmNet forecasts Year 5 performance of \$23 million³⁰ of net impact to farmers and \$2.3 million in profits, Net *Present* Impact of \$74 million³¹ and a Net Present Value of \$10 million. To deliver this, FarmNet will raise \$1 million of investment.

Market Opportunity

Agriculture in Rwanda accounts for 37% of GDP and employs over 70% of the workforce, 80% of whom have less than 2 hectares of land. The Government of Rwanda has placed these smallholder farmers at the heart of its economic growth strategy and has steadily increased agriculture's share of the national budget from 4.2% in 2008 to nearly 10% in 2010/11³². This investment, channelled through initiatives such as the Crop Intensification Programme, has led to a dramatic increase in the production of staple crops.

This growth in productivity has translated directly into an ever-increasing surplus for smallholder farmers, from which they have the potential to improve their household income. However, there remain significant obstacles to farmers maximising their returns from this surplus. Without access to credit and high quality storage facilities, farmers have to accept lower prices at the farm gate rather than hold out until prices rise in the months immediately after the harvest.

At the same time many institutional buyers of agricultural produce are keen to ensure that a greater share of the price they pay for commodities reaches the farmer, while reducing their own procurement costs. Under its Purchase for Progress (P4P) initiative, the World Food Programme (WFP) aims to raise smallholder farmers' incomes by buying direct from their co-operatives. However, in Rwanda in 2011 the WFP was able to buy only 3,500 MT through P4P owing to the difficulty of sourcing directly from smallholder farmers at the required quality. A network of traders acting as aggregators and intermediaries between the smallholder farmer and the end purchaser exploit these barriers and are believed to account for over 40%³³ of the end market price.

The value of the tradeable surplus in these four staple crops (maize, beans, wheat and rice) in Rwanda is estimated to be US\$384m in 2012, growing to US\$610m by 2017. With an average margin of 20% between the producer and the end buyer there is a strong incentive to find solutions to reduce a gap that could exceed US\$240m by 2017 and return a greater percentage of the market price to smallholder farmers.

Value Proposition

Inspired by the needs of P4P – and other socially motivated off-takers - for greater traceability at lower cost, FarmNet will provide an electronic trading platform which will allow smallholder farmers to sell directly to

³⁰ Assumes: (i) 10% of Maize and Beans, 5% of Wheat & Rice traded through FarmNet; (ii) an average trader margin of 40% (ie that in the absence of FarmNet, smallholders would be selling at a farm gate price which is 60% of the true net price of the crop on the open market); and (iii) the FarmNet margin is 13%. ³¹ Based on a 25% discount rate and a terminal multiplier of 10x EBITDA.

³² World Bank, Rwanda Economic Outlook: Seeds of Change, Kigali: World Bank, 2011.

³³ Based on the Rwandan Ministry of Agriculture's ISOKO market information data for 2011/12.

premium off-takers with quality warehouse operators acting as intermediaries for the handling of the physical commodities.

It is this partnership with trusted warehouse operators that distinguishes the FarmNet proposition from other digital trading platforms as it enables FarmNet to aggregate the produce of individual farmers to meet the minimum trading volume and quality requirements of an institutional buyer. In return FarmNet will provide its warehouse partners with the tools to manage and bring value to their customer base of smallholder farmers as they scale. The trading platform will be underpinned by an electronic receipt system, which will enable warehouse operators to record what individual farmers deposit and will allow farmers to secure loans from partner financial institutions, irrespective of whether the final trade is conducted through FarmNet.

FarmNet will charge buyers 5% of the traded value of the transaction and sellers 5% if the produce is already in storage or 10% if the produce is being delivered to a collection point, where it must subsequently be cleaned and rebagged. FarmNet will retain 40% of the revenue with the balance being passed to the warehouse operator.

FarmNet will catalyse the development of quality warehouse services for smallholder farmers by offering prospective collateral managers an attractive income stream over and above standard storage fees. FarmNet will attract premium off-takers to its marketplace by providing access to a quality, aggregated supply sourced directly from smallholder farmers. Furthermore FarmNet will allow these customers to measure the social impact of their procurement programme at the level of the individual farmer. Most importantly FarmNet will help smallholder farmers to maximise their returns from agriculture by connecting them to premium trading opportunities either at the farm gate or at a later date when their crop is in storage.

Pilot & Scale-Up

<u>Sarura Pilot</u>

FarmNet will partner with Sarura Commodities Ltd, a business that has pioneered the provision of high quality warehouse and trading services to smallholder farmers in Rwanda, to test the deposit receipt and trading propositions. It will rely primarily on off-the shelf tools to maximise learning at low cost before any investment is made in building FarmNet's proprietary platform.

The pilot will cover the 2013 A harvests for beans in January and maize in March. The pilot will conclude when the final payments are made for the maize harvest by the end of June 2013. Sarura will target up to 25 cooperatives in Nyagatare, Gatsibo, Bugesera and Kirehe districts. Assuming an average of 50 farmers per cooperative, the maximum number of farmers will be 1,250 (although the actual number is unlikely to exceed 1,000 as not all farmers will want to participate). One premium off-taker (potentially WFP) will be invited to place a tender for a volume of maize at a fixed price and this offer will be marketed to the registered farmer base.

The objectives of the Sarura pilot will be to:

- Test value of proposition to all stakeholders (Sarura, farmers, coops, banks and off-takers)
- Test usability and operational benefits of mobile data capture
- Test smallholder demand for trading and learn how it can enhance overall Sarura proposition
- Test Sarura's ability to mobilse farmers to meet a third party tender
- Learn what is required to build trust in remote trading
- Understand what proprietary development will be required to meet business requirements and scale solutions
- Position Sarura and FarmNet as innovators in eyes of potential investors.

