



RESEARCH INTO USE RESEARCH PROGRESS REPORT: ASIA

Rasheed Sulaiman V
Central Research Team

I. Introduction

The Research into Use programme (RIU) was commissioned in 2006 by DFID to get the best results out of putting past DFID-supported research into widespread use in Africa and South Asia. Lessons from the programme are to be collected and shared to show how agricultural technologies, processes and policies can help achieve growth and food security and reduce poverty.

In South Asia RIU selected 13 projects through a competitive grant process as part of its Innovation Challenge Fund [ICF]. Project interventions started in July 2008. RIU commissioned a technical review of the projects in mid-2009 and, based on its recommendations, terminated two projects.

RIU appointed the LINK initiative [www.innovationstudies.org] of UNU-MERIT and FAO in September 2008 to design and implement RIU's research. The CRT articulated RIU's key research objective as follows: "To tease out when and under what circumstances and settings a range of different approaches become more or less useful in making the best use of agricultural research as a policy instrument for development".

In order to address this broad research question, RIU has selected 6 innovation narratives¹ to organise its research around. It re-organised the remaining projects in Asia to provide a coherent set of experiments on putting research into use; ensuring that this reorganisation has the critical mass of projects that have significant impact while at the same time delivering lessons on how to better put research into use.

¹ These include: Poor User-Led Innovation, Public-Private Partnership-Led Innovation, Capacity Development-Led Innovation, Opportunity-Led Innovation, Investment-Led Innovation and Research Communication-Led Innovation.

II. Major Research Themes in Asia

The three major themes are:

Theme 1: Establishing Seed Delivery Systems and Promoting Capacities for Participatory Crop Improvement [PCI]

Three ICF projects that focused on promoting seeds developed through Client-Oriented Breeding in Nepal (FORWARD, LI-BIRD) India (CAZS-NR, GVT, CRS) and Bangladesh [Prova] have now been refocused and expanded as Best Bets. Under Best Bets, the focus is on establishing companies to upscale delivery of new seeds evolved through participatory crop improvement [PCI]. Box 1 has more details on the current status of PCI in Asia.

This shift in approach affected through refocusing this cluster under Best Bets is expected to ensure that the capacity to develop and distribute varieties developed in this way remains and even expands after post-RIU. In addition to anticipated large-scale impact through adoption of these improved varieties, this cluster will contribute lessons and evidence to the research questions of CRT's research strategy around two of the innovation narratives being studied — Poor User-Led Innovation and Public-Private Partnership-Led Innovation.

Box 1: Participatory Crop Improvement [PCI] in South Asia: Where it stands currently and where it is going

Between 1995-2006 DFID's Plant Science Research Programme of DFID granted CAZS-NR (Centre for Arid Zone Studies-Natural Resources, University of Bangor) £15.1 million to, develop and implement Participatory Plant Breeding (PPB) methodologies. CAZS-NR collaborated with two NGOs in Nepal [FORWARD and LI-BIRD] and one in India [GVT] in this endeavor. This initiative produced several improved varieties in rice and legumes with multiple benefits for farmers, such as high yields, superior grain quality and noticeably higher on-farm income. The programme also developed and validated the relevance of a new paradigm (institutional innovation) in plant breeding — that of PCI.

Under the ICF, RIU funded three specific projects led by FORWARD [Nepal], LI-BIRD [Nepal] and CAZS-NR [India and Bangladesh] for scaling up these rice and legume varieties. The focus has been on awareness building (through mass media), distribution of new seeds (RDI kits) and strengthening the capacity of community-based seed producer groups (CBSPs) through training, provision of training (quality seed production, business development) and exposure visits and strengthening linkages with other stakeholders, especially government agencies.

PCI approaches have been shown to have better research efficiency in producing more relevant crop varieties. The approach also promotes better knowledge flows among researchers and users. However, the uptake of this approach by public agricultural research bodies and NARS has been limited mainly due to a number of institutional and policy bottlenecks related to release and multiplication of new varieties. There is also some apparent disinterest or antagonism among the formal plant breeding community about PCI techniques.

To ensure the availability and spread of these improved varieties, the 2008 technical review of RIU projects suggested that this cluster of projects needed refocusing. The ICF phase of these projects has since been closed and this cluster has now been brought under "Best Bets". The focus now is on establishing companies to upscale delivery of new seeds evolved

through PCI. The four organisations — FORWARD, LI-BIRD, GVT and Prova are currently in the process of establishing seed companies. The business plans are ready and the process of finding shareholders and registering the companies is currently on.

