CROP POST HARVEST PROGRAMME

Improvement of maize marketing through adoption of improved post-harvest technologies and farmer group storage: A case study of Kiboga and Apac districts

R 8274 (ZB 0343)

PROJECT FINAL REPORT

Start date – End date
1 January 2003 – 31 December 2004

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Project Final Report

Cover page – please use the template given at the end of this document

Section A Executive Summary

A very brief summary of how the outputs of the project contributed to the purpose, the key activities and highlights of dissemination outputs. (Up to 500 words).

Specifically the project addressed improvement of maize quality and quantity in order to improve market access by small scale farmers'. The project mainly focused on improving the farmers' post-harvest practices through adoption and sustainable use of appropriate post-harvest technologies, and their marketing practices through group storage, capacity building and joint marketing.

The project outputs were delivered by 6 intermediary organizations and the end users of the project outputs were 18 farmer groups in the districts of Apac and Kiboga. This coalition project and partnership facilitated the delivery of post harvest technologies, information and skills to the end users. Through the project, the farmers were able to acquire various types of technologies that were used to improve on the quality of their maize. The quality and quantity of farmers' maize increased and they were able to receive premium prices of 20-50% above the local market prices. As an example, the farmers of Abongomola sub-county, Apac district are now able to sell over 100MT per season.

The skills imparted to the farmers included post harvest handling, marketing, group dynamics, entrepreneurship and savings culture skills. Through the project, the farmers of Apac and Kiboga have visited each other and were able to learn from one another.

With the improved levels of farmer organization, the farmer groups are now better equipped to handling maize marketing and storage. The farmers are now able to dialogue and negotiate with traders. This is seen as one method of sustainability of project outputs. Some farmer groups are still facing infrastructure (maize store) problems and this has been addressed by partnering with local government partners who will advocate to the central government to set up such structures.

The institutional lessons learnt as working in a coalition have been that the relationships among partners are influenced by many factors that include the organizations objectives and activities, earlier work relationships, and the central uniting objective. Some factors take time to build, for example trust. One measure of mitigating this was for the lead organization to be transparent in its dealings with the partners. The work relationships were formalized during the project implementation. This was in form of a MoU that guided the partners on what was expected of them.

The project has demonstrated that working as a coalition with key functional partners has been able to improve rural farmers' market access. During implementation it was also noted that other key partners were needed including micro-finance institutions and local (and/or central) government to improve access to credit and infrastructural development.

Section B Background

B.1 Administrative data

NRIL Contract Number: ZB0343	Managing Partner(s)/Institution(s): National Post Harvest Programme (NPHP),

	Kawanda Agricultural Research Institute
DFID Contract Number: R8274	Partner institution(s) • Buganda Cultural and Development Foundation; • Agency for Promoting Sustainable Development Initiative; • Afro Kai Ltd. • Local government District Agricultural Offices (DAO) of Apac and Kiboga district
Project Title: Improvement of maize marketing through adoption of improved post-harvest technologies and farmer group storage: A case study of Kiboga and Apac districts	Target Institution(s) • Farmer groups in Abongomola and Loro sub-counties in Apac district, and • Farmer groups in Kibiga and Nsambya sub-counties in Kiboga district
Research Programme: Crop Post-Harvest	Start Date: 1st January 2003 End Date: 31st December 2004
Thematic area: The study is based on the CPHP themes for maize; reducing storage losses, market systems and adding value.	Budget (i.e. Total Cost): £79,750.00

Section C Identification and design stage (3 pages)

Poverty focus

How did the project aim to contribute to poverty reduction? Was it enabling, inclusive or focussed (see definitions below[1])? What aspects of poverty were targeted, and for which groups?

The project was classified as focussed since it addressed improving market access through improved maize quality and increased volumes. The target beneficiaries were resource poor farmers whose livelihoods are heavily dependent on the small and irregular incomes from agricultural activities. The project aimed to contribute to poverty reduction through the use and provision of improved maize post-harvest technologies (PHT) and store their produce in common (or communal) stores. Through this arrangement the maize marketing transaction costs were reduced and the amounts saved were passed onto the farmers in form of premium prices for their maize. This has had an impact in that farmers have now increased on the acreage of maize grown.

The project aimed at contributing to poverty reduction by increasing the competitiveness of rural farmers produce, specifically maize and improved market access due to high quality, large volume and sustainable supply of produce in the marketing chain as a result of sustainable use of appropriate post-harvest technologies and approaches. The project followed a dual approach in removing barriers that directly impact negatively on the earnings of the rural poor, while at the same time addressing strategic interventions that bring in a number of players through institutional linkages with a common agenda of improving the livelihoods of the poor, and thus was classified both enabling and focussed. The project targeted mainly the problem of low incomes of rural-based smallholder farmers who experienced poor market access

[1] **Enabling**: addresses an issue that under-pins pro-poor economic growth or other policies for poverty reduction which leads to social, environmental and economic benefits for poor people
Inclusive: addresses an issue that affects both rich and poor, but from which the poor will benefit equally
Focussed: addresses an issue that directly affects the rights, interests and needs of poor people primarily

because of poor quality and low volumes of tradable produce due heavy reliance of traditional practices of grain handling and storage.

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Please describe the importance of the livelihood constraint(s) that the project sought to address and specify how and why this was identified.

The project addressed poor market access of maize due to poor quality and small volumes of grain available. Maize is a major staple, giving variety to household diets in the form of roasted or steamed cobs, maize flour and/or composite flour which is prepared into porridge or bread. Maize stover and bran also constitute major ingredients in livestock feed. Maize is thus a strategic crop in Ugandan food security, largely as a result of increasing urbanisation, and has the potential to become a non-traditional agricultural export. Consequently, improvements in the maize production, marketing and distribution chain hold out a significant potential both for export growth and for poverty reduction (PSF).

Despite the more than 5.5% annual growth rate of the national economy since 2000, poverty levels, especially of the rural poor increased from 38 to 43%, This is characteristically showed a skewed level of advancement, with the rural poor who form the majority of producers in the agricultural sub-sector, bearing the heavy burden. Increased poverty level is commensurate to poor access to social amenities, good education, improved health standards, information, knowledge and technologies, and apathy, to mention but a few.

How and to what extent did the project understand and work with different groups of end users? Describe the design for adoption of project outputs by the user partners?

The project made an analysis of the various project stakeholders by defining their key interests in the project and their likely impact on the project. The project identified what each stakeholder (coalition partner) would bring into the project and what each partner would need from the project. The project further analysed the relationships between partners in form of what they will need from each other and what they will provide each other. This also formed the basis of the roles and responsibilities of the partners.

The design for adoption of project outputs was in form of a work plan as shown in annex II. This was based on the activities that were planned and the responsible partner in charge of implementing. A memorandum of understanding was drawn between the partners and the lead institution, i.e. Kawanda Agricultural Research Institute, spelling out the specific roles and responsibilities in the project including the expectations. Basing on the activities, each coalition partner was then assigned specific roles to play and this was summarized in their quarterly work plans. Work plans and funding was done on a quarterly basis.

Institutional design

Describe the process of forming the coalition partnership from the design stage and its evolution during the project?

The research project idea was initiated by the research partner (Kawanda Agricultural Research Institute). Basing on past experiences of technology generation, transfer of post harvest technologies and limited adoption, it was decided to use a new approach. The approach was basically to involve more functional stakeholders in the multiplication and transfer of research outputs in order to ensure sustainability and improve the adoption rates.

This project consists of five categories of organizations viz. research institute, agricultural extension, grain trader, civil society (NGOs) and the target group the farmer groups. The functions of the various partners include generation of technology, facilitating the process of dissemination of technologies, marketing/exporting, production and storage.

Selection of partners was not random, but was also based historical and existing relationships between coalition partners. For example, research mainly works with agricultural extension departments in the districts. It was through their recommendation that the non-government organization (NGO) operating in their district was selected. The NGO also had to be involved agricultural development work. Further still, the NGOs selected also had historical relationships with research, and therefore they were not new to the process of research. Farmer groups were also selected basing on past collaborative work with research and their relationship with the district partners, i.e. extension and the NGO. The grain trader was selected also basing on past collaborative work. Other factors that supported their selection included their vast experience in grain buying from farmers and export trade.

The coalition partnership has remained the same in terms of the number of partners. During the project implementation it was decided to form a district coordinating committee that would oversee project activities at the district. This was instituted with the aim of improving work relationships, project coordination and proper utilization of resources. Other developments that have evolved include new forms of farmer organizations. The farmer groups in each sub-county decided and were facilitated to forming registered farmer associations. Therefore, there are now four farmer associations, one in each project sub-county. This was instituted with the aim of giving the farmer groups more voice and recognition.

Initially there was one grain trader that the farmer groups were selling to. With the improved quantity and quality of the farmers' maize, and use of information communication technology (ICT), the number of traders buying their maize has increased.

Is there an explicit institutional hypothesis? If yes, is it trying to attack a failure or inadequacy in a mechanism?

The hypothesis here is that by working as a coalition these functions will work better and this will provide better access to maize markets for the farmers in the study areas. The project addresses the poor mechanism in transferring post harvest technologies. The project feels that with better access to post harvest technologies then the quality and quantity of marketable maize will increase thus improving market access. By bringing together various partners with key functional roles, then access to technologies and resources will improve. This will also consolidate the various development activities that were performed in isolation.

What other institutional factors were seen as being important?

Section D Implementation process (5 pages)

How was participation maintained among the different stakeholders (the Managing Partner(s) and the Core other Partners and, where relevant, user communities) in the research process?

The project work plan, the budget and logical framework guided the research process and project activities. Each coalition partner was required to develop their quarterly work plan and budget basing on the planned activities for the quarter. This was found to give the partners more control and confidence to achieving their activities. The activities were then reviewed during planning quarterly meetings.

What were the major changes that took place during the implementation period. For each one, explain why they came about and how well did the project manage them?

In terms of project implementation there were no major changes. The lead institution was the Managing Partner's institution i.e. Kawanda Agricultural Research Institute. The various partners' roles remained the same. To improve project coordination early during implementation, it was decided to decentralize some of the project responsibility to the district project partners in form of project coordination committees (PCC). The PCC consisted of the district coalition partners including the District Agricultural Offices, the NGOs (BUCADEF in Kiboga and ASDI in APAC), and the farmer groups. The PCC was set up to improve information flow between partners and project coordination. The project coordinators all had equal access to the lead institution and the Managing Partner (MP). Decisions made by the PCC were found to represent views of the district partners. The PCC was also able to plan for joint activities without necessarily involving the centre (lead institution). Comparing the two districts, the PCC appeared to work better in Apac district probably because it is further away from the lead institution. For larger decisions the partners would meet directly with the MP since such encounters were planned for in their budgets.

The target or primary beneficiaries of the project were the farmer groups. Through the assistance of the District Agricultural Office and the partner NGO, the farmer groups were registered at District Community Development Office. This was encouraged because the farmers were sensitized on the new form or mechanism of channelling down development efforts would be through viable farmer groups as opposed to individual farmers. The project started with selected groups in the sub-counties. After having attended entrepreneurial seminars and workshops during the course of project implementation, it was decided to take another step of registering the farmer groups into Farmer Associations (FA). This would give them a bigger voice and increase their scope of activities. But in relation to the project this was encouraged as a step to improving maize marketing and also as a means of attracting resources. This change has improved maize marketing activities in Kiboga district who were experiencing managerial problems in their farmer groups. By forming the new associations has brought back confidence in storing and marketing maize as a group.

What were the strengths and weaknesses of your monitoring system? How did you use the Information provided by your monitoring system?
What organisations were involved at the end of the project? Were there changes to the coalition (joining/leaving) during the project? If yes, why?
Include a complete list of organisations involved, directly or indirectly, in the project and describe their relationships and contributions.

The monitoring system was very participatory in nature whereby the target beneficiaries were involved in documenting project progress. The monitoring was performed on a timely (quarterly) basis which was very beneficial in terms of planning for the following quarter. The information was also used to check on project progress by comparing the information generated with what was planned. The farmers during the monitoring exercise were able to

express how they were going to achieve project outputs and how they were going to improve the ongoing activities. The information from the exercise was used by management (National Post Harvest Programme) to also design project interventions. For example, the information would highlight post harvest training needs, problems faced in maize storage and marketing. This then formed a basis on which to design appropriate training tools, market interventions like contacting grain traders.

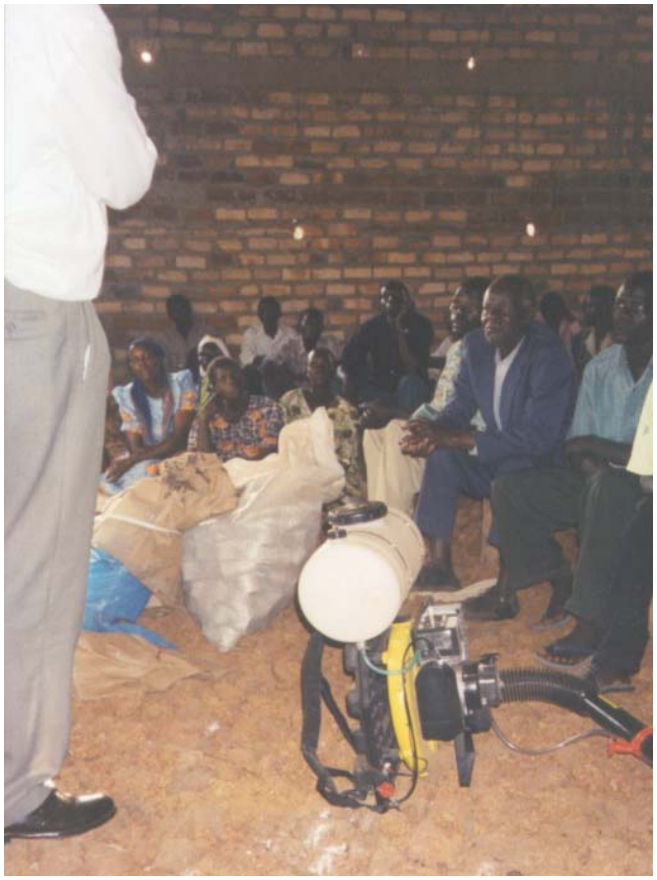
The organisations involved at the end of the project in terms of roles and responsibilities have changed a bit. At the beginning, the grain trader had the role of buying grain from the farmers at his own cost. This could have been a constraint to the trader since the volumes available were small, at times inconsistent in quality and not supplied at the time he needed it. The trader's requirements were over 5,000MT and yet the coalition farmers were able to supply about 100-200MT of maize! However, the grain trader is still in contact with the farmer groups but assisting them on another product. The farmers with the assistance of the project were able to source other smaller grain exporters. These exporters are mainly from eastern Uganda and their market is Kenya, which is the biggest consumer of maize export.