Market Pilot

Once the Sarura pilot is under way FarmNet will start to recruit an additional warehousing partner and develop its own technology platform for a broader market pilot in time for the 2013 B harvest in June.

In addition to the objectives described for the Sarura pilot, the market pilot will have the additional aims of:

- Identifying a common set of features and benefits that can be scaled across multiple partners
- Testing the in-house technology platform
- Testing the pricing model and business case for both FarmNet and its partners
- Learning what resources (across business, technology and support) will be required to scale the business.

Commercial Launch

The FarmNet service will be made commercially available in time for the 2014 A Harvest. Rwandan markets only are forecast, targeting 10% of the addressable market in Year 5. In addition there is considerable (unforecast) international potential.

Financial Forecasts

Total Smallholder Surplus for Trading (MT)	2013	2014	2015	2016	2017
Maize	267,120	280,476	294,500	309,225	324,686
Beans	161,280	169,344	177,811	186,702	196,037
Wheat	51,072	53,626	56,307	59,122	62,078
Rice	27,888	29,282	30,747	32,284	33,898
FarmNet Market Share					
Maize/Beans	0.1%	0.5%	2.0%	5.0%	10.0%
Wheat/Rice	0.0%	0.3%	1.0%	2.5%	5.0%
Grade A Market Price (US\$/MT)					
Maize	448	448	448	448	448
Beans	857	857	857	857	857
Wheat	618	618	618	618	618
Rice	732	732	732	732	732
FarmNet Aggregate Fees (% of traded value]	14.5%	14.3%	14.0%	12.8%	11.5%
Revenue Share					
FarmNet share	40%	40%	40%	40%	40%
Warehouse operator share	60%	60%	60%	60%	60%
FarmNet Revenues (US\$)					
Trading Revenues	29,121	165,765	673,152	1,614,313	2,995,562
Receipt Revenues	-	13,504	55,948	147,301	303,629
Consultancy Revenues	80,000	-	-	-	-
	109,121	179,269	729,100	1,761,614	3,299,191
Costs (US\$)					
Staff Salaries	240,975	439,079	545,058	697,816	739,685
External Consultants	15,722	33,460	59,200	93,959	129,723
Travel and Office Expenses	47,500	67,700	73,034	101,236	107,311
	304,197	540,239	677,292	893,011	976,719
Net Income (US\$) -	195,076 -	360,969	51,807	868,603	2,322,472
Cumulative Cash (US\$) -	195,076 -	556,045 -	504,238	364,365	2,686,837
Number of Farmers	598	3,139	12,135	29,666	57,142
Net Impact (US\$)	91,714	983,995	4,079,125	10,899,663	22,749,178

Results Chain



Saroma Fresh: Executive Summary

Summary

Horticulture is a Government of Rwanda priority, and DfID is providing a £22 million Agricultural Sector Delivery Grant to fund the GoR agricultural sector strategy between 2011-2015. However, notwithstanding government investment in capacity building, research conducted by the Overseas Development Institute³⁴ identifies a lack of consistent, volume and quality of supply of horticultural produce - the result of the smallscale, uncoordinated production base and little private investment.

In response, Saroma Fresh Limited has developed a plan to to provide smallholder horticulturists with training, quality inputs and access to high value markets. To achieve this, Saroma will operate an in-grower (graduating to out-grower) vegetable production enterprise, linked to a proprietary sales and marketing programme in the premium Kigali wholesale market.

In the absence of alternative providers of year-round, quality vegetable produce in the market, Saroma believes it will be able to achieve significant market share, forecasting Year 5 performance of \$2.8 million³⁵ of net impact to farmers and \$3.8 million in profits, Net Present Impact of \$10 million³⁶ and a Net Present Value of \$12 million. To deliver this, Saroma will raise \$0.5 million of investment. The programme leads with Rwandan markets, substituting current imports to the country, but will look for opportunities to export within the East Africa region.

Market Opportunity

Soroma Fresh will produce vegetables for sale in the wholesale markets of Kigali, Rwanda. Rwanda has excellent conditions for horticultural production with a Mediterranean climate, fertile volcanic soils and abundant rain. Rwanda could be the salad bowl of East Africa, but at present is a net regional importer of vegetables.

Demand for horticultural products in Rwanda - and indeed the region - is growing strongly, driven by the growth in middle income earners, and growth in urban population without land to produce for themselves. We estimate that the premium Kigali wholesale market is currently worth US\$10 million per annum. However, supply of this important market is being held back. There are no significant commercial players in the vegetables value chain; currently the key players are the smallholder farmers and cooperatives who are poorly trained, financed and (in the case of cooperatives) for the most part poorly managed. As a result the sector suffers poor crop husbandry, insufficient quality and quantity of inputs and lack of modern technology. This results not only in insufficient production, but also low quality and inconsistent supply throughout the year. As a result, prices are historically high, threatening food security.

Private capital should flow to improved production. However, a fundamental break to large-scale, properly resourced and managed production is the lack of land consolidation in Rwanda. About 80% of farms are less than one hectare; less than 0.1% of farms (less than 1,000) are in excess of 50 Ha and there are no farms in excess of 100 Ha³⁷. In vegetable production specifically, the largest farm we know of in Rwanda is a cooperative of 50 hectares (to the best of our knowledge there are no corporate producers of vegetables in Rwanda).

If sufficient land can be brought into consolidated production to justify the investment of cash and high quality management, it should be possible, through the consistent year-round supply of high quality produce, to command a significant share of the high value wholesale markets of Rwanda. That is the aim of Soroma Fresh.

³⁴ Policy for Agriculture & Horticulture in Rwanda. David Booth & Frederick Golooba-Mutebi, Future Agricultures (2012).

