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Capacity Strengthening for Agricultural Policy Analysis and Research in Nigeria – A Roadmap Towards a Strategy

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IFPRI

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THE NIGERIA STRATEGY SUPPORT PROGRAM (NSSP) REPORTS

ABOUT NSSP

The Nigeria Strategy Support Program (NSSP) of the International Food Policy Research Institute (IFPRI) aims to strengthen evidence-based policymaking in Nigeria in the areas of rural and agricultural development. In collaboration with the Federal Ministry of Agriculture and Water Resources, NSSP supports the implementation of Nigeria's national development plans by strengthening agricultural-sector policies and strategies through:

- Enhanced knowledge, information, data, and tools for the analysis, design, and implementation of pro-poor, gender-sensitive, and environmentally sustainable agricultural and rural development polices and strategies in Nigeria;
- Strengthened capacity for government agencies, research institutions, and other stakeholders to carry out and use applied research that directly informs agricultural and rural polices and strategies; and
- Improved communication linkages and consultations between policymakers, policy analysts, and policy beneficiaries on agricultural and rural development policy issues.

ABOUT THESE REPORTS

The Nigeria Strategy Support Program (NSSP) reports contain preliminary results of ongoing research. They are circulated in order to stimulate discussion and critical comment.

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Acronyms and Abbreviations

APSF	Agricultural Policy Support Facility
DFID	Department for International Development
FAO	Food and Agriculture Organization of the United Nations
FMAWR	Federal Ministry of Agriculture and Water Resources
FMEnv	Federal Ministry of Environment
FMWASD	Federal Ministry of Women's Affairs and Social Development
FPMU	Federal Project Management Unit
ICT	Information and Communication Technologies
IITA	International Institute of Tropical Agriculture
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
ILRI	International Livestock Research Institute
KWADP	Kwara State Agricultural Development Programme
LGAs	Local Government Agencies
M&E	Monitoring and Evaluation
MDGs	Millennium Development Goals
NAIMS	National Agricultural Information Management System
NASCCO	National Agro-Statistics Coordinating Committee
NEEDS	National Economic Empowerment and Development Strategy
NEPAD	New Partnership for African Development
NGOs	Nongovernmental Organizations
NISER	Nigerian Institute for Social and Economic Research
NUC	National Universities Commission
OECD	Organization for Economic Co-operation and Development
PPAS	Planning, Policy Analysis, and Statistical Unit
SASCCO	State Agro-Statistics Coordinating Committee
SEEDS	State Economic Empowerment and Development Strategy
SPS	Sanitary and Phytosanitary Standards
TBT	Technical Barriers to Trade
TCADM	Technical Committee on Agricultural Data Management
WARDA	West African Rice Research Association

Executive Summary

This paper deals with the human resource development and institutional capacity strengthening in Nigeria as they relate to policy analysis and research capacity in addressing the problems of poverty and food security. The findings of the paper show that there exist several human, physical, and institutional capacity gaps for designing and implementing agricultural policies in Nigeria. The main gaps are a limited understanding of the relationships between institutional, human, and physical resources and the impact of policy on end-users at every level in the process of designing, implementing, and monitoring policies; limited linkages between universities, research institutions, and policymakers; and the lack of coordinated activities among the various organizations involved in knowledge management.

This paper provides suggestions for effectively addressing the main gaps.. First, strengthening agriculture and rural development policymaking institutions through education, knowledge, and communications remains important for improving the quality and timeliness of policy-relevant research. Second, it is important to develop staff capacities with respect to policy research, analysis, implementation, and monitoring. Finally, a minimum set of indicators needs to be monitored regularly by concerned Nigerian ministries for an effective capacity strengthening strategy in order to achieve the short-term, medium-term and long-term targets for an evidence-based, pro-poor, gender sensitive, and environmentally sustainable agriculture.

Introduction

Enhanced food production and food access remains critical to food security in Nigeria, while sufficient human and institutional capacity is important to support improved production and access. Strengthening individual and organizational capacity for agricultural development in a developing country, such as Nigeria, must encompass a wide range of personnel at the governmental, institutional, and farmers' levels. In Nigeria, smallholder farmers who are directly engaged in food production constitute the bulk of the country's population. Thus broad human resource development remains the key to facilitate strengthening capacity for rural development. Adequate policy analysis and research capacity similarly remains a critical factor for the development of effective strategies, policies, and programs, as well as for "getting agriculture moving" in Nigeria. Box 1 provides a brief description of the status of capacity building in agriculture policymaking in the Nigerian.

Strengthening capacity for policy analysis and research is important for many reasons. Nigeria currently runs the risk of not achieving the Millennium Development Goal of reducing extreme hunger and poverty by half. This risk will remain unchanged if individual and organizational capacity for policy analysis is not strengthened along with an improved value chain

Box 1: Capacity Building in Nigerian Context
Over the last decade, the role of capacity building in development programs in general and agricultural development in particular, has received increasing attention among development practitioners. Given the rural nature of many developing countries, including Nigeria, there is a growing need to increase human and institutional capacity to promote agricultural development. A recent case study by Adebayo et al. (2009) assessing the institutional capacity for designing and implementing agricultural and rural development policies in Nigeria found an indifferent perception of the general environment and processes involved in agricultural policymaking. This is perhaps a reflection of a cloudy policy process and environment, where many actors are not sure of what happens in other sectors, and therefore, unable to relate to the broader picture of achieving better development outcomes. Similarly, the institutional development ratings were all moderate or modest, suggesting that development is constrained by weak institutions and low government capacity. The lessons from Nigeria demonstrate that sustainable human and institutional capacity cannot be achieved in the presence of inadequate incentive systems within the government apparatus. Thus, despite increased attention to capacity, capacity-strengthening interventions in the agricultural sector are still limited in Nigeria.

To assist in strengthening policy analysis capacity, IFPRI in collaboration with the Federal Ministry of Agriculture and Water Resources (FMAWR) are implementing the Agricultural Policy Support Facility (APSF)[1]. Two activities of APSF are, first, to identify existing capacity and capacity gaps and develop a common diagnosis for intellectual and physical capacity needs and, second, to develop a capacity strengthening strategy for the design and implementation of evidence-based, pro-poor, gender-sensitive, and environmentally sustainable agriculture and rural development policies in Nigeria across the six APSF research themes:

- Vulnerability analysis for food security
- Economic growth
- Agricultural financing and expenditure

[1] The Agricultural Policy Support Facility is financially supported by the Canadian International Development Agency (CIDA)

- Development of commodity value chains
- Improving agricultural productivity
- Decentralization

In developing a strategy for strengthening capacity across these themes, the cross-cutting themes of gender and environment are considered.

This report focuses on human resource development and institutional capacity strengthening in Nigeria as they relate to policy analysis and research capacity specific to the reduction of poverty and food insecurity in the context of agriculture. It is a report on the intellectual and physical capacity needs, strengths, and gaps, and it includes a roadmap of a strategy for strengthening evidence-based, pro-poor, gender sensitive, and environmentally sustainable agriculture and rural development policy design and implementation in Nigeria.

The following section, presents the context of the Nigerian agricultural sector and the capacity needs for policy analysis and research. A conceptual framework is then shared that links country capacity and policy environment and helps guide the process of strengthening policy analysis and research capacity. This conceptual framework is based on national consultation with selected stakeholders involved in agriculture and rural development issues along with personal interviews with decisionmakers in FMAWR, research institutions, and universities. The methods of consultation workshops, personal interviews, SWOT (Strength, Weakness, Opportunity, and Threat) analysis, and structured interviews for gathering information on human capacity and institutional issues are then described. The results are then shared, and from these results, hypotheses tests of the impact of capacity building are undertaken. Strategy recommendations based on the above analysis are provided on the core elements of human and institutional capacity in agricultural policy analysis and program implementation.

The Context of the Nigerian Agricultural Sector and Capacity Needs for Policy Analysis and Research

Agriculture remains the most important sector, after oil, in terms of its contribution to GDP in Nigeria, with an average contribution of 41 percent between 2003 and 2007. Although the sector grew at an annual rate of 6.8 percent during the period of 2002–06 from an annual average growth of 4 percent during the period 1997–2001, Nigeria cannot boast of feeding itself due to the subsistence nature of agriculture (Nwafor 2008).

There are two main production systems that dominate the six agro-ecological zones. First, the traditional production system consists of land holdings that are less than two hectares (ha) and produces a variety of food crops intended for domestic/local consumption purposes only. Second, there is the improved irrigation system that consists of small-scale irrigation-for crop and livestock production as well as large-scale commercial irrigation farming systems (AFDB 2005).

The non-agricultural sector also plays a significant role in rural livelihoods. Relatively recent estimates suggest that it contributes to almost half, approximately 49 percent, of rural households' total incomes (Omonana 2008). Food deficient households are also involved in small-scale enterprises such as production of farm implements, agro-processing, trading, transportation, and handicrafts, which most of these enterprises require specialized skills and generate little capital.

This review of the context of the Nigeria agricultural sector will specifically focus on poverty and food security status, gender in agriculture, and environmental sustainability.

Poverty and Food Security Status

Nigeria ranks number 158 in the 2007 Human Development Index (UNDP 2007). Nigeria's basic indicators place the country among the 54 poorest countries in the world (UNDP 2007). The poverty experienced by Nigerians is chronic and multifaceted and affects a significant portion of the population. While estimates suggest that the incidence of poverty declined from 65.6 percent to 54.4 percent between 1996 and 2004, the number of poor people increased significantly from 67 million to 70 million (Omonana 2008). This is in part due to a neglect of the agricultural sector, a lack of access to opportunities and infrastructure, the subsistence nature of farming, and past economic mismanagement under a series of military governments (Omonana 2008).

Poverty in Nigeria is essentially a rural phenomenon and the vast majority of the Nigeria's rural populations derive their livelihood from agriculture (Omonana 2008). Past poverty reduction programs, such as the Family Economic Advancement Program (FEAP), only had a marginal impact on poverty because of poor program design and a lack of adequate capacity (Omonana 2008). It is expected that the National Economic Empowerment and Development Strategy (NEEDS) framework—with its thrust on creating a conducive macro-economic environment for greater private-sector investment in agriculture, rationalizing the institutional framework for government intervention in the sector, and implementing integrated rural development strategies—can expedite agricultural and rural development in the coming decades and have a significant impact on reducing poverty.

Food Security Situation

Food insecurity is a situation that exists when all people, at all times, do not have physical and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life (FAO 1996). In Nigeria, a number of factors are responsible for food insecurity, namely high food prices, high expenditures of non-food items (including clothing, education, and health), and low agricultural productivity due in part to agro-climatic factors (such as rainfall patterns, temperature, and humidity variations), and genetic erosion in agricultural biodiversity (NISER 2008). Consequently, domestic food supplies have lagged behind domestic demand and agricultural exports have not increased sufficiently to cover the food import bills.

Food Availability: Crop Production Estimates

A preliminary crop harvest assessment was conducted by the government in early September 2008. The provisional aggregate index of agricultural production shows that growth increased by 6.4 percent during the period of 2007–08 compared with 7.1 percent during the period of 2006–07 (Akinyele 2008). Table 1 provides an estimate of production disaggregated by selected crops. The overall increase in crop production can be attributed to the combined effects of favorable rainfall, an increase in area planted, and government policies that boost production through continuous incentives to the agricultural sector (Akinyele 2008). However, despite the good harvest, overall production is unlikely to meet household demand in 2009 due to limited trading activities and undersupply of government food reserves (FEWS NET 2009).

Table 1: Crop Production Estimates 2004–08 ('000 MT)

Crops	2004	2005	2006	2007	2008	Change between 2007 and 2008 (%)	Change between 2008 and 2004–2007 average (%)
Maize	5,567	5,957	6,404	6,724	7,524	12	22
Millet	6,699	7,168	7,705	8,090	9,064	12	22
Sorghum	8,578	9,178	9,866	9,058	9,318	3	2
Rice	3,334	3,567	3,924	1,838	4,179	127	32
Total cereals	24,178	25,870	27,899	25,710	30,086	17	16
Cassava	38,845	41,565	45,721	34,410	44,581	30	11

Source: FEWS NET (2009)

Food Access: Trends in Food Prices

Despite an annual growth rate in agriculture of 6.8 percent over the period of 2002–06, poverty incidence remains very high, especially in the rural areas and high food prices may contribute to this high poverty level (Akinyele 2008). The consequences of rising food prices upon poverty in the country depends on several factors that include: (i) the extent to which world market prices are passed through to domestic prices; (ii) the share of poor people's budgets that are devoted to food; (iii) the proportion of own-consumption relative to market purchases; and (iv) the effect of food price increases on real wages of poor people. These effects, however, will differ across households. For example, while net producers will benefit from rising prices, net consumers of food will be adversely affected by rising prices. There is a persistent danger that rising food prices will push large numbers of households below the poverty line in Nigeria and lower their food access. However, over the medium term, persistent food price increases should induce supply-side responses as resources are reallocated across sectors in response to changes in relative returns. Although IFPRI's report (2008) that this response will moderate the effect of shocks coming from external food price increases , a report by NISER (2008) suggests that increases in food prices can undermine the gains made in poverty reduction and economic growth that Nigeria has achieved during the past decade.

