ReSAKSS Africa Wide
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FACILITATED BY IFPRI | A PROGRAM IN SUPPORT OF CAADP IMPLEMENTATION

ReSAKSS Working Paper No. 6

March 2010

Monitoring and Evaluation (M&E) System for the Comprehensive Africa Agriculture Development Programme (CAADP)

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About ReSAKSS

The Regional Strategic Analysis and Knowledge Support System (ReSAKSS) is an Africa-wide network of regional nodes supporting the Common Market of Eastern and Southern Africa (COMESA), the Economic Community of West African States (ECOWAS), and the Southern African Development Community (SADC), in collaboration with the International Food Policy Research Institute (IFPRI) and the Africa-based centers of the Consultative Group on International Agricultural Research (CGIAR), to facilitate the implementation of the AU/NEPAD's Comprehensive Africa Agriculture Development Programme (CAADP) and other regional agricultural development initiatives in Africa.

The ReSAKSS nodes offer high-quality analyses to improve policymaking, track progress, document success, and derive lessons for the implementation of the CAADP agenda. ReSAKSS is jointly funded by the United States Agency for International Development (USAID), the UK Department for International Development (DFID), and the Swedish International Development Cooperation Agency (SIDA). The nodes are implemented by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), the International Institute of Tropical Agriculture (IITA), the International Livestock Research Institute (ILRI) and the International Water Management Institute (IWMI), in collaboration with regional and national partners.

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The goal of the ReSAKSS Working Paper series is to provide timely access to preliminary research and data analysis results that relate directly to strengthening ongoing discussions and critical commentaries on the future direction of African agriculture and rural development. The series undergoes a standard peer review process involving at least one reviewer from within the ReSAKSS network of partners and at least one external reviewer. It is expected that most of the working papers eventually will be published in some other form and that their content may be revised further.

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ABBREVIATIONS AND ACRONYMS

ACTESA	Alliance for Commodity Trade in Eastern and Southern Africa
AERC	African Economic Research Consortium
AfDB	African Development Bank
AGRA	Alliance for a Green Revolution in Africa
AGRHYMET	Agrometeorological and Hydrometeorological Programme
AMU	Arab Maghreb Union
APF	African Partnership Forum
APRM	African Peer Review Mechanism
ASTI	Agricultural Science and Technology Indicators
AUC	African Union Commission
AU/NEPAD	African Union/ New Partnership for Africa's Development
CAADP	Comprehensive Africa Agriculture Development Programme
CGIAR	Consultative Group on International Agricultural Research
CEN-SAD	Community of Sahel-Saharan States
CMA/AOC	Conference of Ministers of Agriculture of West and Central Africa
COFOG	Classification of the Functions of Government
COMESA	Common Market for Eastern and Southern Africa
CSO	Civil Society Organization
DHS	Demographic and Health Surveys
DWHH	Deutsche Welthungerhilfe
EAGC	Eastern Africa Grain Council
ECCAS	Economic Community of Central African States
ECOWAS	Economic Community of West African States
FAAP	Framework for African Agricultural Productivity
EAC	East African Community
FARA	Forum for Agricultural Research in Africa
FDI	Foreign Direct Investment
FIMA	Framework for Improving Market Access
FO	Farmers' Organization
GDP	Gross Domestic Product
GHI	Global Hunger Index
GIS	Geographic Information System
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IEG	Independent Evaluation Group
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IGAD	Intergovernmental Authority on Development
IITA	International Institute of Tropical Agriculture
ILRI	International Livestock Research Institute
IMF	International Monetary Fund
IWMI	International Water Management Institute
LSCS	Living Standard and Consumption Survey
MAF	Mutual Accountability Framework
MDAs	Ministries, Departments and Agencies
MDG	Millennium Development Goal

MSU/FSP	Michigan State University Food Security Project
MTEF	Medium-Term Expenditure Framework
NARS	National Agricultural Research System
NGO	Non-Governmental Organization
NPCA	NEPAD Planning and Coordination and Authority
NRM	Natural Resource Management
OECD	Organization for Economic Co-operation and Development
ODA	Official Development Assistance
PRSP	Poverty Reduction Strategy Paper
REC	Regional Economic Community
ReSAKSS	Regional Strategic Analysis and Knowledge Support System
SADC	Southern African Development Community
SAKSS	Strategic Analysis and Knowledge Support System
SWAP	Agricultural Sector-Wide Approach
TLU	Tropical Livestock Unit
TWG	Technical Working Group
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa

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ABSTRACT

In July 2003 the African Union's New Partnership for Africa's Development (AU/NEPAD) put together the Comprehensive Africa Agriculture Development Programme (CAADP) to accelerate growth and reduce mass poverty, food insecurity and hunger among African countries. The program, which is a strategic framework to guide investments in agriculture across four pillars covering natural resource management, rural infrastructure, trade and safety net, research, and capacity strengthening, is targeting a 6 percent average annual growth in the agriculture sector and allocation of at least 10 percent of national budgets to the sector. As such, it is important to regularly assess the type and amount of investments being made and whether and how the investments (and related policies and practices) are having their desired impact on raising growth and on reducing poverty and hunger.

The purpose of this document is to develop a framework to be used in monitoring progress towards the successful implementation of CAADP to support mutual, peer and progress reviews at the continental, regional and national levels, respectively, and to provide a conceptual basis for impact assessment of CAADP. This is done by: (1) identifying a set of key indicators that are consistent with the underlying logic of CAADP to track progress in resource allocation and achieving stated targets and help answer questions related to the relevance, effectiveness, efficiency, impact and sustainability of the program; (2) identifying the data required, sources, and methods for estimating values of the indicators; and (3) laying out a plan for implementing the framework in terms of collecting, managing and analyzing the data, reporting results of the analysis, and obtaining and incorporating feedback for further improvement of the system.

The core of the document, as with any M&E framework on what to monitor, is based on the underlying logic of CAADP to show how the investments and outputs associated with any one pillar of CAADP interact with (i.e., affects and is affected by) the investments and outputs associated with the other pillars through complementarity or substitutability of investments (or through price effects, for example) to affect achievement of the overall CAADP goals and objectives. Furthermore, the framework shows how the investment decision and realization of the various outputs and outcomes are influenced by several conditioning factors such as governance and trade and macroeconomic policies. Such factors can have greater impact on the performance of the agriculture sector and, consequently, on achieving the overall CAADP goals and objectives, compared to investments and policies that directly target the agricultural sector.

INTRODUCTION

The recognition that agriculture must play a central role in economic growth, poverty reduction, and food and nutrition security improvement in Africa is now more widely accepted, particularly among African policymakers and leaders. The cost of disinvesting from the sector during the structural adjustment era had become all too obvious. In July 2003 the African Union's New Partnership for Africa's Development (AU/NEPAD) put together the Comprehensive Africa Agriculture Development Programme (CAADP) to accelerate growth and eliminate poverty and hunger among African countries (AU/NEPAD 2003). The main goal of CAADP is to help African countries reach and maintain a higher path of economic growth through agriculturally-led development that reduces mass poverty, food insecurity and hunger. As targets for a successful implementation, the CAADP takes on the Millennium Development Goal (MDG) of reducing poverty and hunger by half by 2015, through the pursuit of a 6 percent average annual growth in the agriculture sector and allocating an average of 10 percent of national budgets to the sector. The program is a strategic framework to guide these and other investments across four specific pillars, as well as investments in strengthening institutional capacity across the pillars:

1. Extending the area under sustainable land management and reliable water control systems
2. Improving rural infrastructure and trade-related capacity for market access
3. Increasing food supplies and reducing hunger
4. Agricultural research and technology dissemination and adoption

The program is meant to be implemented at the country level, based on priority areas that are identified through regional implementation planning meetings and country roundtables and outlined in region-specific and country-specific compacts and investment plans, respectively. The purpose of this document is to develop a framework to be used in monitoring progress towards the successful implementation of CAADP and assessing the impacts of CAADP, which together can tell a compelling story about progress and performance with CAADP implementation at national, regional and continental levels. With the perspective of managing for impact, therefore, the main objectives of this report are: (1) to identify a set of key indicators that are consistent with the underlying logic of CAADP to monitor processes, track progress in meeting resource allocation commitments and achieving stated development targets, and help answer questions related to the relevance, effectiveness, efficiency, impact and sustainability of CAADP as a driver of achieving the millennium development goals (MDGs) of halving poverty, hunger, and food and nutrition insecurity by 2015; (2) to identify the data required, sources, and methods for estimating values of the indicators; and (3) to lay out a plan for implementing the framework in terms of collecting, managing and analyzing the data, reporting results of the analysis, and obtaining and incorporating feedback for further improvement of the M&E system.

This document, and the ultimate outputs of the M&E system, is thus primarily targeted to stakeholders at the national, regional and continental level involved with managing the processes and resources for implementing CAADP. At the continental level for example, the AU commission will be the primary users of the outputs in accordance with the decision at the fourth ordinary session at Abuja, Nigeria in January 2005 that the AU Commission "report on the

Status of Food Security in Africa focusing on the implementation of CAADP and other relevant Declarations and Plans of Action and submit it for consideration of the Assembly in July every year" (Decision 59(IV) on agriculture and food security in Africa). Others at different levels to target include: the NEPAD Planning and Coordination Authority (NPCA); Departments of Agriculture within the Regional Economic Communities; Ministries of finance, agriculture, and local governments in the AU member states; and the donor community concerned with agricultural development in Africa. The outputs of the M&E system will also be useful to researchers and others interested in CAADP or knowledge on monitoring and evaluating public agricultural investments in general.

Why An Overarching M&E Framework for CAADP?

Trying to ensure that the CAADP goals of halving poverty, hunger, and food and nutrition insecurity by 2015, which is to be driven by broad-based, annual average agricultural sector growth of 6 percent for the continent as a whole, are achieved will require a mechanism by which processes put in place, commitments and investments made, the sector's performance, and any changes in poverty, hunger and food and nutrition security are regularly and transparently measured against stated targets and, if necessary, can lead to the revision of processes, policies, investments and practices in order for CAADP to stay on track. The rationale for having this overarching CAADP M&E framework is to bring cohesion across the different systems being developed to track specific components of CAADP, including the individual CAADP pillar M&E systems, the African Peer Review Mechanism (APRM), and the Mutual Accountability Framework (MAF).

The pillar-specific systems for example will focus on assessing performance towards achieving pillar-specific targets without necessarily considering how the processes, investments and outcomes associated with other pillars interact with each other through complementary or substitution effects to affect achievement of the overall CAADP goals and objectives. The APRM focuses on democracy and political governance, economic governance and management, corporate governance, and socio-economic development to assess African states' compliance with a wide range of African and international human rights treaties and standards. The MAF, which is now being developed, will focus on monitoring and evaluating the commitments between donors and governments. Furthermore, the processes, investments, performance and outcomes associated with CAADP are influenced by several conditioning factors that may not be comprehensively tracked and analyzed without an overarching framework. Many of these factors, including for example governance, policies for private sector development, and trade policies of exporting and importing countries, can have greater impact on the performance of the agriculture sector and, consequently, on poverty, hunger and food and nutrition security, compared to the CAADP processes, policies and investments that directly target the agricultural sector.

The outputs of such an overarching M&E system are also necessary for meeting the review, dialogue and learning needs that are envisioned as part of the CAADP agenda at three different levels:

1) *Mutual review at the continental level* to review overall progress in the implementation of CAADP. This occurs through the African Partnership Forum (APF) (which is informed by the African Peer Review Mechanism (APRM)) and the CAADP Partnership Platform (which will be informed the Mutual Accountability Framework (MAF)). The APF targets African leaders and their G8 and non-G8 OECD partners

and provides a platform for dialogue and review at the highest level, with respect to program performance and progress across the broad NEPAD agenda. The Partnership Platform, on the other hand, focuses more specifically on the CAADP agenda, bringing together representatives of the leading Regional Economic Communities (RECs), other regional organizations dealing with agriculture, major bilateral and multilateral development agencies, and private-sector and farmers' organizations.

2) *Peer review at the regional level* to promote dialogue and mutual learning around the review of progress and performance towards aligning development assistance and country policies and strategies with the CAADP targets and principles. This occurs through two distinct processes involving country representatives at the level of permanent secretaries and directors of planning, and country representatives from a broader set of stakeholders, including private sector, farmers' organizations, and development agencies.

3) *Progress review at the national level* to ensure that country level policies and programs are aligned with CAADP principles and on track to meet the country-specific targets and objectives. The choice of mechanisms to facilitate this process depends on individual countries' institutional and technical realities, but each country must carry out a transparent, broad, and inclusive dialogue leading to roundtable discussions that ensure the effective participation of a broader set of stakeholders (i.e., all line ministries and their departments and agencies, development partners, agribusiness sector, and farmers' organizations).

As CAADP is meant to be implemented at the country level, these mutual, peer and progress reviews at the continental, regional and national levels, respectively, are intended to provide synergies to ensure a harmonized agenda that is implemented to achieve greater and better distributed outcomes and impacts. However, this can only occur to the extent that there is timely sufficient information and policy-relevant evidence that is supported through accurate and intelligent data and derived from rigorous trend analysis and impact assessment. Therefore, M&E capacities, tools, and instruments are needed at all levels (continental, regional and country) and for all pillars and other review mechanisms (i.e., APRM and MAF), but intelligently integrated in a systematic manner. These can be acquired by building upon and strengthening existing institutions and expert networks. In addition, these institutions and networks can be linked within and across countries at the regional level to create the necessary critical masses and exploit technical complementarities.