³⁵ Assumes: (i) profits are shared 50:50 between contract producers (in-growers and out-growers); and (ii) work done under in-grower and out-³⁶ Based on a 25% discount rate and a terminal multiplier of 10x EBITDA.

³⁷ National Agricultural Survey (2008). National Institute of Statistics of Rwanda.

In so-doing, the Company aims to generate financial returns for investors and significant social impact through the recruitment, training and resourcing of smallholder farmers to the business.

Value Proposition

Soroma Fresh has secured the rights to 80 contiguous hectares of farmland suitable for the production of a variety of important vegetable crops. Soroma will use this as a springboard to drive consolidation of production and thereby the consistent, high quality supply of horticultural produce to deliver financial returns and significant social impact.

The Company will operate an in-grower programme for smallholders without the land, training, finance or market access to expand their own operations. Specifically, plots will be provided on the 80 Ha parcel, together with agronomist-led training and management of in-growers, and the provision of inputs (high quality seed, fertilizer and pesticides). Soroma will coordinate production between in-growers for consistency of supply, and conduct marketing of the produce. Profits are then shared between in-growers and the Company.

Furthermore, Sarmona will graduate successful in-growers to become out-growers, supporting them to secure the finance to buy land and inputs, and continuing to contract them – as out-growers – to supply the markets that Saroma generates. This allows Soroma to increase its production volumes beyond the limitation of its 80 hectare farm, driving significant growth in Years 4 & 5.

Our target market is the major wholesale consumers in Kigali for whom quality and/or reliability of supply are key: hotels, restaurants and institutional purchasers (schools, hospitals etc) representing an estimated 20,000 tonnes per annum valued in excess of \$10 million and set to double over the next five years. Lead crops have been selected on the basis of market demand and margin per hectare - initially tomatoes, onions, carrots, pepper and lettuce, although other vegetable will also be produced at small scale and increased as demand warrants. Marketing will be through direct sales to hotels, restaurants and institutions. As volumes grow, a permanent wholesale outlet will be established in Kigali. Produce will be priced only to match the wider wholesale market prices from time to time, thereby driving significant market share based on our superior offering on quality and consistency of supply.

Pilot & Scale-Up

A pilot phase will be conducted in order to test the key assumptions of the business, specifically: vegetables production (yield, variety, quality and cost of production), contract farming (in-growers scheme) and the target market (value and volumes). The pilot will comprise a two hectare nucleus farm, two hectares under in-growers, and a small grading, packaging and storage warehouse.

Preliminary marketing has generated strong expressions of interest totaling 24.1 tonnes of vegetables per month³⁸; more than sufficient to absorb the peak pilot production of 22 tonnes per month.

After validation of the key business concepts during the pilot phase, the business will be scaled up, targeting 160 Ha of land under cultivation (including 90 Ha of out-grower production) in Year 5, representing 4,983 tonnes of production and \$11.8 million in turnover (25% of the target market).

 $^{^{38}}$ Hotels = 1.6 tonnes; Supermarkets = 3.6 tonnes; Restaurants = 12.6 tonnes; Institutions = 6.3 tonnes.

Financial	Forecast	(USD)
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	Year 1	Year 2	Year 3	Year 4	Year 5
	150	1 102	1 407	2 5 2 0	4 0 0 2
Production volumes (tonnes)	153	1,102	1,487	2,520	4,983
% Growth		619%	35%	70%	98%
Total turnover	152,648	1,109,216	1,594,328	4,084,014	11,828,509
% Growth		627%	44%	156%	190%
Direct cost of Production					
Cost of growing	34,962	202,692	283,540	787,628	2,427,281
In- & out-grower profit share	19,081	204,596	322,238	940,843	2,872,958
Total Direct Cost	54,043	407,287	605,779	1,728,470	5,300,239
Gross Profit	98,605	701,929	988,549	2,355,543	6,528,269
	65%	63%	62%	58%	55%
Total indirect cost	83,397	567,567	662,635	1,279,324	2,718,149
EBIT	15,2 <mark>0</mark> 8	134,362	325,9 <mark>15</mark>	1,076,220	3,810,120
EBIT %	10%	12%	20%	26%	32%

Results Chain

SOROMA FRESH LOGIC CHAIN



Rwandan Plant Health Academy: Executive Summary

Summary

The Rwandan Plant Health Academy (RPHA) has two aims: (i) to create and train a self-funded network of 3,000 Rwandan agrodealers as outlets for the PlantWise plant health knowledge base to two million farming families; and (ii) to demonstrate the value and affordability of such training for agrodealers in order to enable the Rwandan government with confidence to pass regulations requiring the training and regulation of agrodealers in plant health.

Driven by Government legislation to require agrodealer training in plant health, RPHA forecasts Year 5 performance of \$55 million³⁹ of net impact to farmers and \$1.5 million in profits, Net Present Impact of \$190 million⁴⁰ and a Net Present Value of \$5 million. To deliver this, the RPHA will raise investment of \$0.5 million.

The programme leads in Rwanda, but has the potential to be a model for other territories in the region.

Market Opportunity

Smallholder agriculture is essential for the food security of a majority of Rwandans and the trade in their produce is a large and growing component of the Rwandan economy. The prompt and accurate identification and effective treatment of plant health problems is critical to this important sector. In response, DfID and others are backing the development of plant health training packages (PlantWise) by CABI, which in Rwanda have been used to train government extension workers to deliver free clinics in the regions.

However, agronomist-led clinics cannot efficiently reach all of Rwanda's ca. two million farming families, and are reliant on the continued political and financial support of governments and ultimately donors. Moreover, extension worker-delivered clinics are not able to provide the input solutions to the problems diagnosed – pesticides, fertilizers and so on. Thus, whilst government extension workers must continue to play a central role in providing high level diagnoses, there is value in developing a broader, self-funding network of plant health expertise to maximize the impact of the PlantWise package. Such a network would ideally provide simple front-line diagnosis, advice and input solutions such as fertilizers and pesticides, but also integrate into the more sophisticated agronomist-led Plant Health Clinics.