There were many organisations involved in the project both directly and indirectly, these included the following.

- Kawanda Agricultural Research Institute, the lead organisation in this coalition partnership. As the lead institute, they were responsible for project coordination and research. Coordination involved guiding project partners into achieving the set outputs and monitoring progress. Other roles included post harvest technology generation, multiplication and dissemination. The institute was able to generate and source post harvest technologies including 2000 hand held maize shellers, a motorized maize sheller, renovation of two maize stores in Abongomola (100MT) and Kibiga (50MT) sub-counties, two grain moisture testers, 4000 gunny bags, 4 grain sieves, two drying yards, two motorized spray pumps, 2 bicycles for the farmer representatives, 6 fumigation sheets, 8 tarpaulin sheets, 6 sets of protective clothing, 2 weighing scales, wooden pallets constructed, ICT – mobile phone. A few of the technologies mentioned above are shown in the pictures below. KARI was also the lead post harvest technology trainer and where the coalition did not have the capacity, expertise was sought as will be mentioned below. KARI also led the research processes for the market and laboratory studies as well as other socio-economic studies that involved institutional learning.

Farmers of Abongomola sub-county receiving a grain moisture tester

Farmers of Abongomola sub-county receiving a weighing scale



A motorized spray pump shown as some of the equipment farmers received

Farmers of Nsambya sub-county Kiboga district displaying hand-held maize shellers to improve on maize post harvest handling

A farmer in Abongomola sub-county drying her maize on an improved drying yard

A maize crib built by our project partner, BUCADEF, for farmers in Kibiga sub-county Kiboga district

One of the grain stores renovated by the project in Abongomola sub-county Apac district

- The District Agricultural Offices (DAO) of Kiboga and Apac districts were instrumental in technology transfer and coordination of project activities at district level. The DAO was the local government partner whose role was also to promote the project among the local government authorities. The office of the DAO has the mandate of overseeing and promoting agricultural activities in the district i.e. their role is extension work. This role was very vital in promoting post harvest technologies. The office of the DAO and the partner NGO working in the district would organize post harvest sensitization and farmer group dynamics seminars with the farmer groups to further improve on their capacity to handle maize and market it.
- The farmer groups of Abongomola and Loro sub-counties of Apac district, and Kibiga and Nsambya sub-counties of Kiboga district. The farmer groups were the target beneficiaries of the project. They were trained in improved crop post harvest handling, farmer group dynamics and entrepreneurship skills. The farmers sold their maize output to traders who paid them. Due to the improved quality and quantity, the farmers were able to receive a premium price for their maize.
- The NGOs in Kiboga and Apac districts respectively, Buganda Cultural and Development Foundation (BUCADEF) and Agency for Promoting Sustainable Development Initiative (ASDI). The NGOs played a vital role in transferring post harvest technologies to the farmer groups. The NGOs are in day to day contact with the farmer groups and know their needs. This project contributed to their agricultural and development objectives. With facilitation from the project, their project staff were able to conduct post harvest and farmer group dynamics training seminars. Even with their own funding, the NGOs were also able to multiply some post harvest technologies including maize cribs.
- The grain exporter Afro-Kai Ltd whose role was to purchase the farmers' maize. The marketing of agricultural produce was liberalized in order to make it near to perfect competition. Given the complaint by farmers that finding markets is hard, having a private trader was therefore imperative. The farmers' quality and quantity of maize had improved but not able to meet the trader's requirements in terms of volume. The farmers were able to get alternative markets in Kisenyi, the biggest domestic maize market, exporters from eastern Uganda, schools, and traders from Hoima district.
- National Council of Small-scale Business Organizations (NCUSBO) was an organization contracted to train the farmers in entrepreneurship skills and savings. Further still, they facilitated the project farmer groups to form associations and thereby improve on their marketing.

How will (have) project outputs affect(ed) the institutional setting?

How will the technical outputs of the project (if successful and if adopted) change the organisations and the relationships between them and in what way? Refer to the project's technical hypothesis.

The institutional output for the project stated 'Cohesive, dynamic and sustainable partnerships and institutional mechanism for linking the rural maize producers to markets in place' and the technical hypothesis for the institutional setting was stated as follows that 'small-scale farmers' ability to access information and better markets for their produce improved through institutional partnerships'.

This output mainly focussed on the formation and strengthening of work relationships in form of sustainable partnerships. The partners each had functional roles to play in order to help the farmers achieve the project's objective of improving market access. The relationships among the partners had a historical nature to it in that some partners had earlier worked together on other activities. This also played a significant role in the way partners were relating in this project.

Section E Research Activities (15-20 pages)

This section should include a description of all the research activities (research studies, surveys etc.) conducted to achieve the outputs of the project analysed against the milestones set for the implementation period.

Information on any facilities, expertise and special resources used to implement the project should also be included.

The main research activities were socio-economic studies to first establish the maize production and marketing systems in the project areas. A rapid market assessment of the Kisenyi wholesale market was conducted in order for the farmers to start supplying it with their maize. The main research output was output 2 which stated "Relevant post harvest technologies and knowledge base that increase access to markets by small-scale rural maize farmers adopted". Output 3 that states "Capacity of rural people involved in maize enterprises enhanced and systems for continuously improving the capacity in place" had a researchable indicator that would show that the indicator has been achieved by an improvement of the quality of farmers' maize as a result of training in improved post harvest handling.

The research activities conducted included market surveys that identified post harvest constraints limiting maize storage and marketing of resource poor farmers in each of the target sub-counties. Other on-going studies are adoption studies that were designed to establish factors that affect the adoption of PHTs. Laboratory studies were also conducted to establish the quality of farmers' maize. Tests included insect counts and species, moisture content, physical damage levels, microbial infections and germination tests. It was hypothesized that the quality of farmers' maize will improve as a result of project intervention.

1. BASELINE STUDY ON FARMERS, MAIZE PRODUCTION AND MARKETING ACTIVITIES IN THE PROJECT SUB-COUNTIES. (JUNE 2003)

Background

Maize is the most important cereal crop in Uganda, and one of the most important worldwide. In Uganda, the crop is a major staple food for a large proportion of the

population, in addition to being an important animal feed. Maize acreage constitutes about 10% of the total area under annual crops and about 12% of cereals consumption. Maize importance is centered around the large quantity of carbohydrates, protein, vitamins and fats, contained in the kernels, making it compare favourably as an energy source with root and tuber crops per quantity.

Per capita total maize consumption in Uganda is about 28 kilogrammes a year, although yields remain low, fluctuating around 1.5 tonnes per hectare (ASARECA, 2001). Households on the farm consume about 43% of the total maize produced in Uganda and its importance to most farmers is as a cash crop. In 1996/1997 for example, Uganda earned US$30.2 million from maize. In the year 2000, the contribution of non-traditional exports in Uganda was US$190.29 million (47.4%), of which only $2.4 million (0.6%) was from maize (UBOS, 2001). This was probably because of the abundance of maize in Kenya and other neighbouring countries, which led to a decline in the local maize price. However, FOODNET (2002) estimates annual export sales figures of between US$19 and 25 million (at 250 Ush. per kilo).

However, although maize is a very important crop in Uganda, small-scale subsistence maize farmers face a number of constraints viz., poor market access, and increased price variation, uncertainties on loss levels, poor storage systems and exploitation by middlemen.

A DFID funded coalition project *"Improvement of maize marketing through adoption of improved post harvest technologies and farmer group storage: a case study of Kiboga and Apac districts"* was initiated in January 2003 with the purpose of improving maize farmers' market access by improving the quality and quantity of their maize. The project therefore hypothesized that small scale farmers working in groups will adopt improved post harvest technologies (PHT) that will be used to improve the quality and quantity of their maize.

This study therefore attempts to establish or form a baseline on the level of farmers maize production and marketing activities in the project sub-counties in June 2003.

Methods

The study area was selected basing on the project area that includes the sub-counties of Kibiga and Nsambya in Kiboga district and Loro and Abongomola in Apac districts. These sub-counties are representative of the rural conditions under which farmers live. These sub-counties are characterized to have limited opportunities in terms of good infrastructure (storage, roads, and communication networks), access to PHT, and markets.

A sample of 202 farmers were selected and interviewed using a semi-structured questionnaire as shown below.

Table 1. Sample distribution

District	**Sub-county**	**Frequency**
Apac	Abongomola	54
	Loro	46
Kiboga	Kibiga	45
	Nsambya	57
	Total	**202**

Descriptive statistics including frequency distributions, means, mode and standard deviations were used to describe the basic features of the data by providing simple

summaries about the sample and measures. A semi-structured questionnaire was used to gather information on maize production and marketing at farmer level.

Results

The results will be displayed in tabular form showing a comparison between the two districts of Kiboga and Apac

Table 2. Socio-demographic information

Variable	**Apac**		**Kiboga (%)**	
	Freq	**%**	**Freq**	**%**
1. Sex of respondent				
Male	82	82	72	70.6
Female	18	18	30	29.4
N	**100**	**100**	**102**	**100**
2. Source of household income				
On-farm	101	77.7	104	75.4
Off-farm	28	21.5	34	24.6
Gift	1	0.8	-	-
N of responses	**130**	**100**	**138**	**100**
3. Belong to groups				
Yes	***55***	***55***	***60***	***58.8***
No	***45***	***45***	***42***	***41.2***
N	*100*	*100*	*102*	*100*

Table 3. Descriptive statistics about the respondent

Measure	**Apac**	**Kiboga**
1. Age of respondent		
N	99	101
Mean	37.00	39.06
Standard deviation	12.46	13.26
2. Years spent at school		
N	100	102
Mean	6.84	6.10
Standard deviation	3.70	5.80
3. Acres of farm land owned		
N	96	97
Mean	7.84	14.62
Standard deviation	10.57	20.10
4. Acres of farm land cultivated		
N	96	100
Mean	4.60	6.33
Standard deviation	4.70	7.78
5. Acres of farmland hired		
N	40	24
Mean	2.50	4.92
Standard deviation	3.11	9.78

Table 4. Descriptive statistics on maize production

Measure	***Apac***	**Kiboga**
1. Acres of farmland planted to maize in season 1		
N	88	91
Mean	2.25	2.87
Standard deviation	2.28	3.61
2. Acres of farmland planted to maize in season 2		
N	75	87
Mean	1.95	3.24
Standard deviation	1.22	4.06
3. Maize yield in season 1 (kg/acre)		
N	88	87
Mean	674.00	1033.76
Standard deviation	321.84	475.17
4. Maize yield in season 2 (kg/acre)		
N	75	82
Mean	540.00	1123.48
Standard deviation	324.24	539.64
5. Maize seed applied per acre (kg/acre) season 1		
N	88	84
Mean	12.88	11.22
Standard deviation	50.70	10.60
6. Maize seed applied per acre (kg/acre) season 2		
N	75	78
Mean	10.5	10.22
Standard deviation	15.49	11.52
6. Total maize harvest in season 1 (kg)		
N	88	90
Mean	1524.95	3069.61
Standard deviation	1495.05	4128.26
7. Total maize harvest in season 2 (kg)		
N	75	85
Mean	1087.81	3441.27
Standard deviation	1101.41	4148.00

Table 5. Descriptive statistics on maize utilization

Measure	***Apac***	**Kiboga**
1. Household maize consumption in season 1 (kg)		
N	69	75
Mean	204.91	224.19
Standard deviation	238.51	302.30
2. Household maize consumption in season 2(kg)		
N	52	71
Mean	225.31	225.41
Standard deviation	223.97	268.12
3. Maize output sold in season 1 (kg)		
N	85	88
Mean	1163.80	2713.44
Standard deviation	1106.19	4011.80
4. Maize output sold in season 2 (kg)		
N	66	81
Mean	1076.09	2842.85

Standard deviation	1295.42	3609.49
5. Maize seed saved in season 1 (kg)		
N	58	18
Mean	29.97	29.42
Standard deviation	26.45	35.32
6. Maize seed saved in season 2 (kg)		
N	44	19
Mean	29.09	26.95
Standard deviation	27.08	19.72
5. Maize used for animal feed in season 1 (kg)		
N	7	8
Mean	70.00	32.25
Standard deviation	28.28	31.20
6. Maize used for animal feed in season 2 (kg)		
N	1	7
Mean	20.00	36.57
Standard deviation	-	31.21
7. Maize used for paying laborers season 1 (kg)		
N	1	-
Mean	50.00	-
Standard deviation	-	-
8. Maize used for paying laborers season 2 (kg)		
N	1	-
Mean	5.00	-
Standard deviation	-	-
9. Maize used for brewing season 1 (kg)		
N	5	-
Mean	937.80	-
Standard deviation	1365.24	-
10. Maize used for brewing season 2 (kg)		
N	1	-
Mean	100	-
Standard deviation	-	-

Table 6. Descriptive statistics on maize post harvest practices

Measure	***Apac***	**Kiboga**
1. Quantity of maize stored in season 1 (kg)		
N	81	69
Mean	1349.43	2932.36
Standard deviation	1551.93	4107.98
2. Quantity of maize stored in season 2 (kg)		
N	71	60
Mean	922.70	3466.58
Standard deviation	1186.22	4352.17
3. Maize storage duration in season 1 (months)		
N	80	69
Mean	2.88	2.29
Standard deviation	1.91	1.40
4. Maize storage duration in season 2 (months)		
N	69	62
Mean	2.86	2.43
Standard deviation	1.58	1.43

5. Maize storage loss in season 1 (%)		
N	73	49
Mean	8.05	6.97
Standard deviation	9.01	9.62
6. Maize storage loss in season 2 (%)		
N	55	35
Mean	9.19	6.49
Standard deviation	11.10	8.07

Table 7. Maize drying in Apac and Kiboga districts

Variable	Apac		Kiboga (%)	
	Freq	**%**	**Freq**	**%**
1. Form Maize dried				
On cob without sheath	76	88.4	70	69.3
On cob with sheath	7	8.1	31	30.7
Shelled	3	3.5	-	-
n	**86**		**101**	**100**
2. Where maize dried				
On ground	77	90.6	1	50
Field drying	4	4.7	-	-
Raised platform	2	2.4	1	50
Crib	1	1.2	-	-
Wind row stook/stack together	1	1.2	-	-
n	**86**		**2**	**100**
3. Household responsibility in drying maize (responses)				
Husband	59	31.6	62	39.2
Wife	79	42.2	47	29.7
Children	47	25.1	27	17.2
Hired labour	2	1.1	22	13.9
N of responses	**187**		**158**	**100**

Table 8. Maize shelling in Apac and Kiboga districts

Variable	Apac		Kiboga (%)	
	Freq	**%**	**Freq**	**%**
1. Who shells maize (responses)				
Husband	65	31.0	52	40.0
Wife	72	34.3	18	13.9
Children	53	25.2	10	7.7
Hired labour	20	9.5	50	38.5
N of responses	**210**			
2. Methods of shelling maize				
Flailing maize in bags	71	69.6	22	24.7
Hand prising	16	15.7	1	1.1