The development of new varieties through PCIs could only be achieved because of closer interactions between breeders and farmers over a longer period of time. For the wider uptake of these varieties, the programmes had to engage with a large range of actors, including policymakers and regulatory bodies engaged in releasing new varieties and building the capacity of seed producer groups in villages.

From a research point of view, the process of establishing the companies, as well as the nature of the companies thus established, varies significantly in these three countries. This provides RIU the opportunity to compare these different approaches. The research on this cluster would focus on some of the changing roles and challenges in mainstreaming this new approach to plant breeding in formal plant breeding organisations/councils.

Although the promotion of institutional innovations such as PCI is always challenging, there are cases in which similar institutional innovations have spread really fast. Take, for instance, SRI (Systems of Rice Intensification) — a relatively new method of growing rice with less water — which has spread fast even when formal research systems ignored and even ridiculed this approach. The CRT intends to do a comparative analysis of the spread of both PCI and SRI to draw wider lessons on promoting institutional innovations.

Theme 2: Innovation in Value Chains

This cluster has three projects trying to promote or strengthen value chains. The IDE (International Development Enterprises) project in Nepal focuses on building and strengthening linkages and partnerships among market chain actors through the promotion of the participatory market chain approach (PMCA). The project implemented by the International Centre for Underutilized Crops (ICUC) in India is building a value chain through specific interventions to connect small-holder producers of underused crops to markets. In the third case, a consortium led by Rangpur Dinajpur Rural Services (RDRS), is developing a fish seed value chain by creating a role for smallholders as intermediary producers in the value chain for enhancing availability and quality of fish seed. Box 2 has more details of interventions undertaken in this project.

Box 2: Enhancing Innovation Capacity in the Value Chain

Developing Fish Seed Value Chain in Bangladesh: Development and refinement of technologies related to decentralised fish seed production (DSP) in Bangladesh could be traced back to a series of research and development efforts about developing appropriate hatchery systems for freshwater fish by the Asian Institute of Technology (AIT), World Fish Centre, Institute of Aquaculture, University of Stirling UK, Bangladesh Fisheries Research Institute (BFRI), Department of Fisheries, Government of Bangladesh and several NGOs.

Seed (fingerlings or fry) represents perhaps the most critical input for aquaculture, yet the geographically clustered nature of hatchery and nursery operations means that seed is often transported over long distances, thus reaching farmers in poor condition. Supply is often unable to keep pace with demand and a few powerful individuals maintain a monopoly over supply chains. Decentralising the production and supply of fish seed through the use of

irrigated rice fields for common carp and tilapia fingerling production and ponds for nursing riverine carp provides a solution to many of these problems². Lack of high quality tilapia broodfish was found to be the major constraint to the further 'organic' spread of DSP to areas in the vicinity of communities in which it had been promoted through previous RNRRS research.

RIU funded the scaling-up of this proven technology to new direct and indirect beneficiaries through the delivery of training and support for improved tilapia broodfish supply. One of the interesting features of this initiative is the recognition of a value chain approach to promote this technology. IDE, which has expertise on value chain development, is a strategic partner in this coalition and one of the main focuses of this initiative is on building the value chain (broodfish producers, fingerling traders and table fish growers).

Diversifying Incomes through Underused Crops in India: ICUC is piloting a multi-pronged approach to support the promotion of underused crops in India in partnership with BAIF, an Indian NGO. BAIF has a long history of establishing horticulture/forestry orchards in private lands and processing facilities owned by the communities. ICUC was established in 1992 at the University of Southampton, UK, with the objective of unlocking the potential of underutilised crops to support rural livelihoods. In the initial stages it was mainly involved in farmer participatory surveys, agronomic trials, development of post harvest technologies and publishing extension literature in local languages. DFID's Forestry Research Programme (FRP) was another agency that had actively been promoting R&D initiatives in underutilised crops. The focus was on identifying locally-important tropical and sub-tropical fruit trees and creating monographs on bio-diversity, production, value addition and marketing.

During this process, the researchers realised that making knowledge available addressed only one part of the problem. There were other constraints to promoting underutilised crops, such as lack of access to propagation materials, unavailability of post harvest and processing technologies and lack of linkages to market and other service providers. In the current initiative funded by RIU the knowledge that was generated from all these previous efforts is being applied to promote a multi-pronged approach. The approach has three essential components: 1. Village Crop Fairs (VCF); 2. Community Germplasm Orchards (CGO); and 3. Food Processing Parks (FPP).