Value Proposition

It is proposed to establish a for-profit enterprise called the Rwandan Plant Health Academy to provide training and a handbook for plant health, and ultimately certify an initial network of 1,000 agrodealers, rising to 3,000 over five years. Agrodealers already provide informal plant health advice to farmers in the course of selling inputs, but frequently from a basis of very little knowledge, and without the confidence of the farmer. With training, agrodealers will be able to provide better

³⁹ Assumes: (i) that 3,000 agrodealers interact with 800 farmers each; (ii) that the RPHA training course leads to an average 75% increase in input purchases from a current base of RWF20,000 per caput; and (iii) that the increased use of inputs generates a 100% return on investment.

⁴⁰ Based on a 25% discount rate and a terminal multiplier of 10x EBITDA.

advice and more appropriate inputs, and do so in a one-stop-shop format. Market research indicates that trust by smallholders in agrodealers would increase five-fold with plant health training, and that smallholders would visit agrodealerships five times more frequently than at present for advice and inputs. As a result our research indicates that agrodealers would be willing to pay for training and on-going accreditation, recognizing the value of training to provide better services and thereby attract and retain customers.

Delivery & Scale-Up

The RPHA and CABI will work together to develop a 'PlantWise Lite' training package appropriate to – and affordable for - agrodealers. This will focus on: (i) those plant health issues (genetics, nutrition, pests and diseases) for which the agrodealer is likely to carry stock and is therefore able to provide a solution; and (ii) possible important (including notifiable) diseases which may be referred up to the district or regional agronomists for follow-up.

Over a pilot phase the RPHA and the Rwandan Agrodealer Development project (RADD) will partner to deliver the training package in conjunction with RADD's existing agrodealer *business* training programme, with a target of 1,000 agrodealers trained in the first year. The enterprise will work with the Rwandan Ministry of Agriculture to integrate this agrodealer-based plant health network into their extension services. During the pilot the RPHA will invest in the development and promotion of its brand, such that farmers will recognize trained and branded agro-dealerships as providing high quality plant health advice

The pilot will be evaluated to establish: (i) the business case to agrodealers for a paid-for training and accreditation scheme and the bearable price at which that can be offered (ie that the branded training scheme increases input purchases from agrodealers); and (ii) that farmers yields benefit from the additional inputs.

On the basis of a successful pilot, the training programme will be rolled out to an estimated 3,000 agrodealers by year five. In addition to the initial training course, annual refresher courses will be provided together with updated materials. This represents a 100% penetration rate of the Rwandan agrodealer network, driven by Government legislation. Government is currently implementing a Bill for the training and regulation of the agrodealer sector. At the present time there is no provision for plant health training. Therefore, the RPHA will work with Government to demonstrate the means of delivering a training package, and the value and affordability of a plant health training programme to agrodealers, in order to make the case to Government for the inclusion of a plant health component under the Bill.

We forecast that affordability constraints will make the delivery of courses only marginally profitable in the short term. In the medium term, as the value to agrodealers of branded training is demonstrated and turnover is grown, it should be possible to increase training fees. Additional revenue will be generated through the supply to agrodealers of a branded range of inputs developed in partnership with agricultural input manufacturers. This will ensure reliable supply to agrodealers and farmers of high quality inputs at bulk discount prices, and has the potential to become the major profit centre for the enterprise.

Financial Forecast

	Year One	Year Two	Year Three	Year Four	Year Five
Inflows (RWF)					
Training Courses	48.000.000	48.000.000	60.000.000	72.000.000	84.000.000
Input Sales	0	966,666,667	1,600,000,000	2,000,000,000	2,400,000,000
Total Inflows	48,000,000	1,014,666,667	1,660,000,000	2,072,000,000	2,484,000,000
Outflows (RWF)					
Staff	30.960.000	30.960.000	30,960,000	38.700.000	38.700.000
Primary Course	26,000,000	7,000,000	7,000,000	7,000,000	7,000,000
Refresher Course	0	8,333,333	3,500,000	4,666,667	5,833,333
Marketing	19,160,000	11,660,000	11,660,000	11,660,000	11,660,000
Inventory Purchase	0	386,666,667	640,000,000	800,000,000	960,000,000
Warehousing & Supply	0	145,000,000	240,000,000	300,000,000	360,000,000
Overhead	7,612,000	58,962,000	93,312,000	116,202,667	138,319,333
Total Outflows	83,732,000	648,582,000	1,026,432,000	1,278,229,333	1,521,512,667
EBITDA (RWF)	-35,732,000	366,084,667	633,568,000	793,770,667	962,487,333
Net Impact (USD)	620,155	3,720,930	14,883,721	37,209,302	55,813,953
Number of Farmers	40,000	120,000	240,000	400,000	600,000
Avenrage Impact per Farmer (USD)	16	31	62	93	93

Logic Chain



The Gorilla Honey Company

Summary

Honey production has increased through the development of modern, Africanised hives and beekeeper training supported by DfID and others. Our vision is to create an international brand to market the excess rainforest honey produced on the borders of the Volcanoes National Park of Rwanda, home to the highly endangered mountain gorillas. By increasing incomes to farmers by paying better prices for their honey, and through profit share with leading gorilla conservation bodies, we will help to secure the future of mountain gorillas. Based on a successful \$50k pilot phase, the enterprise provisionally forecasts Year Five net impact⁴¹ of US\$3 million; and profits of US\$300,000, a Net Present Impact of US\$12 million; and Net Present Value of US\$1 million.⁴² Beyond the pilot, the Company anticipates raising up to \$500,000 for product development and growth.