The need for such an overarching M&E framework for CAADP was reemphasized at the recent CAADP Partnership Platform (PP) meeting in Abuja (AU/NEPAD 2009) and CAADP M&E Framework Validation workshop (AU/NPCA, 2010). This points to the three Regional Strategic Analysis and Knowledge Support Systems (ReSAKSS) that have been established to work with the Regional Economic Communities (RECs), leading institutions of the CAADP pillars and other review mechanisms, and national institutions and networks to provide relevant and timely information into the mutual, peer and progress review processes.

The goal of the CAADP M&E framework would to be to regularly assess the amount and type of CAADP investments made, and whether and how the investments (and related policies and practices) are having their desired impact on raising growth and on reducing poverty and hunger. Specifically, the outputs of the overarching M&E system should help to answer the following questions relating to enabling environment for successful implementation of CAADP,

delivering on commitments, effectiveness of interventions, consistency of planned interventions with initial targets, and exploring policies and interventions with greater and better distributed outcomes:

1. Enabling environment*:*
   a. What policies, institutions and mechanisms are in place to enhance economic management e.g., political and economic governance, private sector development, and equity?
   b. How credible and relevant has the evidence used in the process of designing the investment programs been?
   c. Have the processes been inclusive of all stakeholders, and are investment programs aligned with the CAADP principles and targets?
   d. Are mechanisms in place for implementing the investment and monitoring and evaluating its impacts?

2. Delivering on commitments and achieving stated targets:
   a. Are development partners making good on their financial commitments to support CAADP?
   b. Are governments allocating 10 percent (or other share as stated in their investment plans) of their total budgetary resources to the agricultural sector?
   c. Have expectations in terms of being on track to achieving the CAADP growth and reducing poverty, hunger, and food and nutrition insecurity been met so far?

3. Effectiveness of interventions (processes, policies, investments):
   a. How effective have different types of interventions been in the achievements realized so far?
   b. What factors have shaped the level of impact that has been achieved?
   c. What are the trade-offs and complementarities, if any, among different types of interventions?

4. Consistency of planned interventions with initial targets:
   a. What are the projected impacts if interventions proceed as currently planned?
   b. Are these projected impacts compatible with the CAADP growth and goals on reducing poverty, hunger, and food and nutrition insecurity?

5. Exploring interventions with greater or better distributed impacts:
   a. Could greater or better distributed impacts be obtained by reconfiguring the interventions?
   b. What are the different or new interventions that can lead to greater and more sustainable growth as well as greater and better distributed impacts?
   c. What are the new targets that can be set for implementing these new types of interventions?
   d. What are the resources needed for implementing these new interventions to achieve the desired impacts?

While the information generation from the CAADP M&E system can be used to guide the policy debate surrounding these questions, developing such an overarching system will be. Fortunately, the demand for such a system exists and is well articulated—including commitment to use the information and institutionalize it over the long term.

Therefore, the challenge lies with collecting, managing and analyzing data and reporting

information that can be well understood and intuitive in order to have real use for its purposes. With this in mind, a simple and intuitive approach is desirable, while, as much as possible, maintaining a sound theoretical framework of causality between effort and outputs and outcomes to be measured in the system is critical. This is because the simpler it is, the less costly to develop and maintain, the lower the likelihood of errors in measurement, and the less complexities inherent in the system to interpret the information that comes out of it. A large and disparate set of indicators that end up not being collected or used or cannot be interpreted by decision makers have no value to anyone. A recent study designed to draw lessons of experience with government M&E systems by the Independent Evaluation Group (IEG) of the World Bank summarizes the lessons very well (World Bank 2007a):

- Over-engineering an M&E system is not only wasted effort but can eventually undermine the M&E system;
- Simply believing that an M&E system has inherent value is a typical mistake. The information in the system is only valuable if it is used.

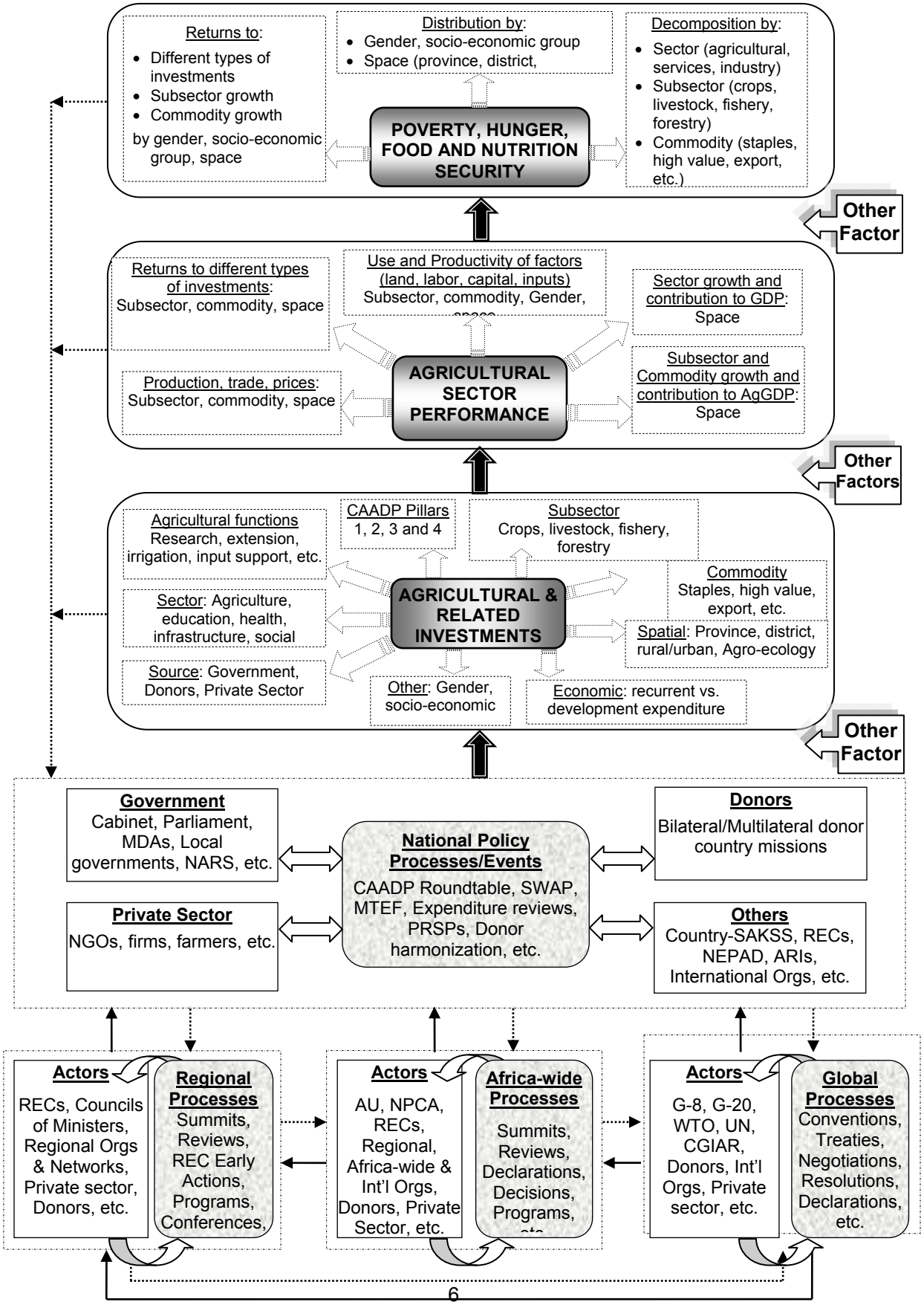
With these basic principles in mind, we begin by discussing what is it that should be monitored and evaluated, using a simplified conceptual framework of the underlying logic of CAADP to draw out a chain of causality between inputs (processes, policies and investments), outputs and outcomes, taking account of conditioning factors. The objective is to select a minimum set of indicators that can be utilized to tell a credible story of how processes and investments associated with CAADP are influencing growth, poverty, hunger and food and nutrition security. Once these indicators have been identified, we lay out an action plan for operationalizing the system, i.e., in terms of collecting, managing and analyzing data, and reporting results of the analysis.

What to Monitor and Evaluate

There are several documents on how to design and implement M&E systems, with substantial attention given to the selection of indicators, which are at the heart of any monitoring and performance evaluation system (e.g., IFAD 2002). Although there are several proposals of the criteria to be used in selecting indicators, it is generally agreed that the indicators must be SMART: **S**pecific, **M**easurable, **A**chievable, **R**ealistic, and **T**imely. For CAADP, this means that the potential indicators must be ones that best reflect the range of inputs (processes, policies and investments), outputs and outcomes associated with the activities being implemented across the different pillars of CAADP. They must also capture critical landmarks along the pathway(s) of impact, i.e., between relevant interventions that are put in place and how they can affect agricultural productivity growth, poverty, hunger, and food and nutrition security.

Therefore, before deciding on the set of indicators to monitor and evaluate, it is useful to first look again at the underlying logic of CAADP in terms of: how processes, policies and investments across the various pillars and in capacity strengthening can contribute to achieving the goals and objectives of the program; how the interventions and outputs associated with each individual pillar affect and/or is affected by those associated with other pillars; and how other conditioning factors (especially those outside the control of the program managers) are likely to influence implementation of the program and realization of the objective and goals of the program. These relationships, which are complex and well known, are explained in detail in the CAADP document (AU/NEPAD 2003) and the individual pillar frameworks (AU/NEPAD 2006, 2008b, 2008c) and so they will not be repeated here. However, we use a simplified illustration to capture these complex relationships (Figures 1 and 3) and to help identify a critical set of indicators that, in addition to being consistent with the impact pathways, possess sufficient information to address the fundamental question of whether the program is on track to achieving the desired agricultural growth rate and poverty, hunger, and food and nutrition

Figure 1. Underlying logical framework for the CAADP M&E system



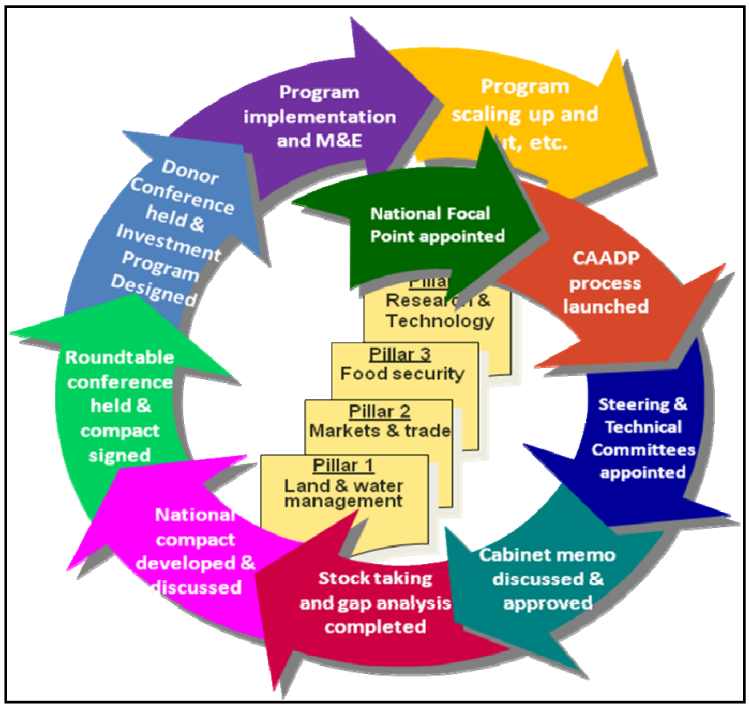
insecurity reduction targets. And if not, what adjustments can be made to potentially put the program back on track to achieving its goals and objectives. The idea here is to avoid having a long shopping list of indicators, which is typical of many M&E systems that end up not being collected or analyzed, or, even when collected and analyzed, can lead to information overload without having an effective decision being made, if any decision is made at all.

As laid out in the CAADP document (AU/NEPAD 2003), CAADP is a strategic framework to guide public and private investments in agriculture, natural resource management, rural infrastructure, trade, and food security and safety net. The idea behind the M&E system is that there are several processes associated with CAADP taking place at all levels (national, regional, continental and global) that are expected to lead to increased and more efficient allocation of resources to the agricultural sector, which in turn would lead to increased agricultural growth and trade, and ultimately reduction in poverty, hunger and food and nutrition insecurity (Figure 1). It is expected that providing information into the different processes on the performance along the chain would improve the decisions made to reinforce the above outcomes. We now discuss CAADP and other processes taking place at each level and the sorts of things to monitor and evaluate. This is then followed by a discussion of the same for the other elements along the chain.

National-level processes and events

The CAADP country roundtable process is the main process to monitor and evaluate at the country level. The process is meant to be an inclusive participation of stakeholders to ensure that credible and relevant evidence is used in the design of a CAADP investment program that is aligned with the CAADP principles and targets across the four CAADP pillars. Figure 2 shows significant stages in the process leading up to signing of a country CAADP compact and then design, technical review, implementation and monitoring and evaluation of the investment program.

Figure 2. CAADP Country Roundtable Process: major milestones



The main objective of the M&E system will be to assess the stage at which countries are the process, why countries are progressing the way that they are, constraints and opportunities, and roles of different stakeholders in the process, including their capacities to undertake their roles. Different stakeholders include government (president's office, cabinet, parliament, ministries, departments, implementing agencies, etc.), private sector (non-governmental organizations (NGOs), firms, farmers organizations, etc.), donors (country missions of other governments and development funding agencies), and others (national universities, international organizations and universities, regional and Africa-wide institutions, etc.). As Figure 1 shows, there are several other national-level policy and strategy processes taking place that cannot be ignored, as they affect the CAADP process or the outcomes. These other processes include the poverty reduction strategy papers (PRSPs), agricultural sector-wide approaches (SWAP), medium-term expenditure framework (MTEF), and public expenditure reviews. Different processes typically involves several pieces, including identification of the policy and strategic issues to be addressed (the "what" question), mechanisms to address the issues ("how"), and cost of addressing the issues ("resources"). Thus, it will be important to track and assess the sorts of policy and strategic issues sought to be addressed, plans made to address them, roles of different stakeholders in the process and their capacities to undertake their roles (including capacity to demand, provide and utilize knowledge), and achievements and gaps in the process. As the aim of the M&E system is to inform design and implementation of agricultural and rural development policies and strategies, assessing gaps in knowledge (and associated gaps in data, analytical tools, information, etc.) would inform development of appropriate methodologies for collecting and analyzing data to fill those gaps. Assessing individual and institutional capacity would help in the design and provision of appropriate training and mentoring to strengthen skills for undertaking policy analysis, design and implementation. Assessing outcomes of policy dialogues would help in the development of effective communication products and dissemination strategies to timely get policy analysis results, including some of the outputs of this M&E system (e.g., growth and poverty-reduction outcomes of different types of investments—see Figure 1), to policymakers and all relevant stakeholders in a useful form to enhance the role of knowledge in strategy formulation and implementation.