Flailing in room/ or on floor or ground	13	12.7	27	30.3
Flailing maize in crib	1	1.0	15	16.9
Rotary sheller	1	1.0	3	3.4
Motorized sheller	-	-	21	23.6
N of responses	**102**	**100**	**89**	**100**

Table 9. Maize storage in Apac and Kiboga districts

Variable	***Apac***		**Kiboga (%)**	
	Freq	**%**	**Freq**	**%**
1. Do you store maize				
Yes	94	94	77	75.5
No	6	6	25	24.5
n	**100**	**100**	**102**	**100**
2. Form in which maize is stored				
On cob without sheath	48	51.6		
Shelled	43	46.2		
On cob with sheath	2	2.2		
n	**93**			
3. Maize storage problems (responses)				
Storage pests	84	76.4	67	67.7
Lack of storage space	13	11.8	16	16.2
No problem	4	3.6	2	2.0
Lack storage containers	3	2.7	5	5.1
Loss of grain weight	3	2.7	-	0.0
Molding	2	1.9	6	6.1
Leaking roof/ faulty store	1	0.9	3	3.0
N of responses	**110**	**100**	**99**	**100**
4. Methods of storing maize				
In bags (on logs) in house	37	39.4	23	30.7
Granary	37	39.4	11	14.7
Poured on floor	10	10.6	5	6.7
Crib	7	7.4	27	36.0
Group store	3	3.2	2	2.7
Raised platform	-	-	7	9.3
n	**94**	**100**	**75**	**100**

Table 10. Gross margin analysis per bag of maize in Apac and Kiboga districts

	Apac		**Kiboga**	
	Season 1	**Season 2**	**Season 1**	**Season 2**
Cost per bag	533.57	533.57	539.95	562.99
Transport from field to home	803.84	671.36		
Transport from home to market/store	938.86	1,006.72		
Transport cost			1,263.80	1,430.20
Shelling cost	870.78	937.53	740.05	775.73

Cleaning	445.21	438.01	265.40	300.73
Packing	252.27	260.37	295.03	314.49
Loading fee	262.30	248.91	786.77	781.70
Treatment	860.29	787.04	1,338.87	1,224.74
Taxes	710.52	653.36	376.61	239.95
Dues	743.99	696.81	219.22	369.17
Total cost	**6,421.63**	**6,233.68**	**5,825.67**	**5,999.71**
Losses per bag (kg)				
Spillage	3.93	3.36	2.06	1.96
Shelling	1.44	1.62	1.58	1.50
Theft	1.80	3.15	2.73	2.77
Cleaning	1.58	1.83	2.32	1.46
Damage in store	3.56	2.71	2.44	2.32
Total loss per bag	**12.31**	**12.67**	**11.13**	**10.02**
Average farmgate price per kg of maize	Jan-Apr	Aug-Dec	Jan-May	Jul-Dec
	161.47	204.67	170.55	142.31
Weight of bag after losses	97.73	97.37	108.87	109.98
Revenue per bag	15,781.09	19,928.70	18,567.20	15,651.06
Gross margin per bag	9,359.46	13,695.03	12,741.53	9,651.35

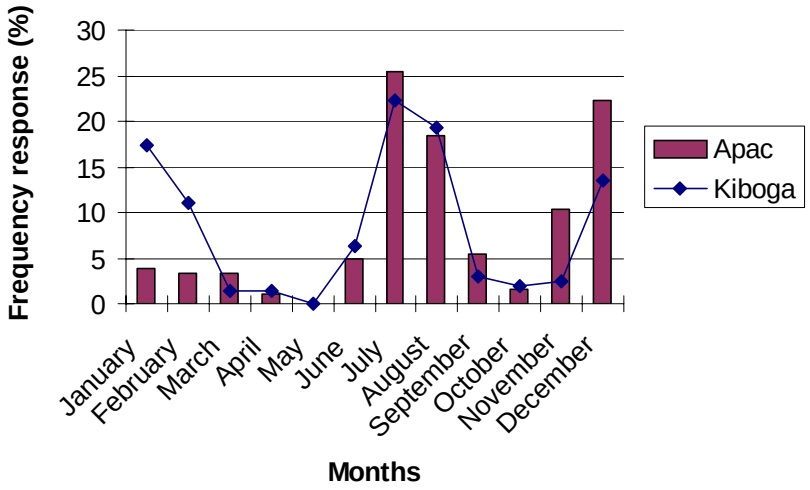


Figure 1: Frequency distribution of maize harvest in Apac and Kiboga districts

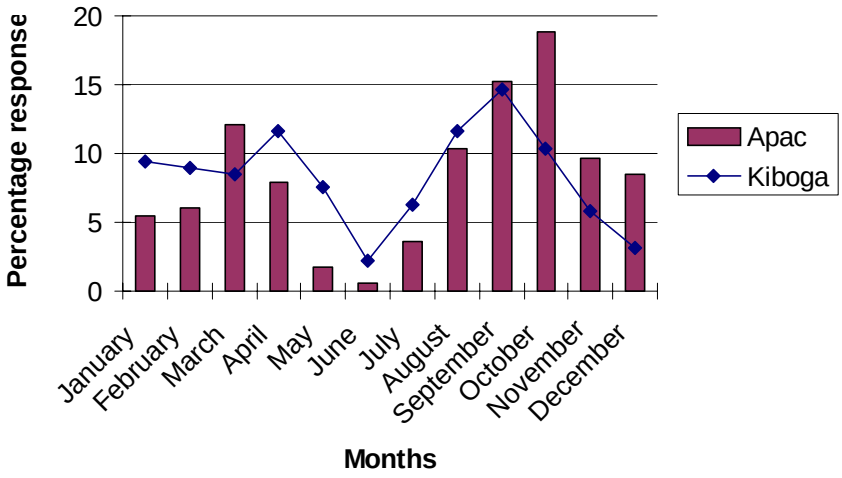


Figure 2: Frequency distribution of the months when maize is sold

FARMER QUESTIONNAIRE FORM

MAIZE FARMER GROUP STORAGE AND MARKETING IN KIBOGA AND APAC DISTRICTS

Enumerator ...……..... Questionnaire no. .....

Date of interview .....

Respondent's name: ……

1. SOCIO-DEMOGRAPHIC INFORMATION

1. Household location. District ……..

   Village :..... Parish :.....

   Sub-county :..... County :.....

2. Sex of respondent: 1) male 2) female
3. Age of respondent ..... years
4. Status of respondent1) head 2) wife 3) son 4) daughter 5) relative 6) labourer
5. What are your sources of household income in order of importance

Source of income	**Rank**
On-farm	
Off-farm (specify)	
Gifts	

Rank: 1 = most important, 2 = important, 3 = least important

6. How many years have you spent at school?.....
7. Size of household

Category	**Number**
Males 15 years and older	
Females 15 years and older	
Children younger than 15 years	

Parents inclusive!

8. Size of farmland owned …….. (acres)
9. Size of farmland under cultivation or livestock ..... (acres)
10. Size of farmland hired ..... (acres)

2. AWARENESS AND PERCEPTION OF PROJECT

11. Does any member of your household belong to any farmer group or association? 1) yes 0) no **Name: ……**
12. If no, go to no. 17.
13. If yes, what activities does the group address? .....
    .... **(probe for any post-harvest issues e.g. drying, storage, shellers, etc)**
14. In what year did you join the group? year …… month ……....
15. Why did or what made you join the group?

.....

16. Since you joined the group, what change have you experienced in your household?

…….....

3. AGRICULTURAL PRODUCTION CYCLE

a) Crops and cropping patterns.

17. Which food crops do you grow and rank them in order of importance?

Crop	**Rank**

Rank with 1 = most important, 2 = important, 3 =…., 4 =…. etc., and the last figure being least important

b) Information about harvest

18. Please complete the table below about last year's (2002) maize production.

Variable	**1st season (2002)**	**2nd season (2002)**
Acres planted of maize		
Maize yield (bags/acre) ***shelled***		
Seed used per acre (kg)		
Total maize harvested (kg) ***shelled***		

Also probe for weights e.g. 1 bag = ……..kg, 1 basin/tin=……..kg or 1 cup = …….. kg

19. In which months did you harvest maize for the;

    1st season ….....…… 2nd season …….....

20. Which maize variety did you plant during? ***(if name not known probe for description e.g. colour, size, density, etc)***

    1st season ….....…… 2nd season …….....

    ....

21. What are your reasons for planting these varieties? .....

    .....

4. CROP UTILISATION

22. Of the total amount of your maize harvested, how much did you use for the following;

Use/purpose	**Quantity/amount (KG)**	
	1st season	***2nd season***
On-farm consumption (bags)		
Sold (bags)		
Seed (kg) ***home-saved***		
Other uses (***specify***) …….		

If other units of measurement are used please indicate so and their equivalent in kgs

5. POST HARVEST PRACTICES

Drying

23. How many days from planting to harvest do your maize varieties spend in the field? ***(refer to no. 20 for variety names)***

Variety	**No. of days**

24. How long (weeks) do you dry your maize after harvesting it? .....

25. Who in your family harvests the maize?

1) Husband 2) Wife 3) Children 4) Hired Labour5) Other (specify) ……

26. How do you transport your maize from field to home (or storage)? ***(tick √)***

    Head ☐ Bicycle ☐ Motor vehicle ☐ Other (specify) ……

    Not applicable ☐

27. Who in your family is responsible for drying the maize?

1) Husband 2) Wife 3) Children 4) Hired Labour5) Other (specify) …

28. In what form is the maize dried after harvest?

    1) on cob with sheath 2) on cob without sheath 3) shelled

29. Where do you dry your maize after harvesting?

1) crib 2) on ground 3) raised platform 4) other (specify) ……

Processing

30. How do you normally shell your maize?

……

31. Who in your family is responsible for shelling maize?

1) Husband 2) Wife 3) Children 4) Hired Labour5) Other (specify) .....

Storage

32. Do you store your maize? 1) yes 0) no

33. If no, go to no. 40.

34. What quantity of maize did you store and for how long during 1st & 2nd season crop?

Variable	**1st season crop**	**2nd season crop**
Maize stored (kg)		
Duration of maize storage (months)		

35. In what form do you store your maize?

1) on cob with sheath 2) on cob without sheath 3) shelled

36. What problems do you face while storing your maize? ***(tick √)***

Storage space ☐ Storage containers ☐ Storage Pests ☐

Other (specify) ….....

37. Where do you store your maize and how? ***(e.g., in bags in house or poured on floor, or granary, etc.)***

……

38. Do you experience maize crop losses by pests during storage? 1) yes 0) no

39. If yes, how much maize do you lose during storage?

1st season .....…….. 2nd season .....…

40. Give some reasons why you do not store maize? .....……

.....

6. MARKETING AND MARKET ACCESS

41. Which months do you normally sell your maize? .....……

42. At what price did you sell your maize during those months? ***Specify per bag or kg***

…….

43. What are your reasons for selling during those months? .....……...

.....……

44. What quantity of maize did you sell during? ***Specify bags or kgs***

1st season .....…… 2nd season .....…

45. Where do you sell your maize? ***(e.g. farm gate, local market, etc.)***

……..

46. What problems do you face when selling your produce?

……..……

47. What means of transport do you use to transport your maize from home (or storage) to the market? ***(tick √)***

Head ☐Bicycle ☐ Motor vehicle ☐ Other (specify) …… Not applicable ☐

48. Do you sell all your maize at once? 1) yes 0) no

49. Give reasons why? .....……

Who are the main buyers of your maize and rank them?

Buyer	***Rank***

Rank: 1 = most important, 2 …., 3 ……., till the least important

50. Where do you get information on the prevailing market price of maize?

…….

51. How do you market your maize? 1) individually 2) as a group 3) both

52. If individually, what are the advantages or disadvantages? ***(specify)***.....….

……

53. If as a group, what are the advantages or disadvantages? ***(specify)***…….....…..

……..

7. POST HARVEST COSTS

For no.s 55-61, where not applicable indicate with zero (0)

54. What quantity of empty bags did you purchase during 1st season _____ 2nd season ___?
55. What did each bag cost? USH _____
56. What transport costs per bag did you incur:

    from field to home during 1st season USH_____ 2nd season USH_____

    (probe for weight of bag of maize on cob)……..…. kg

    from home to market during 1st season USH_____ 2nd season USH _____

    (probe weight of bag of shelled maize) ….……. kg

57. What are your handling costs per bag for:

Shelling 1st season USH_____ 2nd season USH _____

Cleaning/sorting 1st season USH_____ 2nd season USH _____

Packing in bags 1st season USH_____ 2nd season USH _____

Loading/offloading 1st season USH_____ 2nd season USH _____

58. Please estimate the quantity of maize you lose or spill per bag during:

Spillage in field/garden 1st season _____kg 2nd season _____kg (per bag)

Shelling 1st season _____kg 2nd season _____kg (per bag)

Theft 1st season _____kg 2nd season _____kg (per bag)

Cleaning/winnowing 1st season _____kg 2nd season _____kg (per bag)

Damage in store 1st season _____kg 2nd season _____kg (per bag)

59. What maize treatment costs per bag do you incur during:

1st season USH _____ 2nd season USH _____ ***if otherwise please indicate so***

60. What other costs per bag do you incur? E.g.

"Unofficial taxes" 1st season USH _____ 2nd season USH _____ (per bag)

Dues, etc 1st season USH _____ 2nd season USH _____ (per bag)

8. TECHNICAL ASSISTANCE/ADVICE

61. Do you receive any type of technical assistance or advice towards your agricultural activities?

1) yes 0) no

62. If no, go to no. 65.

63. If yes, describe the type of technical assistance you receive and who provides it.

Type of assistance	**Institution providing assistance**
Production	
Processing	
Drying	
Storage	
Financial/credit	
Produce marketing	
Other ***(specify)***	

9. CREDIT

64. Do you receive any credit? 1) yes 0) no

65. If no, go to no. 70.

66. If yes, for what purpose? .....……...……..

……

67. Which organisation or who provides you with credit? ***(probe for traders giving credit, or from family members, or other informal means)*** .....……..

…….....……

68. What are the terms of payment of the debt ***(e.g. probe for interest rates, payment terms, etc.)*** …….

10. GENERAL

69. In your opinion, which crop enterprises would improve household incomes in your area? .....

70. Which livestock enterprises would improve household incomes in your area? .....

.....

2. A RAPID APPRAISAL OF KISENYI MARKET FOR MAIZE FROM ABONGOMOLA FARMER GROUP STORE

Objective: The objective of this study is to help the Abongomola farmer groups decide whether to sell their maize directly to Kisenyi market millers or just sell at farmgate.