Market Opportunity

The mountain gorilla is one of the most charismatic and endangered animals in the world. Only 880 are left in the wild, all within the forests of the volcanic Virunga mountains, spanning Rwanda, Uganda and DRC. In Rwanda, the Government has created the Volcanoes National Park (VNP) to safeguard their habitat, and tourism to the country, substantially based upon gorilla watching, is one of the fastest growing sectors of the Rwandan economy, currently worth \$250m.

There is a potentially virtuous relationship between conservation and sustainable economic development. Enriching the lives of the poor of the VNP can reduce the economic pressure to exploit and degrade the forest ecology and threaten the gorillas. And this is particularly true when the income derives from the continued existence of the resource to be conserved, as in the case with gorilla tourism: if there were no gorillas there would be no tourism. About \$1 million of the revenues from Gorilla tourism is estimated to flow to the poor of the Virunga region, through employment in the tourist industry, the government's community revenue sharing scheme and so on.⁴³

As with Gorilla tourism, bee keeping has the potential to derive a sustainable income from – and thereby incentivise the conservation of - the VNP, and agencies including DfID and SNV have funded development of appropriate implementations of modern hive technology, and bee keeper training. As a result, honey yields in the region have grown, but the prices secured are still low. VNP region produces about 12 tonnes of honey per annum over two seasons, securing RWF1,700/kg (US\$2.75) at the farm gate and RWF2,800/kg (US\$4.50) retail.

Production volumes of honey are now at a level which we believe would support the development of an international Gorilla Honey brand. Marketed on the value of the conservation mission, rather than the cost of the honey, this could secure premium prices comparable to the Manuka Honey brand which, on the basis of a health marketing strategy, can retail in excess of \$100/kg. If we

⁴¹ Assuming: (I) 40% uplift in farm gate payments to bee-keepers per kilo of honey; (ii) 10% of sales donated to the IGCP; and (iii) that the enterprise helps secure the \$30 million in direct receipts from gorilla tourism in pro rata to its contribution towards the estimated \$2 million per annum spend on gorilla conservation in the VNP.

 ⁴² NPI and NPV based on a discount rate of 25% and a terminal multiplier of 10x on EBITDA.
⁴³ The Success of Tourism in Rwanda: Gorillas and More by Hannah Nielsen and Anna Spenceley.
World Bank & SNV, April 2010.

succeed we can return additional cash to poor farmers, and also to conservation bodies to support their wider conservation work.

Value Proposition

The Gorilla Honey Company will return value to: (i) bee-keepers, by paying a premium over current market rates for their honey, and thereby mitigate the need to exploit the VNP in non-sustainable ways; (ii) the IGCP through profit sharing basis to fund wider conservation efforts; and (iii) to other NGOs to support their work to develop the capacity of local bee-keepers.

The activities of the Company will be kept as virtual as possible. The Company will work with local cooperatives to source honey from the VNP to international standards on quality and traceability. Processing will be outsourced to one of a number of regional operators capable of processing to export standards and shipping to third party providers of warehousing, transacting sales and shipping to the end customer.

Key to the success of the project will be the development of a premium value 'Gorilla Honey' brand which markets the conservation mission, as well as the cache of volcanic rainforests of Rwanda. By processing honey in batches the enterprise will be able to label jars with a scannable QR code specific to the apiary of origin. This will take customers to interactive marketing pages that are rich in content on the apiary, its people and places. The product will also seek endorsed by the International Gorilla Conservation Programme (and thus the WWF, FFI and AWF).

Gorilla Honey will conduct a blended online marketing campaign for the sale of honey direct to the 'long tail' of consumer strongly motivated by gorilla conservation, comprising: a Google Adwords campaign driving sales through our own web shop; social media marketing across all major platforms; and affiliate sites – including relevant conservation web shops.

As the brand value is developed the Company will seek ways to incorporate Gorilla Honey into other products including foods (e.g. granola bars) and cosmetics (e.g. face creams), either co-branded with existing brands, or as own brand through contract manufacture. Since the premium component (the honey) will be a subset of these products, the increased product costs – and thus pricing - will be smaller, allowing such products to be mass-marketed, driving sales. This maximises the value of the brand per unit of honey sold.

Pilot & Scale-Up

A 12 month pilot programme will be conducted to test the key assumptions of the business model, namely: (i) the ability to source, process and export Gorilla Honey; and (ii) that a bearable price of \$100 / kg is achievable at breakeven volumes. To do so, the Company will work with the main cooperative in the region (UNICOPAV) to source 1 tonne of honey per season, complying with relevant requirements on traceability of US and EU importers. Contract processors, shippers and warehousers have all been identified.

The brand will be developed interactively strategy with supporters of the enterprise through social media to define the target demographics and arrive at a compelling brand package – logos, designs, messaging. Alternative marketing campaigns will be developed and tested to derive cost-per-sale (and repeat sale) data to identify a cost-effective long-term strategy.

