



THE REPUBLIC OF UGANDA

# Key constraints to agriculture research in Uganda: The case of NARO institutions

## Overview

The agricultural research system in Uganda has advanced since 1992 from sub-sector based research institutes, into a combined National Agricultural Research Organization (NARO), consolidating research in crop, livestock, fisheries and forestry. It is mandated to coordinate, oversee and guide agriculture research with a mission of generating and disseminating appropriate, safe and cost effective technologies in Uganda.

Whereas the need for agricultural research development is extensive and the BMAU agriculture sector reports have been reporting good performance, research in the sector and its intended outcomes are still non-significant, due to a number of constraints.

The policy brief explores the key constraining factors associated with agricultural research.

## Key Issues

- Non-conclusive research results due to alteration of planned and ongoing activities by the NARO secretariat.
- High costs of laboratory analysis due to absence and delayed completion of laboratory facilities on different field stations as a result of slow procurement.
- The weak research-extension-farmer linkage has made it hard for the NARO institutions to assess the level of adoptability of research technologies.
- Ineffective implementation and supervision of on and off station research activities due to inadequate staffing and transport means.
- Insufficient and at times delayed funds that slow down implementation of planned and seasonal activities.

## Introduction

The NARO is a public institution established by an act of Parliament, enacted on 21<sup>st</sup> November 2005.

Agriculture research has a direct benefit to both commercial and subsistence farmers/small holder farmers, as it improves production and productivity of crop farming and livestock sub-sector.

Since 2005, the Government of Uganda (GoU) and donors have been allocating between Ug shs 52.5 billion to Ug shs 157.5 billion annually to NARO institutions to generate agricultural

technologies for priority commodities, and promote research extension interface.

Focusing on three key parameters (i) Production technology generation, (ii) Research extension farmers interface through releasing new varieties for submission, and (iii) Strengthening institutional capacity through research studies under competitive grants scheme; variances between plans and actual implementation were often noted during monitoring. This has affected the performance of agricultural research in NARO institutions (table 1).

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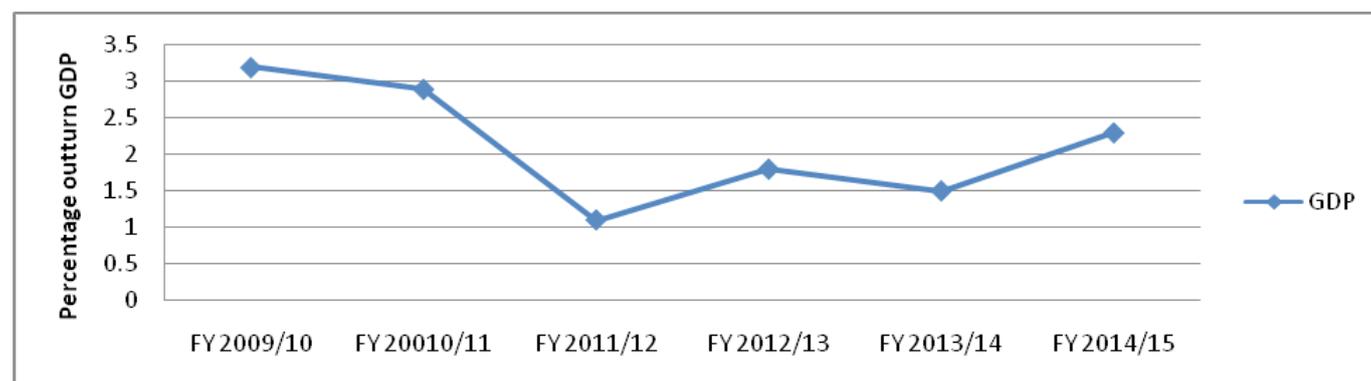
**Table1: Physical performance of the three key parameters under NARO from FY2008/09 to FY 2014/15**

Financial Years	Production technologies generated			New varieties submitted for release			Research studies under competitive grant scheme		
	Planned	Actual	Variance	Planned	Actual	Variance	Planned	Actual	Variance
2008/09	14	14	0	25	24	1	54	48	(6)
2009/10	70	70	0	20	15	5	65	61	(4)
2010/11	75	75	0	25	29	4	66	13	(53)
2011/12	80	90	10	23	28	5	72	0	(72)
2012/13	80	90	10	33	28	5	60	13	(47)
2013/14	80	70	(10)	25	29	4	40	2	(38)
2014/15	90	49	(41)	30	10	(20)	65	41	(24)

Source: Ministry of Finance, Planning and Economic Development-Annual budget performance reports

As shown in table 1; Between FY2008/09 and FY2010/11, the performance of NARO was excellent in generation of technologies. The targets in FY2011/12 and FY2012/13 were surpassed. However from FY2013/14 to FY2014/15 the targets were not being achieved. The NARO institutions superseded their planned targets on submission of new varieties for release, mainly due to supplementary funding. In FY2008/09, FY2009/10 and 2014/15; the targets were not achieved. In regard to research studies under competitive grant scheme, for the past seven years, no target was achieved. This is due to a number of constraints, highlighted in this policy brief, hence partly contributing to the reduction in the growth rate of the agricultural sector Growth Domestic Products (GDP), see figure 1.

**Figure 1: Percentage outturn for Agriculture Sector GDP from FY2009/10 to FY2014/15**



Source: Background to the budget FY2015/16

## Key constraints

**Non-conclusive research results due to alteration of work-plans** by the NARO secretariat, World Bank and other external influences. For instance, the Bulindi Zonal Agriculture Research and Development Institute (BUZARDi) planned to evaluate the yield data on maize, beans, rice and groundnut varieties

grown at different plant spacing in different sub-ecologies of Lake Albert Crescent Zone. By end of quarter two FY2015/16, with exception of maize, all activities on other commodities were discontinued by NARO secretariat without consulting BUZARDi.