1. Identify potential buyers and contact several to determine whether they would be interested in speaking with the farmers
2. Determine millers' expectations of future supply, demand and price
3. Obtain the quality standards for maize and determine the varieties that are most in demand.
4. Determine the usual means of transport, terms of payment for maize
5. Determine the cost of transport to Kisenyi
6. Determine restrictions on domestic trade of maize, levies, "unofficial taxes"
7. Obtain and analyze statistics of Kisenyi market maize supplies, with districts of origin, yearly for the past 2 years and monthly for the past year
8. Obtain average prices of maize in the Kisenyi market, monthly for the past 3 years

- Will maize from Abongomola be able to compete with maize from other producing districts, in terms of quality and price?
- Is transportation up to Kisenyi complex or expensive?
- Are there major regulatory barriers to the sale of maize in Kisenyi?
- Is the Kisenyi maize market broad enough in total volume and in number of buyers?
- Are the Kisenyi buyers receptive to new suppliers? Are they receiving many offers? What is their opinion of maize from Apac?
- What are the typical payment terms?
- What are the typical transporting terms?
- Are real (adjusted for inflation) prices in Kisenyi increasing?
- Which maize varieties are most in demand?
- What is the opinion or reputation of Apac farmers to the Kisenyi millers?
- Are there major plans to start or increase maize production in other districts?
- Are there major plans to enlarge the market through promotional campaigns?
- Who are the natural "allies and supporters" and who are the natural "enemies"? How can these be used to reduce hindrances and facilitate entrance to the market?

Other research questions

- Is it worth storing maize, i.e. is the price offered able to cover costs, inflation, losses, interest, etc?
- What is the farmers' objective to growing and/or selling maize?
- What is the most feasible (returns, costs, time, ease of payment, etc) place for farmers to sell, given their objectives and needs? Kisenyi/Nakawa markets, farm-gate, or Afro-Kai, etc.
- Is it feasible

Work done

A very quick rapid appraisal of Kisenyi market was conducted to determine whether farmers in Abongomola could sell their maize in Kampala, by determining the buyers, their terms, and expectations and determine potential hindrances or obstacles the farmers may face. Secondary information has also been included to guide the farmers determine their costs and profits.

Findings

1. The Buyers

Kisenyi market is one (or probably) the largest market for maize in Uganda. The maize is milled for food and feed. There are about 70 milling companies in Kisenyi market who have formed an umbrella association called "Kisenyi Millers Association". This association was formed after unscrupulous dealers would bring farmers to the market and walk away with the money. This association was also formed to lobby for their needs from government.

Other important players in Kisenyi are the 'guides', who act as a go between the farmers and millers. When a farmer brings their maize to Kisenyi, the guide informs him/her at what price maize is being sold (off-lorry price). The guide also makes prior arrangements with millers and informs them of the expected consignment. Contacts include Mulugo Samuel (077-342910) guide no. 14, and Kakungulu (077-485599) guide no. 10.

2. Maize quality issues

The quality of maize may not be a very big hindrance because of the wide range of products that are made viz. animal feeds and food (which is or can be graded). Specific quality parameters will have to be obtained for the various products.

Maize from Abongomola will be able to compete with that from other districts. We are confident because the farming groups in Abongomola were sensitized on the importance of keeping and achieving good quality maize. They were taught post harvest management practices that significantly improve or maintain the quality of maize. The form in which the maize is stored prior to sale is also modern, i.e., in a warehouse, which makes it easy for inspection, cleaning and fumigating, if the need arises.

There wasn't any mention of specific varieties being superior to others.

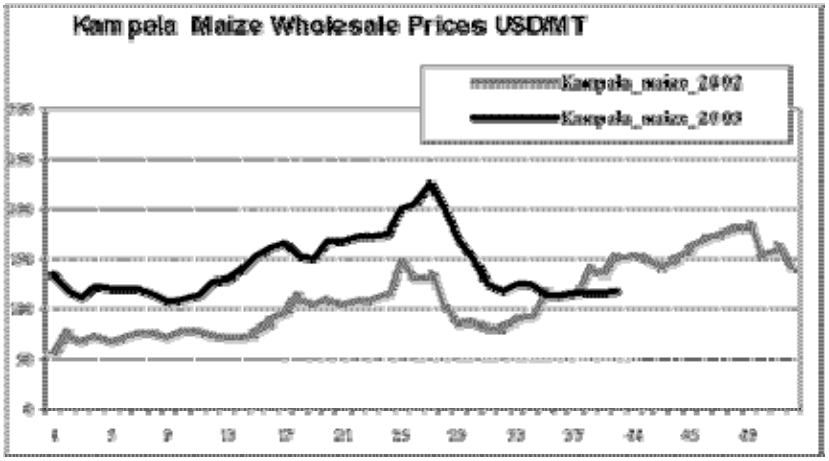
3. Maize supply

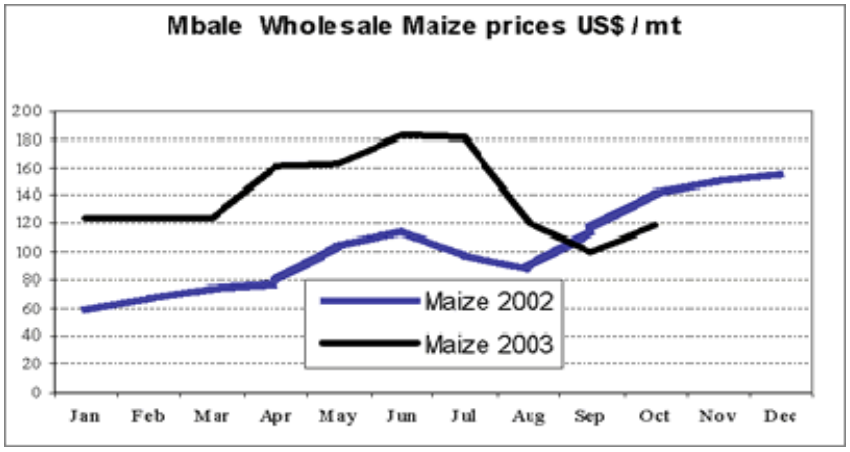
All the main supplying districts in Uganda supply Kisenyi. It was not established whether some of the maize is imported. Some of the districts mentioned included Iganga, Mbarara, Masindi, and Kapchorwa.

Kisenyi market received in excess of 1,500 MT of maize per week (averaging 1,753 MT) from 19th October 2003 to 15th November 2003 (Source the Regional Agricultural Trade Intelligence Network (RATIN)).

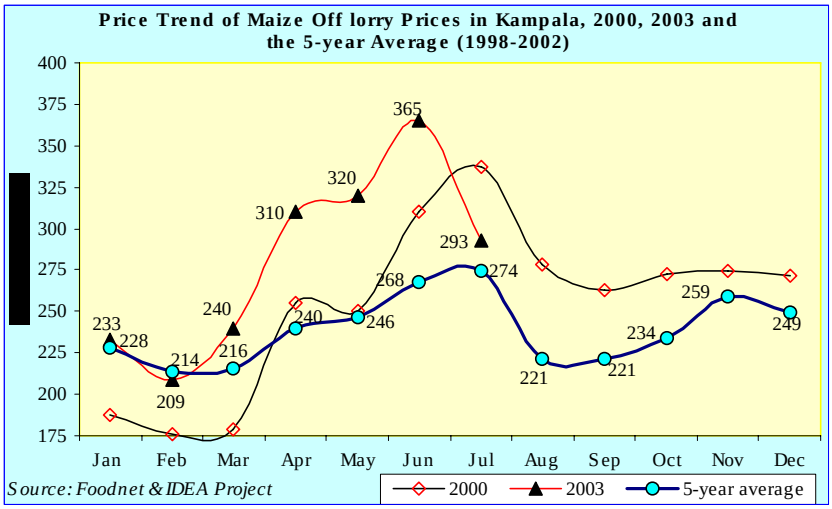
Since there are many suppliers of maize to Kisenyi, it was advised that the maximum volume of consignment should be 20MT. The maize should arrive at the market by 0630 hrs. Further still, the guide should be informed that the maize is on its way and its expected time of arrival, so that he makes the prior arrangements.

4. Maize prices and trends





The above figures show wholesale prices of maize in Kampala and Mbale in US$/MT for the years 2002 and 2003. An analysis of the graphs show that maize price started dropping in July. In Mbale the price picked up from September, probably owing to the increased demand from Kenya.



Prices are averages for Owino and Kisenyi Markets. According to the graph, maize prices declined by 20% between June and July. As anticipated during May, the prices declined in July due to the maize harvest. Most of the maize had high moisture between 14-16%. The high demand from local millers and Kenyan traders led to supply of such poor quality maize. The highest price reached for the old maize crop was UShs 480 per kilo in mid-July.

The above graph also shows that the second season crop peaks in November and starts dropping in December. The Kisenyi traders also expect this drop as the new crop especially from Busoga comes onto the market.

From the graphs, we could also predict demand. When the price is high we can assume that demand for maize is also high. Other factors influencing seasonal trends include opening of schools.

5. Payment terms

As mentioned earlier, the Kisenyi Millers Association was formed to improve the efficiency of maize marketing in Kisenyi and reduce cheating. Farmers or maize suppliers are paid after the maize has been off-loaded. About 3% of the off-lorry price is deducted to pay for off-loading and operational costs, e.g., if the off-lorry price is USH 245 per kg, then 5 shillings per kg will be deducted to cater for off-loading and operations leaving the farmer with USH 240. Cash is usually the main form of payment.

6. Costs

The cost components that the Abongomola farmers are likely to face will include:

- Preparation & packaging: cleaning, grading and packaging (sacks)
- Handling: loading, off-loading, putting in store, removing it, etc
- Transport: depends on distance and quality of road. Transport is usually charge on a per bag basis versus per kg.
- Losses: losses may occur during marketing e.g. when transporting it.
- Storage: whether to store in anticipation of price increase or not. By incorporating inflation in the storage cost calculations, you are able to get the “real” price changes.
- Processing: Farmers, assisted by researchers or extension agents, need to understand how to relate finished product prices to the raw material, e.g. maize grain and maize flour.

- Finance: in case of borrowed money, the interest paid is the cost. Or the amount of interest that the money the farmer has used would have earned if it were put in the bank instead.
- Fees, commissions and unofficial payments: market fees, weighing, license fees, bribes, roadblocks, etc.

It should also be noted that the price the farmer gets depends on the costs he/she incurs, the marketing system and on the price. Each case needs to be examined on its own merits before one mentions that farmers are being exploited!

The price the farmer is paid will therefore have to cater for the above mentioned costs incurred.

3. MAIZE QUALITY ASSESSMENT

Maize Samples of 500-g lots were collected from farmers interviewed in Kiboga district. A total of 48 samples were collected, of which half (24) were from farmers involved in groups and the other half from farmers who stored maize individually.

Maize was weighed into 100-g grain samples in 4 replicates using a spring balance and the following parameters were investigated;

a) percentage of mechanically damaged grain
b) percentage of foreign matter
c) percentage of discoloured grain per 100g of grain
d) insect species in grain sample
e) percentage moisture content of grain

Additionally, 100 grains were counted in 4 replicates per sample and the number of insect damaged grain in each replicate was recorded. The whole grain testing process was carried out at Kawanda Agricultural Research Institute.

The SPSS spreadsheet was then adopted to analyze the data. Means were declared significantly different if the difference between the two groups of farmers was more than twice the standard error difference (sed) between them.

$$Sed = \sqrt{Se_1^2 + Se_2^2}$$

Where, Se_1 and Se_2 are the standard errors of the mean for individual and group farmers respectively.

$$Se_i = \frac{sd_i}{\sqrt{n_i}}$$

Where;
Se_i is the standard error of the mean for the i^{th} category of farmers
Sd is standard deviation for the i^{th} category of farmers
n_i is the number of observations the i^{th} category of farmers

Section F Project effectiveness

This section of the evaluation report uses the rating criteria for the purpose and your outputs previously used in your annual reports.

	Rating
Project Goal	3
Project Purpose	2
Project Outputs 1.	3
2.	2
…….3	2

1= completely achieved
2= largely achieved
3= partially achieved
4= achieved only to a very limited extent
X= too early to judge the extent of achievement (avoid using this rating for purpose and outputs)

Outputs (5 pages)

What were the research outputs achieved by the project as defined by the value of their respective OVIs? Were all the anticipated outputs achieved and if not what were the reasons? Your assessment of outputs should be presented as tables or graphs rather than lengthy writing, and provided in as quantitative a form as far as is possible.

Output	Objectively verifiable indicator	Achievements	Reasons for not achieving OVI
1. Cohesive, dynamic and sustainable partnerships and institutional mechanisms for linking the rural maize producers to markets in place	1.1 By the end of 4th quarter year 2 at least 8 farmer groups (averaging at least 20 members of which 30% are women) in the 4 target sub-counties are sensitised and incorporated into the partnership	1. Thirteen farmer groups in Kiboga and 6 in Apac district have been sensitised so far. It was planned to down scale the number in Kiboga district to about 6 to ensure proper delivery of project outputs. However, this was altered by the formation of farmer associations. 2. The farmer groups in the 4 sub-counties with the help of the project came together to form associations that are registered at national level.	
	1.2 At least 1 more non-core partner in the target districts	1. The area of credit management was identified to be	Work relations with the micro finance institution have not

	is identified and integrated within the partnership by the end of 3rd quarter year 2	important. The company of Micro Finance Support Centre Ltd was invited to sensitize the coalition on what they can offer and what the coalition can offer. The farmer groups, now association meet the criteria of working with the micro finance institution. 2. The National Council of Small Scale Business Organisations (NCUSBO) in Uganda was first contracted to offer entrepreneurial skills to the farmer groups. They cost shared the registration costs for the 4 farmer associations. They have incorporated the associations in their training programs of association governance.	yet been put in place, since the groups are in the infant stages of working as an association and thus learning how to govern themselves.
	1.3 Institutional mechanisms, processes and innovations for a sustainable, dynamic and cohesive coalition in Kibiga, Nsambya, Abongomola and Loro sub-counties proposed by end of 2nd quarter year 2	MOU between KARI and the coalition partners were developed and signed, spelling out roles and responsibilities. Also included are project reporting and accounting formats.	
	1.4 The proposed institutional arrangements tested, monitored	Partners have been trained in participatory monitoring and evaluation methods, which they are	

	and evaluated in a participatory manner by the coalition, beginning year 2	implementing. The process has been facilitated by the CPHP/DFID RO	
2. Relevant PHT and knowledge base that increase access to markets by small-scale rural maize farmers adopted	2.1 A consolidated work plan developed by coalition partners, including farmers' groups in place and implemented by beginning of 1st quarter of year 2	Quarterly works plans were prepared by the partners in the two districts through the district coordinating committees. Research and training work plans were also developed on a quarterly basis.	
	2.2 At least 2 PH constraints (marketing systems, storage and value addition) limiting maize storage and marketing of resource poor farmers in each target sub-county appraised by the end of year 2	It has been found that to access lucrative maize markets grain quality and quantity are very important. To achieve required volumes, 2 stores have been renovated and another 2 are being hired in target districts. Quality has been tackled by practicing improved post harvest management right from the field through storage and also marketing.	
	2.3 By end of year 2 at least 3 appropriate PHT from CPHP & coalition partners are validated availed and being used by 2 farmer groups in each of the target sub-counties	The earlier focus was on disseminating appropriate technologies. The project is testing the coalition process and the concept of working in groups to store and market their maize. The analysis has been prepared through the institutional histories	
3. Capacity of rural people involved in maize enterprises	3.1 Target farmer groups in the selected sub counties are conversant and	Various post harvest technologies including improved drying yards, tarpaulin sheets, cleaners, methods of	

enhanced and systems for continuously improving the capacity in place	using at least 3 appropriate PHT by the end of year 2	testing moisture content, store management (pest management) are being used by farmer groups	
	3.2 Quality of maize improved as a result of training 8 farmer groups in the identified need areas by end of year 2	6 farmer groups have managed to achieve on average 13.7% MC of their maize (recommended MC levels: 12-14%) The farmer groups have also received premium prices (20%) over the local price due to the improved quality levels	
	3.3 Development, production and packaging of training/dissemination materials for extension, farmer groups, NGOs and the public by end of year 2	Training materials on improved post harvest practices and farmer group management have been prepared and disseminated to farmer groups	
	3.4 Farmers' capacity to access resources that address food security and credit increased by providing information on opportunities	Farmer groups in Apac district have gained access to other government programmes like NAADS that are conducting training workshops on various issues of food security.	