(RWF, Rwandan Francs)	Year 1	Year 2	Year 3	Year 4	Year 5
INFLOWS					
Honey Sales	99,200,000	260,400,000	421,600,000	582,800,000	744,000,000
Total Inflows	99,200,000	260,400,000	421,600,000	582,800,000	744,000,000
OUTFLOWS					
Staff	34,844,000	34,844,000	34,844,000	34,844,000	34,844,000
Honey Purchase	5,000,000	13,125,000	21,250,000	29,375,000	37,500,000
Contract Processing	432,000	1,134,000	1,836,000	2,538,000	3,240,00
Packagaing Materials	8,193,920	21,509,040	34,824,160	48,139,280	61,454,40
Honey Analysis	1,370,000	1,370,000	1,370,000	1,370,000	1,370,00
Honey Certification	27,000	27,000	27,000	27,000	27,00
International Shipment	8,000,000	21,000,000	34,000,000	47,000,000	60,000,00
Design & IT	2,410,000	0	0	0	
Marketing	2,480,000	6,510,000	10,540,000	14,570,000	18,600,00
Warehousing & Shipping	29,363,200	77,078,400	124,793,600	172,508,800	220,224,00
Accomodation	1,120,000	1,344,000	1,344,000	1,344,000	1,344,00
Equipment	5,000,000	13,625,000	22,612,500	31,636,250	40,663,62
Conservation Support	10,920,000	27,040,000	43,160,000	59,280,000	75,400,00
Total Outflows	109,160,120	218,606,440	330,601,260	442,632,330	554,667,02
EBITDA (RWF)	-9,960,120	41,793,560	90,998,740	140,167,670	189,332,97
	-10%	16%	22%	24%	25
Cumulative Cash (RWF)		41,793,560	132,792,300	272,959,970	462,292,94
Net Impact (USD)	437.613	1.093.694	1.749.774	2.405.855	3.061.93

Annex 14 Short summaries of business proposals from the pilot programme, Rwanda

Based on a successful pilot, the enterprise will be scaled up, to a Year five target of US\$700,000 turnover, representing sales of 12 metric tonnes of processed Gorilla Honey.

Annex 14 Short summaries of business proposals from the pilot programme, Rwanda



Rift Valley Aquaculture Business Summary

Lake cage tilapia fishery

Summary

Rift Valley Aquaculture's vision is that Rwanda's fisheries sector, in particular its small scale fish farmers, will: improve productivity, through access to affordable, high quality inputs, the best lake cage technology and genetically improved strains of Nile tilapia (*Oreochromis niloticus*); secure more direct access to competitive markets for the affordable, high quality tilapia they produce; and, enjoy increased household income and improved nutrition.

To achieve this, Rift Valley Aquaculture (RVA) will establish: a large lake-cage aquaculture operation to produce tilapia in Lake Mugesera (Eastern Province); fingerling and fish feed production operations; a large network of local community, small scale out-growers across Rwanda's south eastern lakes; and proprietary distribution channels to markets throughout Rwanda and into neighbouring countries.

Driven by significant, largely unmet domestic and Democratic Republic of Congo market demand, RVA forecasts Year 5 performance of USD6.3 million in profits and USD2.8 million of net social impact to out-grower fish farmers. Although the financial model is still at an early stage of development and includes working assumptions, projected Net Present Value is USD11 million and Net Present Impact is USD15 million. To deliver this commercial and impact potential, RVA needs to raise USD1.9 million of investment.

Market opportunity

Rwanda's domestic fish market demand is significant and largely unmet. The Ministry of Agriculture and Animal Resources (MINAGRI) estimates demand to be over 70,000 tonnes per year at present, rising to over 110,000 tonnes per year by 2020. Domestic fish production (about 90% lake capture and 10% lake cage and earth dam pond aquaculture) yields very low volumes at about 15,000 tonne per year, representing only 20% of domestic demand. While Rwanda imports about 12,000 tonnes of whole fish per year (almost entirely from Uganda), it exports an equivalent volume, almost exclusively, to the Democratic Republic of Congo. Estimates indicate, therefore, a current unmet domestic demand for fish of 50-60,000 tonnes per year, which is equivalent to about USD190 million at current wholesale prices.

In June 2012, MINAGRI agreed a Fisheries and Fish Farming Master Plan that requires significant growth in domestic fish production, setting a target of 150,000 tonnes per year by 2017, the majority of which (100,000 tonnes) is to be achieved using lake cage aquaculture. This amounts to a 10-fold increase in domestic production from current yields within five years, and assumes a domestic market value for lake-cage aquaculture production of about USD400 million by 2020. As well as growing domestic demand to be met by this domestic production, Rwanda's ambition is to become a major exporter of whole fresh and frozen fish to the Democratic Republic of Congo.

The current fish supply chain in Rwanda comprises:

- producers (artisanal lake capture, earth pond fish farms, lake cage aquaculture, and recent entrants into large scale fish farming), achieving an average sale price in 2012 of USD1.60 per kg fresh whole fish
- production-side agents, with average sale price of USD2.10 per kg
- traders ('gate' purchasers, local traders, and wholesale traders), with average sale price of USD3.10 per kg

• local, provincial and Kigali City retailers, which directly supply households, restaurants, bars, and hotels, with average sale price of USD3.90 per kg

Export demand from Rwanda is currently met by wholesale traders, which also supply imported Ugandan fish to Kigali City supermarkets.

Value proposition

RVA will harness Rwanda's extensive lake fisheries assets and human resources, the best know how and cage technology (arising from research conducted by FAO, Stirling University, Swansea University and other research institutions in the Norway, Austria, USA, Canada, Israel) and improved genetic strains of tilapia (arising from research of the CGIAR Consortium's WorldFish in Malaysia) to produce affordable, high quality Nile tilapia in large volumes, delivering sustainable profit alongside significant social impact, with well managed environmental impacts and other risks.

The company will establish a nucleus lake-cage fish farm at one of Rwanda's eastern lakes, and will also engage out-growers, who will receive inputs (cage design, access to finance, fingerlings, fish feed, technical training) under contract. Out-growers will sell 90% of their production to RVA at agreed prices, taking account of finance and inputs received and current market price for whole fresh fish. RVA will regularly review out-grower production, and conduct periodic 'audits' to ensure quality control against RVA standards and to enable continued capacity development.