Regional-level processes and events

Similar to the country level, the process leading up to signing of a regional CAADP compact and then design, technical review, implementation and monitoring and evaluation of regional investment program is the main process to monitor and evaluate at the regional level. There are several regional-level organizations engaged at this level for the promotion of social, political and economic integration of the different regions of Africa; western, eastern, central, northern and southern Africa regions. The RECs represent the pinnacle of these various organizations that convene and manage processes for the development of regional programs on mostly agricultural research and development, trade, and immigration. Regarding CAADP for example, the RECs, apart from being responsible for coordinating the implementation of CAADP in countries in their respective regions, are engaged in developing and implementing specific long-term regional programs and early actions associated with the four CAADP pillars. Similar to national-level processes, stakeholders interact with each other in various ways and roles leading to design and implementation of specific regional policies and strategies, which impacts and is impacted by the national-level processes (see Figure 1). As done with the national-level processes, it will be important to track and assess the sorts of policy and strategic issues sought to be addressed, plans made to address them, roles of different stakeholders in the process and their capacities to undertake their roles (including capacity to demand, provide and utilize knowledge), and achievements and gaps in the process. More importantly is to assess linkages between regional- and national-level processes and outcomes in terms of whether and how they complement, crowd out or have no effect on one another. The results this research will be fed

into the various processes via the CAADP review processes and other events such as the REC summit.

Africa-wide level processes and events

As at the continental level, the Africa Union (AU) is premier institution and principal organization with the mandate to promote of social, political and economic integration of the continent. It was at the second ordinary assembly of the AU in Maputo, Mozambique in July 2003 that African heads of states resolved "to implement, as a matter of urgency, the CAADP and flagship projects and evolving Action Plans for agricultural development, at the national, regional and continental levels" and agreed "to adopt sound policies for agricultural and rural development, and commit ourselves to allocating at least 10 percent of national budgetary resources for their implementation within five years" (Declaration 7(II) on agriculture and food security in Africa). Given little progress in implementation, the resolution was renewed at the thirteenth ordinary assembly in Sirte, Libya, in July 2009 by requesting "the AU Commission, the NEPAD Secretariat and the RECs to **c**ontinue to mobilize the necessary technical expertise and financial resources to support capacity development and related policy reforms to accelerate CAADP implementation in all Member States, including the signing country CAADP Compacts indicating the policy measures, investment programs, and required funding to achieve the six percent (6 percent) growth and ten percent (10 percent) budget share targets for the agricultural sector by 2015" (Declaration 2(XIII) on agriculture and food security in Africa). Thus, it is important to assess the extent to which and how these decisions and declarations are shaping regional- and national-level processes and outcomes (see Figure 1). As done with the national and regional-level processes, it will be important to also track and assess the roles of different stakeholders in relevant Africa-wide process and their capacities to undertake their roles (including capacity to demand, provide and utilize knowledge).

Global processes and events

There are several processes taking place at the global level that have implications for agricultural and rural development on the continent. At the 2002 Monterrey Conference for example, rich countries pledged to increase their development assistance to 0.7 percent of their GDP (UN 2002). Through the Millennium Challenge Act of 2003, the U.S. government pledged a 50 percent increase over its existing US$10 billion annual funding for U.S. development and humanitarian assistance. In 2005, the Commission for Africa called for rich countries to double their aids to Africa and to cancel debts poor countries owe to rich countries (Commission for Africa 2005). More recently in 2009, the G-8 pledged at least $20 billion to support agriculture and eradicate hunger in developing countries and keep agriculture at the core of the international agenda, under its global partnership on agriculture and food security agenda. These commitments and decisions ought to be monitored to assess the extent to which and how they influence local (national, regional and Africa-wide) processes, policies, strategies and agricultural investments. The mutual accountability framework (MAF) will be important here as it focuses on monitoring and evaluating the commitments between donors and governments.

Agricultural policies, investments, growth, and outcomes

The processes discussed in the preceding section are expected to lead to increased and more efficient allocation of resources to the agricultural sector, which in turn would lead to increased agricultural growth, and ultimately reduction in poverty, hunger and food and nutrition insecurity (Figure 1). As CAADP is a strategic framework to guide public and private investments around its 4 pillars (land and water resources (Pillar 1), rural infrastructure and trade (Pillar 2), food security (Pillar 3), and agricultural research and technology (Pillar 4)) and cross-cutting capacity strengthening, it is important to first see how these relate or interact with each to realize the

overall outcomes of reducing poverty, hunger and food and nutrition insecurity. There is an abundance of theories and evidence on the relationship between different types and the outcomes.

Following these, Figure 3 is organized to show how investments ("inputs") associated with the four pillars, including investment in strengthening institutional capacity across the board, lead to specific "outputs" or "capital" in related investment activities. Capital can be classified broadly as: physical capital (e.g., irrigation systems, roads, storage and processing plants, emergency grain reserve facilities, etc.); genetic capital (animal and plant genes associated with early maturing, disease and drought resistance, consumer-preferred taste and color, etc); information and knowledge capital (e.g., marketing chains, extension systems, early warning systems, policies, sustainable agricultural husbandry, etc.); and human capital (e.g., skills and technical capability in policy analysis and formulation, planning, agricultural research and technology development, etc.).

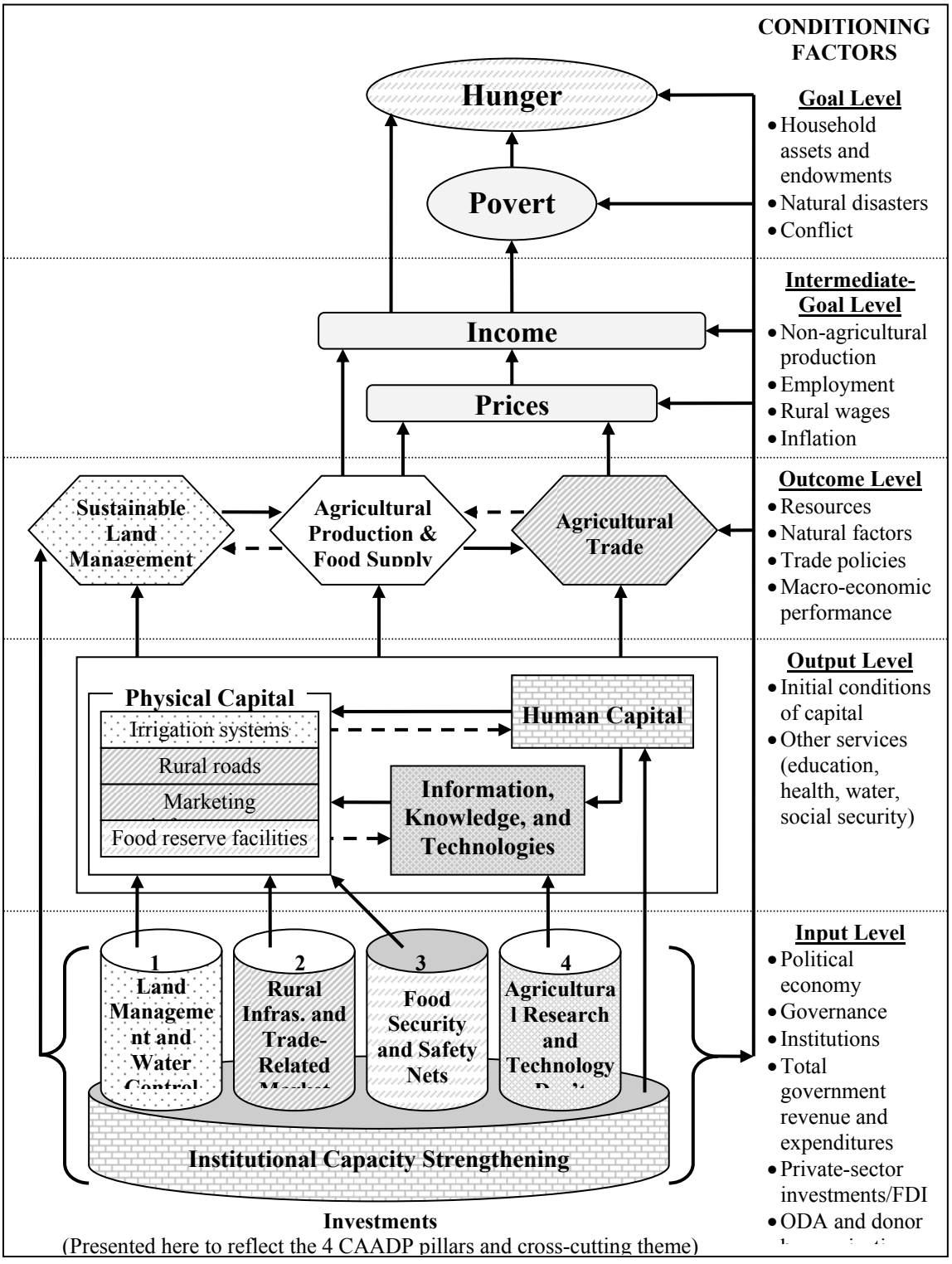
The development of any type of capital depends on the development of other types of capital, which together leads to "outcomes" in sustainable land management, agricultural production and productivity, food supply, and trade, and ultimately to poverty and hunger impacts. Figure 3 demonstrates that the individual pillars interact with each other in complex ways and at different levels, which emphasizes the rationale for having an overarching CAADP M&E framework to bring cohesion across the different systems being developed to track different components of CAADP.

The notion underlying the link between outputs and outcomes is that capital embodies productivity-growth traits whose benefits can be realized only when farmers and those engaged in related production activities first acquire and use the capital appropriately.

The indicators along this section of the intervention-to-impact pathway should capture actual use of infrastructure and services and adoption of technologies by farmers, which goes beyond the mere provision of infrastructure and services and access of farmers to them. As Figure 3 shows, and supported by the evidence in the literature, each of the "outcomes" in sustainable land management, agricultural production and productivity and food supply, and trade affects and is affected by the other outcomes, which together affects poverty and hunger ("goals") via their impact on (food) prices and household incomes ("intermediate goals"). Increased agricultural production, for example, is expected to lead to reduced food prices and cause an increase in real incomes (especially incomes of households that are net buyers of food), which in turn is expected to reduce poverty and hunger.

Another important potential impact pathway of the investments is their direct effect on trade, prices, incomes, poverty and hunger through food purchases and employment (e.g., wages and salaries for workers involved in construction of irrigation dams, roads, buildings, etc.) and transfers to households through farm support subsidies and emergency food aid and safety-net programs (e.g., food-for-work, school feeding, etc.). The latter can also contribute indirectly to the growth and poverty-reduction process by raising the productivity of the target groups through investments in their human capital, including training, skills development, and nutrition. However, recipients of such direct transfers may alter their farm labor supply, which may negatively impact agriculture production or their consumption and savings choices such that the net income gain is less than the amount of the transfer (van de Walle 2003). There are also indirect price effects of transfers, particularly arising from farm support subsidies.

Figure 3. An underlying logical framework of CAADP



As Figure 3 also shows, there are several factors that condition the decision of which pillar to investment in and how much to invest, as well as realization of the various outputs, outcomes and goals. Therefore, these conditioning factors also need to be monitored and analyzed for a comprehensive assessment of the progress in the implementation of CAADP and its impact. Only then can we be confident that any observed effect, such as a reduction in transactions

costs, an increase in agricultural productivity, or a reduction in poverty is due to the intervention. Again, the roles of these conditioning factors are well known and well explained in the CAADP document (AU/NEPAD 2003). We only focus on some of the key ones here. For example, how much government resources are invested in agriculture or rural roads depends not only on the total resources available to the government, but on political economy, institutional and governance factors (see Birner and Resnick 2005, and Resnick and Birner 2005 for reviews). Governance, for example, is one factor that has attracted particular attention during the last decade regarding the efficacy of public spending or the relationship between the amount spent and actual services provided or received. The African peer review mechanism (APRM) will be important here as it focuses on democracy and political governance, economic governance and management, corporate governance, and socio-economic development to assess African states' compliance with a wide range of African and international human rights treaties and standards.

Public-private partnership is also emphasized in every pillar of CAADP, which is based on the notion that public and private capital are complements in the production process, so that an increase in the public capital stock raises the productivity of all factors in agricultural production. Thus, having policies and interventions in place that create an enabling environment for private sector development in, for example, agricultural research and value chains (e.g., input supply, agro-processing, marketing) will be critical for the success of CAADP. Thus, it is important to monitor indicators associated with for example tax rates, interest rates, savings, credit, loans, subsidies, and licensing, all of which that affect private entrepreneurship.

However, since agricultural subsidies and other direct transfers of public resources for the financing of private goods and services can have potential market-distorting characteristics and crowd out private investment, it is important to monitor these also. Macroeconomic policies, such as overvalued currencies and industrial protection, also need to be monitored, as they have been shown to have historically taxed agriculture more than direct agricultural policies have (World Bank 1982).