For projects aimed at developing a device, material or process, and considering the status of the assumptions that link the outputs to the purpose, please specify:

a. What further market studies need to be done?
b. How the outputs have been made available to intended users?
c. What further stages will be needed to develop, test and establish manufacture of a product by the relevant partners?
d. How and by whom, will the further stages be carried out and paid for?

e. Have they developed plans to undertake this work? If yes, what are they? If not, why?

Purpose (2 pages)
Based on the values of your purpose level OVIs, to what extent was the purpose achieved? In other words, to what degree have partners/other users adopted the research outputs or have the results of the research been validated as potentially effective at farmer/processor/trader level?

Purpose	Objectively verifiable indicator	Achievements
Improved PH technologies and institutional mechanisms are being used by rural maize farmers in Kiboga and Apac districts and are continuously being improved/scaled up/promoted through the partnership for sustainable access to markets	1.1 Increased knowledge and use of at least 3 PHT by selected farmer groups in target sub-counties (Kibiga, Nsambya, Abongomola and Loro) by end of project.	Adoption rates for the adoption of PHT were not established. The project was only able to contribute to what the farmers' needed and this was fully adopted. The research design for a post harvest technology adoption study is in place. The NGO project partners in the districts have multiplied the technologies (maize cribs) and incorporated post harvest handling in their training programs
	1.2 The quality of maize from target farmers' groups improved by at least 5% and levels of market rejection reduced to a maximum of 5%.	The improvement in quality and quantity was reflected in the prices offered for the farmers' maize. Initial studies were able to record levels of mechanical damage, insect pest levels (insect damage) and foreign matter in the sampled maize. These were respectively 1.6%, 2.4% and 1.3%. Other quality parameters measured included moisture content (MC) and discoloration that were respectively 15% and 2.7%. Farmers have also managed to reduce moisture content to 13%.
	1.3 A sustainable, cohesive and dynamic partnership that enhances farmers' capacity to access information, knowledge, technologies and markets in place by end of project.	The coalition partners have demonstrated that working together and each playing a vital functional role enhances farmers' access to technologies, market information and access to markets. The coalition comprised of end

		users of post harvest outputs i.e. the farmer groups. The farmer groups totalled 13 in Kiboga and 6 in Apac districts. Another group of coalition partners were the intermediate users i.e. research institute, NGOs, district extension services and the grain trader.

PHT = Post harvest technology

Goal (1 page)
What is the expected contribution of outputs to Project Goal?

The outputs of the project were achieved and were in consonance with the Project goal "National and international crop-post harvest innovation systems respond more effectively to the needs of the poor". This was addressed by setting up an innovative institutional arrangement that enabled the farmers to access post-harvest technologies and advice that improved the quality and quantity maize for enhanced market access. The technologies were easily adapted to farmer conditions because of affordability, simplicity, effectiveness and user friendliness. The partners worked together in an institutional arrangement that was based on earlier relationships and well-defined functional roles and responsibilities. The project has demonstrated that if farmers are equipped with the necessary tools and skills, and working with key stakeholders then they will be able to access lucrative markets and regard farming as a business for sustainable incomes and thus improved livelihoods.

Section G – Uptake and Impact (2 pages)
Organisational Uptake (max 100 words)
What do you know about the uptake of research outputs by other intermediary institutions or projects (local, national, regional or international)? What uptake by which institutions/projects where? Give details and information sources (Who?What?Howmany?Where?)

The uptake of post harvest research outputs can be defined as the application of post harvest research information and technology by users. Intermediary institutions are those who use/employ post harvest research outputs to produce information, technology and products for end users. In this coalition project the research institute generated and disseminated technologies and information. Other partners like the NGOs and the district extension service transferred post harvest technologies to the farmers. Technologies included maize cribs in Kiboga district, training in post harvest handling, and market information.

End user uptake (max 100 words)
What do you know about the uptake of research outputs by end-users? Which end-users, how many and where? Give details and information sources

The end users i.e. the farmers who are engaged in productive activities used post harvest technologies in order to improve on the efficiency of their activities by increasing the unit output of maize handled and improve on the quality of maize. About 500 farmers in the project districts were the direct beneficiaries of the project. The farmers have demonstrated by

improving the quality and quantity of their marketable maize. This has also been rewarded by the premium price offered for their maize. Working in coalition with key stakeholders also facilitated the process of technology transfer and information flow.

Knowledge (max 100 words)
What do you know about the impact of the project on the stock of knowledge? What is the new knowledge? How significant is it? What is the evidence for this judgement?

The project aimed at increasing knowledge of the end user – the farmer, on appropriate post harvest technologies and their usage. The project also created awareness among the end users on potential and available markets, their requirements and how they can supply and benefit from them. The skills gained in entrepreneurship, group dynamics/governance, post harvest handling and marketing of their maize has made them more efficient and confident. Farmers are able to source for maize markets on their own and negotiate with buyers.

Institutional (max 100 words)
What do you know about the impact on institutional capacity? What impact on which institutions and where? What change did it make to the organisations (more on intermediate organisations). Give details and information sources.

The project's aim was to improve market access by availing improved post harvest technologies and knowledge. This was achieved by working together with key stakeholders. Over the project duration roles have changed in the way the partners relate and the functions played. Earlier work relationships played a big role on the way the partners worked together.

Policy (max 100 words)
What do you know about any impact on policy, law or regulations? What impact and where? Give details and information sources

The lessons learnt in working as a private-public partnership coalition will form a basis on which policy recommendations to set up and/or support farmer group marketing and storage can be based on. Other lessons included the provision and management of credit (mainly working capital) to farmers.

Poverty and livelihoods (max 100 words)
What do you know about any impact on poverty or poor people and livelihoods? What impact on how many people where? Give details and information sources.

Working together in storing and marketing their produce has been demonstrated to be beneficial to the farmers in terms of increased prices offered for their maize. The knowledge and skills gained has benefited them by looking at their enterprises from a business perspective – farming as a business. The direct beneficiaries of the project were about 500 farmers and their families. Facilities like the grain stores are used by the whole communities. Coalition members especially the NGOs and district extension offices further spread the "gospel" of post harvest handling to their areas of jurisdiction.

Environment (max 100 words)
What do you know about any impact on the environment? What impact and where? Give details and information sources.

Adoption of the project outputs have not led to any devastating environmental impact. With limited/short (less than 2 months) storage duration, the need for fumigation was not necessary. Therefore the application (and misapplication) of chemicals was nonexistent.

	Signature	Date
Core Partners		
Hadji Sabiiti Gulanyago	……..	……..
Peter Adolli	……..	……..
Mr. Chris Balya	……..	……..
Mr. Kiwalabye-Male, BUCADEF	……..	……..
Behzad Khatai, ASDI	……..	……..
Ms. Rehema Kalibbala,	……..	……..
Mr. Yovan Ogwang,	……..	……..
Managing Partner		
Dr. Ambrose Agona	……..	……..

ANNEXES

I Copies of the stakeholder, gender, livelihoods and environmental form included with the concept note.

NATURAL RESOURCES INTERNATIONAL LTD

on behalf of the Department for International Development (DFID)
Research Strategy (Renewable Natural Resources)

CONCEPT NOTE

MAIN SECTION

1. Project title: Improvement of maize marketing through adoption of improved post-harvest technologies and farmer group storage: A case study of Kiboga and Apac districts.
2. Date of submission: 14 June 2002
3. Applicant: Dr. Ambrose Agona National Post Harvest Programme, Kawanda Agricultural Research Institute, P. O. Box 7065, Kampala UGANDA Email: karihave@starcom.co.ug Tel: 256-41-567708 Fax: 256-41-567649

4. Coalition members:

- Farmer groups in Kibiga and Nsambya sub counties in Kiboga district, and farmers in Abongomola and Loro sub counties in Apac district. Other potential groups will be identified with the assistance of BUCADEF, ASDI and the district extension officers.
- National Post Harvest Programme (NPHP).
- Afro-Kai Limited, Plot 167, Bombo Road (Kawempe), P. O. Box 3460 Kampala, UGANDA. Tel: 256-41-566402/259608/343450, fax: 256-41-343450/567159, email: afrokai@afsat.com
- BUCADEF (Buganda Cultural and Development Foundation), P. O. Box 34071, Kampala, UGANDA. Email: bucadef@infocom.co.ug Tel: 256-77-408346. This is a local developmental NGO operating in Kiboga district.
- ASDI – Apac (Appropriate Sustainable Development Initiative), Chegere Road, P. O. Box 64, Apac, Uganda. A local developmental NGO operating in Apac district.
- District Extension Office (Kiboga), Dept. of Agriculture, P. O. Box 1, Kiboga.
- District Extension Office (Apac), Dept. of Agriculture, P. O. Box 1, Apac.
- DFID/CPHP-RO, PO Box 22130, Kampala, Uganda. Tel: 077 708593 (mobile) or +256 41 530696 (office), Fax: +256 41 530696, Email: dfidnr@nida.or.ug

- **The proposed roles and justification for all the coalition partners are outlined in tables 2a(Annex 3)**

5. Summary

The current status of maize production, post harvest handling, storage and marketing in Kiboga district is traditionally based and not competitive. The agricultural sector is dominated by resource poor farmers (as defined in Annex 1) who have limited access to information, knowledge, improved technology, and lack technical know how in modern post harvest technology (PHT).

Over the years a number of appropriate PHT particularly suited for maize, have been developed, adaptively tested and/or transferred on-farm to a limited extent. The technologies include improved dryers, shellers, pest management and market information network. The NARS (e.g., NARO, Makerere University), IARCs (NRI, IITA, and CIMMYT), ASARECA (FOODNET) and the private sector have been very instrumental in the development of the technologies through networking at various levels, however there has been limited adoption of the technologies by the farmers.

The current project therefore intends to collate the various PHTs available including information on markets and collectively, through strategic partnerships with coalition partners, validate them in the selected sub counties in the two districts. To ensure the adoption of developed technologies the project intends to work with farmer groups who will be of different categories depending on vulnerability, location and means.

The main objective of the project is to improve the quality and volume of grain traded by small-scale subsistence farmers, through adoption of improved PHT and farmer group storage approach in Apac and Kiboga districts in Uganda. Farmer group formation, training basic entrepreneurial and business management skills, training in proper maize PH handling, and coalition partnerships will ensure supply of good quality and large volumes of maize on the market. Farmers will be empowered to participate and negotiate for better prices directly with large grain traders.

6. Where will the research be carried out; and in what countries are the results of the research potentially applicable?

The research will be conducted in Uganda and in 2 districts; Apac and Kiboga. 2 sub counties in each district have been selected. The results are potentially applicable to the East and West African countries that share the same livelihood problems. The use of the farmer group approach is an alternative that is applicable to countries which are characterised with resource poor farmers and limited market access for their produce

7. How does your project link to the relevant Regional Strategy?

The proposed project fits into the Regional Strategy for East Africa by addressing the Regional Office specific objective of supporting the development of new strategies that improve the crop based food security of poor households through increased availability, improved quality, and better access to markets. The proposed project through better and PH practices like maize storage, shelling and drying, increases the duration it is available to the households and also improves the quality of maize. By forming farmer storage groups increases their access to markets because of increased volumes and high quality. Linking the farmers with buyers and providing market information will also improve the market access.

8. Which categories of poor people would benefit from the project?

The project will benefit the most vulnerable people who include; women, widows and female-headed households, people dependent on a relatively vulnerable source of income (e.g., small-scale farmers growing maize on not more than 1 ha), households with large families, casual labourers, and others like orphans.

The project recognises that with the introduction of improved PH technologies, gender roles and responsibilities will change, due to the reduction of workload, especially on women. Sensitization on the benefits and changes in roles will form part of the training programmes.

Men will be a core part of the project since it is targeting to increase household incomes therefore their roles as the head of the family will not be ignored. The benefits for women and the other vulnerable people will be in form of improved empowerment and participation in decision making and to some extent incomes.

It is estimated that during the two years the project will have imparted skills and technologies to households within the sub counties.

9. What livelihood problem/ opportunity for the poor does the project address?

The project addresses poor market access that can be solved through accessing improved PH technologies that will ensure good marketable quality of their maize and also large volumes with reduced losses during processing and/or storage. The project will use the farmer group approach that will improve the current organisation in storage and marketing and significantly raise the incomes from sales of maize.

Opportunities for marketing good quality and large volumes of maize have emerged with the formation of the Uganda Grain Traders consortium, high market demand for maize in Southern African countries, and assurance that premium prices will be given for good quality maize. Even within the East African region, especially Kenya, there is high demand for maize.

10. How will your research resolve the livelihood problem/opportunity you have identified (Question 9) for your specified categories of poor people (Question 8)?

By forming and working together in farmer group associations, the poor will be able to access international maize markets. The criteria for selection of group members will be based on their vulnerability, location, and means or scale of maize production. Members with similar characteristics have higher chances of working together. This intervention will help in fostering social networks within the communities. The groups will also form relationships with the coalition partners both from the private and public sectors.