The Village Crop Fairs, organised periodically, are places where community members access information and discuss potential underutilised crops and their production and utilisation. They also select germplasm of suitable crops. The Community Germplasm Orchards take suggestions from the VCF and multiply and maintain planting material for supply to interested producers. The Food Processing Parks are integrated resource centres where producers can access services for post-harvest, processing and marketing of underutilised crops. These parks have the infrastructure for post-harvest operations, knowledge and information about all aspects of underutilised crops and facilitation services to connect producers to different service providers. The Annual Knowledge Fairs at the project locations

² In February farmers stock tilapia broodfish and common carp eggs in small ditches located in suitable corners of irrigated rice fields. Broodfish spawn, eggs hatch and the fry forage on insects and algal detritus in the shallow waters of the rice field. Seed production peaks in May and June, with fingerlings harvested by drawing down water levels to concentrate them in the ditch from which they originated. From here they can be retained and netted prior to sale or restocking in household ponds. Little or no additional irrigation or supplementary feed is required, and the fingerlings are ready for sale at the time of peak demand among pond farmers. Seed produced in this manner also tends to be healthier, larger, and more predator-resistant than that from hatcheries, and less likely to have suffered physical damage as a result of transport over long distances.

provide opportunities for showcasing project initiatives to a diverse audience, scaling up/out of activities and policy advocacy.

Linking Vegetable Growers with Markets in Nepal: Since the early 1990s IDE Nepal's key activities centred around participatory research to develop and provide appropriate micro-irrigation technologies such as drip systems, micro sprinklers, treadle pumps (manual foot pumps), and water storage/ distribution technologies, processing and distillation equipments etc. In carrying out these activities, IDE realised that there are tremendous opportunities for poor farmers in Nepal to rapidly increase their incomes by supplying high-value agriculture produce, especially vegetables, to national and international markets. However, there were some constraints towards achieving this end, including; the unorganised nature of small farmers and inefficiency in the existing value chain for vegetables, characterised by missing actors and insufficient connections among existing actors.

In order to address these constraints and help these small farmers play an effective role in the vegetable markets, IDE promoted community-managed collection centres (CMCCs) for vegetables, which serve as points of aggregation of vegetables to attract local traders. IDE has developed and refined a methodology to promote these CMCCs. They successfully developed around a 100 of these centres to benefit about 100,000 families. The Marketing and Planning Committees (MPCs) that run these collection centres provide a range of services to member farmers and represent them in negotiating prices with traders.

However, IDE felt these committees still lacked necessary capacities and skills to carry out their activities. While exploring opportunities to address this constraint, IDE came across the Participatory Market Chain Approach (PMCA)³ as a useful methodology to move to the next level of market operations. It was expected that through this methodology, management capacities of committees would be built up to respond to different types of market opportunities and facilitate them to develop more advanced market linkages to capture more remunerative markets — including domestic agro-business and specialty markets that require quality and which will eventually lead to exports to India.

The CRT has so far documented the detailed history of the different strands of research underpinning these different projects. As evident from Box 2, the RIU projects led by RDRS and CoDI/ICUC have emerged from the realisation that research needs to be embedded in the wider innovation system and that research has to play an important role if its findings (mainly technical and institutional innovations) is to be applied and used (in other words, for innovation to happen). All three projects reveal quite clearly the need for continuous interaction and intermediation among different actors in the value chain for building capacities.

CRT's research will explore the strategies and challenges of putting into use the various process innovations that have been promoted for enhancing innovation around these three contrasting value chains. These cases are expected to contribute to lessons on RIU's research narrative around Opportunity-Led Innovation and Capacity Development-Led Innovation.

³ This methodology was developed by the Papa Andina programme, anchored by the International Potato Centre (CIP) in the Andes highlands of Latin America. It involves market chain actors in a well-led, three-phase participatory process to identify, analyse and put into practice new commercial, technological and institutional innovations.

The following table presents some of the key features of the three cases.