While a majority of households are likely to be food secure over the next six months (May to November 2010) due to the combined impact of low food prices and high food availability, households living in food deficit areas of the south (Lagos, Oyo, Ogun, and Kwara states) and areas of the far north (Borno and Jigawa) are likely to face restricted food access (FEWS NET 2009). Compared to the rest of the country, these areas are likely to experience high food prices over a longer period due to the low food availability and the high cost of bringing in food from surplus areas as a result of limited infrastructural facilities.

Additionally, in the north-west areas, such as the Katsina, Yobe and Jigawa states, poor households are net purchasers of food, whose landholdings do not allow them to grow sufficient food or cash crops to fully meet household food needs. In the context of high food prices, unless access to key assets (such as land, capital, technology, and inputs) and public goods provision (including roads, social services, and other forms of transportation) are addressed, these households are likely to continue to have less physical and economic access (FEWS NET 2009).

Gender in Agriculture

The Nigerian agricultural sector is characterized by a high level of gender division in production and marketing, as well as in the use of resulting income. The sector differentiates between "women's crops", such as groundnuts and cassava, and vegetables from "men's crops", which are mostly cash crops consisting of cocoa, palm tree, coffee, and sugarcane

(AFDB 2005). Furthermore, recent analysis by Nkonye et al (2009) illustrates that women and men derive different levels of profitability from different crops. However, women in Nigeria are less able to engage in productive activities or undertake new activities as they are significantly constrained by time, cultural norms, access to credit, training and research, and extension facilities (Nkonye et. al 2009). However, given appropriate training and inputs, women farmers may become higher adopters of technology. The example of Kwara State Agricultural Development Programme (KWADP), in which approximately 50 women were trained in the processing of cassava, demonstrates that women can be just as equal (if not higher) adopters of improved technologies as men after the training is given. Therefore, agricultural development program should disseminate proven technologies such as improved farm storage, processing, and management practices and provide training to women farmers through learning programs and site visits (Ajani 2008).

Incorporating gender issues related to agriculture in policy analysis and research requires adequate institutional and organizational capacity, funding, and data. Increased knowledge is also needed regarding Nigeria's overall design and implementation of gender polices and their mainstreaming in sector policies, plans, and programs. Box 2 highlights issues related to organizational management of agriculture and rural development policy process in Nigeria and gender.

Box 2: Gender in Organizational Management of Agricultural and Rural Development Policy Processes

Real and perceived imbalances in gender differences across generations have made gender an increasingly prominent factor within organizational management of agricultural and rural development policy processes. Given this environment, recent institutional and individual surveys examined, among other things, the role of gender in Nigeria's organizational management of agricultural and rural development policy processes. The surveys demonstrate that, at all levels, there are far more men than women involved in the policymaking process. It was especially noteworthy, that the number of women at the ministerial and research levels was less than 1 percent. In addition, the respondents were asked to rate the levels at which existing policies (by taking into account the interests, needs, and priorities of women farmers, differences in access to resources, and other factors) recognize the differential needs of men and women in agriculture. The results of the survey showed that the scale was tilted towards the "low" and "very low" end in all the parameters.

The above findings suggested that there are significant constraints to increased participation of women, and therefore, a need for integrating gender issues in the agriculture policy development process. The constraints relate to many issues including: the low levels of awareness of gender differences in society; absence of an equal opportunity policy to redress the imbalances in gender; biased access to key resources including land, capital, and education; and poor access to information, networking, and market strategies.

Source: Adebayo et al. (2009)

Environmental Sustainability

Degradation of the natural resource base leads to a reduction of economic, social, and environmental benefits. The current land degradation occurring in various parts of Nigeria is due to natural hazards, poor agricultural practices, and other related socio-economic factors. Natural hazards are due to biophysical conditions, which act as contributing factors to land degradation (Nkonya et al. 2008). Land degradation, in turn, is affected by various unsustainable practices, such as deforestation and removal of natural vegetation,

overgrazing, among others. Some of the socio-economic factors that contribute to environmental degradation include land pressure, lack of market access, lack of input supplies, imperfect markets in credits, and the subsistence nature of the farming system (Agagu 2009).

Nigeria probably has one of the world's highest deforestation rates of primary forests today, having lost more than half of its primary forests in the last five years (Agagu 2009). In 2006, the United Nations Environment Programme (UNEP) estimated that annual deforestation in Nigeria reached 663,000 ha with an annual national deforestation rate of 0.76 percent. The deforestation rate in the southwest geopolitical zone is as high as 1.36 percent, which is double the national average. A major trigger for deforestation in Nigeria during the past decade has been the country's rapidly growing population, resulting in higher demands for agricultural land, livestock production, and fuel wood.

A recent study by Adebayo et al. (2009) examined whether environmental analyses were widespread in the agricultural sector in Nigeria. The findings suggest that only 27.4 percent of Nigerian experts incorporate environmental issues in their work, while only 20.4 percent undertake environment analysis as part of their work. Additionally, less than half (38.8 percent) of the study's respondents felt that the Nigerian government included environmental issues as part of its national agricultural policy.

Some of the main constraints to incorporating environmental issues in agricultural and rural development decisionmaking processes include weak leadership at the ministry and legislative levels, budgetary constraints in conducting environmental impact assessments, low levels of information communication, poor understanding by policymakers of environmental issues related to the use of pesticides, improper monitoring of program and project implementation with no proper linkages between professional staff and policymakers, inconsistent government policies, low literacy rates, and high poverty levels (Adebayo et al. 2009).

Conceptual Framework linking Country Capacity and Policy Environment

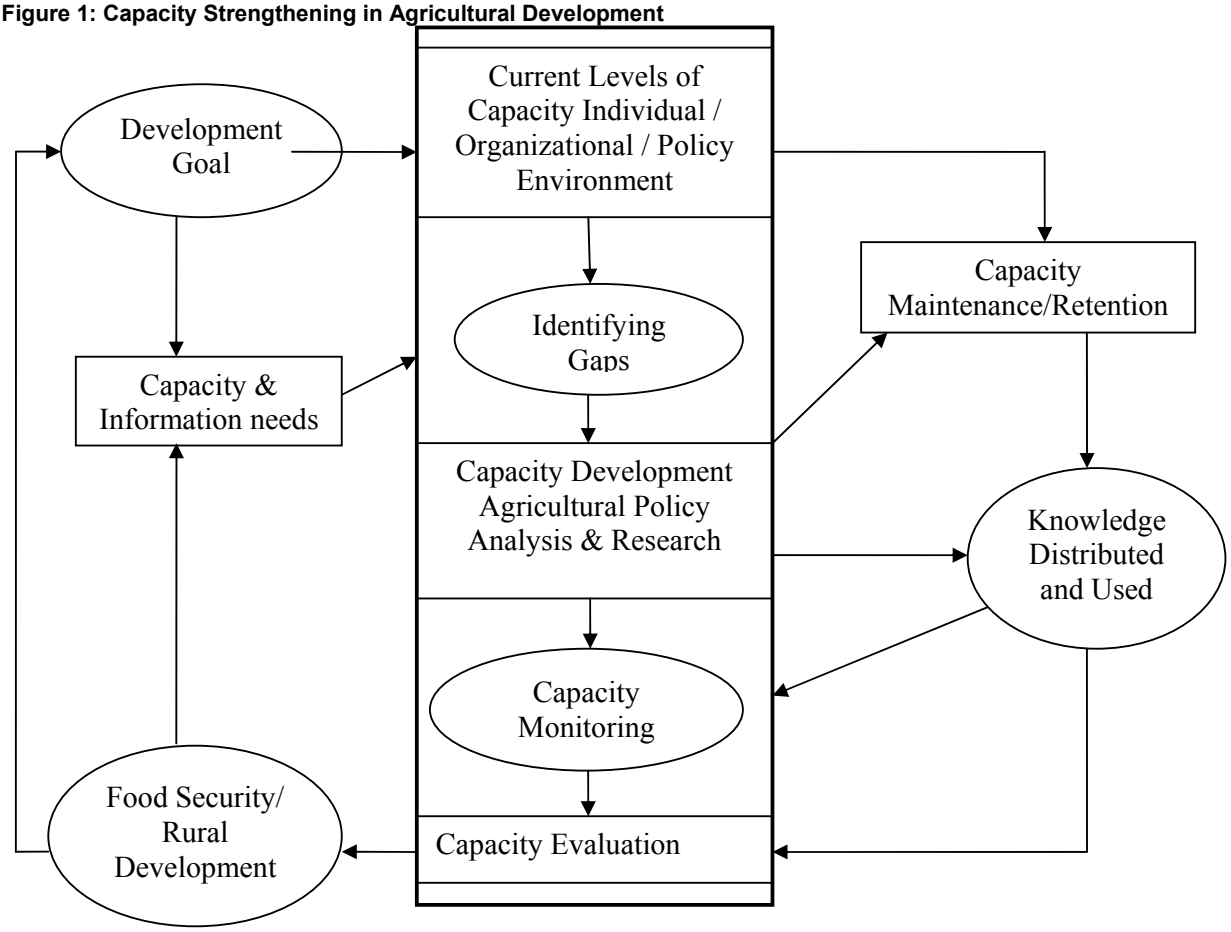
In this section, information on country capacity, strategies for achieving development goals, and constraints that often impede country growth are used to develop a conceptual framework that links country capacity and policy environments.

Research and information about food and agriculture remains vital for individuals and institutions in developing countries, such as Nigeria, to sustainably promote agricultural development (DFID 2002). Better capacity for policy information systems can improve decisionmaking at all levels. However, identifying the appropriate quality and quantity of policy relevant information is often constrained in several developing countries, including Nigeria, due to misguided rural development policies, weak institutions, underdeveloped technologies, and a lack of well trained personnel in the ministries at the federal, state, and local levels (Babu et al. 2004).

Figure 1 presents the pathways through which country capacity helps identify and develop goals, such as cutting poverty and hunger in half. As the figure illustrates, capacity strengthening in agricultural development begins by determining the goal. Once development goals are identified, there is a need to translate these goals into national level strategies and to implement them through national programs and policies. To meet this need, an assessment of current capacity levels is needed. From here, two pathways open up; one involves the maintenance of current capacity levels while the other involves the performance of gap analysis. From the identification of capacity gaps comes capacity development. Capacity development, as the figure demonstrates, necessitates knowledge

use and dissemination, as well as continuous capacity monitoring and evaluation. This process of identifying capacity needs through needs assessment studies and gap analyses is designed to better target capacity strengthening programs (Babu and Sengupta 2006).

Figure 1: Capacity Strengthening in Agricultural Development



Source: Adapted from Babu and Sengupta 2006.

Ultimately, the success of rural development strategies depends on how knowledge is diffused, shared and used at the local levels. This requires an all-inclusive mechanism that involves proper data collection, processing, analysis, and interpretation so that it is useful to the smallholder farmer who is the end-user.

Methodology

Several methods and approaches were used to assess the capacity needs for effective agricultural policy analysis and research in order to better understand the current intellectual and physical capacity needs, existing capacity, and capacity gaps. These methods and approaches helped generate information for developing strategic elements for strengthening capacity for the design and implementation of evidence-based, pro-poor, gender sensitive, and environmentally sustainable agriculture and rural development policies in Nigeria. Information regarding Nigeria's capacity levels was generated through three national stakeholder workshops, personal interviews within government departments, universities,

and research institutions, and a SWOT analysis across the six APSFprogram themes, along with the cross-cutting themes of gender and environment. Hypotheses tests were also conducted on the impact of capacity building across these six program themes using a structured questionnaire to interview the professionals of FMAWR. These four methods of data collection and information gathering are detailed below.

Stakeholder Consultation Workshops: There were three national consultative workshops held from February 2008 to May 2009. The first workshop was held on February 27, 2008 in Abuja, Nigeria and addressed, among other things, the following goals:

- To better understand the existing capacity in demanding and accessing information for developing agricultural and rural development policies and strategies.
- To identify the capacity challenges in developing and implementing agriculture and rural development strategies.
- To discuss the potential solutions for enhancing and implementing agriculture and rural development policies.

In attendance at the first workshop were 44 participants from the Federal Ministry of Agriculture and Water Resources (FMAWR), the Federal Ministry of Women's Affairs and Social Development (FMWA&SD), the National Planning Commission (NPC), farmer organizations, development partners, and academic and research institutions. A key informant questionnaire was administered on various aspects of the policy process and the institutional environment as a whole. The participants were asked to move into one of three groups to examine the current situation concerning the human capacity to meet the goals of the FMAWR, institutional incentives and accountability, performance indicators and resources, the capacity requirements to attain each goal, and the mechanisms needed to obtain the required capacity (Adebayo and Rhoe 2008a).

In order to support evidence-based policymaking, a second consultative workshop on "Sustaining Capacity for Supplying Evidence for Agricultural and Rural Development Policies and Strategies" was undertaken by IFPRI in collaboration with the University of Ibadan, University of Agriculture-Abeokuta, and the FMAWR. This workshop took place in Ibadan on April 28, 2008. The objectives of this consultative workshop were to identify the following:

- Specific capacity challenges confronting university professors who teach the next generation of policymakers, policy analysts, researchers, and university professors.
- Curriculum gaps within university programs for strengthening the nation's capacity to design and implement pro-poor, gender sensitive, and environmentally sustainable agricultural and rural development policies and strategies.
- Employment opportunities for the university graduates in agricultural economics and extension and the skills required for such positions.
- Existing capacity for undertaking agriculture and rural development policy research.
- Current methods used by researchers to communicate their results to decisionmakers and other stakeholders.