Other factors also need to be in place (see QN 5 Annex 1) including, access to credit and finance services especially for production purposes. Control of crop pests and diseases, some of the pests infest from the field or pre-production. Access to affordable inputs in form of seed and machinery for tilling the land. Political stability is also important especially in northern Uganda where there are pockets of insurgency. Access to extension services may also be related to political will of local government since they control the resources at the districts.

The current research will build on and compliment work by the NAADS that is making technologies accessible to the poor farmers through formation of farmer groups. The findings from Dorward and Poulton (1999) will guide the design of strategies to market farmer produce. The research efforts will be based on CPHP's themes of reducing storage losses and improving market systems for maize.

11. If, over time, the project's results were applied on a wide scale, are they likely to have any significant positive or negative environmental impacts?

The major negative impact that is foreseen will be due to accidental poisoning from fumigants. However this will be mitigated from regular inspection of stores, training of personnel to conduct the fumigation procedures.

Fumigants reduce the risk of misusing hazardous toxic chemicals. Other positive impacts will include a healthier population due to the use of cleaner, hygienic, and labour saving post harvest practices and technologies.

12. Estimated duration of project: The project intends to take 2 years.
13. Is this proposed work currently under consideration by another funding body? No

ANNEX 1: LIVELIHOODS ANALYSIS

Table 1

1. Which interest group(s) is your work intended to benefit and where are they?

Rural poor farmers who produce maize on not more than 2 hectares of land. The project also intends to involve the women including widows and female-headed households. The farmers are located in the rural districts of Apac in northern Uganda, and Kiboga in central Uganda. Apac district is located in the northern moist farmlands agroecological zone (AEZ) with maize, finger millet and beans being the most important food crops. Kiboga district has two AEZs; Central Wooded Savanna and Western Mid-Altitude Farmlands. Banana, maize, beans and sweet potato are the most important crops. The proposed project intends to work in 2 sub counties per district. In Apac district Abongomola and Loro sub counties, while in Kiboga district Kibiga and Nsambya sub counties.

2. In what way can they be defined as 'poor'? State your source(s).

The PMA (Plan for Modernisation of Agriculture) defines poverty, that is rampant in the two proposed project districts, not as just lack of incomes but also the lack of means to satisfy basic, social needs, as well as a feeling of powerlessness to break out of the cycle of poverty, insecurity of person and property. Poverty is not a uniform condition affecting all groups of people and locations in the same way. Some features are common (eg few assets for production, low yields, insufficient food, inadequate income to meet health care and education costs, restricted access to services, large families, poor health, and lack of social support), whereas other indicators are specific to a given situation (eg social of physical isolation, ethnic discrimination, low social capital, insufficient infrastructure development and insecurity).

The most vulnerable people to poverty include; women, widows and female-headed households, male youth, households with large families, people dependent on a relatively vulnerable source of income (e.g., small-scale farmers who rely on growing one low-value crop for sale), casual labourers, and others including orphans and neglected children, the disabled, socially isolated and the sick.

The poor are categorised into two groups; the destitute who do not have hope and have no assets, and the poor which represents the majority of those living in poverty. They have the will and desire to improve and sustain their livelihoods, but they express frustration in their attempts to do so because of limited assets, skills and knowledge; restricted access to services, infrastructure and information; of social disadvantage. This group needs interventions that are inclusive, that build on their existing resources and activities, and that provide the impetus for development.

The gender dimension of poverty recognises that in Uganda women lag behind men in terms of education level and income earnings. Women have limited economic opportunities due to their societal roles and responsibilities, their social status, lack of ownership and access to productive assets, low participation in decision making and high workload. Women are more involved in reproductive activities, particularly care of family, whereas men are involved in community activities. Women face barriers to participation in community development activities that include refusal by husbands, discrimination, subordinate roles, weak leaders, lack of mobilisation, lack of time and failure to see the benefit of their participation.

The northern region is the poorest in terms of development indicators, such as household size, education level, health expenditure, and child survival. Farmers in northern Uganda highlight the influence of insecurity and restricted market access, as factors affecting poverty.

Lack of access to markets was ranked as the main factor causing poverty in the rural areas Uganda Participatory Poverty Assessment Project (UPPAP, 1999). This was followed by poor health, lack of education skills, excessive alcohol consumption, ignorance/lack of information, lack of access to financial services and capital, large families, insurgency (rebels and rustlers), idleness and laziness, and lack of co-operation.

Source: The Plan for Modernisation of Agriculture: Eradicating Poverty in Uganda. Government Strategy and operational framework. MAAIF, MFPED, 2000. GOU

3. What livelihood problem or opportunity are they experiencing and how many people are affected? State your evidence.

From the PMA (2000) over 85% of Uganda's population live in rural areas where agriculture is the major contributor to their livelihoods. Poverty in Uganda is mainly a rural phenomenon as 48% of the rural population are below the absolute poverty line, further, poverty has decreased by only 18% in rural areas compared to 43% in urban areas. UPPAP (1999) ranked lack of market access as the main factor causing poverty in rural areas, and the PMA recognises that one of the main ways of reducing poverty in rural areas of Uganda is the ability to produce and market traditional cash crops, with food crops experiencing modest rates of poverty reduction. Studies have also shown that the competitiveness of maize has fallen too far for market based interventions, therefore a more appropriate strategy might be to look for higher value crops and concentration on one particular crop seems somewhat inappropriate (Dorward A. and Poulton C, 1999. *Improving Smallholder Access to Maize Marketing Opportunities in Sub-Saharan Africa*. NRI Ltd contract No. ZB0123. Wye College UK). The study also highlights that greater farmer organisation in agricultural marketing is likely to be necessary in order for smallholders in remote areas to significantly raise their incomes from sales of agricultural produce.

Maize trade in Uganda and within the region has picked up as shown by the formation of the Uganda Grain Traders association. This is considered an opportunity for the farmer groups in the rural areas. Afro-Kai Ltd., which is one of the partners to this project, has assured farmers of markets and premium prices for good quality and large volumes of maize. There is also a large forecasted demand for maize in November 2002 for Southern African countries which is estimated at over 1 million Mt.

4. What contribution will your work make to this, over the timeframe of the project?

By organizing farmers into farmer groups, making appropriate post harvest technologies (shellers, dryers, pest management, and improved storage systems) available and accessible, improving farmer knowledge base (proper post harvest handling, market requirements), and marketing of their maize, the project will contribute towards farmers' market access, and increased farmers' incomes from maize sales.

5. What external factors need to be in place for impacts to be sustained and extended after the project has ended?

Other factors as indicated in the PMA, that need to be in place include:

- Access to credit and financial services
- Control of crop and livestock pests and diseases
- Access to affordable production inputs
- Improved access to arable land-soil fertility, maximal land
- Access to extension services that reach the people and offer advice, information and training on more productive methods, marketing and alternative income generating activities
- Political stability especially in northern Uganda
- Cooperation between the institutions and/or coalition partners
- Political will and support from the local government

6. What other initiatives (research or development) would your project complement/ add value to?

The National Agricultural Advisory Services (NAADS) is one of government's initiative that the project will complement by forming farmer groups, and making post harvest technology accessible. This project builds on DFID/CPHP output of improving access to markets and builds on findings from studies that have identified that farmer groups will enhance maize marketing (Dorward and Poulton, 1999). The project will add to the priority themes for CPH research and technology promotion in Uganda through reducing maize storage losses and improving market systems.

The use of appropriate post harvest technologies will improve the quality of maize grain on-farm and thus complementing the Uganda Grain Traders initiative of improving the quality of maize for export.

The government of Uganda through the Poverty Action Fund provides funds to communities to solve their problems. Some of the programmes e.g., the CHILD project has a component of community grants used for solving agricultural related problems of which post harvest is one. The proposed project will complement such initiatives.

7. On what basis was the work that you propose identified?

The National Post Harvest Programme conducted baseline surveys to identify farmer and trader post harvest needs and constraints. Poor storage systems, lack of information and lack of market were ranked as important constraints (Okot-Chono and Kalunda, 2001. *A needs assessment of post harvest constraints and marketing in Kiboga district.* Post harvest Programme, KARI).

The study is also based on the CPHP themes for maize; reducing storage losses, market systems and adding value.

Another concern came from informal meetings with the district agricultural officers and NGO's, that expressed post harvest intervention is needed in the maize subsector.

8. Who stands to lose from your work, if it is adopted/ implemented on a large scale?

- Middlemen especially the small fragmented transporters, stand to lose because big traders are willing to bear the cost of transport and give premium price for maize of high quality.

ANNEX 2: GENDER ANALYSIS

Table 1

1. How does the research problem/opportunity that you have identified affect men and women differently?

- ***Roles and responsibilities***: women's roles for certain operations (eg, drying, shelling and cleaning of maize) will reduce with the introduction of energy saving technologies (dryers, cribs, shellers and cleaners) that are gender balanced and user friendly. With improved incomes from sales of good quality maize, men's participation in these post harvest operations will increase.
- ***Needs and interests***: the technologies have been designed to take into consideration women's needs and interests. Less time spent during post harvest activities gives women especially, time to attend to other socio-economic activities as well as acquiring knowledge e.g., attending Adult Literacy Programmes.
- ***Relations***: improved relations between men and women because of less labour burden on them. Complementing each other improves relations
- ***Decision-making powers***: Women will be involved in decision making in the farmer group (collective decisions), however household decisions are beyond the control of the project.
- ***Access to and control over resources***: many post harvest operations will be done at household level, accessible to both men and women. At group level marketing and storage, men and women will have equal ownership and participation in decision making.

2. How will your expected results impact differently on women and men?

Consider potential impacts of the project on men's and women's:

- ***Roles and responsibilities***: reduction in women's time spent during post harvest operations. Improved utilisation of men's time.
- ***Needs and interests***: reduced labour needs, increased women's participation
- ***Relations***: improved relations due to sharing of roles and responsibilities
- ***Decision-making powers***: women's involvement in group work will increase their decision making powers
- ***Access to and control over resources***: through coalition partnership, access to technologies will be improved to both men and women.

3. What barriers exist to men's and women's involvement in project design, implementation and management decisions?

- Literacy levels of men and women in project sites are relatively low, however the training methods to be employed will involve adult literacy programmes that are focused on the needs of the target communities.
- Cultural barriers e.g., men are always placed at the forefront and some may not allow their women to participate. The project will sensitise the project beneficiaries and will encourage women's participation in order to minimise the disparities.

Matrix for prioritising key stakeholders:

DEGREE OF INFLUENCE

High influence ← → Low Influence

DEGREE OF IMPORTANCE		
High Importance	**Box A** **Stakeholders who stand to lose or gain significantly from the project AND whose actions can affect the project's ability to meet its objectives** • Farmers and farmer groups • Researchers (NPHP) • Produce buyers (Afro-Kai) • Extension • Civil society (BUCADEF & ASDI) • DFID/CPHP-RO	**Box B** **Stakeholders who stand to lose or gain significantly from the project BUT whose actions cannot affect the project's ability to meet its objectives** • Other potential service providers (Tonet fabricators, FOODNET, UNBS, ActionAid, UNAFE, IDEA)
Low importance	**Box C** **Stakeholders whose actions can affect the project's ability to meet its objectives BUT who do not stand to lose or gain much from the project** • Politicians (Local council I to III) • Local government administration	**Box D** **Stakeholders who do not stand to lose or gain much from the project AND whose actions cannot affect the project's ability to meet its objectives** • Farmers of other commodities (competing or complementing) • Input suppliers – seed stockers

ANNEX 3: STAKEHOLDER ANALYSIS

Stage 1: Stakeholder interests and influence

Table 1a: Coalition members – interests and impact

Proposed coalition members	Key interests in the project	Potential impact of the project
1. Farmers and farmer groups	1.1 Improved access to technologies, information and knowledge 1.2 Development of entrepreneurial skills 1.3 Development of organizational skills 1.4 Improved access to market information 1.5 Improved access to markets	1.1 The quality of maize marketed will improve 1.2 Farmers' use of post harvest technology will improve 1.3 Networks and partnerships with coalition members will have improved 1.4 Farmers' attitude on maize as a commercial crop improved 1.5 Farmers' business managerial capacities increased
2. NPHP	2.1 Improved quality and volumes of maize on markets 2.2 Utilization of improved PH technology 2.3 Adaptatin/ testing of PH technologies 2.4 Forging of strategic partnerships in PH technology transfer	2.1 Increased use of post harvest technologies 2.2 improved relationships with coalition partners
3. Afro-Kai	3.1 Source of large volumes and high quality maize that meets international standards	3.1 Trading volumes in high quality maize will increase 3.2 Improved relationships with maize producers
4. District extension offices (Kiboga and Apac)	4.1 Dissemination of improved post harvest systems 4.2 Market information	4.1 Improved knowledge on post harvest systems 4.2 Improved delivery of extension services
5. Civil society (BUCADEF & ASDI)	5.1 Dissemination of improved post harvest systems	5.1 Improved access to and knowledge of post harvest technologies

Proposed coalition members	Key interests in the project	Potential impact of the project
	5.2 Market information 5.3 Community development and empowerment	5.2 Improved access to information 5.3 Increased relations with farmer groups
6. DFID/CPHP-RO	6.1 Formation of coalition partnerships 6.2 Achieving CPHP outputs 6.3 Monitoring and evaluation of project activities and outputs	6.1 Improved coalition partnerships formed 6.2 Improved market access for maize farmers 6.3 Timely implementation, and proper project management

Table 1b: External Stakeholders – influence and impact

External stakeholders	How can they influence the project?	Potential impact
• Local councils I to III	• Local council members are in close contact to the farm community and are likely to influence farmer attitudes towards uptake of new innovations	• Local council members from their involvement in project activities in mobilization will gain popularity among their people
• Local government administration	• Local administration programmes eg, health care, adult literacy programmes will strengthen farmers ability to adopt improved post harvest technologies • Provide funds (eg PAF) to farmers' groups to cost share in PH technology acquisition and maintenance	• Post harvest technologies adopted due to a healthy population, and higher education • The relationships with local government and farmers and other coalition partners will improve. • Capacity of farmers to demand and receive information, knowledge and technologies improved
• Other potential service providers (Tonnet fabricators,	• Providing and fabricating machines like shellers and	• Increased demand for their services

FOODNET, UNBS, ActionAid, UNFFE, IDEA)	cleaners • FOODNET can provide useful market information, prices, markets • UNBS (Uganda National Bureau of Standards) can provide information on maize quality standards • ActionAid an NGO can provide developmental services to farmers • UNFFE (Uganda National Farmers' Federation) can provide services in mobilization • IDEA can help in providing marketing and technical support to the groups	• Increase in fabricated machines • PH technologies widespread to farmers in both target and non target areas • Alternative markets and marketing at optimal periods of maize guaranteed • Increased market opportunities for other crops.