Tracking growth in the nonagricultural sector, employment and rural wages, as well as agriculture–nonagriculture terms of trade, is also important because of the link with the agriculture sector, which is not explicitly captured in Figure 3. Typically, growth in the agriculture sector is seen to provide investment capital for nonfarm rural development (e.g., in food processing and marketing, transportation and trade, restaurant services, electronic repairs shops) and for urban industrial and service development (Barro 1990; Hart 1998). The development of the nonfarm rural sector can have substantial multiplier effects on the overall economy if it expands the market opportunities for farmers and creates off-farm employment opportunities. The latter is particularly important for absorbing the excess labor and other factors of production that arises as a result of the increased agricultural productivity, which is contrary to early classical thinking that viewed agriculture as a low-productivity, traditional sector that primarily contributed to development of a nation by providing food and employment. Increase in real incomes in rural areas provides market opportunities for urban industrial and service development, through increased derived demand for urban-manufactured goods and services. This feedback linkage is critical for development of the economy as a whole, especially where export opportunities are not sufficient to allow urban industries to achieve competitive efficiency in foreign markets through economies of scale.

Factors associated with the integration of domestic economies into global markets matter too. After all, foreign competition and markets can shape the prospects for agricultural transformation. Here, monitoring trade policies in both African and high-income countries is helpful. As the evidence shows, a combination of poor policies and institutional failures in Africa

and developed-country policies which limit market access, reduce investment incentives and growth opportunities in African agriculture (World Bank 2007b; Anderson et al. 2006; Binswanger and Townsend 2000). In particular, import tariffs, farm support and export subsidies granted to farmers in many countries of the Organization for Economic Co-operation and Development (OECD) tend to boost production in those countries, depress world prices, and reduce the scope for import competition in developing countries. Although it has been argued that such policies can benefit developing countries that are net importers of agricultural products from developed countries by providing access to the subsidized commodities at lower prices, the evidence is limited. Developing countries may also use high tariffs to protect domestic production—the small country argument. Examples of trade policies to monitor include import and export tariffs and quotas, SPS requirements, international prices, exchange rates, etc.

Other conditioning factors that matter at various levels of the input-to-impact pathways in Figure 3 include resource endowments, natural disasters, and conflict, which have been critical factors in explaining the poor performance in African agriculture development (Binswanger and Townsend 2000).

The foregoing suggests a wide range of indicators that can be considered for a CAADP M&E System. Clearly the system cannot incorporate all of them. However, as the interest here is in managing for impact, it is important to ensure that the criteria used in narrowing the set of indicators to use helps to not only assess their trends to monitor progress, but focuses attention on the ultimate objective of whether and how CAADP investments and policies are having desired outcomes and impact. In other words, the selected indicators must be consistent with the causal chain of investment in order to understand not only “what” happened but also “why”. Failing to do so limits the utility of the M&E results to apply lessons from its activities to improve implementation. In the next section, we discuss the proposed set of indicators (and benchmarks) for tracking progress and laying the foundation for future impact assessments of CAADP.

Indicators and benchmarks

There are several factors to consider in developing criteria for selecting the indicators to be used in monitoring and evaluating CAADP, particularly the processes, policies, investments and outcomes that were discussed in the preceding section. Of these factors, three are very important here. First, CAADP is meant to be implemented at the country level, based on priority areas to be outlined in country-specific compacts and reflecting the individual countries’ institutional and technical realities and capacities. To facilitate comparisons and cross-country learning, therefore, the selected indicators must be standardized and consistent across different countries and regions.

Second, the M&E system should be able to support the mutual, peer and progress reviews at the continental, regional and national levels, which suggests that the selected indicators should be measurable at all the three levels. Take the indicator of poverty incidence ratio, for example. At the country level, this is measured as the proportion of the population living below $1.25 a day (or the national poverty line). At the regional level, this indicator cannot be measured as a simple average of the individual country level proportions in the region. Instead, the appropriate measure should be the proportion of the population in the region living below $1.25 a day (or the regional poverty line). A variant of this method of aggregation is the weighted average of the country proportions, where GDP or population shares, for example, can be used as the weights. This reinforces the first point about the need for having a standardized and consistent indicator, which means that the data used in measuring the indicators at the country level should be

capable of being aggregated across countries and regions to obtain regional and Africa-wide indicators, respectively.

Third, for any one particular expected outcome, there are several potential indicators that can be used to track it. Take the expected outcome of reduced poverty of the MDG1 for example. There are three established indicators for tracking it: poverty incidence ratio; poverty gap ratio; and share of poorest quintile in national income. The expected outcome of reduced hunger of the MDG1 is also tracked by two indicators: proportion of population with dietary energy consumption below a certain minimum level, and prevalence of underweight children under five years of age. The individual indicators are important for tracking certain aspects or their related goals and, thus, together they contribute to a more comprehensive assessment of progress towards achieving the ultimate goal. The question that comes up is whether it is necessary to monitor and report on all of them, or any one of them only, or whether the individual indicators can be aggregated into a single metric or index to convey the general state of poverty or hunger.[1] IFPRI's Global Hunger Index (GHI) is a good example of such an aggregation (DWHH /IFPRI 2006). By combining the two MDG1 indicators of the proportion of undernourished and prevalence of underweight children with the child mortality rate, the GHI goes beyond dietary energy availability to reflect the multidimensional causes and manifestations of hunger, including inequitable resource allocations between and within households. The index, which varies between the best possible score of 0 and the worst possible score of 100, is very easy to comprehend, with, for example, scores above 10, 20 and 30 being considered serious, alarming, and extremely alarming hunger, respectively. The use of aggregate indicators or indexes generally requires complex aggregation techniques,[2] in the event that the use of simple averages or weighted averages over the individual indicators is not acceptable.

With these considerations, we now discuss potential indicators for the CAADP M&E system that are important for addressing the questions raised in the introduction. The indicators are grouped into seven intervention areas: (1) enabling environment; (2) implementation process; (3) commitments and investments; (4) agricultural growth performance; (5) agricultural trade performance; (6) poverty, hunger, and food and nutrition security; and (7) investment-growth-poverty linkages. Naturally, the list of indicators is long in an attempt to be comprehensive. Key indicators are therefore presented in boxes, which are discussed further in section 5 as a minimum set of core indicators to be monitored, with rationale for their selection. Details of all the indicators, including definitions, data and methods for measuring the values of the indicators, and suggested sources of the data, are presented in Annex A.

[1] The use of aggregate indicators or indexes is common, and the strengths and weaknesses of using them are fairly well documented.

[2] An objective way for aggregating indicators is by using principal component analysis (PCA), which reduces the number of indicators to a small number of indices called principal components that are then used in calculating the index.

Indicators on enabling environment

Key indicators on enabling environment

- Governance and economic management
  - Percent of population satisfied with political governance by: (1) gender; (2) rural/urban; (3) age group; (iv) sector
  - Macroeconomic management: (1) deficit to GDP; (2), revenue to GDP; (3) inflation rate; (4) debt to GDP
- Private sector development
  - Proportion of population with access to financial services for agricultural and rural development
  - Proportion of commercial loans for agricultural and rural development (and as percent of Agricultural GDP
- Donor harmonization
  - Share of ODA for total budget support

The main issues here are: (1) governance and economic management in the agricultural sector; (2) policies for private sector development; and (3) donor harmonization. On governance indicators, the work by Kaufmann et al. (2006) has gained global recognition, with indicators on six dimensions of governance: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption. These indicators are more relevant for the economy as whole and cross-country comparisons. For CAADP, which focuses on the agricultural sector, preferred indicators include frequency of strategic exercises (e.g., priority setting, reform) within agricultural research institutions, universities and MDAs, as well as the composition of their governing bodies in terms of membership (e.g., gender, farmers, CSOs) and frequency of meetings. Indicators from the APRM will also be important here, particular those on political governance and economic management.

Regarding policies for private sector development, a key factor that is believed to constrain entrepreneurship is the lack of credit and financial services. Therefore, the proportion of population with access to financial services for agricultural and rural development and proportion of commercial loans for agricultural and rural development are important to track.

Although donor support to Africa has stepped in to fill large resource gaps for development, it has generally been fragmented and inadequately coordinated, resulting in reduced efficiency and effectiveness, as well as sustainability. Donor harmonization can be monitored by: the number (or proportion) of donors adopting common mechanisms and procedures for channeling resources; and share of ODA that is channeled through direct government budget support.

Other secondary indicators on enabling environment to monitor and evaluate relate to trade and macroeconomic policies, including direct and indirect tax on agriculture, producer support estimate (PSE), agricultural terms of trade, interest rate, and foreign exchange rate.

Indicators on CAADP implementation process

Key indicators on implementation process

- Development of investment program
  - Number of countries at major stages of the roundtable process (see Figure 2)
  - Composition of stakeholders involved at each major stage of the process
- Resources and mechanisms for implementation of investment program
  - Whether resources have been committed by governments, private sector and development partners
  - Whether mechanisms are in place for implementation and M&E

This involves monitoring the stage at which countries are in the process shown in Figure 2. The main tasks of the CAADP roundtable process are to:

- Take stock and review how national policy and investment processes are tackling key country level constraints to achieving the 6 percent growth rate target for the sector;
- Identify policy and investment gaps;
- Devise action plans to bridge these gaps within a reasonable time frame;

- Agree on budget and resources requirements and funding and institutional arrangements to implement these plans; and
- Adopt mechanisms for effective coordination and review of implementation progress and performance.

A key indicator for monitoring the process is the number of countries at major stages on the process (see Figure 2). In addition, there should be an assessment of: (1) use of credible and relevant evidence used in design of investment program; (2) inclusive participation of stakeholders in program design; (3) alignment of investment program with CAADP principles and targets; (4) technical review of investment program; and (5) mechanisms in place for implementation and M&E of the program.

Indicators on commitments and investments

These deal with the overall level of effort invested towards implementation of the CAADP compact and investment program. Therefore, a fundamental indicator is how much of the total budget expenditure identified in the compact and investment program is actually funded by the government, donors and private sector. Government's spending on the agriculture sector for example had a CAADP benchmark target of 10 percent of total government's budgetary resources by 2008. Therefore, it is important to have an indicator that continues to track this commitment. However, there are other efforts of development partners (which are not covered in government's expenditure as part of donor budget support) and private-sector investments that also need to be tracked. Together, these give the total public and private investments in the sector, which can be monitored as a share of agricultural GDP and compared across countries and as against international standards.[3] Given the nature of the impact pathways identified in Figure 3, it is useful to disaggregate these efforts by CAADP pillar, economic classification (recurrent and development expenditure), functional elements (e.g., research, extension, irrigation, farm support, etc), and subsector (crops, livestock, forestry, fisheries) to get a better understanding of where investments are being made (see Figure 1). This is important since the empirical evidence shows that the returns to different types of expenditures are not identical (Fan et al. 2008).

Key indicators on commitments and investments

- *ODA*
  - Total ODA commitments as % of Agricultural GDP (AgGDP)
  - Total ODA for agricultural R&D and value chains
- *Government*
  - Government spending on the agricultural sector as: (1) percent agricultural budget; (2) percent of total expenditures; and (3) percent of AgGDP
  - Share of government agricultural expenditures by:
    - Function (research, extension, irrigation, farm support, etc)
    - Subsector (crops, livestock, forestry, fisheries)
    - CAADP Pillar
- *Private Sector*
  - Total private sector investments in the agricultural sector percent of AgGDP
  - Total private sector investments in agricultural value chains as percent of total investments

[3] For example, the Inter-Academy Council recommends African countries to spend at least 1.5% of its GDP on agricultural R&D (cited in AU/NEPAD 2006).

Definition of Agriculture Expenditure: implications for data collection and measurement

The definition of agricultural expenditure has attracted substantial debate in recent years, given the notion that agriculture investment is disproportionately low compared to agriculture's substantial role in the development process. Following the CAADP initiative, the AU/NEPAD (2005) has developed a standard definition which is more or less consistent with IMF's COFOG (IMF 2001). However, while agricultural research and development (R&D) is included in the core areas of agriculture under the AU/NEPAD definition, it is accounted for under a separate category of R&D for Economic Affairs rather than agriculture. Many countries also have broadened their definition to include spending on rural roads and multi-sectoral projects, such a dam for energy and irrigation. Thus, although the definition of what falls under agriculture and what does not may seem ambiguous, the functional (e.g., research, extension, irrigation, input subsidy, etc.) and subsector (crops, livestock, forestry, and fishery) disaggregation of expenditures will help ensure consistency in tracking agricultural expenditures. The implication of these disaggregations, especially regarding the functional elements, is that public spending in the agricultural sector in many countries goes beyond the traditional agricultural ministry.

To use Ghana as an example, fisheries and forestry fall under two separate ministries rather than traditional agricultural ministry (called the Ministry of Food and Agriculture, which deals with most crops and all livestock). The cocoa subsector, which accounts for the bulk of the government's total agricultural expenditures, falls under the Ghana Cocoa Board, which is under the Ministry of Finance and Economic Planning. Public agricultural research is managed by the Council for Scientific and Industrial Research (CSIR), which is under the Ministry of Education, Sports and Science. The AU/NEPAD definition of agricultural spending also includes spending on agricultural education in universities, which in Ghana falls under the National Council for Tertiary Education of the Ministry of Education, Sports and Science (MESS). In many countries also, there are presidential initiatives on agriculture that attract substantial resources that are managed by separate agencies, which are often outside the traditional agricultural ministry. In most cases, they are under the direct management of the office of the president.

