UGANDA CONTRIBUTION

"Technologies to address challenges in the Agriculture Sector"

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Technologies to address challenges in the Agriculture Sector.

The Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) has formulated the Agriculture Sector Development Strategy and Investment Plan 2010/11 – 2014/15 (DSIP) whose theme is “Agriculture for food and income security”.

This strategy and investment plan has 4 programme pillars namely:

1. Enhancing Production and Productivity
2. Market Access and Value Addition
3. Improving the Enabling Environment
4. Institutional Strengthening in the Sector.

Agriculture in Uganda is characterized by low production and productivity across all sub-sectors of crops, livestock, and fisheries. The major constraints hindering enhancement of production and productivity are:

(i) Agricultural Technology Development where the country’s agriculture is characterized by very low yields partly as a function of low application of modern technology.

(ii) Agricultural Technology and services delivery and adoption.

(iii) Poorly Functioning Pest, Vector and Disease Control.

(iv) Dependency on rain-fed agriculture.

(v) Farm power constraints where the hand hoe coupled with small land holding are still the predominant means for land tillage and other secondary operations in Uganda’s agriculture.

Programme 1: Enhancing Production and Productivity

In order to realize the Agriculture sector vision and objectives, factor productivity (land, labour, and capital) should be increased substantially by removing the above constraining factors while concurrently exploiting available opportunities. DSIP plans to implement the following Sub-Programmes with their respective goals as follows:

- Enhanced contribution of agricultural research to sustainable agricultural productivity, competitiveness, economic growth, food and nutrition security and poverty eradication;
- Increased farmer access to improved technologies and better advisory services delivery with proactive farmer participation in value chain development for profitable production;
- Reduced losses through improved control of pests, vectors and diseases;
- Enhanced productivity of land through sustainable use and management of soil and water resources;
- Water resources developed for agriculture on the basis of sustainable irrigation, water for livestock and aquaculture;
• Labour saving technologies developed and promoted including appropriate mechanisation and other farm management related investments;
• Accelerated production of selected strategic enterprises on the basis of specialization and agro-zoning.

Sub programme 1.1 Agricultural Research and Technology Development

Component 1.1.1: Generation of new technologies, practices and strategies.
This component will support the core research activities of National Agriculture Research Organization (NARO). Specifically, the component will aim to:

1. Strengthen demand-driven, market-oriented, and innovation-focused research priority setting processes.
2. Implement core national and zonal strategic research programmes.
3. Initiate research programmes on emerging issues of a strategic nature (including Climate Change and nutrition).

Component 1.1.2: Improved uptake of new technology and knowledge.
New technologies should not only be generated, but their adoption by farmers and other stakeholders is crucial. For this to be improved, formal programmes and financing mechanisms to facilitate more effective research-extension linkages will be developed along with other links to service providers, farmers’ organizations, processors, and marketing agents. Emphasis will be given to the multiplication of breeder and foundation seed as well as public-private partnerships in germplasm dissemination and technology commercialization. The broad activities under this investment area will include:

(i) Establishment of formal mechanisms for joint operation between NARO and National Agriculture Advisory Services (NAADS).
(ii) Establish an effective and functioning partnership for technology promotion between research and other stakeholders.
(iii) Train public and private advisory service providers on research and development issues (including Climate Change).
(iv) Establish multi-stakeholder innovation platforms for key priorities.

Sub-Programme 1.2: Advisory Services and Technology Delivery
The importance of agricultural advisory services in rural development is widely known and understood. A second phase of the NAADS programme will start in 2010 and is the basis for the substance of this Sub-Programme. Within the DSIP, the specific objective of this Sub-Programme is “Increased farmer access to relevant information, knowledge and technology through effective, efficient, sustainable and decentralized extension services coupled with increasing private sector involvement in line with government policy”. To achieve the objective,
technology related activities will be implemented under the Improved uptake of new technologies and information component. This component will contribute to strengthening interaction with key stakeholders in the agricultural innovation system, most notably the research establishment, but also small-scale producers, agro-processors, financial service providers and other private sector players. Progress will be expected through the following three activity areas:

(i) Enhancing the capacity of farmers and farmers’ groups to make choices and implement decisions that affect their livelihoods.
(ii) Improving access to new technologies and information
   This is the core substance of the component and will involve:
   - Setting up District Adaptive Research Support Teams (DARST) in each district to improve research-extension links.
   - Categorizing farmers to ensure that as many as possible benefit from the processes aimed at enhancing their use of new technologies and information.
   - Enhancing awareness of available technologies through demonstrations to be conducted among selected farmers in the different farmer categories;
   - Increasing the availability of new technologies by multiplying supplies of planting material, seeds and breeds, and supporting individuals, organizations and private sector entities to do the same;
   - Improving technology access by providing limited financing for inputs in an expanded demonstration mode. Farmer categories that show willingness to respond to market demands but are resource-constrained will be linked to credit institutions;
   - Enhancing access to information through the internet; and
   - Improving the quality assurance of technologies through liaison with MAAIF, NARO as well as other regulatory agencies.