The majority of this workshop focused on two different small group discussions. The discussion during the morning session focused on current capacity for providing evidence for designing and implementing agricultural and rural development policies and strategies, while the afternoon session discussion focused on sustaining this capacity (Adebayo and Rhoe 2008b).

The Agriculture Research Council of Nigeria (ARCN) and IFPRI organized a third workshop conducted in May 2009, which looked at the organizational, management, and capacity issues related to agricultural research and innovation. Broader issues that impede capacity in higher education and research institutions were also discussed. The workshop, which raised several issues related to capacity development challenges for agricultural research (including policy analysis), provided opportunities for interaction and interviews with more than eighty faculty members and researchers from agricultural universities and colleges.

Personal Interviews: Personal interviews with key government officials in FMAWR, FMWA&SD, and the Ministry of Environment, Housing, and Urban Development (FMEH&UD) were conducted to elicit information on the current status of policy analysis capacity and suggestions for improving policy analysis and research capacity. University professors and agricultural research institution directors were interviewed to identify the specific challenges confronting those who will teach the next generation of policymakers, policy analysts, researchers, and educators. These personal interviews included discussions on the curriculum gaps within the agricultural economics and agricultural extension programs for agriculture and rural development policy development and implementation. Other issues discussed included employment opportunities for their graduates, the available knowledge for undertaking agricultural and rural development policy research, and the methods used by researchers to convey their results to those who could use it. Such interviews helped in identifying themes for short courses designed for faculty members that would enhance their university teachings. As many university professors are suppliers of policy research and analysis to FMAWR, this client consultation helped in identifying the strengths and weaknesses of their capacity in conducting policy analysis and research.

SWOT Analysis across Program Components: A SWOT analysis is an essential management tool that takes into account the environment in which an organization operates. This involves building upon the strengths and opportunities of an organization, while minimizing the threats and weaknesses to improve the competitive position of the organization.Strengthening capacity by requiring strong skill-sets among staff must be part of an organization's agenda and should be pursued in an effective manner. For example, generating a critical mass of professionals in the agricultural sciences at both the undergraduate and postgraduate levels will be necessary for undertaking agricultural policy analysis and research in the coming decades for Nigeria. This will involve developing staff skills in accounting and management, leadership courses, computer software, women's development programs, survey and methodology, general administration, agricultural production techniques, monitoring and evaluation, and report production.

Hypotheses Tests on the Impact of Capacity Strengthening across Research Themes: Hypotheses (described in Table 4) were tested regarding the impact of capacity strengthening across the six research themes with the cross-cutting themes of gender mainstreaming and environmental sustainability as developed under the APSF. The data were collected between September and November of 2009. The selection of organizations was determined based on consultation with the IFPRI Nigeria office, followed by a list of "knowledgeable"—individuals in ministries, research institutions, public sector organizations, and the private-sector.[2] Forty-five responses on organizational capacity to perform certain functions were obtained using a survey questionnaire. The scale of the variables ranged from 1 to 5, with 5 representing the greatest impact of the concept being measured and 1 representing the least. The questionnaire is presented in Annex 1.

Previous research on organizational management approach and systems theory greatly influenced the development of the survey instrument (ISNAR 2005, ECDPM 2008). In the organizational management literature, the functioning of an efficient agricultural system

2 Knowledgeables are often used in surveys in the sociology discipline (see Henslin 1999).

comes from a consensus of the various organizations trying to achieve common goals and objectives and formulating appropriate strategies to achieve them. In the systems approach, the interaction of stakeholders within and outside the system enhances the development of capacity and its utilization (Babu and Sengupta 2006).

Results from the Human Capacity and Institutional Analysis

The results of the stakeholder consultations, personal interviews with key informants, SWOT analysis, and the structured interview are given below and organized, respectively, into four subsections.

Results of the Stakeholder Consultation Workshops and Interviews

The stakeholder consultation workshops conducted over the last year provided valuable information on human, organizational, and physical capacity challenges. This is organized into two broad categories of information—human and organizational capacity and the policy environment and physical capacity gaps in the policy environment.

Human and Organizational Capacity and the Policy Environment

Human capacity at the federal and state levels and in public and private research institutions, universities, and non-government organizations was generally low in sustaining capacity for supplying evidence for agricultural and rural development policies. Several factors contributing to this situation include poor funding of research institutions, university curriculum lacking content on policy analysis, and policies not being based on evidence from research or analysis of systematically collected data. The incentives to undertake policy research is hampered by the policy working environment generally favoring federal ministries, if any institution at all, for policy feedback rather than universities and research institutions (Adebayo and Rhoe 2008b).

However, improving human capacity by itself will not be sufficient as many problems encountered in expanding tertiary education can be traced to the deficiencies in managerial, administrative, and organizational capacities within universities (Adebayo and Rhoe 2008b). In addition, the cost of accessing information and knowledge products is very high. For institutions that do not have funds to access information, the critical levels of information available are often obsolete as data collection agencies often receive too low funding to allow for adequate collection. For institutions that have access to updated information, researchers do not have the capabilities to process the information or the data is inadequate to address policy and research issues meaningfully. The above problems are exacerbated by the lack of a consistent and adequate power supply to run the computers and other equipment, poor internet facilities, and inadequacy of e-learning materials (Adebayo and Rhoe 2008b).

The communication capacity for identifying policy research needs and conveying policy research outputs also remains low due to:

- a poor enabling environment for communicating research between researchers and policymakers,
- a lack of legislators interest in communicating with stakeholders,
- the absence of top government officials during the technical sessions of policy workshops, and
- reluctance to disseminate policy research because the results do not match the funding requirements.

Physical Capacity Gaps in the Policy Environment

Semi-structured interviews with FMAWR officials and other FMAWR parastatals were conducted along with short-time on-site observations and surveys with quantified responses. Since the survey instruments had to be completed with the researcher present, there was only sufficient time for observing some of the infrastructure facilities, knowledge management tools, information sharing across agencies, and the analytical tools used.

From these interviews and observations, we observed that Nigeria's physical capacity for undertaking relevant policy research, policy analysis, policy implementation, and policy monitoring at the federal government level is impeded by the lack of infrastructural facilities, lack of internet connectivity, poor knowledge management, low levels of data and information sharing efforts made by the FMAWR, and outdated analytical tools.

As evident from Table 2, the scores on infrastructural facilities, knowledge management practices, information sharing, analytical tools, and power supply/internet connectivity with respect to policy research, analysis, implementation, and monitoring were consistently perform highest at the federal level, followed by the state level. The local governments consistently perform the worse in policy research, analysis, implementation, and monitoring with respect to each of the above outcomes. This is not surprising, given that most of the resources for policy analysis, policy research, and policy monitoring are spent at the federal level relative to the state and local levels.

Table 2: Physical Capacity Gaps Assessment during 2009

	Infrastructure facilities	Knowledge management	Information sharing / Data collection	Analytical tools	Power supply / Internet connectivity
Policy Research					
Federal	3.09 ***	3.13***	3.22 ***	3.18 ***	2.18 **
State	2.40 **	2.50**	2.35 **	2.10 **	1.70 *
Local	1.60 *	1.55 *	1.45 *	1.45 *	1.35 *
Policy Analysis					
Federal	3.27 ***	2.86 **	3.28 ***	3.14 ***	2.19 **
State	2.65**	2.25 **	2.15 **	2.10 **	1.57 *
Local	1.50*	1.60 *	1.40 *	1.57 *	1.21 *
Policy Implementation					
Federal	2.63 **	2.77 **	2.80 **	2.68 **	2.22 **
State	2.10 **	2.15 **	1.94 *	1.90 *	1.80 *
Local	1.60 *	1.45 *	1.36 *	1.40 *	1.30 *
Policy Monitoring					
Federal	3.09 ***	2.81 **	2.90 **	2.81 **	2.27 **
State	2.20 **	2.05 **	2.05 **	2.05 **	1.85 *
Local	1.30 *	1.42 *	1.57 *	1.30 *	1.30 *

Source: Authors' calculation based on the mean score of 22 respondents.

***** Excellent - the above areas are highly present in policy research, analysis, implementation, and monitoring

**** Very good – the above areas are sufficiently present in policy research, analysis, implementation, and monitoring

*** Good – the above areas are moderately present in policy research, analysis implementation, and monitoring

** Fair – the above areas are somewhat rudimentarily present in policy research, analysis, implementation, and monitoring

* Poor – the above areas are never present in policy research, analysis, implementation, and monitoring

The key message of the above table is that if resources to address the physical capacity gaps in policy research, analysis, implementation, and monitoring are targeted solely at the federal level, this could continue to restrict the accessibility and quality of agricultural service

provision since it key agencies at the state and local levels could offer additional solutions to meet the needs of their local communities and smallholder farmers.

In addition, information scarcity remains one of the most significant obstacles for effective information processing and other types of technology in Nigeria (Chiemeke and Longe 2007). Inadequate information regarding the development of information and communication technologies (ICTs) poses distinct risks, which include planners of various agricultural institutions and agencies carrying out ad hoc surveys and generating agricultural data and statistics strictly focused on immediate planning needs. Most of the time, the information generated is guesstimates giving rise to erroneous and conflicting statistics (Olatokun 2007). The overall effect on agricultural policy analyses and research can lead to erroneous and misleading conclusions due to inadequate information.

Some of the data management committees instituted by the FMAWR are the National Agro-Statistics Coordinating Committee (NASCCO), State Agro-Statistics Coordinating Committee (SASCCO), and the Technical Committee on Agricultural Data Management (TCADM). NASCCO is suppose to serve as the main clearing house for national agricultural statistics and coordinates all agricultural statistics generation efforts at the national level. It is to examine the needs of agricultural data for development planning in Nigeria and advise the Ministry of Agriculture and Water Resources on the technical, organizational, and training aspects of personnel required to carry out the production of agricultural data. Similarly, SASCCO is to serve as the clearing house for agricultural statistics, data collection, and data generation at the state level. The Secretariat is located in the Ministry's field office (FPMU) in each state with the chairmanship belonging to the State Ministry of Agriculture.; however, discussion with relevant personal in the FMAWR imply that these committees are not functional

The National Agricultural Information Management System (NAIMS) conference recognized the need for states to show greater commitment through adequate budgetary allocations to agriculture data production activities. It also emphasized the evolution of a functional linkage between all producers and consumers of agricultural information in Nigeria. While the rhetoric of data collection and information management concerning the content, adequacy, reliability, consistency, and disaggregation of data in this sector continues among policymakers, implementation of plans remains the main challenge. For example, livestock production and crop yields of major crops are based on projections of data processed from surveys taken years ago. It will be important to develop an institutional framework that will facilitate the flow of data and relevant information to accommodate the interests of producers and users of agricultural statistics at all levels.

Thus, interventions need to be carefully designed to involve state and local governments as partners in the policy formulation, implementation, monitoring, and evaluation processes. This implies understanding the agricultural development agendas and priorities of states and involving them in policy formulation and policy implementation. Moreover, this necessitates recognizing the challenges of decentralization and accommodating differences in institutional structures and legal frameworks by providing flexibility in the organization of public services. It is only through this approach that long-term capacity strengthening in agriculture in a federal system can be achieved.

In light of the above, there remains a need to enhance the capacity of national, regional, and local government policymakers that would improve the performance of the agricultural policy environment in Nigeria. An essential part of management and governance of the agricultural sector is to convey education and knowledge in order to strengthen capacity among professionals and institutions in this sector to raise the awareness of the public. Even if infrastructure is in place and policies are well established, lack of capacity to properly manage the infrastructure will add little value to such initiatives.

Results of the Personal Interviews

Personal interviews with a key set of informants, from both within the FMAWR and outside institutions, who have observed the capacity challenges faced by the agricultural sector provided information on the various human, organizational, and physical capacity gaps. The capacity issues were discussed with the key informants and analyzed in the context of NEEDS-2 and MDGs related to agriculture, Vision 20: 2020, and the President's 7-Point Agenda. We present here a summary of the discussions with individuals within selected units as well as field professionals from the FMAWR, National Bureau of Statistics (NBS), FMWA&SD, and FMEH&UD**.**

Federal Ministry of Agriculture and Water Resources - Department of Planning, Policy Analysis, and Statistics (PPAS)

By current design of the staffing arrangement, the planning unit is not expected to conduct policy analysis, but implements the policies directed from the Minister or the President. In the recent past, presidential initiatives regarding various commodities such as rice, fish, cassava, and vegetable oil have been the main areas for policy discussion. However, there was little effort to conduct policy analysis around these initiatives. This was partly because there was no demand for any further analysis and partly because there was no capacity to undertake policy analysis on these issues. The administration and implementation of policies is often equated with planning and policy analysis.

In addition to coordinating the activities within the PPAS of the FMAWR, this department is expected to coordinate policy planning with the National Food Reserve Agency, National Agriculture Seed Council (NASC), and Agricultural Research Council of Nigeria (ARCN). These agencies have overlapping responsibilities yet there are weak linkages among these entities. In addition, since there is no clear mandate for PPAS to work with the rest of the entities, its low capacity adds to weak coordination of activities.