Thus, even with a clearly defined agricultural sector, it is often difficult to obtain actual and accurate expenditure data on the sector, as audited public accounts and government financial statistics that are available to the public do not have line items or cost centers that track the above various expenditures independently. In most cases, the line item or cost center in the audited public accounts that refers to agriculture reflects expenditures associated with the traditional ministry of agriculture only, which is likely to be much lower than what is actually spent on the sector. In the case of Ghana, for example, expenditures of the Ministry of Food and Agriculture accounts for only about 25 percent of the government's total expenditures on the sector (Kolavalli et al. 2009).

Other expenditures to be tracked are related to development of rural infrastructure (especially roads and transport) and social services (e.g., education, health, water), as well as for capacity strengthening of agricultural institutions. On institutional capacity strengthening, it is important to track both expenditures on training and the number of people trained, which, to the extent possible, should be disaggregated by: (1) type of training (e.g., degree, diploma, short course, etc.); (2) area of training (e.g., agricultural economics, planning, leadership, group dynamics and development, crops, livestock, forestry, fisheries, NRM, etc.); and (3) recipient of training (e.g., government ministries and their department and agencies (MDAs), research, extension, trade organizations, farmer-based organizations, gender, etc.). Analysis of such disaggregated data in terms of the returns to different types of spending would help answer the question of where and how much to invest in specific intervention areas. Such indicators are discussed further later.

Indicators on agricultural growth performance

The indicators at this level are a manifestation *of provision*, *coverage, and utilization* of the goods and services due to the effort and investments discussed in the preceding section. Before looking at the key agricultural growth performance indicators, we first look at these underlying indicators, which would capture information about whether the investment program outputs or "capital" (see Figure 3) were actually available and accessible to the target population, which includes rural households and farmers, as well as specific disadvantaged groups (including the poor, hungry, aged, pregnant women, children, and disabled persons) that would otherwise be unable to benefit directly from the broad-based interventions associated with the program. While access to the goods and services is important, the notion that the benefits of capital can be realized only when farmers and those engaged in related production activities actually use the capital items, means that tracking indicators that capture the concept of utilization is even more desirable. As shown in Figure 3, these indicators can be classified into three broad groups of capital: physical capital due to investments associated with CAADP Pillars 1, 2, and 3; information, knowledge, and genetic capital due to investments in agricultural research and technology development, dissemination and adoption (CAADP Pillar 4); and human and institutional capital, which cross-cuts the four CAADP Pillars.

Key indicators on provision, coverage and utilization of services

- Improved infrastructure and services
  - Percent of agricultural land area under irrigation
  - Percent of population within 15 minutes, 30 minutes or more than 30 minutes of infrastructure or service
  - Rural road density and quality
  - Percent of agricultural production that is lost post-harvest
- Technology adoption
  - Percent of agricultural land area under improved technologies (crops and forestry)
  - Percent of total livestock units of improved breeds
  - Percent of fish farming under sustainable management
- Institutional capacity
  - Number of professionals per 1000 persons by:
    - Level of training (PhD, MS, BS, Diploma, etc.)
    - Gender

Regarding provision or access to physical capital for example, indicators capturing access to various infrastructure in terms percent of population or households within *x* (e.g., 2 or 5) km of a particular infrastructure or service (e.g., irrigation system, roads, markets, storage and processing facilities, extension services, etc.), as well as density (e.g., number of persons per unit of service) and quality (e.g., percent of type of service) can be used. Regarding information, knowledge, and genetic capital, some major indicators are the number of improved technologies developed and disseminated, disaggregated by public/private provision, and subsector. Also important is information and knowledge, on for example, policies for sustainable agricultural husbandry, marketing chains, extension systems, early warning systems, etc., which can be captured by the number of scientific publications on these. On human and institutional capital major indicators to monitor include number of professional staff, proportion of staff that have left for other opportunities, and number of approved but unfilled positions. To the extent possible, these should be disaggregated by the level of training (PhD, MS, BS, Diploma, etc.), area of expertise (economics, crops, livestock, forestry, fisheries, NRM, etc.), and gender. Tracking institutional capacity in terms of the number and type of staffing may not reflect the ability of the staff to operate effectively. Thus, including indicators on the ratio of recurrent expenditure to total expenditure or the ratio of capital or investment expenditure to total expenditure will be important. The relevant institutions here include government ministries and their department and agencies (MDAs), research, extension, trade organizations, farmer-based organizations. Indicators that reflect utilization of the various capital items include: percent of agricultural land area under irrigation; percent of agricultural production that is sold; ratio of retail to farm gate prices; and percent of total agricultural production that is lost post-harvest

regarding physical capital. Other indicators include: percent of agricultural land area under improved crop technologies (e.g., hybrid seeds, fertilizers, pesticides, agroforestry, etc.); percent of total livestock units of improved breeds, percent of agricultural land area under forestry; and percent of fish farming under improved and sustainable management practices.

Turning our attention now to agricultural growth performance, key indicators include economy and sector wide growth, subsector growth, land productivity (or yields measured as tonne-equivalent per unit of production for major crops for major commodities, share of output under different improved technologies (improved genetic material, fertilizer, irrigation, pest management, etc.) and food supply and availability (measured as food production per capita and the ratio of food consumption to production).

Key indicators on agricultural growth performance

- Agricultural GDP growth rate (and contribution by different subsectors and major commodities)
- Yields of major commodities
- Share of output from improved technologies
- Food supply and availability

Indicators on agricultural trade performance

Key indicators for monitoring agricultural trade performance include: (1) value and volumes of agricultural exports and imports by subsector and major commodities, disaggregated to examine the food trade balance, share of intra-regional trade, and value-added or processed content of trade; (2) domestic and export and import parity prices by major commodities; and (3) demand outlook for major commodities, long-term price projections for major commodities.

Key indicators on agricultural trade performance

- Value and volume of agricultural exports and imports as percent of AgGDP (and contribution by different subsectors and major commodities)
  - Food trade balance
  - Share of intra-regional trade
  - Share of value-added content of trade
- Domestic and export-import parity prices by major commodities
- Demand outlook and long-term price projections for major commodities

Indicators on poverty, hunger and food and nutrition security (CAADP goals)

Indicators to monitor the ultimate impact or goals of CAADP are similar to the first millennium development goals on poverty and hunger reduction (MDG1), which are quite straight forward and include: (1) national poverty rates (poverty incidence ratio; (2) poverty gap ratio and share of poorest quintile in national income; and (3) national hunger rates (population with consumption below the minimum dietary energy level and prevalence of underweight nutrition). The global hunger index (GHI) (DWHH /IFPRI 2006), which is an aggregate measure that reflects multidimensional causes and manifestations of hunger, including inequitable resource allocations between and within households, is also important, as are the three indicators of dietary diversity score, resilience score, and share of food expenditure developed by CAADP Pillar 3 to monitor food and nutrition security.

Key indicators on poverty, hunger and food and nutrition security

- *Poverty*
  - Poverty incidence ratio
  - Poverty gap ratio
  - Share of poorest quintile in national income
- *Hunger*
  - Proportion of the population below minimum dietary energy consumption
  - Prevalence of underweight children under five years of age
  - Global Hunger Index
- *Food and nutrition security*
  - Dietary diversity score
  - Resilience score
  - Share of food expenditure

Indicators on investment–growth–poverty linkages

The indicators here are meant to draw associative relationships or correlations (or cause–effect relationships depending on the rigor of analysis) between the interventions (processes, policies and investments) and poverty, hunger and food and nutrition security. These indicators, which go beyond just monitoring to impact assessment, will help answer the questions of effectiveness of interventions in achieving the goals of CAADP and provide input for addressing the issues of consistency of planned interventions with initial targets and for exploring alternative interventions with greater and better distributed outcomes (see Section 2). Basically, it gets to the issue of prioritization of scarce public resources, which many governments and their development partners often have clear principles on how they would go about doing the prioritization (see box for the case of Uganda) but often lack the information to operationalize the principles. In the case of Uganda for example, it will require among others information on the number of people lifted out poverty for a unit amount of resources invested in different sectors of the economy and different agricultural subsectors or projects. Key indicators proposed here include growth–poverty convergence indicators (Badiane and Ulimwengu 2009) and agricultural productivity and poverty-reduction returns to different types of investment (see Figure 1) (Fan et al. 2009). These require more rigorous quantitative methods for establishing cause-effect relationships. The methods are discussed further in the next section.

Conditions for public spending allocation (Case of Uganda)

The demands for public expenditure always outstrip the resources which are available to fund them. Therefore, Government [of Uganda] will rigorously prioritize its expenditures and provide taxpayers with value for their money. If public expenditure is to maximize its contribution to the PEAP, it is imperative that three conditions are met:

- Intersectoral budget allocations be shifted in favor of those sectors which can make the strongest contributions to tackling the core challenges of the PEAP: accelerating pro-poor growth, human development and restoring security and support for regions afflicted by conflict.
- Intrasectoral budget allocations be shifted in favor of projects and programs which most clearly contribute to poverty eradication in a cost effective manner.
- Efficiency is improved in all areas of public expenditure, so that better value for money, in terms of the quality and quantity of [public] services, can be achieved with the scarce resources available to Government [of

Operationalizing the M&E Framework

Key indicators on linkages between interventions and CAADP goals

- Percentage change in poverty rate per unit change in AgGDP growth rate
- Value of AgGDP per unit cost of intervention
- Number of people lifted out of poverty or hunger per unit cost of intervention

Successful implementation of the CAADP M&E system ultimately depends on the extent to which sufficient information on the indicators and outputs can be generated on a regular basis and in a timely fashion. This in turn depends on whether member countries have adequate national statistics in place that are maintained and updated periodically and easily accessible within a reasonable time frame. Since many countries have undergone preparation of Poverty Reduction Strategy Papers (PRSPs) at one point in time, the recognition for developing stronger national monitoring and evaluation systems would have surfaced already and could benefit the efforts at developing the CAADP M&E system further. Moreover, part of the CAADP country round table process is to

assess the capacity of countries for M&E and knowledge management at national level, sector level, and for policy design and implementation, identifying linkages and adequate collaboration mechanisms with regional and international organizations and initiatives.[4]

These assessments, which need to be carried if not already done, will lay the foundation for ReSAKSS to set up the CAADP M&E system to which there are three broad components to address. The first one relates to getting hold of the data to use to calculate the values of the indicators and conduct the analysis. In Section 4, we discussed several indicators considered important for helping to address issues related to enabling environment for successful implementation of CAADP, delivering on CAADP commitments, effectiveness of interventions, consistency of interventions with initial targets, and exploring other interventions with greater and better distributed outcomes. Obviously, the list is too long and so a smaller core set of indicators (preferably not more than 20) that can tell a compelling story about progress and performance with CAADP implementation at national, regional and continental levels will be desirable. The second component relates to standardization and harmonization of the core set of data and indicators across countries that will enable cross-country comparisons and contribute to peer and mutual reviews of CAADP at regional and continental levels. This requires the development of a standardized protocol for data collection, measurement, analysis and reporting, and will depend a lot on how countries and all partners collaborate to follow through in adhering to the demands for doing these things successfully. Consequently, the third component relates to roles and responsibilities of different partners at the national, regional, continental and international levels in terms of data collection, management, analysis, and reporting. We discuss these next.

Minimum common set of indicators

First, the criteria for selecting the set of common indicators to report must be able to maintain, at a bare minimum, the primary goal for establishing a CAADP M&E system in the first place, which is basically to monitor and evaluate the impact of CAADP interventions (processes, policies, investments) on agricultural sector performance and welfare outcomes. This should be done against the targets and goals of the CAADP framework—10 percent budgetary allocation for agriculture, 6 percent agricultural sector growth, and ultimately, poverty and hunger reduction based on the first millennium development goals (MDGs). But, as previously discussed, there is need for some other indicators in order to establish reasonable and credible cause–effect relationships between the interventions and outcomes.

The core set of indicators will also depend on the depth of analysis desired and, therefore, the corresponding data and tools of analysis required to undertake related tasks in a credible fashion. Naturally, the level of detail will also vary by the level at which the results of analysis are being operated and reported at—country, regional, or Africa-wide. Furthermore, the core set of indicators should be those that different partners involved are willing to set benchmarks and spend sufficient resources and time in collecting, analyzing, reporting on, and using the resulting information. Agreeing on a common short list of indicators also has the advantage of member countries being able to internalize them within their own established M&E systems. From a practical perspective of reporting at the regional and Africa-wide levels, the core set of indicators must be able to provide an aggregate assessment of progress at those levels in order to add value to existing national M&E systems as well as the CAADP Pillar, MAF and APRM outputs. The process of selecting a minimum core set of indicators started with the presentation of the draft report on the framework in 2007 at the Africa Union, CAADP PP platform, other workshops including the recent CAADP M&E Framework Validation Workshop in February 2010 at

[4] As an example, see Rwanda CAADP Brochure 5 on Strategic Analyses and Knowledge Support Systems to Inform and Guide the CAADP Implementation Process (http://www.resakss.org/index.php?pdf=39448).

Johannesburg, South Africa. Based on the above, Table 1 presents the minimum core set of indicators—10 process, policy, intervention and performance areas and 25 indicators. Details are included in the full list of indicators presented in Annex A.