Feature	CoDI case	IDE case	RDRS case
Assembly of the cluster of actors	Key stakeholders are organised in a coalition and involved in facilitating value chain building efforts	Key components of the existing value chain are brought together through PMC approach	Key stakeholders are working as part of a loose network and are supporting development of fish seed production and distribution network
Approaches/ strategies for putting existing knowledge from RNRRS into use	Different streams of existing knowledge is appropriately mixed to continuously develop an approach for value chain innovations	Proven knowledge is being adapted and adopted in a different context for innovations around value chains	Proven knowledge is being scaled-up/out in a larger area through innovations around value chains
Mechanisms/ strategies for integration of research in the innovation process	Research organisations are part of the coalition and there is two-way feedback and information sharing	Smallholders organisations are capacitated to articulate a need for research outputs to research agencies	Research organisations are part of the network and there is two-way feedback and information sharing
Features and ways of making the effort pro-poor	Focus on promoting cultivation of underutilised crops and value addition of produce through development of germplasm orchards and establishment of food processing parks	Focus on building capacities of smallholder organisations	Focus on developing smallholder rice field farmers and seasonal pond owners as producers of fish seed
Produce in consideration	Under-used/ traditional crops (cereals, fruits and vegetables)	Main-stream fruits and vegetables	Fresh-water fish species that are self-recruiting
Status of the existing value chain	Mostly absent	Mostly present but with inefficiencies and missing links	Mostly present but with inefficiencies
Intervention in the value chain	Simultaneously building different components of the value chain	Building capacity of smallholder organisations to identify and respond to market opportunities. Linking smallholder organisations with different components of the existing value chain	Involving smallholders in fish seed production and building a value chain by integrating existing elements of the value chain
Facilitator of the effort	A non-profit-making civil society organisation	A not-for profit organisation	A non-profit-making civil society organisation

Theme 3: Innovation in NRM (Natural Resource Management)

There is an increasing realisation that active participation of communities and involvement of a range of stakeholders with different perspectives, skills and knowledge about managing natural resources is critical for the effective and sustainable management of natural resources. This has led to several attempts at democratising the governance and use of natural resources, with users (often the poor who make a living out of accessing natural resources) being organised into groups with the authority to manage natural resources (forests, grazing lands, watershed, flood plains, etc.). However, several challenges still remain. The most important is

the need to implement an adaptive collaborative approach that builds on learning, collaboration and intermediation.

RIU has two projects that are trying to promote innovation in NRM. The first is being implemented by Forest Action, an NGO in Nepal that focuses on promoting innovations in internal group governance (visioning, hamlet-based planning and decisionmaking and self-monitoring) among community forest user groups (CFUGs) and introducing active forest management and sustainable harvesting technologies, including enterprise development. The second project is being implemented by the Bangladesh Environmental Lawyers Association (BELA) in collaboration with the Flood Hazard Research Centre (Middlesex University, UK), which promotes innovations in managing flood plains in Bangladesh. This approach, termed Integrated Flood Plain Management (IFM) involves participatory action plan development, adaptive learning among stakeholders, development and compliance of rights and a legal framework for community-based management of flood plain resources and resource management for fisheries and crop production. More details of these two projects are given in Box 3.

Box 3: Collaborative Adaptive Approaches in NRM

Upscaling innovations in forest management in Nepal: DFID, IDRC and CIFOR (Centre for International Forestry Research) have supported several research programmes in the Nepalese forest sector during the last two decades. Forest Action has been a part of many such initiatives.

This has led to several technical and institutional innovations, such as:

- a) Participatory forest management techniques, including pro-poor and multi-product silviculture practices, improved harvesting techniques of medicinal plants, improved forest product utilisation
- b) Innovative CFGU governance processes, including self-monitoring, hamlet-based planning and decision-making, joint reflection, social auditing and improved communication strategies
- c) Adaptive collaborative processes focusing on multi-stakeholder policy analysis and learning to facilitate policy reforms

Forest Action has been a part of many such initiatives and realised that the development and promotion of effective innovations depended, by and large, on a combination of governance-related issues across many levels (including clarity of rights and roles, sharing and balance of power, extent of participation and interaction of lower layers in decisionmaking). It also depended on promoting planning and self-monitoring processes in enterprise development and marketing forest products and services.

Under RIU, Forest Action is collaborating with FECOFUN (Federation of Community Forest Users, Nepal) and NEHHPA (Nepal Herbs and Herbal Products Association) to disseminate, adapt and utilise some of the above innovations by working directly with 60 community forest user groups. This project is trying to draw lessons on how these innovations are democratising the relations between the Department of Forests and local community and how these interventions are strengthening social capital.

Scaling up IFM through Adaptive Learning Networks: Flood plains cover about half of Bangladesh. Large areas of private farmland become common land for fishing when the land

is inundated for up to half the year. Conflicts between farmers and fisherfolk over dry season water are a common feature in flood plains. A series of research projects under RNRRS produced several environmentally-friendly technical and institutional innovations and one of the most important findings from many such initiatives has been the importance of CBOs (Community-Based Organisations) in effective and sustainable management of natural resources. Another innovation that was tested and proven effective in building consensus in favour of inclusive and pro-poor interventions was the process of Participatory Action Plan Development (PAPD). It involves a series of local workshops in which different stakeholders participate to develop a management plan for the common flood plain resources.