The role of PPAS of the FMAWR needs to be revisited. Currently, the choice of the staff for the department is not based on the need for policy analysis, but for administration, and therefore, administrative oriented professionals are posted to the department. However, given some professional development to selected staff they could be trained as "enlightened consumers of the policy research and analysis," which helps guide their role as administrators of policies and program. But this capacity will only be sustained if the high turn-over rate of the staff is reduced. The turn-over rate is leaving little institutional memory on the policy issues faced by FMAWR. It is also important that this group of professionals be empowered to debate and discuss policy choices of the FMAWR.

The capacity needs of the PPAS that were derived from these interviews include coordination of the:

- budgeting process within the FMAWR;
- organization and management of policy process;
- policy analysis;
- monitoring and evaluation system;
- combining the information flows from technical, bureaucratic, legislative, and executive areas for effective policy implementation;
- harmonizing policy issues among the national agencies within the purview of FMAWR;
- commissioning policy research and analysis needed for the ministry;
- managing the institutional change and learning processes; and
- translating policy guidelines of the ministry into state level initiatives and policies

National Bureau of Statistics

Much of the data used for planning and policy analysis has to come from the agricultural section of the National Bureau of Statistics (NBS), which covers fisheries, livestock, land, and forestry. The collection and use of data for policy analysis and planning has several challenges. First, the infrastructure for data collection is weak and NBS relies heavily on donor sponsored projects for even regular data collection. Second, there is little interaction between the data collection systems and the planning department of the FMAWR. Third, there is a limited flow of data among the departments and ministries. Fourth, NBS relies on the state level Ministry of Agriculture field offices to collect its data, while there is no clear mandate for these offices to comply on the requests for data by the NBS. Fifth, connecting the demand for data collection to the regular coordination role of NBS in data collection for crop production, input needs, weather, and other regular data for planning is an immediate need.

Capacity to design and implement crop surveys needs to be continuously strengthened and maintained in NBS due to the high mobility of staff. Along with this capacity, the capacity of the State Bureau of Statistics (SBS) and zonal offices in the states, which supply data also needs strengthening. All the state bureaus need to be guided uniformly to collect agriculture and rural development statistics in consultation with the monitoring and evaluation systems. The national and state level statistics master plans need to be connected to the sector-wide statistical master plans. Without time bound collection of data for policy analysis, the capacity for policy analysis in FMAWR will not be effectively used. Furthermore, unless there is demand for evidence-based policymaking, capacity strengthening for data collections will not be taken seriously.

Federal Ministry of Women's Affairs and Social Development (FMWA&SD)

A major mandate of the FMWA&SD is to help formulate policies that improve the welfare of women. It collaborates with the line ministries and agencies of the government, development partners, NGOs, and civil society organizations. It is also mandated to harmonize polices working with the state ministries of women's affairs. The core departments, such as Women's Affairs, Child Development, and Rehabilitation and Social Welfare are involved in national and state level discussion to formulate plans and policies. The Ministry also provides planning and research services to the line and state ministries dealing with women's affairs. At all levels, the policy development process involves discussions with the states through stakeholder consultations. Federal and state research officers provide feedback and report back on the issues raised by the stakeholders.

Capacity building for gender mainstreaming has been undertaken at the national and state levels. Nonetheless, the mechanisms for integrating gender equality and women's empowerment remain weak, lacking adequate human and institutional capacity and funding. To ensure more gender specific data is available in the future, partners need to strengthen gender data collection and dissemination by supporting the National Bureau of Statistics and other data collection units in sectoral Ministries. In addition, data users need to be trained in the analysis and utilization of these data for planning, monitoring, and evaluation. National capacity needs to be strengthened in the civil service, universities, and think tanks to undertake gender research and gender sensitive programs.

Federal Ministry of Environment, Housing, and Urban Development (FMEH&UD)

The FMEH&UD in Nigeria is responsible for several policies and programs that affect the country's agriculture sector. Discussions with key respondents in this Ministry indicate there is a large effort to strengthen capacity for policymaking and implementation; however, specificity of capacity strengthening efforts for policy analysis and research related to agricultural issues such as responses to desertification and climate change, biosafety

strategies, biodiversity strategies, and the classification and labeling of chemicals is still lacking.

- *Desertification*: The Federal Government of Nigeria, and in particular this Ministry, has directed significant attention and effort to ongoing problems of drought and desertification. Unfortunately, these efforts have been largely unsuccessful and desertification has been made more severe by the increasing pressure that humans have placed on Nigeria's land to extract resources in the face of unrelenting drought. Factors contributing to the desertification of Nigeria's dry lands go beyond declining soil fertility, continuous depletion of water resources, low forest cover, and inadequate feed and fodder for livestock to include poor program coordination, poor legislative frameworks, and inadequate capacity for program planning and implementation.

- Climate Change: The agriculture sector has a lot to contribute to Nigeria's response to climate change, but it is not yet clear how agriculture is involved in this process. Recognizing the need to build the capacity of policymakers, agriculture stakeholders, and various nongovernmental organizations in tackling climate change adaption in terms of agriculture strategies needs to be elaborated. This will require training on negotiation skills in mainstreaming agriculture in the climate change debate. Bilateral partnerships will be needed to further develop and implement gender sensitive capacity building initiatives, which link together the agriculture sector, federal and state governments, and civil society, and work to generate informed actions and responses to climate change with respect to agriculture strategies.

- *Biosafety Strategies*: The FMEH&UD is the national focal point on biosafety in Nigeria and has developed a National Biosafety Framework (NBF). This framework regulates biotechnological work through a combination of legal, policy, administrative, and technical tools. However, even with the effective programs for strengthening institutional capacity and boosting agricultural biotechnology supported/implemented by USAID and CGIAR's International Institute for Tropical Agriculture, Nigerian policymakers still lack accurate information and an adequate evidence base for developing proper and necessary biosafety protocol.

- *Biodiversity Strategies*: Nigeria recognizes the need to preserve its natural biodiversity, which is threatened by population pressures, unsustainable cultural practices, indiscriminate hunting, agricultural destruction, weak laws, and poor enforcement of regulations. Though a national biodiversity conservation process began over a decade ago, significant constraints have made progress in this area slow. While a national policy was developed to regulate the exploitation of biological resources, there has been little follow-up, monitoring, and evaluation. Weak individual and institutional capacity impedes assessments that are being carried out on the status of factors determining biodiversity degradation. A lack of coordination among sectoral activities, limited partnerships with civil society and nongovernmental organizations, conflicting policy implementations, uninformed policymakers, and a lack of political will are all examples of the tremendous constraints that Nigeria's biodiversity strategies face. Increased partnerships and support within and outside of federal and state governments will be crucial for elevating the biodiversity conservation agenda. Greater capacity, however, is vital for developing effective strategies, designing and implementing sustainable policies, and carrying out proper monitoring and evaluation systems.

- *Classification and Labeling of Chemicals*: An important tool for supporting the safe management of chemicals is the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). Raising the awareness of chemical hazards to the

public and to workers, especially within the agriculture sector, is fundamental to protecting human health and the environment and to promoting sustainable development. GHS has been determined to be a priority by Nigeria, who recognizes the urgent need to strengthen capacity for effective GHS implementation, especially within the agriculture sector. However, numerous gaps have been identified that restrict the GHS's capacity to support the safe management of chemicals. These gaps include: the lack of national legislation, a poor legal framework that delegates no clear ministerial responsibilities, limited evidence base, knowledge, and information sharing, and lack of necessary capacity for effective enforcement of relevant regulations. Human and institutional capacity strengthening remains crucial for proper GHS implementation, monitoring, and evaluation.

Results of the SWOT Analysis for Strengthening Agricultural Policy Analysis and Research in Nigeria

A comprehensive capacity building strategy for undertaking serious agricultural policy analysis and research in Nigeria has suffered significantly over the past two decades due to a host of factors: (i) policy instability—the rate of turnover in agricultural policies has been high, with many policies formulated and abandoned in rapid succession; (ii) policy inconsistencies—each problem has been viewed in isolation from others with the probability of inconsistency among policies being high; (iii) narrow base of policy formulation—policies have lacked grassroots support and the level of farmers' involvement in the formulation of policies has been minimal; (iv) poor implementation of policies—bureaucrats and policy implementers have formulated policies as an end in themselves rather than being means to desired ends, contributing to high policy turnover rates that intensify the problems of policy implementation; (v) weak policy coordination—redundancies and general inefficiencies in resource use among agencies and ministries, together with inadequate monitoring and evaluation for policy implementation has led to situations where policies and programs lose sight of their original goals; (vi) lack of information feedback—without clear specification as to the role of the stakeholder, appropriate information has not been influencing national agricultural and rural development policies; and (vii) low physical infrastructure—FMAWR does not have sufficient apparatus for agricultural data collection, analysis, and computerization and it lacks a well-developed management information system (MIS) as well as tools for properly storing data (IITA 2005).

Thus, it will be important to undertake a Strength, Weakness, Opportunity, Threat (SWOT) analysis that can address the capacity gaps for undertaking agricultural policy analysis and research.

Strengths

Nigeria has extensive public research and extension systems with 15 National Agricultural Research Institutes (NARIs) under the Federal Ministry of Agriculture and Water Resources (FMAWR), 39 higher education institutions and International Agricultural Research Centers (IARCs) that include the International Institute of Tropical Agriculture (IITA), West African Rice Research Association (WARDA), and the International Livestock Research Institute (ILRI), and the International Food Policy Research Institute (IFPRI) that undertake agricultural research. Building linkages among these institutions based on appropriate synergies and the institutions' comparative advantages can help in significantly augmenting agricultural productivity while simultaneously addressing the needs of smallholder farmers.

Weaknesses

Two sets of institutions that are directly involved in building capacity for agriculture are the national agricultural research and extension systems and the higher education systems in agriculture. The *Nigerian public research and extension centers* are currently affected by

numerous constraints, which include: 1) insufficient and unreliable funds that limit the potential for relevant research; 2) absence of a national research policy that results in a lack of coordination and a duplication of research efforts; and 3) a top-down research approach that is disconnected from farmer needs and has demonstrated limited accountability (Atampugre et al. 2008). Furthermore the linkages between research and the extension system are either very weak or non-existent for 3 reasons:

- Research is often conducted to advance researchers' careers rather than in response to specific demand.
- Public extension systems suffer from a lack of coordination among service providers at different levels of government.
- Non-participatory methods of extension, such as training and visit (T&V) are often followed without taking into account the technology needs of women farmers.

In spite of the above weaknesses in research and extension systems, there are opportunities for improving the functioning of these institutions through better partnership and collaborations. The recent constitution of the Agricultural Research Council of Nigeria (ARCN), an apex body in Nigeria, could help coordinate funding and research through better collaborations and partnerships among institutions.

Higher education institutions involved in agriculture are not a major driver of learning for change as the content and methods used in teaching are often outdated and the quality of the curriculum weak. Agricultural disciplines tend not to be considered of great potential for better labor market outcomes, especially since governance structures are largely rigid and do not necessarily prioritize skill sets, according to those acquired in such disciplines. The key issues and challenges surrounding Nigerian universities are:

- *Knowledge failures:* One of the major obstacles facing Nigerian agricultural universities is to make the transition to a more knowledge intensive agriculture and to address challenges in knowledge gaps.

- Re-training univers*i*ty staff: At present, faculty members are overburdened with administrative responsibilities ranging from participation in universities' governance to bureaucratic documentation and evaluation of students, courses and programs that take away their quality time from research and teaching. The factors responsible for the poor quality of university programs can be attributed to both internal and external sources. Internal factors include strikes, lack of motivation, and weak accountability of research performance. External factors consist of teacher shortages, inconsistent funding efforts by the government, and admissions based on quotas rather than merit (Saint et al. 2003). While the NUC is trying to establish a national education database that seeks to link the federal, state, and private universities, such policy initiatives are hindered by a severe shortage of qualified academic staff within the agricultural schools. The low pay structure over the past decade has led to significant "brain drain" of academic staff and impeded staff recruitment (Ekundayo and Ajayi 2009).

- *Academic staff to enrolment ratio*: As evident from Table 3, there is wide variation in staff-student ratio by universities. None of the Nigerian agricultural universities satisfy the UNESCO norm of 1 staff member to 10 students. Staff/student ratios are particularly imbalanced within the federal universities of University of Ilorin, Obafemi Awolowo University, Ile Ife, and the University of Agriculture, Abeokuta. Similarly, Abia State University in the state of Uturu also shows imbalances in staff-student ratio. Various factors are responsible for recruiting and retaining academic staff. First, the relatively low level of academic salaries over the past decade and the declining financial attractions of university employment have made retaining talent particularly difficult. Second, the rising workloads of academic staff along with the destabilizing

nature of unionized staff militancy have lead to challenges in maintaining academic freedom and conducting meaningful research activities.

Table 3: Staff Student Ratio in Selected Universities during 2006–07

Universities	Staff	Students	Ratio
University of Ibadan	127	1448	1:11
Ahmadu Bello University	132	2188	1:17
Obafemi Awolowo University, Ile Ife	73	1755	1:24
University of Ilorin	48	1135	1:24
University of Port Harcourt	57	96	1:2
University of Agriculture, Abeokuta	265	4705	1:18
Average of Federal Universities			1:16
Niger Delta University	44	213	1:5
Abia State University, Uturu	31	670	1:22
Average of State Universities			1:12
Bowen University, Iwo, Oyo State	31	246	1:8

- *Gender and Research Attainment:* A recent study by Oloruntoba and Ajayi (2006) finds that research attainment of female academics is lower than their male counterparts. Moreover, labor market outcomes for female academics rank consistently lower than the male academics, with female faculty members occupying junior ranks. As eligibility for promotion is on a three-year basis, there is no evidence linking promotion waiting periods with gender.