Table 1. CAADP M&E Minimum Core Set of Indicators

Process, policy or intervention area	Indicator/Definition
Enabling environment	
1. Political and economic governance	1a. Percent of population satisfied with political governance by: (1) gender; (2) rural/urban; (3) age group; (4) sector
	1b. Macroeconomic management: (1) deficit to GDP; (2) revenue to GDP; (3) inflation rate; (4) debt to GDP
2. Policies for private sector development	2a. Percent of population with access to agricultural and rural finance and credit
	2b. Value of commercial loans for agricultural sector as percent of: (1) value of total loans; (2) AgGDP
CAADP Country implementation process	
3. Stage in county roundtable process and quality of participation	3a. Number of countries at major stages of the process
	3b. Composition (e.g., institution, gender, expertise) of participants
Commitments and financing	
4. Donor commitments and disbursements	4a. Total ODA commitments as percent of AgGDP
	4b. Share of ODA disbursed for (1) agricultural R&D; (2) value chains; (3) emergency food aid
5. Government spending and investment in Agricultural research and development	5a. Expenditures on the agricultural sector as percent of: (1) total government spending; (2) AgGDP
	5b. Expenditures on agricultural R&D as percent of AgGDP
6. Private sector investments	6a. Total investment in agricultural sector as percent of AgGDP
	6b. Total investment in agricultural value chains as percent of AgGDP
Agricultural sector performance	
7. Capacity	7a. Number of professionals as per 1000 farmers
	7b. Composition of professionals as percent by: (1) gender; (2) education attainment (PhD, MS, BS, Diploma, etc.)
8. Agricultural growth and sources of growth	8a. Percent of area or output under improved technologies: (1) improved genetic material; (2) fertilizer; (3) irrigation
	8b. Productivity of major commodities (tone-equivalent per unit factor)
	8c. Real AgGDP growth rate (percent)
	8d. % contribution to AgGDP growth of: (1) subsectors (crops, livestock, forestry, fishery); (2) major commodities
9. Agricultural trade performance	9a. Value of total agricultural exports by: (1) as percent of AgGDP; (2) share of value-added in total exports; (3) ratio to value of total agricultural imports; (4) percent contribution by subsectors and major commodities
	9b. Domestic and export-import parity prices by major commodities
CAADP goals	
10. Poverty, hunger and food and nutrition security	10a. Poverty rate (P1) and gap (P2) by rural/urban
	10b. Proportion of population below minimum dietary energy consumption (H1) by: (1) gender; (2) rural/urban; (3) age
	10c. Nutrition diversity by: (1) gender; (2) rural/urban; (3) age

Notes: See Annex A for data requirements and sources, methods, and other related details.

Data collection and management

The primary responsibility for collecting, cleaning and managing the data on the above indicators lies with the country itself. This will be coordinated by a Country SAKSS Node, which is a mechanism that will be put together by the country to bring together generators and users of data, information and knowledge within the country, work with them, and then link with their respective regional (ReSAKSS) nodes to create regional networks. The three regional nodes, which are in turn linked with the Africa-wide node, then create an Africa-wide network. See Johnson and Flaherty (2009) for details on set up and management of a SAKSS node.

Although the number of indicators to report on have been trimmed substantially, the necessity to aggregate the indicators at the regional and Africa-wide levels for analysis and reporting at those levels will require additional information or indicators that may not be obvious from the list of provided in the table. To use an example of the indicator of poverty incidence ratio, this at the country level is measured as the proportion of the population living below $1.25 a day (or the national poverty line). At the regional level, this indicator cannot be measured as the simple average of the proportions of the countries in the region, due to different population sizes. Thus, it should be correctly measured as the proportion of the population in the region living below $1.25 a day (or the regional poverty line). The same concept applies at the continental level. Using the national level indicators, the regional and continental level indicators can be generate by weighted averages, using the country's GDP or population share in the total GDP or population for the region or continent, for example, as the weights. Therefore, data on indicators that measure for example the physical (e.g., total agricultural area, total land area, total surface area) or economic (e.g., total population (and by gender, education, age, rural/urban, etc.), GDP), size of countries or other indicators that can be aggregated to obtain a total for the region or continent also needs to be collected. Consequently, the goal is to also collect the underlying data for estimating the indicator and not simply the values of the indicators only.

Many of the minimum core indicators are already readily available but currently lag several years in their reporting. A good example is the agricultural GDP growth rate. These are often reported two to three years late, and then mostly available from secondary sources such as the World Development Indicators. A real value addition of the M&E system will be to provide current estimates of this indicator from national sources. The same can be said of the government expenditure information. Even if data are readily available and frequent enough, frequency rates, definition and measurement still vary from one country to another. Table 2 summarizes key data gaps and focus of the CAADP M&E data collection efforts. As the gaps are substantial, sufficient resources and time must then be allocated for data collection so that the data required can be made available in a timely and standardized manner. Luckily, member states are coming on board the CAADP agenda at different times, which makes establishment of the system and in setting up the Country SAKSS Nodes a natural phased-in approach for piloting and learning.

Table 2. Major data gaps and focus of CAADP M&E data collection

Indicators	Gaps	Focus of data collection
Enabling environment and policies	• Governance indicators for agriculture • Bank loans on agricultural sector • Disaggregation of inflation by commodities and subnational level	• Development of governance indicators for the agricultural sector • Systematic access to: (1) loan data by banks and microfinance institutions; (2) loan and credit data at farm household level • Inflation indicators in rural areas
Agricultural investments	• Inconsistency of expenditure classifications • Disaggregation by function and at subnational level • Incomplete and fragmented data on ODA • Inconsistency between national and subnational data • Time lag in data availability	• Adoption of COFOG classification • Disaggregation by function and subnational level • Exhaustive inventory of sources of funding • Improved timeliness and frequency of reporting
Agricultural growth	• Disaggregation of agriculture value-added by commodities and subnational level • Labor use • Input use by subsector and at subnational level • Input prices at subnational level	• Accuracy of price and input use data in agriculture value-added computation • Disaggregation of labor use data at household level
Agricultural trade	• Limited disaggregation by origins and destinations • Unavailability of actual import and export prices • Insufficient documentation of intra-regional trade (formal and informal cross-border trade) • Insufficient documentation of input trade	• Systematic disaggregation of trade flow data • Computation of unit export and import values for major commodities • Tracking of cross-border trade flows for major commodities • Tracking of modern input quantities and prices at household and local levels
Poverty, hunger and food and nutrition security	• Insufficient disaggregation at subnational level and by socioeconomic groups • Incomparability of national poverty lines over time and across countries • Incomparability of indicators across countries because of different survey years • Indicators of calorie intake are not based on actual consumption	• Disaggregation by district, socioeconomic group, farming system • Adoption of international poverty lines for cross-country comparison • Develop district level poverty lines • Develop methodology for projecting and forecasting poverty, hunger, and food and nutrition security

To address the above challenges and for greater consistency in data collection, analysis, and reporting for mutual reviews and cross-country learning at the regional and continental levels, the Country SAKSS Nodes will work closely with their respective ReSAKSS regional nodes in adapting and finalizing data collection formats that have been drafted to collect data on the minimum core set of indicators (and underlying data) discussed above.[5] As such, a lot of the data collection efforts will involve expert opinion surveys. Also, countries may collect additional data on other indicators that allow them to monitor and evaluate their own country-specific processes, policies and investment programs.

Data analysis

With data at hand, the Country, Regional and Africa-wide SAKSS Nodes will work with their networks (see Annex D) to first estimate the values of the indicators for their respective levels and reporting periods, according to the methods outlined in Annex A under the column labeled "methods". The values of the indicators in addition to other data and information will be analyzed using different methods and tools to answer the questions raised in the introduction (see Table 3).

Enabling environment, delivering on commitments and achieving stated targets

The first set of questions on the environment within which CAADP is being implemented will be addressed using situation, descriptive and trend analyses of how for example political governance and economic management of the government is likely to affect the success of

[5] See Annex B for a sample draft data collection formats and Annex C for draft terms of reference for the Country SAKSS Node Coordinator.

implementing CAADP in terms of constraints or opportunities. This will include historical and forward-looking perspectives of changes contributing to derailing, sustaining or improving implementation and impacts of CAADP. The second set of questions on delivering on commitments will be done using trend analysis and comparing trends in actual actions against benchmarks of commitments (e.g., 10 percent of total government budget expenditure spent on agricultural sector) or targets (6 percent agricultural GDP growth rate). This will be accompanied with descriptive analyses of reasons for any changes (or no changes) observed in the trends as well as reasons for the extent to which commitments or targets were met. Obtaining information on these reasons is where the expert opinion surveys become a powerful instrument. At this stage of the analysis, no cause-effect relationships or conclusions can be drawn, particularly regarding the question: "*have expectations in terms of being on track to achieving the CAADP growth and reducing poverty, hunger, and food and nutrition insecurity been met so far?*" As such, reasons deriving from these analyses will serve as key hypotheses or guidelines for answering the remaining three sets of questions, which require more sophisticated quantitative and simulation tools (see Table 3).

Effectiveness of interventions

To fully answer the set of questions on effectiveness of interventions will require econometric methods to estimate the cause-effect relationships and general equilibrium models to assess economy-wide impacts of the interventions. The main issue to deal with here is attribution, which will be addressed by using two complementary approaches of program evaluation: before and after treatment, and with and without treatment, where treatment refers to cases of people or areas that have benefitted from the intervention. The first approach relies strongly on having a baseline information on the indicators associated with the treated cases prior to the treatment and then follow-up information on the same cases after the treatment. The second approach, as the name implies, relies on having information on the indicators associated with a treatment group and a control group (i.e., people or areas that have not benefitted from the intervention). With such types of information on the indicators, the approached can be combined to answer the questions on effectiveness. Taking the outcome of poverty (*pov*) with related explanatory variables *x* as an example, the impact of an intervention (*INV*) on poverty can be measured by the difference in the average change in *pov* associated with members *j* of the treatment group (i.e., $INV_j = 1$) and members *i* of the control group (i.e. $INV_i = 0$). Assume that the treatment decision is explained by the variables *w*. This difference, which is interpreted simply the impact of the treatment, can be measured as the Average Treatment effect of the Treated () according to:

$$ATT_j = E_j \left[pov_{\text{after},j} - pov_{\text{before},j} \mid x \,\middle|\, INV_j = 1 \mid w \right] - E_i \left[pov_{\text{after},i} - pov_{\text{before},i} \mid x \,\middle|\, INV_i = 0 \mid w \right] \qquad \ldots 1$$

Table 3. Methods and analytical tools for addressing CAADP M&E questions

CAADP M&E question	Tools
1. Enabling environment What policies, institutions and mechanisms are in place to enhance economic management e.g., political and economic governance, private sector development, and equity? How credible and relevant has the evidence used in the process of designing the investment programs been? Have the processes been inclusive of all stakeholders, and are investment programs aligned with the CAADP principles and targets? Are mechanisms in place for implementing the investment and monitoring and evaluating its impacts?	• Situation analysis • Descriptive analysis • Trends • Expert opinion surveys
2. Delivering on commitments and achieving stated targets Are development partners making good on their financial commitments to support CAADP? Are governments allocating 10 percent (or other share as stated in their investment plans) of their total budgetary resources to the agricultural sector? Have expectations in terms of being on track to achieving the CAADP growth and reducing poverty, hunger, and food and nutrition insecurity been met so far?	• Trends • GIS mapping • Correlations • Expert opinion surveys
3. Effectiveness of interventions (processes, policies, investments) How effective have different types of interventions been in the achievements realized so far? What factors have shaped the level of impact that has been achieved? What are the trade-offs and complementarities, if any, among different types of interventions?	• Econometrics • General equilibrium models • Expert opinion surveys
4. Consistency of planned interventions with initial targets What are the projected impacts if interventions proceed as currently planned? Are these projected impacts compatible with the CAADP growth and goals on reducing poverty, hunger, and food and nutrition insecurity?	• Simulation and general equilibrium models • Participatory approaches
5. Exploring interventions with greater or better distributed impacts Could greater or better distributed impacts be obtained by reconfiguring the interventions? What are the different or new interventions that can lead to greater and more sustainable growth as well as greater and better distributed impacts? What are the new targets that can be set for implementing these new types of interventions? What are the resources needed for implementing these new interventions to achieve the desired impacts?	• Simulation and general equilibrium models • Participatory approaches

A number of methods can then be used to estimate the ex post impact of the intervention, depending on assumptions of mainly: (1) the treatment decision (either on the part of the those implementing the program or those benefiting from the services of the program) and its correlation with the outcome (i.e., reliability of the explanatory variables *w* as a predictor or instrument of the treatment decision or the correlation of *INV* with *pov* conditional on *x*; and

(2) composition and unobserved characteristics of the two groups over the course of the treatment.[6] A conventional method that can be used is the instrumental variables method, which, as the name implies, tries to identify suitable instruments of the treatment decision.

[6] See Benin et al. (2008) for a practitioners guide on impact assessment of public investments in agriculture and rural areas. Also see Imbens and Wooldridge (2008) for review of issues and methods in program evaluation in general.

Assuming that the outcome indicator of interest was growing or changing at the same rate between the treatment group and the control group prior to the treatment, then the difference-in-differences or double differencing method, as shown in equation 1, can be used (Ravallion 2008). More recent methods such as experimental and quasi-experimental methods try to establish alternative scenarios that represent the counterfactual situation by ensuring that the composition of the treatment and control groups remains the same over the course of the treatment. Since each method has its advantages and disadvantages, and given practical difficulties of testing the validity of the assumptions and cost implications and quantitative requirements, a combination of different methods will be used to generate greater confidence in the results.

Determining the baseline period is critical. In the case of CAADP as the continental level, the baseline year is arguably 2003 when the Maputo declaration was made. At the country level, however, the baseline year may be ambiguous and depend on when the compact signed or prior to when the investment program is implemented, for example. Having a baseline year later than 2003 could complicate issues and bias any measurable impact. For example, the report by Zimmerman et al. (2009) on understanding CAADP and APRM policy processes shows that CAADP has been a strong instrument to obtain commitment to agriculture at continental and global levels even though these may not be linked to any specific CAADP investment programs at the country level. They also found increased use of evidence in policymaking associated with CAADP compared to previous processes. Therefore, having a baseline year that is later than 2003 could lead to biased estimated impacts to the extent that the CAADP-related processes prior to the baseline year have an impact on the outcomes on interest. Expert opinion, particularly of those involved with implementation of CAADP and other agricultural and rural development programs, will be important here for setting baselines and for interpretation of results and identifying lessons for learning.