(iii) Delivering appropriate advisory services and information.

Sub-Programme 1.3: Water for Agricultural Production

A major issue for agricultural development in Uganda is the continued total dependence on rainfall, not least because it appears to have become unreliable since the 1970s and this may increasingly be the case, with climate change. Although, most parts of Uganda have received below average rainfall in the past three years, the country is still blessed with abundant water resources relative to most countries in Africa. At least 3 percent of the land area of the country is covered with open water and most of the country receives an average of 1,000mm of rain annually.

DSIP proposed interventions to respond to dependence on rain-fed agriculture are broadly in two categories namely;
At the household level, where farmers will be trained on water harvesting and small irrigation technologies such as foot operated systems.

Development of large scale irrigation which could be linked to specific commodities/enterprises.

Within the DISP, the specific objective of this Sub-Programme is “Water resources developed for agricultural production on the basis of sustainable irrigation, water for livestock and aquaculture.” Because of the high investment cost involved in the development of infrastructure for Water for Agriculture production (WfAP), Government of Uganda will take an active role in promoting new investments. To achieve the objective, government will come up with the Water for Agriculture Production Policy framework. Main components for implementation are;

Component 1.3.1: Water for crop production
Irrigation potential is clearly not utilized and reported yields on the schemes that do exist in the country are far below what they should be. This is a consequence of factors like; low value crops, poor road infrastructures, unsuitable farming methods, inadequate farmer skills, inappropriate technology, and the absence of viable financial services. Optimizing the use of rainwater for increased crop production; maximizing the utilization of existing irrigation schemes, as well as developing new irrigation schemes in a sustainable manner will be prioritized.

Component 1.3.2: Water for Livestock
The major opportunity here lies in building infrastructure and facilities which will extend water availability for a few months and so significantly improve the economic viability of certain models of livestock keeping, especially in the cattle corridor and pastoral areas where livestock frequently have to cover long distances in search of water with all the associated health and productivity risks. Government intends to; construct 25 new valley tanks equivalent to 2.2 million m3, as well as establish 1000 water user associations and train them on optimal and sustainable use of existing and new watering facilities.

Component 1.3.3: Water for Aquaculture
There has been an increasing demand for fish due to rising export demand as well as increasing local population. This has led to over fishing within the natural lakes, a shortage of fish and an approaching collapse of the capture fish industry. Its indeed imperative to develop aquaculture. There is good potential for this with numerous permanent water sources in the country, soils with high water retention capacities and suitable temperatures all the year round in low altitude areas. Uganda currently produces up to 15,000 tonnes of fish from aquaculture. Currently there is lower than anticipated yields due to poor practices especially in regards to fish feeding, stocking and water use management.
Within the DSIP, the Ministry’s National Aquaculture Development Strategy, provides indicative targets in the sub-sector. To increase aquaculture from 10,000ha to 45,000ha by 2015; and to establish functional management systems at some 80 percent of the existing aquaculture water facilities.

**Sub-Programme 1.4: Labour Saving Technologies and Mechanization**

The lack of farm power at the household level has a substantial negative impact on agricultural production and household food security. Many households respond to their shortage of farm power by scaling down their activities, reducing the area under cultivation and growing a limited range of crops. There is no doubt that the productivity of the labour-force is compromised by a lack of physical energy and poor quality tools.

Within the DSIP, the specific objective of this Sub-Programme is “*Increased use of labour saving technologies including appropriate mechanisation and other farm management related investments.*” A principle that will be followed is that mechanization is only an input like any other, such as fertilizer or seed or crop protection chemicals. As such the type and degree of mechanization should be decided by the producer to best suit his/her business and his/her own particular circumstances, and the choice of suitable methods will therefore be just one of a number of choices that the farmer has to make. The decision on whether, and how, to mechanize is often made for a complicated mix of reasons but economic decisions should be paramount. To achieve the objective, activities will be implemented under eight components.
(i) Developing the incentive framework for the acquisition of labour saving technologies.

(ii) Developing and promoting appropriate technologies including animal traction and mechanization

(iii) Developing public/private partnerships to operate tractor dealerships based on a leasing scheme in which Government provides bank guarantees.

(iv) Establish modalities for financing private enterprises to purchase tractors and associated equipment and machinery.

(v) Establish and equip mobile maintenance regional workshops.

(vi) Provide technical information for the effective utilization of tractors in the field so as to optimize small farmer enterprise productivity and profitability.

(vii) Establish an agricultural mechanization unit in MAAIF to provide technical back-up and operational guidance.

(viii) Promote mechanization for increased rice production to meet local and regional demands. A major constraint to expanding the industry is the high labour requirement of both production and processing and it is judged that higher levels of mechanisation will alleviate the situation and improve the quality of the final product.