From Year 2, RVA will expand production activities into other lakes in the eastern Rwanda lake system through establishment of nucleus production units and enrolment of contract out-growers. RVA is also considering an option to expand its core pontoon-based production system through an 'in-grower' programme, whereby RVA establishes and owns the pontoon systems, which are managed by independent managers, who share in the profits generated.

In order to ensure the production of large volumes of high quality, affordable table fish for domestic markets, by both nucleus farm and out-growers, RVA will establish its own fingerling and fish feed production facilities, ensuring high quality inputs at minimal cost. Production of fingerlings and feeds will be scaled to produce a surplus for sale to other domestic aquaculture operations from Year 2.

RVA will initially target supply of whole, fresh fish to domestic fish markets throughout Rwanda, with a focus on retail markets and high value buyers in Kigali City, including hotels, restaurants and institutional buyers, such as educational and health institutions. Export to wholesale buyers in the Democratic Republic of Congo will be initiated as soon as production levels are high and reliable. From Year 2, RVA will supply fingerlings and fish feed to domestic buyers, focusing on wholesalers, retail networks and large scale operations.

Successful development of this business will ensure that RVA makes a significant contribution to achievement of the Government of Rwanda's Fisheries and Fish Farming Master Plan objectives. RVA will also support technology transfer, increased productivity, reduced unit cost of production of fish and improved access of smallholder fisherman to competitive markets, thereby contributing to sector development, increased household income and improved fish consumer nutrition.

Execution

RVA's nucleus operations are proposed to be located in and on the shores of Lake Mugesera in Rwanda's Eastern Province. Approval for the pilot and scaled up operation is currently being sought from MINAGRI (see Appendix). This relatively low altitude lake is large (4,200 ha surface area), with ideal depth profile (about 80% of the lake is 4-5 m deep) and suitable temperatures of around 24°C. There is potential to produce 8,200 tonnes of tilapia per year using lake-cage culture, which is a conservative estimate that also ensures well mitigated environmental impacts. The total estimated

production potential of other suitable lakes in the south eastern Rwanda lake systems is 13,400 tonnes per year.

Commercial pilot phase

The initial phase of execution will be a commercial pilot: a demonstration scale grow-out of the proposed Low Volume, High Density (LVHD) cage culture system, comprising 50 pontoons, each with seven LVHD cages, designed to prove the value of the seed, feed and grow out operations, the potential returns on investment, the environmental sustainability of the grow out system, the positive social impact to households, and the potential contribution to realization of Fisheries and Fish Farming Master Plan targets.

The assumptions to be tested during the commercial pilot phase include:

- pontoon-based, LVHD cage system meets performance expectations of modelled operations in Rwanda's warmer, shallower eastern lakes for producing average 500g table fish
- proposed lake cage technology can be manufactured locally at an affordable cost and to a quality specification, and will operate as planned in the pilot lake (proposed pontoon system, including anchoring and predator protection)
- existing supplies of seed (fingerlings) and feeds are of high enough quality and low enough cost to meet commercial needs, until in-house seed and feed production meets needs
- seed production facility can be optimised under local conditions, based on technology developed in Malawi by RVA's technology partner
- effective Nile tilapia selection breeding programme for the continual genetic improvement of seed quality, based on two of the best farmed breeds (GIFT and Chitralada) and two wild breeds, providing founder populations with a broad genetic base
- sufficient and affordable local supply of quality raw materials for fish feed production, and satisfactory development of low cost, high quality extruded aquatic feeds
- proposed stocking and feeding regimens based on bioenergetics, inventory and other methods will achieve optimum feeding rates (minimisation of Feed Conversion Ratios)
- local aquaculture expertise and operational management capability can be developed sufficient for performance and efficiency, including development of a specific management methodology
- out-grower model for engaging former capture fishermen in lake cage culture operations leads to recruitment of sufficient, capable fish farmers
- commercial off-take agreements with traders and premium consumers can be secured

The commercial pilot will cost USD0.6 million, and will run for 12-18 months (depending on project planning and preliminaries), allowing for establishment of production facilities and completion of the first grow out cycle.

Scale up

Following a successful commercial pilot phase, the nucleus operation would be grown within Lake Mugesera over the following 3-4 years to a production capacity of 2,450 tonnes per year. Recruitment of out growers within the lake over the same period would be geared to achieve 2,400 tonnes of production by Year 5. The total 4,850 tonnes of production per year is well within the ecologically sustainable capacity of the lake, allowing potential for further expansion, either through more rapid growth pre-Year 5 or growth following Year 5. Expansion of activities to other eastern Rwandese lakes will be considered from Year 3 through recruitment of out growers or establishment of an 'in grower' programme, whereby RVA-owned pontoons would be deployed to suitable lakes where local individuals and cooperatives are interested to manage cage culture operations.