Consistency with initial targets and exploring alternative interventions

Addressing the remaining two sets of questions regarding consistency of planned interventions with initial targets and exploring alternative interventions for better outcomes require general equilibrium and simulation models. Here, the models that were used in identifying alternative agricultural growth and investment options (see e.g., Thurlow et al. 2008)[7] towards the design of the CAADP investment program will be particularly useful (see Figure 2 and related discussion on CAADP country roundtable process). In particular, computable general equilibrium models provide a consistent analytical framework for evaluating different priorities in a dynamic setting accounting the linkages across different agricultural subsectors and between agriculture and the rest of the economy in the development process. To address the issue of consistency, for example, the models will be rerun to simulate the growth and poverty-reduction outcomes of the panned interventions and compare them with the stated targets. Their main objective is to relate strategic choices and other policy reforms to previously agreed-upon development goals. On exploring alternative interventions for achieving greater or better distributed outcomes, the same models will be rerun under different scenarios that depict the alternative interventions. Expert opinion and participatory approaches will be used in identifying the plausible scenarios to be used in the simulations. Together with the results of the *ex post* impact assessment of different past or ongoing interventions, the resources needed for implementing the new desirable interventions can be simulated (see Benin et al. 2008).

[7] See www.resakss.org for CAADP country reports on "agricultural growth and investment options for poverty reduction" for details of the model for each country.

M&E outputs, formats, reporting, and oversight

The CAADP M&E system will only be valuable if the data, information and knowledge generated can be fed into and utilized by decision makers engaged in the progress, peer and mutual review processes that take place at the national, regional and Africa-wide levels, respectively. The primary output of the CAADP M&E system will be produced in the form of a report according to the outline shown in Table 4. The report, which will be produced at the national, regional and Africa-wide levels on at least an annual basis, will deal with addressing the issues of enabling environment and progress with delivery of commitments and achieving stated growth and poverty-reduction targets.[8] To facilitate learning at all levels in terms of what works well where, the national level report will focus on comparisons across different subnational jurisdictions to the extent possible, while the reports at the regional and Africa-wide levels will focus on cross-country comparisons.

Table 4. Outline of CAADP M&E Annual Report

1. Introduction

Purpose, objectives and target audience; reporting period; scope of report; overview of major changes in trends compared to last reporting period; whether interventions are on track to achieve stated targets or not; and implications for staying on track or for achieving greater and better distributed outcomes

2. Enabling environment

Situation analysis of political governance and economic management in reporting period; description of changes in trends compared to last reporting period; likely causes of the changes; how changes may affect success of implementation of CAADP; anticipated changes in the environment in next reporting period; what needs to be done to minimize any negative effects or maximize positive effects of CAADP

3. Implementation process

Status of countries at major stages of CAADP process compared to target stated in last reporting period; description of key factors limiting or enhancing progress; expectation for reaching next major stage in the process and what needs to be done to make it happen

4. Tracking commitments and agricultural spending

Agricultural spending by government, donors and private sector in reporting period compared to commitments made and targets stated in last reporting period; description of changes in trends and likely causes of the changes; description of major factors contributing to spending patterns on different types of public goods and services

5. Agricultural growth performance

Economy- and sector-wide growth, contribution of different subsectors and major commodities to agricultural growth, and other growth performance indicators in reporting period; description of changes in trends compared to targets as well as performance in last reporting period; likely causes of the changes in trends; description of key factors limiting or enhancing agricultural growth in different places

6. Agricultural trade performance

Value and volumes of agricultural exports and imports, other agricultural trade performance indicators, and contribution of different subsectors and major commodities to trade in reporting period; description of changes in trends compared to targets as well as performance in last reporting period; likely causes of the changes in trends; description of key factors limiting or enhancing agricultural trade in different commodities; demand outlook for major commodities and long-term price projections for major commodities

7. Poverty, hunger and food and nutrition security (CAADP goals)

Poverty, hunger, and food and nutrition insecurity rates and related indicators in reporting period; description of changes in trends compared to targets as well as performance in last reporting period; differences in outcomes across different places and socio-economic groups and reasons underlying differences; whether on track to achieve target rates or not; implications, including what needs to done, for staying on track or for achieving greater and better distributed outcomes

[8] Outputs addressing issues of effectiveness, consistency and exploration of alternative interventions will be produced at three-to-five year intervals, depending on duration of the intervention and allowing time for the impact and other relevant indicators associated with the intervention to be observed and measured. It will also depend on when specific evaluation studies are commissioned and completed. Therefore, these evaluation reports will be produced separately from the CAADP M&E Annual Report.

8. Investment-growth-poverty linkages

Associations (simple correlations) between different interventions (process, policies, investments) and agricultural growth and poverty-reduction; differences in the associations across different places and socio-economic groups and reasons underlying differences; implications for achieving faster and higher agricultural growth and greater and better distributed poverty, hunger and food and nutrition outcomes

9. Conclusions

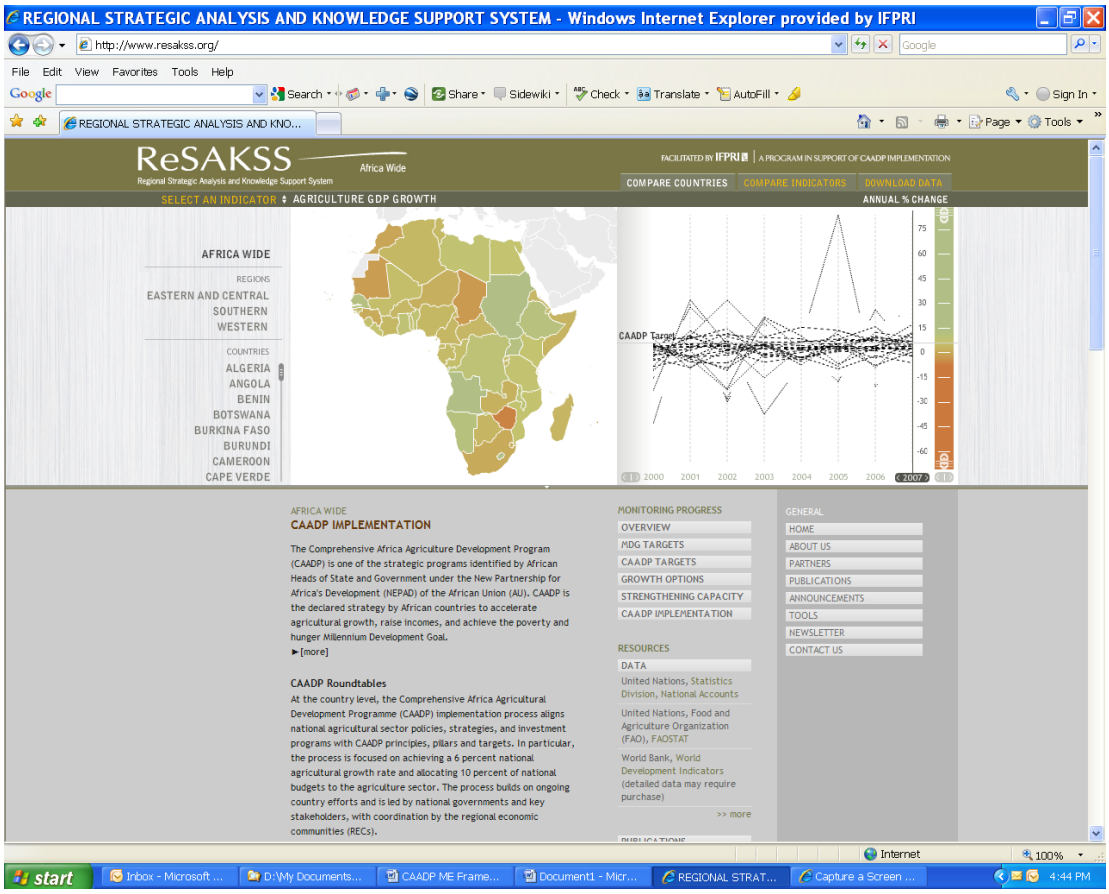
Summary of major changes in trends compared to last reporting period; outlook for poverty, hunger, and food and nutrition security and implications for staying on track or for achieving greater and better distributed outcomes; lessons on implementing CAADP M&E system and implications for improving data collection, management, analysis, reporting and effective use of M&E outputs

Targeting and timing of the reports are also critical. At the continental level for example, the AU Commission and NPCA will be the primary targets of the outputs in accordance with the decision at the fourth ordinary session at Abuja, Nigeria in January 2005 that the AU Commission "report on the Status of Food Security in Africa focusing on the implementation of CAADP and other relevant Declarations and Plans of Action and submit it for consideration of the Assembly in July every year" (Decision 59(IV) on agriculture and food security in Africa). This means also that the report, or some specific components to be determined jointly with the AU Commission each year, must be made available before July of every year to give the AU Commission and NPCA enough time to digest and synthesize the reports to meet their own reporting requirements to the AU Assembly. Also taking place at the continental level is the CAADP PP review meeting that is held twice a year within the first and third quarters of the year. Here too, it seems prudent that some specific components of the general report only will be updated to meet the reporting requirements of the AU Commission and NPCA to the CAADP PP. The Africa-wide CAADP M&E report will undergo a peer review process that will be managed by the CAADP ReSAKSS Continental Steering Committee. Specific thematic briefs will then be prepared to meet the information needs of the stakeholders at those meetings. The overall report and briefs will also be circulated to others involved with agricultural and rural development in Africa including government policy makers, donors, private sector, civil society and farmers' organizations, researchers, and others interested in CAADP or knowledge on monitoring and evaluation of policies and public agricultural investments in general.

At the REC level, the CAADP M&E report will target the RECs and the Regional Advisory Councils set up for the peer review process at that level. Similar to the process at the continental level, the ReSAKSS Regional Steering Committees will facilitate the technical review of the report in their respective regions, out of which specific thematic briefs will be developed to meet the information needs of the different stakeholder meetings, with the REC Summit being at the apex (see Figure 1). The process at the national level for generation of the M&E report, technical review, and development of thematic briefs is similar to the above processes. The outputs will be fed into different national level processes and events (see Figure 1) via the CAADP Country Technical Team, who will also facilitate the technical review of the country reports.

Widespread dissemination of the CAADP M&E outputs, as well as the data, tools, methods, and knowledge on agricultural and rural development in general, will be done through the ReSAKSS webiste (www.resakss.org), which has been developed as an integrated suite of the Africa-wide website and three websites that are unique to each region: Southern Africa, Eastern and Central Africa, and West Africa. The website architecture has been developed from the start with the CAADP M&E system in mind (see Figure 4).

Figure 1. Screen shot of the ReSAKSS Africa-wide website (www.resakss.org)



The various reports and well as the information on the indicators used in the analysis and reports can be viewed and downloaded from the websites. The data will be presented using a number of visualization techniques such as charts, maps and tables, including results from any analysis that assesses current trends. It is through these efforts that standardization of data collection, measurement and reporting will be promoted and help facilitate efficient data exchanges across countries and regions. The websites were launched in March 2008 ahead of the CAADP PP meetings in Victoria, Seychelles.

Roles and responsibilities

Figure 5 summarizes the roles and responsibilities of the different partners and collaborators in operationalizing the CAADP M&E Framework. Regarding data collection, cleaning, validation and management, the primary responsibility lies with the countries themselves via their national bureaus of statistics and research institutions. Farmers' Organizations (FOs), Civil Society Organizations (CSOs) and private sector organizations will also be important in data collection and validation, with the CAADP pillar institutions and other regional and international organizations providing technical support and capacity strengthening primarily in the form of tools, methods and training. The role of donors and development partners in data collection and management include financial support providing international standardized data (e.g., African and World Development Indicators). Using their respective networks, the Country, Regional and Africa-wide SAKSS Nodes are responsible for aggregating and analyzing the data at the same levels, which will involve data reporting from the Country Nodes to their respective Regional

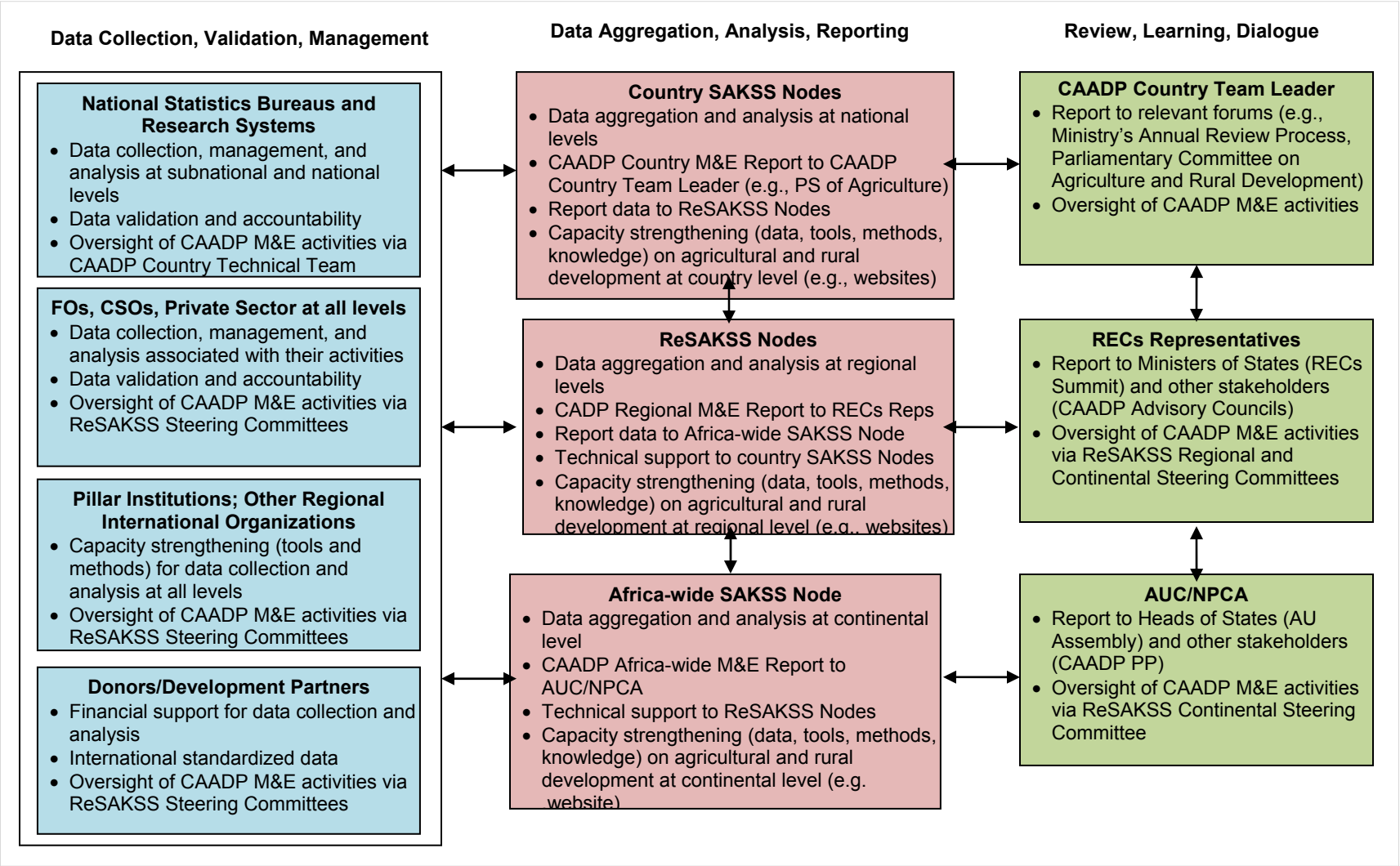
Nodes, and from the Regional Nodes to the Africa-wide Node. Technical support and capacity strengthening activities will also flow in the opposite direction.