Similarly, there was no progress recorded on the weight gain and feed conversion of fish larvae,

at Mbarara Zonal Agriculture Research Institute (MBAZARDI) due to halting of projects that were affected by the ongoing construction of a national road passing through MBAZARDI.

**High costs of laboratory analysis;** due to absence and delayed completion of laboratory facilities for water, feed and soil sample analysis on different field stations. By half year FY2015/16, none of the NARO institutions laboratory facilities has been completed and in use. For instance, the Kabale Zonal Agriculture Research Institute (KAZARDI) planned to determine the potato yield response to inorganic and organic fertilizers in Kabale and Kanungu districts. The soil samples were collected and the analysis was not yet done due to high costs involved.

Similarly at Ngetta (NGETTAZARDI), samples were collected for laboratory analysis under the development of feeding strategies for cattle, goats and poultry to ensure nutrition of communities in the Northern Agro-Ecological Zone to establish nutrient profiles of the shrub feed resources. By half year FY2015/16, output was 50% achieved as funds were not sufficient to conclude the laboratory analysis.

**Weak research-extension-farmer linkage that limited assessments of the level of adoptability of research technologies** - Closure of the NAADS program in Lower Local Governments (LLGs) led to absence of extension workers that used to work with NARO institutions. This impacted negatively on the agricultural productivity as new agronomic practices and research technologies are not effectively transferred to farmers who are the ultimate beneficiaries. For instance at National Crop Resource Research Institute (NACCRI), by half year FY2015/16, the low adoption of improved technologies by farmers was due to absence of NAADS extension workers and low funding for dissemination of proven technologies.

**Ineffective implementation and supervision of on and off station research activities** due to inadequate transport. For instance, by 31<sup>st</sup> December 2015, the off station research activities at BUZARDI (activities under fisheries on Lake Albert) were not supervised and monitored to assess the project performance

due to lack of transport.

**Inadequate technical staff** leading to non-implementation of some research projects. For instance, at KAZARDI, the development and promotion of quality apple varieties for enhanced productivity project was not fully implemented as planned due to inadequate staff. The KAZARDI had 36 (72%) staff in posts against an established 50 posts by 31<sup>st</sup> December 2015. Similarly, a number of planned activities under horticulture with a range of crops were not established due to a staffing gap of six in this sub-sector. Since September 2015, the NACCRI has had only four staff in the three disciplines under horticulture.

**Delayed initiation of some procurement** - Planned development of Integrated Pest Management (IPM) approaches for management of fruit fly, leaf and fruit diseases had not been undertaken by 31<sup>st</sup> December 2015 due to delayed procurement of pathological and entomological items at NACCRI.

Similarly, at MBAZARDI under Sustainable Land Management project, demonstrations, scaling up of contour and grass bunds, agroforestry setup and bush clearing for pasture improvement were not implemented in the first two quarters of the FY2015/16 due to lengthy procurement of bulldozers.

**Insufficient, delayed and non-release of funds** - Quarter two funds for FY2015/16 were disbursed on 15<sup>th</sup> December 2015 to all NARO institutions. This was a dry season when crop experiments could not be established.

The KAZARDI did not plant the sourced four pasture legume species for obtaining the preliminary data on biomass and growth rate due to late release of funds. Similarly at MBAZARDI, there were no planned activities implemented in the first two quarters of FY2015/16 under Livestock and Aquaculture Research, and Crops Research and Development projects due to non-release and late disbursement of Agriculture Technology and Agribusiness Advisory Services (ATAAS) funds to this institution.

In addition, the trials for the response on selected rice varieties under different fertilizer types and rates were not established on-station, due to unavailability of ATAAS funds in quarter one FY 2015/16 as planned. All seasonal activities were postponed to other quarters in all the ZARDIs.

By half year FY2015/16, the KAZARDI had planned to construct a 300M<sup>2</sup> goat housing unit to accommodate 200 experimental goats, instead a 50m<sup>2</sup> housing unit for the feeding trial was renovated due to the inadequate funds.

## Policy Recommendations

- i) The NARO secretariat should always follow agreed workplans for the ZARDIs to complete their planned activities and the ZARDIs should always be consulted in case of any changes.
- ii) The NARO secretariat and Ministry of Finance, Planning and Economic Development (MFPED) should restructure the ATAAS funding to focus more on infrastructure development and provision of critical laboratory equipment in light of the limited funds.
- iii) The Ministry of Agriculture, Animal Industry and Fisheries, NARO secretariat and Ministry of Local Government should improve the interface between LG production departments and NARO institutions both at planning and implementation levels, to ensure adoptability of research technologies by the farmers.
- iv) The NARO and Ministry of Public Service should recruit and train staff in multiplication and dissemination of new research technologies.
- v) The NARO institutions should prepare procurement work-plans in time, while accounting officers with implementation delays due to late procurement should be sanctioned.
- vi) The MFPED and MAAIF should increase funds allocated to agriculture research and ensure timely disbursement.

## Conclusion

The NARO institutions are faced with many constraints limiting progress in development of new improved technology varieties in Uganda. There is evidence from Background to the Budget for FY2014/15, that there is a decreasing contribution of the agricultural sector to GDP in Uganda, partly due to the identified constraints in NARO research institutions.

## References:

1. MFPED, 2015: Background to the Budget for FY2015/16
2. MFPED, Approved Estimates of Revenue and Expenditure (recurrent & development) from FY2009/10 to FY2015/16
3. MFPED, Annual Budget Performance Reports from FY2009/10 to FY2014/15
4. MFPED, Semi-Annual BMAU report for FY 2015/16

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