Stage 2: Roles and relationships

Table 2a: Proposed roles of coalition members in the project

Stage of Research Process	Proposed coalition member	Proposed role(s) in project	Justification of role
Identification (CN stage)	1. Farmer groups	1.1 Provide information on what they have (time, labour, land) and needs (improved livelihoods, access to markets, information, PH technologies) 1.2 Provide information on maize production and post production needs and constraints	1.1 They are the group whose livelihood the project seeks to improve 1.2 They are faced with the marketing problem and are the primary source of information
	2. NPHP/KARI	2.1 Provide	2.1 Has developed

Stage of Research Process	Proposed coalition member	Proposed role(s) in project	Justification of role
		information on available PH technologies, skills and manpower and needs (market information, target beneficiary identification and selection, and sources of other PH technology) 2.2 Identify and strengthen coalition partnerships/ relationships 2.3 Develop CN with partners	strong linkages with development partners 2.2 Mandated to develop, generate, test and transfer appropriate PH technologies
	3. Afro-Kai	3.1 Provide information on markets, market requirements and quality standards, and needs (organised farmer groups to supply high quality and large volumes of maize)	3.1 Established grain trader within the region 3.2 Potential market outlet for farm surplus production 3.3 Member of Uganda Grain Traders Association
	4. BUCADEF/ASDI	4.1 Provide information on their community development mobilization, sensitization and training programmes and their needs (market information, post harvest technologies)	4.1 Well known NGO's operating in target districts 4.2 They have limited infrastructure and resources to support advisors, farmer groups 4.3 They have good linkages with many farmer groups
	5. District extension offices (Kiboga and Apac)	5.1 Provide information on district development projects	5.1 Mandated to transfer information to farmers 5.2 Have capacity to

Stage of Research Process	Proposed coalition member	Proposed role(s) in project	Justification of role
		mobilization, sensitisation, training programmes and their needs from the coalition (post harvest information, market information)	conduct extension work 5.3 Are based in target districts
	6. DFID/CPHP	6.1 Provide resources for coalition partnerships 6.2 Provide guidelines for CN development	6.1 Regional DFID/CPHP overseer
Design and development (PMF stage)	1. Farmer groups	1.1 Production and post production information 1.2 Information on farmer groups and functions	1.1 Are the group that the project seeks to improve their livelihoods 1.2 Primary source of information
	2. NPHP/KARI	2.1 Gather information necessary to develop the PMF 2.2 Organise meetings with stakeholders 2.3 Strengthen coalition relationships	2.1 Lead research coalition partner
	3. Afro-Kai	3.1 Provide further information on their needs and what they can provide in the partnership	3.1 Key market outlet partner
	4. BUCADEF/ASDI	4.1 Provide information on farmer groups in selected districts	4.1 They deal directly with the communities in the selected districts
	5. District Extension Office	5.1 Provide information on	5.1 Local government partner

Stage of Research Process	Proposed coalition member	Proposed role(s) in project	Justification of role
		local government programmes 5.2 Provide relevant district statistical information	
	6. DFID/CPHP	6.1 Provide resources to develop the PMF	6.1 CPHP partner
Implementation and Monitoring	1. Farmer groups	1.1 Provide production inputs 1.2 Provide maize output 1.3 Provide information on maize production and post production 1.4 Provide information on farmer group dynamics	1.1 Group that project seeks to improve their livelihoods 1.2 Primary source of information
	2. NPHP/KARI	2.1 Train farmer groups in appropriate PH technologies 2.2 In collaboration with BUCADEF, ASDI, district extension office and Afro-Kai, train farmer groups in business and management skills 2.3 Develop mechanisms for technology transfer 2.4 Design farmer group storage facilities 2.5 Monitor farmer group activities and provide technical backstopping	2.1 Capacity and experience in research and development 2.2 Has developed and tested appropriate technologies 2.3 Mandated to develop, generate, test and transfer PH technology.
	3. Afro-Kai	3.1 Link farmer groups to markets 3.2 Support farmer	3.1 Has the capacity to absorb farmer surplus production

Stage of Research Process	Proposed coalition member	Proposed role(s) in project	Justification of role
		group collection centres 3.2 Provide information on markets and their requirements	3.2 Has tested the model of working with farmer groups
	4. BUCADEF/ASDI	4.1 Mobilization and sensitization of farmer groups 4.2 Support and facilitate advisors/extension 4.3 Provide farmer groups with market information	4.1 They have links with information providers
	5. Extension workers	5.1 Collection of production and marketing information 5.2 Mobilization and sensitisation 5.3 Demonstration 5.4 Training	5.1 District extension agency 5.2 Has the mandate and capacity to provide extension services to the farming community
	6. DFID/CPHP	6.1 Provide resources for M&E 6.2 Monitor project progress and coalition partnerships	6.1
Evaluation	1. Farmer groups	1.1 Provide information on changes observed during project implementation	1.1 Group whose livelihood the project intends to improve
	2. NPHP/KARI	2.1 Provide technical information on changes during project implementation 2.2 Provide information on changes observed in coalition	2.1 Lead research partner in providing technical inputs to the beneficiaries

Stage of Research Process	Proposed coalition member	Proposed role(s) in project	Justification of role
		partnership	
	3. Afro-Kai	3.1 Provide information on market changes observed during partnership	3.1 Key maize marketing partner
	4. BUCADEF/ASDI	4.1 Provide information on farmer group dynamics during project implementation 4.2 Provide information on changes from coalition	4.1 Partners focusing on community development
	5. Extension workers	5.1 Provide information on district activities in relation to partnership	5.1 Local government partner
	6. DFID/CPHP-RO	6.1 Provide resources for evaluation 6.2 Gather and analyze information on partnerships	6.1 Responsible for overseeing implementation of CPHP activities, outputs and resource management

Table 2b: External stakeholders and relationships with coalition

Stage of Research Process	Degree of Participation		
	Inform	***Consult***	***Collaborate***
Identification (CN stage)*		• Local government administration (DAO, CAO) from Kiboga and Apac	
Design and development (PMF stage)		• FOODNET • IDEA • UNFFE	• Local government administration (DAO, CAO)

Implementation and Monitoring	• Politicians	• UNBS • IDEA	• Local government administration (DAO, CAO) • UNAFE • FOODNET • ActionAid • Tonnet fabricators
Evaluation			• Local government administration (DAO, CAO)

DAO = district agricultural officer, CAO = chief administrative officer, IDEA = investment in developing export agriculture, UNFFE = Uganda national farmers federation

ANNEX 4:ENVIRONMENTAL SCREENING SUMMARY NOTE (ESSN)

1. Project Title: Improvement of maize marketing through adoption on improved post-harvest technologies and farmer group storage: a case study of Kiboga and Apac districts.

2. Project Cost:

3. Duration: 2 years

4. Country: Uganda

5. What are the potential significant environmental impacts (both positive and negative) of the proposed research activities?

- Improved storage systems will increase cleanliness and hygiene of residential houses, since they are at times used as storage areas
- Fumigation of stored maize will offer protection for at least 3 months and reduce the risk of misusing hazardous toxic chemicals
- More efficient use of renewable energy i.e., maize cobs in case of biomass dryers in favour of charcoal, wind drying in case of cribs, solar drying in case of drying yards or racks
- Suppressed pollution and health risks with improved winnowing technology

6. What are the potentially significant environmental impacts (both positive and Negative) of widespread dissemination and application of research findings?

- Health of population will be improved due to cleaner and healthier post harvest practices
- Accidental poisoning due to fumigant inhalation in case of stores with damaged concrete floors, damaged fumigation sheets or improper sealing of sheet on the floor

7. What follow-up action is required to minimise potentially significant negative Impacts?

Regular inspection of floor for cracks, mending of damaged fumigation sheets and use of sand snakes will prevent gas leakage. The farmer groups will inspect stores on a daily basis reporting to the extension officers who will call the NPHP/KARI control the danger

8. How can positive impacts be enhanced/ extended cost-effectively?

Construction of large stores that can handle large volumes and other potentially marketable crops which would otherwise be stored in their residential houses. Use of qualified pest control agents to carry out fumigation procedures.

This Note completed by (applicant): Name: Dr. Ambrose Agona

Institution:	National Post harvest Programme, KARI
Date:	02 May 2007~~26 February 2005~~
Endorsed/modified by Programme Manager:	……
Date: ……	

NATURAL RESOURCES INTERNATIONAL LTD

on behalf of the Department for International Development (DFID)
Research Strategy (Renewable Natural Resources)

REVIEW FORM – Concept Notes

1. Project title and CN number:
2. What livelihood problem or opportunity for which clearly identified group of poor people does the project aim to address? (Refer to Annexes 1, 2 and 4)
3. Assess the relevance and sufficiency of the evidence provided of the need for, and importance of, the project. (Refer to Annexes 1, 2 and 4)
4. How does the proposal intend to take forward existing crop post-harvest knowledge? What is innovative about the project?
5. Is the proposition testable?
6. How will the proposal contribute to the Programme Strategy (see output indicators)?
7. In which other countries are the proposed project's results likely to be applicable?
8 Are you satisfied that project objectives, if realised, will make a significant and sustained contribution to the identified problem or opportunity? Please comment on the approach proposed for implementation. What key issues may need to be addressed in the development of a PMF?

9. Comment on the coalition composition and role allocation (refer to Annex 3, Tables 1a and 1b). Suggest possible ways in which this coalition may be strengthened during the PMF development process.
10. Are the strategies proposed for wider stakeholder involvement realistic and effective? (Refer to Annex 3, Tables 2a and 2b). What further development would be useful in the PMF process?
11. Comment on the potential links or complementarity with other research or development initiatives (not necessarily CPHP-funded) and suggest where these could be strengthened.
12. Project rating: *A = should proceed to PMF stage* *B = should proceed to PMF stage providing that the following issues are addressed:…..* *C = should not proceed further for the following reasons:…..*
Name of reviewer: Date reviewed: Signed:

II Project Logical Framework

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Risks
Goal			
National and international crop-post harvest innovation systems respond more effectively to the needs of the poor.	By 2005, a replicable range of different institutional arrangements which effectively and sustainably improve access to post-harvest knowledge and/or stimulate post-harvest innovation to benefit the poor have been validated in four regions.	Project evaluation reports. Partners' reports Regional Coordinators' Annual Reports. CPHP Annual Reports. CPHP Review 2005.	National and international crop-post harvest systems have the capacity to respond to and integrate an increased range of research outputs during and after programme completion. National and international delivery systems deliver a range of services relevant to poor people in both focus and non-focus countries. Livelihood analysis provides accurate identification of researchable constraints or opportunities that lead to poverty reduction.

Purpose			
Improved market access of rural maize farmers in Kiboga and Apac districts through sustained use of improved post-harvest technologies and institutional framework.	1.4 Increased knowledge and use of at least 3 PHT by selected farmer groups in target sub-counties (Kibiga, Nsambya, Abongomola and Loro) by end of project. 1.5 The quality of maize from target farmers' groups improved by at least 5% and levels of market rejection reduced to a maximum of 5%. 1.6 A sustainable, cohesive and dynamic partnership that enhances farmers' capacity to access information, knowledge, technologies and markets in place by end of project.	1.1 Project progress reports 1.2 CPHP annual reports 1.3 Evaluation protocols and reports 1.4 Farmer group records	• Farmers willing to change from traditional practices • Policies on agricultural production and marketing remain favourable. • No civil strife in areas of project implementation.
Outputs			
2 Cohesive, dynamic and sustainable partnerships and institutional mechanisms for linking the rural maize producers to markets in place	2.1 By the end of 4th quarter year 2 at least 8 farmer groups (averaging at least 20 members of which 30% are women) in the 4 target sub-counties are sensitised and incorporated into the partnership. [Extension/NGOs] 2.2 At least 1 more non-core partner	1.1 Consultant's report 1.2 Annual Report	Unfavourable prices of maize Continued demand for maize within the region Supportive market infrastructure Relationships between other service providers are in place

	in the target districts is identified and integrated within the partnership by the end of 3rd quarter year 2. [Farmers/Extension] 2.3 Institutional mechanisms, processes and innovations for a sustainable, dynamic and cohesive coalition in Kibiga, Nsambya, Abongomola and Loro sub-counties proposed by end of 2nd quarter year 2. [Contrator and Managing partner] 2.4 The proposed institutional arrangements tested, monitored and evaluated in a participatory manner by the coalition, beginning year 2. [Managing partner]		
3 Relevant PHT and knowledge base that increase access to markets by small-scale rural maize farmers adopted	2.1 A consolidated work plan developed by coalition partners, including farmers' groups in place and implemented by beginning of 1st quarter of year 2. [Managing partner] 2.2 At least 2 PH constraints (marketing systems, storage and value addition) limiting maize storage and marketing of	2.1 Work plan developed 2.2 Field report 2.3 Farmers Group records 2.4 Project Progress report	

		resource poor farmers in each target sub-county appraised by the end of year 2. [KARI] 2.3 By end of year 2 at least 3 appropriate PHT from CPHP & coalition partners are validated availed and being used by 2 farmer groups in each of the target sub-counties. [KARI]		
4	Capacity of rural people involved in maize enterprises enhanced and systems for continuously improving the capacity in place	3.5 Target farmer groups in the selected sub counties are conversant and using at least 3 appropriate PHT by the end of year 2. [Extension] 3.6 Quality of maize improved as a result of training 8 farmer groups in the identified need areas by end of year 2 [Extension, NGOs, and technical backstopping from KARI and contractor] 3.7 Development, production and packaging of training/dissemination materials for extension, farmer groups, NGOs and the public by end of year 2 [KARI, printing firm] 3.8 Farmers' capacity to access resources that address food security and credit	2.1 Project progress report 2.2 Training modules 2.3 Information packs developed 2.4 Farmers Groups Records 3.9 CPHP Annual Reports 3.10 Consultant's report	

	increased by providing information on opportunities [Contractor]		

Activities		
1.1 Identification and selection of strategic partners to participate in the project implementation, monitoring and evaluation 1.2 Formulation and signing of Memorandum of understanding/Terms of Reference of participating partners 1.3 Participatory mobilisation and sensitisation of farmers and opinion leaders in target sub-counties about the project 1.4 Identification, facilitation and/or enhancement of farmers group formation 1.5 Identification and selection of project implementing partners in respective target areas 1.6 Developing detailed work programmes and budget by implementing partners 1.7Review/vetting/Screening of work programmes and budgets 1.8 Implementing of agreed work programmes 1.9 Identification of other partnership needs, integration of new partners 1.10 Drawing TOR for and recruitment of expert on partnerships 1.11 Development of protocol on mechanisms and processes of operationalising institutional framework for linking producers to markets 1.12 Test and monitor the institutional mechanisms and process		• Traditional beliefs/cultural taboos that discriminate against women participation in decision making, sharing of proceeds and use of modern technologies. • Resource poor farmers failing to cost share in technology acquisition & to withhold produce for protracted periods until market prices improve.