- *Quality assurance through granting accreditation status*: Accreditation of degree and other academic programs by the NUC is a system of evaluating academic programs in Nigerian universities to determine whether they have met the minimum academic standards (MAS). In the Nigerian university system, despite the fact that university education began in 1948, accreditation is a relatively recent practice. The first accreditation exercise was conducted in 1990 (Oriakhi 2008). Since then, three other accreditation exercises have been conducted in 1999, 2000, and 2002 (Appendix 2 contains the accreditation status of universities of agriculture in Nigeria). At present there are only 10 agricultural programs out of 39 institutions that have full accreditation status (Okojie 2008).[3] This is a matter of concern for the state of agricultural education in Nigeria, given the apparent obstacles to making the transition to a more knowledge intensive agriculture and to address the challenge in knowledge gaps in its curricula.

Opportunities

Opportunities exist for improving the policy analysis and research capacity of the agriculture sector in Nigeria such as revamping the higher education programs, providing training, supporting monitoring and evaluation, establishing a management information system, and improving export markets.

- *Revamping the higher education agriculture programs for undertaking policy research relevant to food security*: Partnerships and linkages among academics and civil servants are weak, but efforts are being made to strengthen such relationship. The APSF supported the establishment of the Nigerian Agricultural Policy Research Network. Furthermore, there is a proposal to establish an Inter University

3 The list of universities that are given full accreditation is given in Annex 2 along with the years they were founded.

Consultative Group (IUCG) that would facilitate the development of networking activities among agricultural universities in Nigeria (Uza 2009).

In regard to skill development , universities can ensure that the next generation of policy analysts, policymakers, researchers, and faculty members are trained in disciplines that existing gaps have been identified such as accounting and management, leadership, computer software, women development programs, agricultural extension messages, survey and methodology, general administration, agricultural production techniques, and business management apart from the core disciplines in agricultural sciences. Development of the above courses would enable problem-solving research that addresses the lack of productivity in agriculture and food insecurity (IFPRI 2008). At the same time, innovative research programs could be developed within the universities or Nigeria's research system, to address the knowledge gaps identified.

- *Training under NEEDS Framework*: The NEEDS framework calls for significant strengthening of policy capacity within the public staff of key institutions such as FMAWR, State Ministries of Agriculture (SMAs), and Local Government Councils (LGCs). The national focus on capacity strengthening could provide sufficient funding and opportunities for civil servants to be trained in policy analysis, interpretation, and communication and program management (AFDB 2005).

- *Agriculture and Rural Development Statistics accompanied by Monitoring and Evaluation Exercises*: In October 2009, Nigeria signed the CAADP Compact, which includes setting-up a Strategic Analysis Knowledge Support System (SAKSS) for monitoring and evaluation. Nigeria can capitalize on the agreement by requesting support from donors on supporting the SAKSS establishment. Furthermore, Nigeria could collaborate with other African nations that are in the process of establishing a SAKSS to share experiences and knowledge of the process.

- *Development of a Management Information System (MIS):* A possible externality of Nigeria's increased analysis and knowledge support could be the setting of a foundation for a Management Information System. The establishment of a MIS system will be necessary, as information is subject to continuous correction and updating. The objective of the MIS system will be to identify information needs for various users from both within and outside the FMAWR and should include the 1) *development of reporting formats that will be docum*ented in an "operational manual" for staff use and 2) establishment of work flows and responsibilities that will be documented in a "result matrix" for staff use.

- **Improving export markets through quality improvements:** Some of the major constraints affecting export flows in Nigeria include a lack of infrastructure, quality, and marketing and information systems. With the signing of the CAADP Compact and renewed interest of donors in supporting private sector driven agricultural development, Nigeria can address the constraints above by working closely with development partners in learning from their experience of pilot programs and seeking assistance on the role the government should play in supporting the private sector.

Threats / Risks

There are several risks that can affect the performance of the agricultural sector in Nigeria and render past policies ineffective. These include an unstable political climate, investment insecurity, non-standardized product quality, and the non-competitive nature of agricultural products in the export market due to high production and marketing cost and lack of adequate storage and processing facilities.

Results of Hypotheses Tests on the Impact of Capacity Strengthening across Program Themes

The hypotheses that underwent testing, regarding capacities and performance across program themes and capacity dimensions, are outlined and described below in Table 4. The survey data that was collected to test these hypotheses underwent various tests of association (t-test, chi square, and correlation) to generate a better depiction of the relationships among the various dimensions of capacity (individual, organizational, and system) and various performance outcomes.

The phrase "*evidence-based decisionmaking*" refers to the process of using credible information rather than relying on personal opinions to form decisions (DFID 2005). Evidence can be used at all stages of the policymaking process, from design and implementation to feedback that contributes to future policy design and implementation. Sixty percent of the survey respondents claimed that an evidence base is not used for successful implementation of policies in Nigeria. This might indicate that creating an enabling environment in which evidence guides policymaking will remain important in the future (Adebayo et al. 2009). These will include issues such as the availability of data, the availability of research, and the capacity of policymakers to use such information. Based on the results in Table 4, we draw the following inferences.

Table 4: Hypotheses tests of dimensions of capacity and performance outcomes across program themes

Dimensions of Capacity	Program Theme	Description and Hypothesis	Test & Direction of Association	P-values
Individual	General — Policy research and analytical capacity	Policy research capacity building is positively related to the number of individuals trained in policy research and analysis (Tangcharoensathien and Pitayarangsarit 2009)	t-test / positive	0.000[a]
Individual	General — Policy research and analytical capacity	Use of better analytical tools are positively related to the number of individuals trained in policy research and analysis (Blank and Grosh 1999)	t-test / positive	0.000[a]
Organizational	General — Policy research and analytical capacity	Knowledge management practices are positively correlated with the number of individuals trained in policy research and analysis (Okemwa 2006)	Correlation / positive	0.051 [a]
System	General — Policy implementation	More evidence base used in implementing policies is negatively correlated with top-down approaches (Adebayo et al. 2009)	Correlation / negative	0.544
Individual	General — Policy monitoring	Dissemination of the results from M&E is positively related to the number of individuals trained in policy monitoring (Kusek and Rist 2004)	t-test / negative	0.237
Individual	Theme 1: Vulnerability and Food Security	Number of staff members trained to collect data on food price vulnerability is directly related to building human and institutional capacity of agencies (Archer et al. 2007)	Chi-square / positive	0.033 [a]
Organizational	Theme 3: Economic growth	Technical staff defining the research problems before formulating policies is conducive to monitoring performance indicators in economic growth (UNDP 2009)	Chi-square / positive	0.209
Individual	Theme 4: Development of Commodity Value chains	Additional training of staff members in value chain mapping improves quality assurance and product standardization (IFAD 2008)	t-test / positive	0.05 [a]
Individual	Theme 5: Improving agricultural	Additional training of staff members in economic research and policy analysis is	t-test / positive	0.000[a]

	productivity	positively related to improving agricultural productivity (USAID 2007)		
Sectoral / Organizational	Crosscutting theme 1: Gender issues in policy analysis and research	Staff members trained in gender awareness and sensitization can better address the differential needs of men and women in agricultural policy analysis and research (Poats 1991)	t-test / positive	0.000[a]
Organizational	Crosscutting theme 1: Gender issues in policy analysis and research	Staff members trained in gender awareness and sensitization can significantly improve gender issues incorporated in policy monitoring and evaluation (Swainson 2000)	Chi-square / positive	0.671
Sectoral / Institutional linkages	Crosscutting theme 2: Environmental sustainability in policy analysis and research	Additional staff members trained in environmental sustainability issues significantly improves collaborative linkages among institutions (Kaelo et al. 2009)	Chi-square / positive	0.723
Organizational	Crosscutting theme 2: Environmental sustainability in policy analysis and research	Additional staff members trained in environmental sustainability issues improves policy monitoring and evaluation in agriculture and rural development (African Development Bank,2004)	t-test / positive	0.000[a]

Notes: [a] significant at the 95% confidence interval.

Training matters: This comes as no surprise as training helps staff members of an organization to acquire new knowledge, new skills, and new capabilities (Nonaka 1994). Results on individual capacity strengthening across program themes as well as on policy research capacity strengthening suggests that a committed core group of food and agricultural policy analysis experts would benefit immensely from analytical tools trainings.

Actionable applied research is needed to improve knowledge management: While learning programs and activities may help staff members of an organization acquire new capabilities, they are unlikely to address the numerous challenges that face the agricultural sector in Nigeria. For organizations such as the FMAWR, it will be important to create platforms and standards for collaboration so that knowledge is shared across agencies, including parastatals, research institutions, and universities (Du Plessis and Boon 2004). For knowledge management to work effectively, FMAWR need to create an enabling environment in which working relationships are strengthened to aid the institutionalization of knowledge flows between state and federal counterparts.

An important argument that is frequently made in the Nigerian context centers around how knowledge management can be improved in a country where policymaking often follows a top-down approach. The argument is that if organizational cultures follow the norms of a society, then it will be futile to attempt to change them. There is overwhelming evidence that the successful linking of knowledge with action requires development of platforms and analytical tools that enhance efficient collaborations between the producers of knowledge and the decisionmakers who use it. Developing these linkages between federal and state agencies in Nigeria will be important and possible in the coming decades.

Monitoring and evaluation (M&E) framework constrained by system capacity: Reliable statistics related to agriculture and rural development in Nigeria remain a serious constraint like other developing economies in Africa. Thus, strengthening capacity for collecting and analyzing agricultural data remains a priority for enhancing policymakers' ability to analyze constraints, define policy and program objectives, and monitor and evaluate the results (Keita et al. 2009).

Mainstreaming gender into agriculture and rural development projects: While women in Nigeria play a significant role[4] in agriculture and rural development, female farmers continue to have no voice with which to influence agricultural policies (Ogunlela and Mukhtar 2009). The Strategic Implementation Framework developed by the FMWA&SD recognizes that addressing gender inequality on all dimensions would require strategic partnerships both within government (the executive arm) and among the different levels of government (federal, state and local). Partnerships would also need to be broadened to include women organizations in the civil society, donors, and UN agencies to implement commitments to gender equality. The National Center for Women's Development could conduct critical analysis, develop baseline indicators, and provide status of progress to guide the implementation of the National Gender Policy. The FMAWR and the National Center for Women's Development would require additional resources to address the agricultural and rural development challenges facing women.

Incorporating environmental sustainability into agricultural and rural development projects: Environmental analysis is not widespread in agricultural and rural development projects in Nigeria. Some of the main constraints to include environmental issues is that the decisionmaking processes has weak leadership at the ministry and legislative levels, budgetary constraints in conducting environmental impact assessments, low levels of information communication, a general poor understanding of environmental issues related to the use of pesticides, limited monitoring of program/project implementation, weak linkages between researchers and policymakers, inconsistent government policies, low literacy rates, and high poverty levels (Adebayo et al. 2009).

Roadmap toward a Nigeria Agricultural and Rural Development Sector Capacity Strengthening Strategy

As evident from the preceding sections, several capacity challenges and gaps obstruct the design and implementation of agricultural and rural development policies in Nigeria. The most critical challenges include:

- *Ineffective use of trained capacity:* Especially in universities, underused capacity often translates to a lack of critical linkages between analysis, research, and policy decisions.
- *Gaps between universities, research institutions, and policymaking and implementation authorities:* Absent linkages between research hubs and policymaking authorities result in a lack of evidence-based policymaking, which could generate inappropriate and/or inadequate policies. In such an environment, policymakers have neither a sound understanding of the issues facing them nor knowledge of how to address them in the current policymaking environment.
- *Lack of political leadership in facilitating dialogues and stakeholder engagement:* Dialogue and stakeholder engagement is crucial for problem solving and people-centered policy design and implementation.
- *Lack of coordination:* Negative effects of a lack of coordination among the activities of various organizations involved in data management in agriculture include mismanagement, redundancies, and needless capacity and resource waste.

The analysis in the above sections identified recommendations for forming a strategy for strengthening capacity for supporting the development and implementation of agricultural and rural development policies and strategies.

4 Estimates from the World Bank suggest that women make up around 60 to 80 percent of the labor force in Nigeria.

Strengthening institutions through education, knowledge, and communication

1. Sharing information and knowledge through free access to scientific literature from international, regional, and national organizations is a critical step for strengthening analytical and policy capacity. Decisionmakers should adopt policies and set incentives for their institutions to overcome the hurdles currently barring their ability to share information freely. An enabling environment that establishes a right to information for all those who need it will help in reducing numerous challenges. Furthermore, institutions should be encouraged to participate in international and regional programs that support the provision of knowledge to research libraries. Improved data management and skills training can help in the provision of information and communication services to the private-sector. This applies not only to policy and data sharing environments but also to national research and extension systems.

2. The quality and relevance of research conducted by national research institutions involved in policy analysis requires strengthening. There is a scant number of policy research institutions and policy researchers within the national system, which poses serious problems for policy analysis and debate and therefore, there is a compelling case of strengthening policy analysis capacity among the federal ministries.