Integrated Flood Plain Management (IFM), an approach that recognises flood plains as a system, attempts to maximise floodplain productivity and returns by adopting a series of technical and institutional innovations. The technical innovations include: dry season refuges for fish, closed fishing season in the early monsoon, adoption of shorter duration and less water-hungry alternate crops to conserve more dry season water and opening sluice gates earlier in the pre-monsoon to allow fish to migrate and spawn. A pre-condition for this is the existence of CBOs with rights and responsibilities to co-ordinate management of flood plains and an adaptive learning network that operates through a cycle of workshops among CBO leaders to co-ordinate and share experiences, lessons and plans. These options were tested and found effective as part of previous initiatives.

The RIU initiative is aimed at promoting or upscaling the IFM approach through an adaptive learning framework by working with 250 CBOs. The interventions focus on building the capacity of CBOs, developing their linkages with other organisations, providing support for legal cases and promoting different technological options in crop production, fish farming, water management and promotion of new enterprises.

The research on this cluster focuses on the historical evolution and practice of adaptive collaborative approaches in agricultural and natural resource management and how these approaches are addressing various governance challenges. The research also looks at the institutional and policy challenges involved in promoting adaptive collaborative approaches and how existing institutions and policies (at different levels, namely local, meso and macro) are shaping the evolution of such approaches. Research on this cluster is expected to provide new insights on the close relationship between technical and institutional innovations and the importance of institutional and policy changes in promoting application of new knowledge. The CRT also intends to widen the empirical base for investigation by analysing similar projects outside RIU so that the findings have more appeal among researchers, policymakers and the development community.

III. Other Promising ICF Initiatives

Promoting Pro-Poor Livelihoods through Micro-Finance and Promoting Rural Service Delivery

This project implemented by GYA, UK in collaboration with CPSL, an NGO in Bihar and the ICAR research centre in Patna, India. This approach evolved from a previous RNRSP project in Patna and attempts to reach the ultra-poor using group saving as a starting point, followed by access to microfinance, linkages to agro-input centres, technical expertise and other financial products such insurance as a way to promote technical knowledge generated by RNRRS in the same region. The RIU project is supporting the expansion of this approach

by forming 10,000 groups in 2000 villages, spread over 11 districts, and intends to establish new input and service centres in rural areas. This project could potentially provide lessons on how the ultra poor in disadvantaged locations (with weak rural infrastructure and ineffective institutions) could benefit from advances in new knowledge, thereby improving their livelihoods. The project is expected to also provide lessons on how to promote new institutions for rural service delivery that could operate on a business model. The CRT is yet to decide on a strategy for research on this project.

IV. Communication and Knowledge Management Innovations for Putting Research into Use in Asia: A Review of ICT-Based Approaches

RIU has commissioned a review of Communication and Knowledge Management innovations in Asian countries primarily to understand the key features of these initiatives and to determine the role of such approaches in putting research into use as well as the implication of this for research and rural development policy. This study involves a desk-based review and interviews with key actors in select cases. A review of the ICT initiatives in Asian countries has been completed. The interviews are scheduled for the coming weeks and the draft report will be ready in another two months. This study will help ensure that RIU is informed of recent developments and initiatives that have relevance to the debate on approaches to Research Communication-Led Innovation.

IV. Progress in Implementation of Specific Research Arrangements for Research and Technical Backstopping of Asia RIU Projects

CRT is currently focusing on understanding the history and previous strands of research that contributed to the development of new knowledge that is being upscaled in these projects. It is also trying to understand the implications of the shift in approaches being affected in research coalitions (from developing new knowledge to promoting innovation). In order to do this effectively, the CRT has interacted with all projects and has spent considerable time with project teams in developing a shared understanding of the tasks ahead. Mr. Vamsidhar Reddy, who has been recruited as one of the CRT Research Fellows, has joined the CRT in Hyderabad from January 1, 2010 and will be focusing on the value chain cluster in Asia and is closely interacting with the three project teams under this cluster

After its formation, the CRT has interacted with all RIU projects in Asia (India, Bangladesh and Nepal) in order to share RIU's new vision and research strategy. CRT participated in the participatory crop improvement cluster meeting in Kathmandu, Nepal, in October 2009. CRT organised a 2-day workshop with all four RIU projects in Bangladesh in December 2009.

The CRT is in regular touch with all projects in Asia through e-mail and telephone and is currently co-ordinating the technical reporting. Individual meetings were held with the rest of the projects in Asia. The CRT also supported the DFID/RIU review mission during its visit to Nepal in February 2010.