2.1 Designing protocol/tool for data collecting on Post-harvest constraints (drudgery, losses, low incomes) limiting Maize storage and marketing in target areas 2.2 Conduct Rapid and Participatory Rural Appraisals (RRA & PRA) on livelihoods; PH technology, information and knowledge; marketing; groups and institutional needs and opportunities 2.3 Data analyses 2.4 Prepare reports 2.5 Hold workshops with farmers, traders and institutional partners to provide feed back on study findings and plan a way forward 2.6 Assemble basket of relevant Post-harvest technologies, information, knowledge 2.7 Identify, facilitate and/or enhance mechanisms and processes for technology, knowledge and information flow 2.8 Introduction, demonstration and release of appropriate PHTs 2.9 Identification and training of local artisans to construct and maintain equipment 2.10 Conduct market studies		-do-

3.1 Conduct training needs assessment of target farmer groups 3.2 Develop training modules on specific points in the post harvest system including marketing 3.3 Conduct training on specific requirements by farmers, traders and artisans 3.4 Development, production and distribution of training materials (leaflets, pamphlets, posters etc). 3.5 Farmer to farmer exchange visits within the region 3.6 Prepare and submit quarterly progress reports (highlights on achievements, problems encountered, suggestions and work plan for next quarter) 3.7 Conduct annual planning and review meetings 3.8 Publication of research findings 3.9 Evaluation 3.10 Final report		-do-

II Partner (user) organisations workplan for adopting project outputs

FINANCIAL YEAR 1 (FY 2002/2003) MONTH

Activity	Location	Partner responsible	A	M	J	J	A	S	O	N	D	J	F	M
1.1 Identification and selection of partners	Kiboga & Apac	Managing partner												
1.2 Formulation and signing of MOU...	KARI (PHP)	Managing partner												
1.3 Mobilisation and sensitisation of farmers	Kiboga & Apac	Extension, NGO												
1.4 Identification, facilitation ...	Kiboga & Apac	Extension, NGO												
1.5 Identification and selection of imp. partners.	Kiboga & Apac	Extension, NGO												
1.6 Developing detail work programmes	Kiboga, Apac, K'la	Coalition partner												
1.7 Review/vetting work programmes	KARI (PHP)	Managing Partner												
1 8 Implementing of agreed work progs..	Kiboga & Apac	Coalition partner												
1.9 Identification of other partners..	Kiboga & Apac	Coalition partner												
1.10 Drawing TOR...	KARI (PHP)	Managing partner												
1.11 Development of protocols ..	KARI (PHP)	Expert												
1.12 Test and monitor inst. mechm.	Kiboga & Apac	DFID CPHP												
2.1 Protocol/tool for data collection...	KARI (PHP)	KARI (PHP)												
2.2 RRA, PRA , NA..	Kiboga, Apac	KARI (PHP)												
2.3 Data analyses	KARI (PHP)	KARI (PHP)												
2.4 Report writing	KARI (PHP)	Managing Partner												
2.5 Feedback to farm.	Kiboga & Apac	KARI (PHP)												
2.6 Assemble basket of PHT..	KARI (PHP)	KARI (PHP)												
2.7 Techn. & Inform..	KARI (PHP)	KARI (PHP)												
2.8 Introduction PHTs	Kiboga & Apac	KARI (PHP)												
2.9 Training artisans	Kiboga & Apac	KARI (PHP)												
2.10 Market studies..	Urban areas	KARI (PHP)												
3.1 Training assess..	Kiboga & Apac	KARI (PHP)												
3.2 Training modul..	KARI (PHP)	KARI (PHP)												
3.3 Training on spec..	Kiboga & Apac	KARI (PHP)												
3.4 Training materials	KARI (PHP)	KARI (PHP)												
3.5 Exchange visits for farmer groups and service providers	Kiboga & Apac	Coalition partners												
3.6 quarterly reports	Kiboga & Apac	Coalition partners												
3.7 Annual planning and review	Kiboga & Apac	Coalition Partners												
3.8 Publications	KARI (PHP)	Managing Partners												
3.9 Evaluation...		DFID CPHP												
3.10 Final report	KARI (PHP)	Managing Partners												

FINANCIAL YEAR 2 (FY 2003/2004) **MONTH**

Activity	Location	Partner responsible	A	M	J	J	A	S	O	N	D	J	F	M
1.1 Identification and selection of partners	Kiboga & Apac	Managing partner												
1.2 Formulation and signing of MOU...	KARI (PHP)	Managing partner												
1.3 Mobilisation and sensitisation of farmers	Kiboga & Apac	Extension, NGO												
1.4 Identification, facilitation ...	Kiboga & Apac	Extension, NGO												
1.5 Identification and selection of imp. partners.	Kiboga & Apac	Extension, NGO												
1.6 Developing detail work programmes	Kiboga, Apac, K'la	Coalition partner												
1.7 Review/vetting work programmes	KARI (PHP)	Managing Partner												
1 8 Implementing of agreed work progs..	Kiboga & Apac	Coalition partner												
1.9 Identification of other partners..	Kiboga & Apac	Coalition partner												
1.10 Drawing TOR...	KARI (PHP)	Managing partner												
1.11 Development of protocols ..	KARI (PHP)	Expert												
1.12 Test and monitor inst. mechm.	Kiboga & Apac	DFID CPHP												
2.1 Protocol/tool for data collection...	KARI (PHP)	KARI (PHP)												
2.2 RRA, PRA , NA..	Kiboga, Apac	KARI (PHP)												
2.3 Data analyses	KARI (PHP)	KARI (PHP)												
2.4 Report writing	KARI (PHP)	Managing Partner												
2.5 Feedback to farm.	Kiboga & Apac	KARI (PHP)												
2.6 Assemble basket of PHT..	KARI (PHP)	KARI (PHP)												
2.7 Techn. & Inform..	KARI (PHP)	KARI (PHP)												
2.8 Introduction PHTs	Kiboga & Apac	KARI (PHP)												
2.9 Training artisans	Kiboga & Apac	KARI (PHP)												
2.10 Market studies..	Urban areas	KARI (PHP)												
3.1 Training assess..	Kiboga & Apac	KARI (PHP)												
3.2 Training modul..	KARI (PHP)	KARI (PHP)												
3.3 Training on spec..	Kiboga & Apac	KARI (PHP)												
3.4 Training materials	KARI (PHP)	KARI (PHP)												
3.5 Exchange visits for farmer groups and service providers	Kiboga & Apac	Coalition partners												
3.6 quarterly reports	Kiboga & Apac	Coalition partners												
3.7 Annual planning and review	Kiboga & Apac	Coalition Partners												
3.8 Publications	KARI (PHP)	Managing Partners												
3.9 Evaluation...		DFID CPHP												
3.10 Final report	KARI (PHP)	Managing Partners												

FINANCIAL YEAR 3 (FY 2004/2005) **MONTH**

Activity	Location	Partner responsible	A	M	J	J	A	S	O	N	D	J	F	M
1.1 Identification and selection of partners	Kiboga & Apac	Managing partner												
1.2 Formulation and signing of MOU...	KARI (PHP)	Managing partner												
1.3 Mobilisation and sensitisation of farmers	Kiboga & Apac	Extension, NGO												
1.4 Identification, facilitation ...	Kiboga & Apac	Extension, NGO												
1.5 Identification and selection of imp. partners.	Kiboga & Apac	Extension, NGO												
1.6 Developing detail work programmes	Kiboga, Apac, K'la	Coalition partner												
1.7 Review/vetting work programmes	KARI (PHP)	Managing Partner												
1 8 Implementing of agreed work progs..	Kiboga & Apac	Coalition partner												
1.9 Identification of other partners..	Kiboga & Apac	Coalition partner												
1.10 Drawing TOR...	KARI (PHP)	Managing partner												
1.11 Development of protocols ..	KARI (PHP)	Expert												
1.12 Test and monitor inst. mechm.	Kiboga & Apac	DFID CPHP												
2.1 Protocol/tool for data collection...	KARI (PHP)	KARI (PHP)												
2.2 RRA, PRA , NA..	Kiboga, Apac	KARI (PHP)												
2.3 Data analyses	KARI (PHP)	KARI (PHP)												
2.4 Report writing	KARI (PHP)	Managing Partner												
2.5 Feedback to farm.	Kiboga & Apac	KARI (PHP)												
2.6 Assemble basket of PHT..	KARI (PHP)	KARI (PHP)												
2.7 Techn. & Inform..	KARI (PHP)	KARI (PHP)												
2.8 Introduction PHTs	Kiboga & Apac	KARI (PHP)												
2.9 Training artisans	Kiboga & Apac	KARI (PHP)												
2.10 Market studies..	Urban areas	KARI (PHP)												
3.1 Training assess..	Kiboga & Apac	KARI (PHP)												
3.2 Training modul..	KARI (PHP)	KARI (PHP)												
3.3 Training on spec..	Kiboga & Apac	KARI (PHP)												
3.4 Training materials	KARI (PHP)	KARI (PHP)												
3.5 Exchange visits for farmer groups and service providers	Kiboga & Apac	Coalition partners												
3.6 quarterly reports	Kiboga & Apac	Coalition partners												
3.7 Annual planning and review	Kiboga & Apac	Coalition Partners												
3.8 Publications	KARI (PHP)	Managing Partners												
3.9 Evaluation...		DFID CPHP												
3.10 Final report	KARI (PHP)	Managing Partners												

III Copies of diaries, coalition meeting reports etc

IV Feedback on the process from Partners(s) and users (where appropriate)

V Tabulated description of disseminated outputs (format from green book) – same as given in the PCSS and should include all published, unpublished and data sets. If any of the reports included in this annex has not been submitted to the programme previously, please include a copy (preferably an electronic copy or if not available a hard copy)

Publications:

NATIONAL COUNCIL OF UGANDA SMALL SCALE BUSINESS ORGANIZATIONS (2001) *Enterprise Culture Development Series: Training Manual.* Presented during entrepreneurial training workshops in Abongomola, Loro, Nsambya and Kibiga sub-counties, Apac and Kiboga districts, Uganda. 1-2 April 2004 and 6-7 May 2004. National Council of Uganda Small Scale Business Organizations (NCUSBO), Kampala, Uganda. [English]

Kyepa, A., K. (2003) *Omitted Lesson: The High Achiever's Pathway*. SEF Press, Uganda. pp 38. Presented during entrepreneurial training workshops in Abongomola, Loro, Nsambya and Kibiga sub-counties, Apac and Kiboga districts, Uganda. 1-2 April 2004 and 6-7 May 2004. [English]

Kalunda, P. (2004) Farmer group organization and management. Paper presented during training workshops in Abongomola and Apac districts. National Post Harvest Programme, Kawanda Agricultural Research Institute, Kampala, Uganda. [English]

Agona, A. and Kalunda, P., (2004) Partnership for innovation: A reflection on Maize marketing project R8274/ZB0343. Paper presented during the Reflection and Lesson Learning Workshop on Partnerships for Innovation. Hotel Africana 17-18 February 2004. CPHP-RO Kampala Uganda.

VISION CORRESPONDENT (2004) Farming Briefs: Kiboga gets Farm Inputs. http://www.newvision.co.ug. *The New Vision,* 9 June [Website] [English]

COMMUNITY SUPPORT BOOK (2004) Farmer group storage and maize marketing activities in Apac and Kiboga districts. [Video and Magazine] [In preparation]

Kalunda P., Agona A. and Okot-Chono T. (2004) An assessment of maize production and marketing in Apac and Kiboga districts: implications for farmer group storage and marketing. A research report to be submitted for publication. In Uganda Journal of Agricultural Sciences. [English]

Okot-Chono T. (2005) An assessment of profitability of maize grain in Kiboga District through the farmer group storage approach. MSc Thesis. Makerere University, Kampala

EcoForum (2004). Empowering resource poor farmers. *EcoForum* Volume 26 Number 4, 2004.

Internal Reports:

Quarterly reports (Apr-Sept 2003, Oct-Dec 2003, Apr-Jun 2004, Jul-Sept 2004)

Annual reports. (2002-2003, 2003-2004)

Project inception report R8274. June 2003

Kalibbala R (2003) Report on post harvest activities in Kiboga district (July – September 2003) Kawanda Agricultural Research Institute, Kampala, Uganda pp 3

Najjero R (2003) Quarter three report(October –December 2003). Kawanda Agricultural Research Institute, Kampala, Uganda pp 13

KIBOGA DISTRICT AGRICULTURAL OFFICE (2003) Report on post harvest activities in Kiboga district- DFID maize marketing in Kibiga and Nsambya sub-counties. Kawanda Agricultural Research Institute, Kampala, Uganda pp 4

KARI (2004) Back to office report on Meeting with Kibiga farmer groups on maize storage and marketing. Kawanda Agricultural Research Institute, Kampala, Uganda pp 2

KARI (2004) Meeting report to discuss ways to improve partner roles and functions in the coalition project July 13, 2004.

NATIONAL COUNCIL OF UGANDA SMALL SCALE BUSINESS ORGANIZATIONS (2004) Report on workshop results and recommendations on entrepreneurial training and maize marketing held in Apac and Kiboga districts. Kawanda Agricultural Research Institute, Kampala, Uganda

Kibiga Development Farmers Association (2004) Minutes of the executive meeting held on 15th Nov 2004. Kawanda Agricultural Research Institute, Kampala, Uganda

Other Dissemination of Results:

Kalunda P., Mutyaba C., Nabawanuka J. and Muyinza H (2003, 2004) On farm participatory training in Kiboga and Apac districts on maize post harvest handling and storage, store management, collective marketing and farmer group organization [direct dissemination]

NIIWO, S., KYEPA, A., KAGUGUBE, A., KALUNDA, P. (2004) Entrepreneurship training and Improvement of Maize Marketing. Abongomola, Loro, Nsambya and Kibiga sub-counties, Apac and Kiboga districts, Uganda, 1-2 April 2004 and 6-7 May 2004. [Two-Day Training Workshops for 306 farmers] [Luganda and Luo]

NSUBUGA, M. (2004) Improvement of maize marketing through entrepreneurship and use of appropriate post harvest technologies in Kiboga district. Central Broadcasting Station. 9 June 2004. Uganda. [Radio News] [Central Uganda] [Luganda]

Listing and reference to key data sets generated:

2 datasets on survey of farmer maize marketing in Kiboga and Apac districts of 203 farmers (2003)

Photographic collection of farmers involved in maize post harvest activities (2003-2004)