3. Sustaining policy analysis capacity in the federal ministries requires reforming the staffing structure and strengthening the staff with appropriate backgrounds from the policy analysis units of the planning departments. The University of Ibadan has a good reputation for expertise in agricultural education methods; it could offer core courses to these staff members. Intensive training courses spanning three to four weeks could be offered, which could then lead to a ten-week advanced work session. This type of course could be designed as a series of three or four modules that lead to a certificate of completion offered by the university. An example might be a program consisting of six or seven courses leading to a Certificate of Accomplishment in policy analysis. It is important that such courses, though short in duration, be offered on a continuous basis such that they are convenient and fit the timetable of the Ministry's staff.

4. As there is a strong need to consider faculty and curriculum development for agribusiness and entrepreneurship programs, we recommend using the University of Ibadan and the University of Agriculture in Abeokuta as centers for such programs because their institutional capacity makes them relatively better positioned for this sort of curriculum adaptation. Ideal program participants would include teaching faculties from other universities and research institutions. As there is a higher potential for reaching a broader audience through the classroom, this could result in improvements in agricultural education and have a broader spillover effect to other sectors in the economy.

5. With women underrepresented in academic and managerial positions in Nigerian tertiary institutions, policymakers must ensure that female faculty members are treated equitably in recruitment, training, and research opportunities for professional growth.

6. Training by the Center for Biotechnology Research at the Admadu Bello University could be scaled up to train scientists and technicians in emerging areas such as DNA techniques, biosafety, gene transformation, plant virus elimination, and tissue culture diagnostics. A two-semester program could provide the relevant training for many scientists and technicians rather than the few who might be eligible for more extended graduate programs. Similarly, technical workshops should be explored to

upgrade the skills and quality of the extension personnel. In-country workshops should be designed to provide skills in vocational and technical areas. In order to duplicate efforts, course design should be coordinated closely with state level supervisors. For example, the knowledge of developing resistant varieties to rice yellow mottle virus (RYMV) developed by WARDA researchers can be transferred to several NARIs in Nigeria and implemented through FMAWR.

7. Building on existing local knowledge through a balanced combination of top-down and bottom-up approaches is also a priority. For example, innovation platforms could be constructed around the following themes within specific local governments of Nigeria: a) livestock, b) natural resource management, c) groundnut or cassava, and 4) aquaculture. Depending on the opportunities, activities would link farmers to markets through a top-down approach that involves identifying market demand. Then a bottom-up approach could be followed for identifying a group of farmers who could supply products to satisfy the demand.

8. Building learning networks to disseminate and share informal knowledge, identify common problems, and generate new knowledge would enhance farmers' opportunities. For example, a national agricultural technology and research system (either within one NARI or several NARIs) could form a research consortium similar to the Bolivian Agricultural Technology System (SIBTA). Centering farmers within this learning network could make it possible to accelerate the rate of new technologies' application and effectiveness.

9. Periodically strengthen human capacity to deliver institutional mandates and ensure a defined pattern of succession, nurturing, and replacement. For example, periodic reviews could be conducted by the Management Services Office (MSO), the Office of the Head of the Civil Service, or delegated to Pilot Ministries, Departments, and Agencies (MDAs). These reviews would assess the following:

    - Personnel records and payroll
    - Recruitment and promotion procedures
    - Monitoring performance management
    - Capacity development and training
    - Organization reforms, including revision of salary structures to attract talent

10. Improving internet connectivity and access to information and communication technologies (ICTs) to improve the resource base and its visibility at the global level. The formation of women associations, farmer, and other community level organizations in rural areas could act as training points for ICT development. These groups could train smallholder farmers to use word processing or excel for their work plans and income and expenditure statements.

Improving the quality, gender sensitivity, timeliness, and circulation of policy relevant evidence

1. Provide adequate funds for planned activities, proper training of staff, and circulation of policy relevant evidence; and guarantee that funds are used for these assigned purposes. Public officials in key institutions such as FMAWR, State Ministries of Agriculture, and LGAs could be trained in information technology, statistics, monitoring and evaluation, financial management, food security analysis, public administration, and other skills.

2. Consult regularly with all stakeholders during appropriate times of the process of collecting, analyzing, and disseminating policy relevant evidence. For example,

regular production and dissemination of policy briefs are critical outputs for senior officials in FMAWR.

3. Create awareness though mass media, seminars, and workshops for stakeholders and the general public. This could be achieved through in-country learning workshops or seminars for scientists, technicians, and other stakeholders in areas such as DNA techniques, biosafety, gene transformation, plant virus elimination, and tissue culture diagnostics.

4. Mainstream gender and diversity issues in policymaking institutions and facilitate higher levels of female involvement in the policymaking process. Immediate mechanisms for achieving this include compiling gender disaggregated statistics that include staffing, integrating gender into a five-year strategic review process, and including gender balance in the senior management of FMAWR.

5. Use objectively verifiable performance indicators, inputs, outputs, and outcomes for every project, program, and policy.

Appropriate and innovative solutions with respect to technology

1. Improve current technologies used in perennial cropping, water harvesting, and risk management and develop innovative, low cost technological approaches for local communities in poorer areas.

2. Promote science and technology education in tertiary institutions. Creating specializations in the fields of engineering and agricultural sciences would be a significant step toward enhancing the role, and hopefully quality of science and technology in tertiary institutions.

3. Combine advanced technology with capacity strengthening and sustain operations through better management and skill training. For example, the government could revitalize agricultural extension services by equipping farm extension workers with IT skills through IT applications in areas such as land use, ecology, soil types, offshore fishery exploitation, and digital mapping.

Capacities required for improving the impact of agricultural and rural development programs on environment

1. Regular and consistent data collection and analysis of environmental parameters is critical, especially rainfall, average monthly temperature, relative humidity, waste management system, and toxicity.

2. Improving collaboration among all relevant institutions must be a priority. Building research linkages between key universities and research centers in the fields of agricultural sciences, engineering, and environmental disciplines will advance efforts to improve the impacts of agricultural and rural development programs on Nigeria's environment. The curricula of agriculture in higher education, however, need to comprise new and relevant disciplines, including biotechnology, ICTs, quantitative research methods, and intellectual property rights.

3. Quarterly and annual reports must be consistently produced and distributed. These reports must also include results of all environmental assessments.

Adequate and reliable management information system (MIS) in relation to data collection and processing

1. The renewal of the national agricultural data bank would ensure the effective coordination of activities among the various organizations involved in data management since it would serve mainly as a clearing house for producers and users of data at all levels. Its sustainability depends on the Federal Government of Nigeria allocating appropriate financial support upon donor funding ending, A centralized data agency within FMAWR would include both primary data (such as that collected by the National Agricultural Census) and secondary data that is typically collected by the following agencies: the technical departments of the Ministry with coordination by PPAS, state ministries of agriculture, Central Bank of Nigeria (CBN), National Bureau of Statistics (NBS), Nigerian Agricultural Cooperatives and Rural Development Bank (NACRDB), and National Agricultural Insurance Corporation (NAIC).

2. Data and information management committees will need to be either restored or created to ensure proper system efficiency. These committees will require proper funding for their operations at all levels.

3. Adequate funding arrangements for data and information management in FMAWR will be essential for carrying out the necessary efforts to create an adequate and reliable management information system.

4. In order to generate competitive, quality, and timely information, FMAWR, state ministries of agriculture, local government councils, NARIs, and agricultural universities must acquire and use of appropriate modern equipments, such as GPS and GIS hard and software.

5. The allocation of adequate resources (human resources and other materials) is necessary to achieve clearly defined capacity outputs and outcomes.

Creating an enabling environment

1. Efforts to consolidate a comprehensive research base are crucial for providing support to the policymaking and implementation process and for ensuring far greater integration of research findings into policies. Therefore, it should involve linking researchers with other stakeholders at all stages of the research process, from formulation through implementation to dissemination of results.

2. Effective monitoring and evaluation systems, with statistical components built within FMAWR, will enable proper benchmarking, permit impact assessments, and effectively refocus policies, strategies, and programs.

3. Stronger linkages are needed across sectors, including governmental and nongovernmental associations, the private-sector, civil society, community-level organizations, and other stakeholders. As there is little, and often ineffective, interaction among stakeholders in the agricultural policymaking process in Nigeria, it will be important to get the right knowledge—formal, informal and tacit—to the right individuals, at the right time for its adequate use and application (van Dam et al. 2008).

4. A greater understanding of agricultural and rural development vulnerabilities in Nigeria is paramount to relevant and effective policymaking. This requires reliable vulnerability assessments. The Geographical Information System (GIS), for example, could be used as a tool to access potential land for irrigation (Ishaya and Mashi

2008). Implementing a GIS analysis could be part of a long-term effort to better understand the vulnerabilities to fadama farming.

5. Putting data in the right hands and establishing data as a public good is a prerequisite for creating an enabling policy environment.

6. Similarly, improving general public awareness of Nigeria's policymaking processes and outcomes through information dissemination will be necessary to maintain a sustainable enabling environment.

7. Lastly, support from the international donor community will be crucial for improving Nigeria's data collection, management, monitoring, assessment, and dissemination.

Conclusions

There are several human, physical, and institutional capacity gaps hindering the design and implementation of effective agricultural policies in Nigeria. The main obstacles include: limited understanding of the relationships between institutional, human, and physical resources; limited understanding of the impact of policy on targeting end-users at every level in the policy design, planning, implementation, and monitoring and evaluation process; disparities among universities, research institutions, and policymaking authorities; ineffective use of trained capacity in universities; and the lack of coordination among various organizations' activities involved in knowledge management.

Having undertaken some of the hypotheses tests on the impact of capacity strengthening across six program themes, along with the cross-cutting themes of gender mainstreaming and environmental sustainability, our results indicate:

- Training a committed group of food and agricultural policy analysts in better analytical tools will greatly improve efforts to strengthen policy research capacity. The group could be identified among the existing professionals who have long term commitment for developing and applying policy analysis skills.
- Training by itself, however, is unlikely to address the numerous challenges facing the Nigerian agricultural sector. Knowledge management practices that complement learning activities and create platforms and standards so that knowledge flows are institutionalized between state and federal agencies will be extremely important in the coming decades.
- The current M&E framework is constrained by system capacity constraints and addressing those constraints by building up an appropriate M&E system that concentrates more on outcomes and impact indicators rather than input and output indicators is critical.
- Incorporating gender mainstreaming in the program design of agricultural and rural development projects is essential for the success of projects.
- Incorporating environmental sustainability issues in the M&E of agricultural and rural development projects can help address some of the constraints related to including environmental issues in decisionmaking processes.

Strengthening institutions involved in agriculture and rural development policymaking and implementation through education, knowledge, and communications will remain important for improving the quality and timeliness of policy relevant evidence and appropriate and innovative solutions with respect to technology. It will be equally important to develop capacities with respect to policy research, analysis, implementation, and monitoring. These latter capacities are especially important to support the generation of data as a public good, having built-in statistical components and activities that are coordinated among the various organizations involved in data management, and bringing together producers and users of

such statistics at all levels. This will help in improving public awareness of policymaking processes and outcomes. At the same time, a minimum set of indicators needs to be monitored regularly by the concerned ministries for an effective capacity strengthening strategy in Nigeria.

Appendix 1: Questionnaire

Capacity Building for Agricultural Policy Analysis and Research in Nigeria – A Roadmap toward a Strategy

Enhanced food production and food access remains critical to food security in Nigeria. Human and institutional capacity building continue to be the key to efficient food production and rural development. Building individual and organizational capacity for agricultural development in a developing country, such as Nigeria, must encompass a wide range of personnel at the governmental, institutional, and farmers' levels. Yet, adequate capacity for policy analysis and research to develop policies, programs, and strategies is a major constraining factor for "getting agriculture moving" in Nigeria.

IFPRI and the Federal Ministry of Agriculture and Water Resources (FMAWR) are the main implementing partners of the Agricultural Policy Support Facility (APSF) to develop a common diagnosis of human and physical capacity needs, the existing capacity, and capacity gaps, including a strategy for strengthening capacity for designing and implementing evidence-based, pro-poor, gender sensitive, and environmentally sustainable agriculture and rural development policies in Nigeria. The main program components are organized along six major themes:

- Vulnerability analysis for food security
- Agricultural financing and expenditure
- Economic growth
- Development of commodity value chains
- Improving agricultural productivity
- Governance

The above components are analyzed with the cross-cutting themes of gender and environment.

This questionnaire deals with human resource development and institutional capacity building in Nigeria as they relate to policy analysis and research capacity. It seeks to identify the human and physical capacity needs, existing capacity, and capacity gaps, including a strategy for designing and implementing evidence-based, pro-poor, gender sensitive, and environmentally sustainable agricultural and rural development policies across the six main program themes in Nigeria.

The information provided in this questionnaire will be used solely for the purpose of this work and kept in strict confidence. Thank you in anticipation of your cooperation.

