

PROJECT PROFILE

<u>Sector:</u>	Agriculture
<u>Sub-sector:</u>	Crops
<u>Code:</u>	AG 75 (B)
<u>Title:</u>	Farm Power and Small Irrigation Systems Research
<u>Implementing Agency:</u>	NARO
<u>Location:</u>	Various
<u>Total Plan Exp:</u>	US\$0.5497m
<u>Funds Secured:</u>	US\$0.5497m
<u>Funding Gap:</u>	Nil
<u>Start Date:</u>	2001
<u>Completion Date:</u>	2005

Background

In Uganda, about 30% of the 17 million hectares classified as arable land are currently being cultivated by some 2.5 million smallholder households. These households predominantly depend on their own labour, and use rudimentary, labour intensive, manually operated tillage tools and implements mainly the hand hoe, axe and machete. These account for about 93% of the current mechanization inputs in Uganda's agriculture. Besides being labour intensive, the traditional tillage methods also often result in poor conservation of both soil and water as they encourage continuous soil disturbance hence leaving the soils bare and exposed to erosion during most parts of the year. Such practices result into extremely low land utilization and productivity. Improvements in mechanization technologies, including the use of conservation tillage practices, would greatly relieve the high drudgery involved in farming, ensure timeliness and quality in farm operations, expand areas under cultivation, maintain soil texture, fertility and water levels and subsequently increase farm production and productivity in a sustainable manner.

The country's production is heavily dependent on rain-fed agriculture with only 55,000 ha (1.2%) currently being irrigated out of the 4,600,000 ha of farmed land. In this respect, FAO estimates are that up to 50% of the potential crop yields in Uganda are lost annually as a result of moisture stress. Yet strategic deployment of supplementary irrigation (other factors remaining constant) would increase over-all crop productivity and yields by 50-75% while making it possible to crop the land 2-3 times annually. For such crops as coffee and bananas, FAO estimates a yield increase of up to 100% if irrigated. A severe water shortage for livestock and for humans is also experienced in most districts during several months of the year. In districts such as Mbarara, Sembabule and Moroto, up to 30% of the livestock populations may die annually mainly due to water and feed shortage. Similarly, in most parts of the country, household members, mainly women have to walk long distances (at times up to 15km daily) in search of water for domestic use.

Objectives

To develop and disseminate technologies that reduce drudgery, increase productivity and improve human welfare.

Expected Outputs

- Strategic and basic knowledge for generation of new technologies as well as pertinent policy oriented research for development and sustainable management of appropriate farm power and irrigation systems
- Important technology options that respond to the problems and opportunities of a given priority KES at district level as brought out by stakeholders and end users
- Functional structures and mechanisms for adapting, promoting and disseminating client accepted technology options

Performance Indicators

- Farmer accepted farm power sources and harnessing methods developed and promoted
- Farmer accepted tools implements and equipment developed and promoted

Technical Description

Ongoing efforts include the development of an animal drawn inter-row weeder and a groundnuts harvester as well as a motorized single-axle (walking) tractor with attachments for land preparation, planting, weeding, spraying and harvesting of various crops. These efforts will be intensified during the years 2002-2005.

The institute will also initiate work on animal-drawn planters for a variety of crops as well as develop a number of manually operated, animal drawn and simple motorised tools and implements for conservation farming and manure/fertiliser application to be in line with world trends in this area. The overall aim is to effectively transform farming from total dependence on the primitive hand hoe to widely using the more productive and drudgery-relieving animal drawn and simple motorised farming technologies by the year 2005.

Plans are underway to intensify efforts in providing water for sustainable production to farmers through supplementary irrigation and appropriate water harnessing equipment for domestic use. This will include development of wind power and simple motorised water-harnessing systems.

Feasibility Study

Through a highly participatory process involving grass-root communities and a wide range of stakeholders, NARO arrived at the priorities for research on farm power and small irrigation. Lack of appropriate farm power and tools for land preparation, planting, weeding and processing and total absence of efficient water harnessing and utilisation technologies for the household, crops and livestock were considered as major bottlenecks to improved farm productivity. NARO will therefore focus its research attention on these areas. Components of research in this area supported by external donors have been presented to and agreed upon by the donors and NARO.

Financing

The project is financed by ARTIP II - IDA. In FY 2002/03 IDA will contribute US\$ 0.3313m.

Plan of Operation

The project is implemented by the National Agricultural Research Organisation, (NARO). Major activities include:

- (iv) Needs assessment for improved technologies for each zone
- (v) Systems oriented adaptive research involving participatory client oriented on farm trials of new technologies
- (vi) Outreach, technology and information dissemination, training and service to the public.