Annex 14 Short summaries of business proposals from the pilot programme, Rwanda

Financial forecast

All financial figures in USD					
	Y1	Y2	Y3	Y4	Y5
CASH IN					
Production volumes					
Fingerlings (20g fingerlings)	350,000	700,000	1,500,000	3,000,000	5,000,000
Fish feeds (tonnes)	125	500	1,000	2,000	4,000
Nucleus farm tilapia production (tonnes)	175	875	1,400	1,925	2,450
Out-grower tilapia production (tonnes)	0	200	600	1,200	2,400
Revenues					
Fingerlings (20g fingerlings)	122,500	245,000	525,000	1,050,000	1,750,000
Fish feeds (tonnes)	100,000	400,000	800,000	1,600,000	3,200,000
Nucleus farm tilapia production (tonnes)	682,500	3,412,500	5,460,000	7,507,500	9,555,000
Out-grower tilapia production (tonnes)	0	780,000	2,340,000	4,680,000	9,360,000
Total revenues	905,000	4,837,500	9,125,000	14,837,500	23,865,000
CASH OUT					
Nucleus farm costs					
Fingerling production facilities	235,000	240,000	240,000	240,000	240,000
Feed production facilities	142,000	142,500	142,500	142,500	142,500
Nucleus farm pontoons	425,000	637,500	637,500	637,500	637,500
Nucleus farm infra-structure	125,000	82,500	82,500	82,500	82,500
Depreciation	96,500	241,250	386,000	530,750	675,500
Total capital costs	1,023,500	1,343,750	1,488,500	1,633,250	1,778,000
Direct costs					
Fingerlings					
production for RVA operations	92,575	462,875	740,600	1,018,325	1,296,050
production for out-growers	0	105,800	317,400	634,800	1,269,600
production for sale	80,500	161,000	345,000	690,000	1,150,000
Fish feeds					
production for RVA operations	135,188	675,938	1,081,500	1,487,063	1,892,625
production for out-growers	0	154,500	463,500	927,000	1,854,000
production for sale	64,375	257,500	515,000	1,030,000	2,060,000
Cost of out-grower cage finance	0	5,000	10,000	15,000	30,000
Proft share to out-growers	0	230,000	690,000	1,380,000	2,760,000
Transport/distribution (seed, feed, fish)	11,375	69,875	130,000	203,125	315,250
Total direct costs	1,504,013	3,707,488	6,167,500	9,549,313	15,081,025
Indirect costs					
Staff salaries	83,550	255,000	365,000	475,000	630,000
Technical consultants	150,000	150,000	75,000	25,000	25,000
Office costs	10,000	15,000	20,000	30,000	30,000
Travel expenses	48,000	38,000	36,000	49,000	63,000
Total indirect costs	291,550	458,000	496,000	579,000	748,000
TOTAL COSTS	2,819,063	5,509,238	8,152,000	11,761,563	17,607,025
NET INCOME (EBIT)	-1,914,063	-671,738	973,000	3,075,938	6,257,975
CUMULATIVE CASH	-1,914,063	-2,585,800	-1,612,800	1,463,138	7,721,113
Number of employees	40	100	150	200	250
Number of out-growers	0	50	150	300	600
TOTAL	40	150	300	500	850

Annex 14 Short summaries of business proposals from the pilot programme, Rwanda

Social impact

The preliminary results chain of causal relationships between enterprise activities and attributable social impact is:



Appendix

Rift Valley Aquaculture_Rwanda lake cage business concept_proposal for Lake Mugesera_CONFIDENTIAL (Jan2013)

Seed Potato Project Update

RIU/H2O are working with the International Potato Centre (CIP) to develop a commercial strategy to build capacity in the seed potato sector in Rwanda.

Potatoes are a high yielding, high calorie crop, and Rwanda has a strong culture of production and consumption. There are 720,000 potato farmers producing 1.15 million MT of ware potatoes per annum, principally in Northern and Western Provinces. Average yields are the highest in the region at 8.87 MT per hectare, thanks to the suitable soils and climate. However, this is well below the potential for small scale farmer production 25 MT/Ha, which would represent a 200% increase in yield.

A critical break to improved yields is lack of quality seed. 'Informal' seed represents 99% of supply, mostly from so-called saved seed: ware (ie eating) potatoes produced with little or no attempt at disease control, and often these will be the inferior, unsalable smaller ware potatoes. The major risk posed by these 'saved seeds' is high rates of disease – principally viruses and bacterial wilt.

In a major piece of research with USAID, CIP has produced a roadmap to commercialisation of the Eastern African seed sector⁴⁴ which identifies low production of certified seed as a bottleneck and maps out the structure and activities required of the market in order to meet this demand. The Rwandan government has responded strongly to this by established certification standards and a minimum selling price for seed; and catalysing production by building and operating tissue culture and aeroponics facilities, producing in-house 'G2', contracting multipliers to produce 'G3', and then supplying G3 to multipliers for sale of G4 to ware producers.

Despite this progress, seed potato production remains challenging, and there is little sign of the commercial entrants to the market required to innovate and produce certified seed at scale.

For disease control, rigorous separation of seed and ware potato production is needed in both space and time, including resting land from all potato production for *at least four seasons in five*. Given average smallholder plot sizes well below one hectare⁴⁵, the strong pressure is not to rotate but to produce (ware) potatoes every season in the best potato growing areas. Indeed that is what we see: a lawn of potato on small, contiguous smallholdings, with practically no rotation. In doing so, farmers may well be acting in an economically rational way: on balance it may well be less profitable for farmers to grow suboptimal crops four seasons out of five in order to benefit in the fifth season from the modest premium that seed potatoes currently command.

The key challenge therefore remains to demonstrate a profitable seed potato production business. Specifically, what are the fully commercial production costs (in the absence of government involvement in the sector), what is a bearable price for high quality seed, and can an adequate profit be made between the two? If the answer is yes, then there is a substantial opportunity to generate wealth and increase food security.

The current plan in a pilot phase is to test two key challenges. Firstly, we will work with established seed multipliers for contract production of G4 from G3 supplied to us by the Rwandan Agricultural Board. Critically, for this to be sustainable we must establish a model in which our multiplier partners can rotate our seed production with other profitable crops. Secondly, we will develop a branded marketing strategy for the sale of G4 at premium price to smallholders, seeking to secure premium prices based on the value of the seed to the farmer.

On the basis of a successful pilot, we would expand G4 production and ware sales, and work back up the production chain to conduct G3, G2, aeroponic and ultimately Plantlet production, potentially partnering with government to privatise their production capacity.

⁴⁴ Roadmap for Investment in the Seed Potato Value Chain in Eastern Africa (2011). Centro Internacional de la Papa.

⁴⁵ National Agricultural Survey (2008). National Institute of Statistics of Rwanda.