A. Background information about respondent

Highest Education level attained (Year): _____

Gender: Female [ ] Male [ ]

Title: _____

Grade: _____

No. of years of experience:_____

Office/Unit: _____

Department: _____

Ministry/Parastatal/University/Institution: _____

Section I: General Questions

1. How many personal computers and other office equipment (printers, fax machines, etc.) does your institution have in conducting policy research, policy analysis, policy implementation, and policy monitoring? Please give a breakdown if possible.
2. Which unit in your institution is involved in policy research and policy analysis?
    a. How many individuals are involved in policy research and policy analysis?
3. Which unit in your institution is involved in policy implementation?
    a. How many individuals in your institution are involved in policy implementation?
    b. What are the physical capacity challenges that you face in implementing policies?
4. Which unit in your institution is involved in policy monitoring?
    a. What kind of policy monitoring exercises do you conduct with respect to agricultural policy analysis and research?
    b. How many individuals are involved in policy monitoring exercises?
5. To what extent is power supply and internet connectivity a major constraint in policy research?

    Never [ ] Somewhat rudimentarily [ ] Moderately [ ] Sufficiently [ ] Highly [ ]
6. To what extent is power supply and internet connectivity a major constraint in policy analysis?

    Never [ ] Somewhat rudimentarily [ ] Moderately [ ] Sufficiently [ ] Highly [ ]

Module 1: Policy Research and Analytical Capacity

1. To what extent is knowledge management practices (e-learning, project management, etc.) incorporated in policy research capacity building in your unit?

    Never [ ] Somewhat rudimentarily [ ] Moderately [ ] Sufficiently [ ] Highly [ ]
2. To what extent do researchers in your institution have access to updated information for undertaking policy analysis?

Never [ ] Somewhat rudimentarily [ ] Moderately [ ] Sufficiently [ ] Highly [ ]

3. To what extent do researchers in your institution use analytical tools to process the information for undertaking policy analysis?

   Never [ ] Somewhat rudimentarily [ ] Moderately [ ] Sufficiently [ ] Highly [ ]

4. To what extent is information shared among units within your institution?

   Never [ ] Somewhat rudimentarily [ ] Moderately [ ] Sufficiently [ ] Highly [ ]

Module 2: Policy Implementation

1. Who are the stakeholders involved in the policy implementation phase (Please be specific in identifying specific departments, units, agencies, name of institutions, and private-sector entities)?
2. To what extent are the stakeholders consulted in the policy implementation phase?

   Never [ ] Somewhat rudimentarily [ ] Moderately [ ] Sufficiently [ ] Highly [ ]

3. To what extent are knowledge management practices incorporated in the policy implementation phase?

   Never [ ] Somewhat rudimentarily [ ] Moderately [ ] Sufficiently [ ] Highly [ ]

4. To what extent does data collected and information shared during the project design have impact on the intended beneficiaries after the implementation?

   Never [ ] Somewhat rudimentarily [ ] Moderately [ ] Sufficiently [ ] Highly [ ]

5. To what extent does evidence based research enter as guidelines for successful implementation of policies?

   Never [ ] Somewhat rudimentarily [ ] Moderately [ ] Sufficiently [ ] Highly [ ]

6. To what extent does policy implementation follow a top-down approach?

   Never [ ] Somewhat rudimentarily [ ] Moderately [ ] Sufficiently [ ] Highly [ ]

Module 3: Policy Monitoring

1. Which unit / units in your institution are involved in policy monitoring after the implementation phase?
2. How is the M&E activity carried out? Describe in detail (statistical benchmarking and deviations from stated objectives)
3. To what extent are the M&E results documented within our institution?

   Never [ ] Somewhat rudimentarily [ ] Moderately [ ] Sufficiently [ ] Highly [ ]

4. How are the results from the M&E analysis disseminated?
   a. Never
   b. Word of mouth
   c. Appropriate documentation circulated among units
   d. Listserve / newsletter

e. Other mechanisms of information sharing

Section II: Capacity Building Strategies across Program Theme Questionnaire
The following questionnaire seeks to develop an operational profile for capacity strategies and their application to program themes based on the interviews with researchers of programs at IFPRI and key respondents in the ministries.

Theme 1: Vulnerability and Food Security

1. How many staff members are trained at the FMAWR and other agencies in food price vulnerability assessments?
2. How many additional staff members are expected to be trained in the next 5–10 years in food price vulnerability assessments?
3. To what extent are historical food price data used in food price vulnerability assessments?
   Never [ ] Somewhat rudimentarily [ ] Moderately [ ] Sufficiently [ ] Highly [ ]
4. To what extent are factors such as gender (for example female-headed households) incorporated in food price vulnerability assessments?
   Never [ ] Somewhat rudimentarily [ ] Moderately [ ] Sufficiently [ ] Highly [ ]
5. To what extent are gender issues expected to be incorporated in the next 5–10 years in food price vulnerability assessments?
   Never [ ] Somewhat rudimentarily [ ] Moderately [ ] Sufficiently [ ] Highly [ ]
6. To what extent are factors such as environmental sustainability incorporated in food price vulnerability assessments?
   Never [ ] Somewhat rudimentarily [ ] Moderately [ ] Sufficiently [ ] Highly [ ]
7. To what extent are environmental sustainability issues expected to be incorporated in the next 5–10 years in food price vulnerability assessments?
   Never [ ] Somewhat rudimentarily [ ] Moderately [ ] Sufficiently [ ] Highly [ ]
8. 8. To what extent are staff members at the FMAWR trained to collect data on socio-economic, demographic, and land use in assessing food price vulnerability?
   Never [ ] Somewhat rudimentarily [ ] Moderately [ ] Sufficiently [ ] Highly [ ]
9. How many additional staff members are expected to be trained in the next 5–10 years to collect data on socio-economic, demographic, and land use in assessing food price vulnerability?
10. To what extent do personnel at the FMAWR review the human and institutional capacity of the state and local government bodies in food price vulnerability assessments
    Never [ ] Somewhat rudimentarily [ ] Moderately [ ] Sufficiently [ ] Highly [ ]

11. Are there any plans by the FMAWR to review the human and institutional capacity of the state and local government bodies to undertake food price vulnerability assessments in the next 5-10 years? Please explain in detail.
12. Does a GIS database exist in FMAWR to store all food price data and other disaster related information?

    Yes [ ] No [ ] Don't know [ ]
13. Are there any plans to incorporate a GIS database in FMAWR to undertake food price vulnerability assessments in the next 5-10 years?

    Yes [ ] No [ ] Don't know [ ]
14. To what extent is food price vulnerability data disseminated to stakeholders, including government agencies, research institutions, and other public and private-sector bodies?

    Never [ ] Somewhat rudimentarily [ ] Moderately [ ] Sufficiently [ ] Highly [ ]

Theme 2: Agricultural financing and expenditure priorities

1. How many staff members are trained at the FMAWR and other agencies in accounting methods for undertaking agricultural financing and expenditure analysis?
2. How many additional staff members are expected to be trained at the FMAWR and other agencies in accounting methods for undertaking agricultural financing and expenditure analysis in the next 5–10 years?
3. Is the budgetary provision to a minimum of 10% by the FMAWR enforced to make agribusiness viable for investments?

   Yes [ ] No [ ] Don't know [ ]
4. Are all stakeholders consulted in formulating agricultural financing and expenditure priorities?

   Yes [ ] No [ ] Don't know [ ]
5. If yes, briefly describe how the stakeholders are consulted?
6. Which stakeholders were not consulted and why?
7. What is the main purpose of formulating agricultural financing and expenditure policies?
   a. Timely disbursement of loans
   b. Lending conditions simplified
   c. Increase employment opportunities in rural areas
   d. Reduction of poverty over time
   e. Improve rural infrastructure
   f. All of the above

Theme 3: Economic Growth

1. How many planners and technical staff are trained to undertake land tenure management system in rural areas?
2. How many additional planners and technical staff are expected to be trained in land tenure management system in the next 5–10 years?
3. To what extent does technical staff define the research problem before formulating policies on economic growth?
   Never [ ] Somewhat rudimentarily [ ] Moderately [ ] Sufficiently [ ] Highly [ ]
4. Is the incentive structure adequate for training activities? Yes [ ] No [ ]
5. If your answer to question 4 is no, what steps can be taken in the future to improve the incentive structure for training activities?
   a. Improve the funding for training activities
   b. Progression of staff members for better career paths
   c. Develop rewards for achievement
   d. Other mechanisms
6. How would you describe the linkages between research and extension services at the field level?
   Never [ ] Somewhat rudimentarily [ ] Moderately [ ] Sufficiently [ ] Highly [ ]
7. Are performance indicators regularly developed to monitor the role of agricultural policies in economic growth? Yes [ ] No [ ] Don't know [ ]

Theme 4: Development of Commodity Value Chains

1. How many staff members are trained in value chain mapping and feasibility analysis for agricultural commodities including cassava?
2. How many additional staff members are expected to be trained in value chain mapping and feasibility analysis in the next 5-10 years for agricultural commodities including cassava?
3. To what extent has partnership among service providers and farmers improved cassava production during the past five years?
   Never [ ] Somewhat rudimentarily [ ] Moderately [ ] Sufficiently [ ] Highly [ ]
4. To what extent has access to financial products and services improved the functioning of small-scale and medium-scale processing enterprises?
   Never [ ] Somewhat rudimentarily [ ] Moderately [ ] Sufficiently [ ] Highly [ ]
5. Is there a national working group / plan that promotes commodity chains for high quality agricultural products? Yes [ ] No [ ] Don't know [ ]
6. If such a plan exists in question 5, how frequently is it updated?

1. Every 6 months
2. Every year
3. Every two years
4. Do not know

7. Are the action plans monitored and evaluated on a regular basis? Briefly describe how the monitoring of implementation and updating of the action plans are carried out.
8. How frequently is the quality assurance and product standardization exercise undertaken?
    1. Every year
    2. Every two years
    3. Every five years
    4. Don't know
9. To what extent have private-sector stakeholders had access to updated cassava data and data for other agricultural commodities?

    Never [ ] Somewhat rudimentarily [ ] Moderately [ ] Sufficiently [ ] Highly [ ]
10. To what extent has capacity building of agro-processors and their staff been defined and organized?

    Never [ ] Somewhat rudimentarily [ ] Moderately [ ] Sufficiently [ ] Highly [ ]

Theme 5: Improving Agricultural Productivity

1. How many staff members are currently trained in economic research and policy analysis?
2. How many additional staff members are expected to be trained in economic research and policy analysis in the next 5-10 years?
3. To what extent has lack of sufficient budget allocated to inputs and infrastructure affected agricultural productivity adversely?

    Not at all [ ] To some extent [ ] Moderately [ ] Sufficiently [ ] Highly [ ]
4. To what extent has lack of timely information on markets and prices affected agricultural productivity of smallholder farmers adversely?

    Not at all [ ] To some extent [ ] Moderately [ ] Sufficiently [ ] Highly [ ]
5. To what extent have disincentives to smallholder farmers, such as lack of access to credit, affected agricultural productivity adversely?

    Not at all [ ] To some extent [ ] Moderately [ ] Sufficiently [ ] Highly [ ]
6. To what extent have disincentives to smallholder farmers, such as high taxes and levies, affected agricultural productivity adversely?

    Not at all [ ] To some extent [ ] Moderately [ ] Sufficiently [ ] Highly [ ]

Crosscutting Theme 1: Gender Issues in Policy Analysis and Research

1. To what extent is gender awareness and sensitization incorporated in the training of staff members?

   Not at all [ ] To some extent [ ] Moderately [ ] Sufficiently [ ] Highly [ ]
2. How many staff members are expected to be trained in gender awareness and sensitization in the next 5-10 years?
3. To what extent has gender expertise among male staff improved during the past five years?

   Not at all [ ] To some extent [ ] Moderately [ ] Sufficiently [ ] Highly [ ]
4. To what extent has gender expertise among female staff improved during the past five years?

   Not at all [ ] To some extent [ ] Moderately [ ] Sufficiently [ ] Highly [ ]
5. To what extent do institutional mechanisms promote collaborative programs and linkages with research institutions and others in the non-profit sector on including gender issues in policy design?

   Not at all [ ] To some extent [ ] Moderately [ ] Sufficiently [ ] Highly [ ]
6. Are gender issues included in research and policy analysis?

   Yes [ ] No [ ] Don't know [ ]
7. If your answer to question 6 is yes, briefly explain how gender issues are integrated into research.
8. To what extent are women equally involved with men in the development of agricultural policies?

   Not at all [ ] To some extent [ ] Moderately [ ] Sufficiently [ ] Highly [ ]
9. To what extent do existing policies recognize the differential needs of men and women in agricultural policy analysis and research?

   Not at all [ ] To some extent [ ] Moderately [ ] Sufficiently [ ] Highly [ ]
10. To what extent are gender issues incorporated in policy implementation processes?

    Not at all [ ] To some extent [ ] Moderately [ ] Sufficiently [ ] Highly [ ]
11. To what extent are gender issues incorporated in policy monitoring and evaluation?

    Not at all [ ] To some extent [ ] Moderately [ ] Sufficiently [ ] Highly [ ]

Crosscutting Theme 2: Environmental Sustainability in Policy Analysis and Research

1. How many staff members currently incorporate environmental sustainability issues in policy analysis and research?
2. How many staff members are expected to be trained in environmental sustainability issues in the next 5-10 years?

3. To what extent do training guidelines incorporate environmental sustainability issues in agricultural policy analysis and research?

   Not at all [ ] To some extent [ ] Moderately [ ] Sufficiently [ ] Highly [ ]

4. To what extent are environmental issues incorporated in developing training strategies including integrated pest management?

   Not at all [ ] To some extent [ ] Moderately [ ] Sufficiently [ ] Highly [ ]

5. To what extent do institutional mechanisms promote collaborative linkages with research institutions, non-government organizations, and others on including environmental sustainability in policy design?

   Not at all [ ] To some extent [ ] Moderately [ ] Sufficiently [ ] Highly [ ]

6. To what extent are environmental sustainability issues incorporated in policy implementation processes?

   Not at all [ ] To some extent [ ] Moderately [ ] Sufficiently [ ] Highly [ ]

7. To what extent are environmental sustainability issues incorporated in policy monitoring and evaluation?

   Not at all [ ] To some extent [ ] Moderately [ ] Sufficiently [ ] Highly [ ]

Appendix 2: Accreditation Status of Universities of Agriculture in Nigeria

Federal University	Year Founded	Accreditation Status
1. University of Ibadan, Ibadan	1948	Full
2. University of Nigeria, Nsukka	1960	Full
3. Ahmadu Bello University, Zaria	1962	Full
4. Obafemi Awolowo University, Ile-Ife	1962	Full
5. University of Benin, Benin city	1970	Full
6. Bayero University, Kano	1975	*
7. University of Maiduguri, Maiduguri	1975	Full
8. Usman Danfodio University, Sokoto	1975	*
9. University of Ilorin, Ilorin	1975	Full
10. University of Port-Harcourt, Port Harcourt	1975	Full
11. University of Uyo, Uyo	1991	Full
12. Abubakar Tafawa Balewa University, Bauchi	1988	Full
13. Federal University of Technology, Owerri	1980	Full
14. Federal University of Technology, Akure	1981	Full
15. Federal University of Technology, Minna	1982	Full
16. Federal University of Technology, Yola	1981	Full
17. University of Calabar, Calabar	1975	Full
18. University of Agriculture, Abeokuta	1988	Full
19. University of Agriculture, Makurdi	1988	Full
20. Michael Okpara University of Agriculture, Umudike	1992	Full
State University	**Year Founded**	**Accreditation Status**
21. Cross River University of Science and Technology, Calabar	2004	*
22. Ebonyi State University, Abakaliki	2000	*
23. Ladoke Akintola University of Technology,	1990	Full
24. Niger Delta University, Yenagoa	2000	*
25. University of Ado-Ekiti, Ekiti State	2007	*
26. Abia State University, Uturu	1981	*
27. Adamawa State University, Mubi	2002	*
28. Delta State University, Abraka	1992	*
29. Ibrahim Babangida University, Lapai Niger State	2005	*
30. Kogi State University, Anyigba	1999	*
31. Rivers State University of Science & Technology, Port Harcourt	1979	Full
32. Nasarawa State University, Keffi	2002	*
33. Ambrose Alli University, Ekpoma	1980	*
34. Olabisi Anabanjo University, Ago-Iwoye	1982	Full
Private University	**Year Founded**	**Accreditation status**
35. Babcock University, Ilishan Remo	1999	*
36. Bowen University, Iwo	2001	*
37. Igbinedion University, Okada	1999	*
38. Joseph Ayo Babalola University, Ikeji- Arakeji	2006	*
39. Kebbi State University of Science & Technology, Aliero	2006	*

*Being verified

Appendix 3: Profile for Capacity Building Across Program Themes

Table 1. Profile for capacity building for analysis of vulnerability

1: low capacity 2: moderately low 3: average 4: moderately high 5:high capacity

	Unfavorable Conditions	Present Situation					Desirable Conditions	Frequency of M&E
		1	2	3	4	5		
Weather and Climate Change								
Individual Capacity	No. of trained individuals in weather forecasting	X					More trained staff in weather forecasting with GIS analysis and early warning systems	Every two years
	Training resources for strengthening staff capacity at NIMET		X				Need to improve the amount of training resources per staff	Annually
	Frequency of training needs of staff and trainers reviewed	X					Need to periodically review training needs of staff	Quarterly/ Annuallyv
Organizational Capacity	Extent to which NIMET have contact with other training institutions for improving human capacity			X			Need to establish more contacts with meteorological centers in other countries and international agencies	Every two years
	Improving service delivery through enhanced telecommunication systems for data gathering and exchange; capacity building on NWP and climate change studies; capacity building on equipment maintenance; enhancing instrument calibration capacities			X			Need to improve on these priority areas for improving data availability and services	Annually
Policy Environment	Extent to which disaster prevention and preparedness are circulated as policy documents and through inclusion of policy relevant evidence		X				Substantial efforts are needed to circulate policy documents relevant for disaster prevention and preparedness	Annually
	Extent to which data are collected relevant to disaster prevention and preparedness		X				Significantly more efforts are required to collect data on floods, drought, oil spill, bushfire, and landslide through GIS and remote sensing	Quarterly

Table 2. Profile for capacity building for analysis of vulnerability

1: low capacity 2: moderately low 3: average 4: moderately high 5:high capacity

	Unfavorable Conditions	Present Situation					Desirable Conditions	Frequency of M&E
		1	2	3	4	5		
	Price Vulnerability Assessment							
Individual Capacity	• No. of individuals trained at FMAWR and other agencies in food price vulnerability assessments	X					More individuals to be trained in the coming decade	Monthly/ Quarterly
	• Extent to which historical food price data are used in vulnerability assessments	X					Need for improvement in historical food price data for vulnerability assessment for major commodities	Monthly / quarterly
	• Extent to which factors such as gender, access to infrastructure, and environmental issues considered	X					Substantial efforts required for integrating gender and environmental issues for communities and individuals that are more vulnerable	Annually
Organizational Capacity	• Key ministries involved in food price vulnerability assessments identified and clarified		X				Staff of FMAWR trained to collect economic, demographic, land-use planning, social data, etc.	Monthly/ Quarterly
	• Process for scientific and technical personnel in FMAWR to assess and review state and local govt. bodies in food price vulnerability assessments	X					Significantly more efforts needed by FMAWR to review and capacitate local and state government bodies in food price vulnerability assessments	Bi-annual/ Annually
Policy Environment	• A central library or GIS database established within FMAWR to store all food price data and disaster related information	X					Need to establish the GIS database within FMAWR soon	Monthly for food price data Quarterly for other data
	• Price vulnerability and related data available to the government agencies, the public, and private-sector bodies	X					More efforts to store such information and make it accessible	Monthly

Table 3. Profile for capacity building for agricultural financing and expenditure priorities

1: low capacity 2: moderately low 3: average 4: moderately high 5:high capacity

	Unfavorable Conditions	Present Situation					Desirable Conditions	Frequency of M&E
		1	2	3	4	5		
Individual Capacity	No. of individuals trained in bookkeeping and accounting in core ministries	X					More individuals trained in the coming decade	Annually
	NACRDB should be adequately funded	X					To meet the needs of farmers especially smallholders	Annually
Organizational Capacity	Budgetary provision should be increased to a minimum of 10% in line with Maputo declaration of 2003		X				To ensure adequate provision of infrastructures, extension, services etc to make agribusiness viable for investment	Annually
	Reduce the present high interest rate regime to one digit levels	X					The high interest rate regime is not conducive to an improved investment climate	Annually
Policy Environment	All stakeholders involved in formulating policy		X				To ensure buy in of all stakeholders	Annually
	Formulation of agricultural financing policy	X					To ensure timely disbursement of loans Issuing land titles Lending conditions simplified To increase the number of job opportunities To reduce poverty over time To improve agriculture and rural infrastructure	Annually

Table 4. Profile for capacity building for agricultural growth

1: low capacity 2: moderately low 3: average 4: moderately high 5:high capacity

	Unfavorable Conditions	Present Situation					Desirable Conditions	Frequency of M&E
		1	2	3	4	5		
Individual Capacity	Training in land tenure system Poor technical skills Low priority in planning	X					Reversing the current situation Careful mix of technical, professional, and managerial staff	Annually
	Available planners are underutilized Poor research prior to policy formulation	X					Training and retraining Making FMAWR staff more professionally oriented	Annually
Organizational Capacity	Incentive structures are poor Poor quality of agricultural education	X					Improve the funding for training Progression towards a better career path Better curriculum development Reward for achievements	Annually
	Poor linkages between research and extension at field level	X					Increase the budgetary provision for research and extension Duplication of efforts needs to be removed	Every two years
Policy Environmen	Policy inconsistency Developing performance indicators in agricultural policies	X X					Increased consistency and continuity in policy Promoting public-private partnerships in training	Annually

Table 5. Profile for capacity building for overall policy environment

1: low capacity 2: moderately low 3: average 4: moderately high 5:high capacity

	Unfavorable Conditions	Present Situation					Desirable Conditions	Frequency of M&E
		1	2	3	4	5		
Individual Capacity	No. of individuals trained in FMAWR for development of agricultural information systems	X					Adequate agricultural information flow to farmers at very low private cost	Annually
	No. of individuals trained in farmer associations for better access to loans	X					Increased and easier access to credit through farmer associations	Annually
Organizational Capacity	Lack of linkages and relationships among various actors in the value chain (such as cassava)	X					Programs and projects to be designed that emphasize linkages and relationships among various actors in the value chain	Over a five- year period
	No means of enforcing utilization of research results	X					Increased utilization of research results by various actors	Over a five- year period
	Lack of public-private-sector partnership approach	X					A more market based relationship between public and private-sector partners	Annually
Policy Environment	Lack of devolution of responsibilities between federal, state, and local governments	X					Increased responsibilities to states and local governments in agricultural policy formulation and implementation	Annually
	Lack of coherence in policy implementation Frequent changes in agricultural policies	 X	X				Prompt implementation of all sector policies that has been adopted by the National Council on Agriculture Increase in consistency and continuity in policy	Annually

Table 6. Profile for capacity building for improving agricultural productivity

1: low capacity 2: moderately low 3: average 4: moderately high 5:high capacity

	Unfavorable Conditions	Present Situation					Desirable Conditions	Frequency of M&E
		1	2	3	4	5		
Individual Capacity	Lack of sufficient budget allocated to inputs and public infrastructure (physical, social, and economic)		X				Greater allocation and better targeting of budget to infrastructure and inputs, including water and irrigation facilities	Annually
	No. of individuals trained in economic research and policy analysis		X				More individuals trained in economic research and policy analysis at FMAWR and state and local government agencies	Annually
Organizational Capacity	Lack of market access with poor technical know-how	X					Timely information on markets and prices Sustainable increase in the number of farmers having access to markets	Annually
	Low smallholder farmers share in total value of crops	X					Increase the number of network providers for greater market information to farmers	Annually
Policy Environment	Disincentives to farmers due to high taxes and levies and inadequate access to credit	X					Increase in investment by governments, private-sector, and donors to address disincentives	Annually

Table 7. Profile for capacity building for gender analysis

1: low capacity 2: moderately low 3: average 4: moderately high 5:high capacity

	Unfavorable Conditions	Present Situation					Desirable Conditions	Frequency of M&E
		1	2	3	4	5		
Individual Capacity	Extent to which gender component introduced in training of staff	X					More staff to be trained in FMAWR and FMWASD in gender awareness and sensitization	Annually
	Extent to which gender expertise among male staff increased over the last five years		X				Gender expertise to be incorporated for male staff for better project design	Over a five-year period
	Extent to which gender expertise among female staff increased over the last five years		X				Significant room for improvement of gender expertise among female staff	Over a five-year period
Organizational Capacity	Extent to which institutional mechanisms promote collaborative programs and linkages with research institutions, NGOs, and so on for including gender in policy design	X					A clear institutional mechanism for promoting gender in policy design needs to be incorporated	Reviewed annually
	Constraints faced by organization in addressing gender issues cultural sensitivity, collecting gender disaggregated data, and integrating gender into research time and funding constraints		X				Significant room for improvement in collecting gender disaggregated data and including gender into research issues	Over a five-year period
Policy Environment	Are women equally involved as men in the development of agricultural policies	X					Need for women to be involved in the development of agricultural policies	Over a five-year period
	Extent to which existing policies recognize the differential needs of men and women in agriculture	X					Existing policies need to take into account interests, needs, and priorities of women farmers, and explore how to target resources so that both men and women farmers benefit	Over a five-year period

Table 8. Profile for capacity building for environmental issues

1: low capacity 2: moderately low 3: average 4: moderately high 5:high capacity

	Unfavorable Conditions	Present Situation					Desirable Conditions	Frequency of M&E
		1	2	3	4	5		
Individual Capacity	• No. of staff trained in environmental issues		X				More training and re-training of staff in environmental issues in the coming decade	Annually
	• Extent to which training guidelines provide suggestions on environmental sustainability		X				More room for improvement in incorporating environmental sustainability in agricultural and rural development policies	Over a five-year period
Organizational Capacity	• Extent to which environmental issues are incorporated in developing training strategies		X				Environmental issues need to be incorporated in developing training strategies, including crop protection from pests	Over a five-year period
	• Extent to which institutional mechanisms promote collaborative programs and linkages with research institutions, NGOs, and so on for including environmental sustainability in policy design	X					A better institutional mechanism of including collaborative programs and linkages needs to be incorporated	Over a five-year period
Policy Environment	• Extent to which environmental sustainability issues are incorporated in policy processes	X					Environmental sustainability issues need to be incorporated in the policy processes for attaining higher agricultural growth without adversely affecting environmental resources	Over a five-year period

Source: Based on authors' assessment from various policy documents.

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