Regarding the analysis, it is expected that the fundamentals involving situation, trends, mapping, simple correlation, and descriptive analysis to assess the enabling environment and progress with delivery of commitments at the country, regional and Africa-wide levels will be done by the respective Country, Regional, and Africa-wide SAKSS Nodes (see also Annex D). The Nodes will use mostly their own in-house capacities for these analyses, but draw on their respective networks to limited extents, particularly in the area of GIS mapping analysis at the country level. The more sophisticated analysis that will be used to address the issues of effectiveness, consistency and exploration of alternative interventions will require specific skills and expertise in program evaluation and modeling and simulation techniques. These will be drawn from the entire ReSAKSS network of researchers and policy analysts based on specific evaluation studies that will be commissioned and managed the respective nodes and their steering committees.

The CAADP M&E reports at the country, regional and Africa-wide levels will be prepared by the Country, Regional, and Africa-wide SAKSS Nodes, respectively, in consultation with their respective steering committee leaders, i.e., CAADP Country Technical Team Leader, representatives of the RECs, and the AUC/NPCA. The steering committee leaders will in turn be responsible for reporting to their constituencies. Regarding widespread dissemination of the CAADP M&E outputs as well as the data, tools, methods, and knowledge on agricultural and rural development via the ReSAKSS website, each of the nodes will also be responsible for entering, managing and updating the content on the website for their respective jurisdictions.

To maintain the spirit of partnership in the entire process, the different partners and collaborators will also be involved in oversight of the CAADP M&E activities via inclusive membership in the steering committees at the different levels. At the Africa-wide level, for example, the M&E activities will be overseen by the CAADP ReSAKSS Continental Steering Committee, which will be co-chaired by the AU Commission and NPCA Other members of the Committee consist of one representative each from: the ReSAKSS Regional Steering Committees (represented by the Chairs), APRM, ReSAKSS (as the Secretariat), regional farmers' organizations, private sector at the regional level, CAADP Pillar Lead Institutions, a Country SAKSS node per region, and the Development Partners CAADP Task Team (see AU/NPCA 2010). The ReSAKSS Regional Steering Committees are chaired by their respective REC representatives, with other members drawn from regional and international organizations and the donor community. The Country SAKSS Steering Committees will typically be chaired by the PS (or equivalent) of the Agricultural sector, with other members drawn from other ministries and from the NARS, FOs, CSOs, private sector, and donor community.

Figure 2. Roles and responsibilities of partners and collaborators in implementing CAADP M&E Framework



Concluding Remarks

In July 2003 the African Union's New Partnership for Africa's Development (AU/NEPAD) initiated the Comprehensive Africa Agriculture Development Programme (CAADP) to accelerate growth and reduce mass poverty, food insecurity and hunger among African countries. The program, which is a strategic framework to guide investments in the agriculture sector across four pillars covering natural resource management, rural and trade infrastructure, food security, and agricultural research, as well as investments in capacity strengthening across the four pillars, aims to allocate an average of 10 percent of national budgets to the sector, achieve 6 percent average annual growth in the sector, and achieve the first millennium development goal (MDG1) of halving poverty and hunger.

To support mutual, peer and progress reviews of implementing CAADP at the continental, regional and national levels, respectively, and to provide a conceptual basis for assessing the impact of CAADP at the same levels, this document has provided a framework (CAADP M&E Framework), to be used for this purpose. A minimum set of core indicators that are consistent with the underlying logic of CAADP have been identified to track progress in implementation of the program towards achieving stated targets in interventions (processes, policies, investments) and outcomes and help answer questions related to the relevance, effectiveness, efficiency, impact and sustainability of the program. The data required, their potential sources, and methods for estimating values of the indicators were also presented. Then a plan for implementing CAADP M&E Framework was presented, including: collecting, managing and analyzing the data; peer review of the data, methods and results; and reporting the results in a targeted and timely manner.

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Annex A: CAADP Monitoring and Evaluation Indicators

Table A1. Indicators on enabling environment

Intervention area	Indicator/Definition	Disaggregation	Data	Methods	Suggested data sources
Political governance	Percentage of population satisfied with political decisions of the government	• Economic sector • Rural/Urban • Gender and age group			• APRM
Macro-economic management	Deficit-to-GDP ratio				• Ministry of Finance • Ministry of Trade • National accounts
	Revenue-to-GDP ratio	• Economic sector/subsector			
	Debt-to-GDP ratio				
	Producer support estimate (PSE)	• Sector/subsector • Major commodities			
	Import tariff and quotas	• Major commodities	• Average import tariff rates • Average import quotas (%)		
	Export tariff and quotas	• Major commodities	• Average export tariff rates • Average export quotas (%)		
	Inflation rate	• Rural/Urban	• Inflation rate, annual % GDP Deflator		
Private sector development	Percent of population with access to financial services for agricultural and rural development	• Rural/Urban • Gender			• Banking and financial institutions • National Living Standard and Consumption Surveys (LSCS)
	Proportion of total value of commercial loans for agricultural and rural development	• Subsector • Major commodities			
Donor harmonization	Proportion of donors adopting common mechanisms and procedures for financing development activities				• Ministry of Finance • Development partners
	Share of total ODA that is channeled through direct government budget support	• Donor			

Table A2. Indicators on CAADP round table and implementation process

Expected outcome	Indicator/Definition	Disaggregation	Data	Methods	Suggested data sources
CAADP launched (CL)	Percentage of countries:				
	• Obtained government buy-in		• Total number of countries (N) • Whether country has achieved or completed stage i (ST_i=1 if yes, =0 if not)	$CL_i=\Sigma ST_i*100/N$	• REC • CAADP Focal point
	• CAADP team appointed/recruited	• Composition (area of expertise, gender, etc)			
	• CAADP launch workshop held	• Composition of participants (institution, area of expertise, gender, etc)			
Compact signed (CS)	Percentage of countries:				
	• Stocktaking and analytical reports completed		• Whether country has achieved or completed stage i (ST_i=1 if yes, =0 if not)	$CS_i=\Sigma ST_i*100/N$	• REC • CAADP Focal point
	• Stakeholder holder workshop held	• Composition of participants (institution, area of expertise, gender, etc)			
	• Compact signed				
CAADP implemented (CI)	Percentage of countries:				
	• Action plans with budgets (or investment program) completed		• Whether country has achieved or completed stage i (ST_i=1 if yes, =0 if not)	$CI_i=\Sigma ST_i*100/N$	• REC • CAADP Focal point
	• Investment program technically reviewed				
	• Mechanism in place for implementation				
	• Country SAKSS Node established				
	• Baseline survey/data collected				
Resources committed	• Percentage of total resources required that is committed (COM%)	• Actor (government, development partners, private sector)	• Total value of resources required (REQ) • Value of total resource committed (COM_{TOT})	$COM\%= COM_{TOT}*100/ REQ$	• REC • CAADP Focal point • Ministry of Finance

Table A3. Indicators on commitments and spending

Expected outcome	Indicator/Definition	Disaggregation	Data	Methods	Suggested data sources
Increased spending on agriculture sector	Share of government agriculture budget in total government budget (S_{GAB_TGB})	• Economic (development, recurrent) • Function (research, extension, irrigation, NRM, marketing infrastructure, farm support, food imports, etc.) • Subsector (crops, livestock, forestry, fisheries) • Major commodities • CAADP Pillars	• Total government agriculture budget (GAB) • Total government budget (TGB) • Total government expenditure on the agriculture sector at constant prices in international $ (GAE) • Total government expenditure at constant prices in international $ (TGE) • Total ODA on the agriculture sector at constant prices in international $ (AgODA) • Total ODA at constant prices in international $ (ODA) • Total private sector expenditure on the agriculture sector at constant prices in international $ (PrAE) • Agricultural value-added at constant factor prices in international $ (AgGDP) • GDP deflator • PPP rate	S_{GAB_TGB}= (GAB/TGB)*100	• Ministry of Finance • Accountant General's office • Ministry of Agriculture • Donor offices • Chamber of commerce • IFPRI/ASTI • AU/FAO • IMF
	Share of government agriculture expenditure in total government expenditure (S_{GAE_TGE})			S_{GAE_TGE}= (GAE/TGE)*100	
	Share of government agriculture expenditure in agricultural GDP (S_{GAE_AG})			S_{GAE_AG}= (GAE/AgGDP)*100	
	Share of ODA for agriculture in total ODA (S_{AgODA})			S_{AgODA}= (AgODA/ODA)*100	
	Share of ODA for agriculture in agricultural GDP (S_{ODA_AG})			S_{AgODA}= (AgODA/AgGDP)* 100	
	Share of private sector agriculture expenditure in agricultural GDP (S_{PAE})			S_{PrAE}= (PrAE/AgGDP)*100	
Increased spending on other sectors	Share of government expenditure on other sectors in total government expenditure (S_{GSE_i})	• Sector: infrastructure (e.g., roads, transport); social services (education, health, water); social security; defense; capacity strengthening, etc. • Rural/Urban	• Total government expenditure on sector i at constant prices in international $ (GSE_i)	S_{GSE_i}= (GSE_i/TGE)*100	• Ministry of Finance • Ministry or Roads and Transport • Accountant General's office • Donor offices • Chamber of commerce • IMF

Table A4a. Indicators on provision, coverage and utilization of agricultural and rural services, and factors of agricultural production

Expected outcome	Indicator/Definition	Disaggregation	Data	Methods	Suggested data sources
Improved agricultural research and technology development	Number of major technologies released	• Public/private • Subsector (crops, livestock, forestry, fishery, NRM) • Major commodities	• Number of technologies • Yield gap over previous technologies		• Ministry of Agriculture • NARS offices
Increased technology adoption	Percent of agricultural land area under improved technologies (IMP) or sustainable management practices (SLM)	• Technology (hybrid seeds, fertilizers, pesticides, etc.) • Type of practice (agroforestry, forestry, rangeland)	• Total area under improved technology i in ha (A_i) • Total agricultural land area in ha (A_T)	$IMPi=(A_i/A_T)*100$ $SLM_i=(A_i/A_T)*100$	• Ministry of Agriculture • NARS offices • Environmental protection agency
	Percent of total livestock units of improved breeds (TLU_{IMP})		• Total number of improved breeds (TLU_M) • Total livestock units (TLU_T)	$TLU_{IMP}= (TLU_M/TLU_T)*100$	
	Percent of fish farming under sustainable management (FSH_{IMP})		• Total fish farming area under sustainable practices (FSH_M) • Total area under fish farming (FSH_T)	$FSH_{IMP}= (FSH_M/FSH_T)*100$	
Increased use of water management systems	Percent of agricultural land area under irrigation (IR)	• Public/private • Major systems • Major commodities	• Total area under irrigation in ha (A_{IR}) • Total agricultural land area in ha (A_T)	$IR=(A_{IR}/A_T)*100$	• Ministry of Agriculture • NARS offices
Improved road infrastructure	Road density (RD)	• Rural/Urban • Type (asphalt, gravel, feeder)	• Total length of road (RD_{KM}) • Total length of road in condition i (e.g., poor, fair, good) (RD_{KMi}) • Total land area in km^2 (A)	$RD= RD_{KM}/A$	• Ministry or Roads and Transport
	Road quality (RQ)			$RQ_i= (RD_{KMi}/ RD_{KM})*100$	
Increased access to rural infrastructure and services	• Percent of population within 15, 30, or more than 30 minutes of infrastructure or service • Percent of population within 1, 5 or more that 5 km of infrastructure or service	• Rural/Urban • Type of service (road, market, storage and processing facilities, primary school, health facility, etc.)			• National statistical office • National Living Standard and Consumption Surveys (LSCS)
Reduced post-harvest losses	Percent of total agricultural production that is lost post-harvest	• Major commodities			
Increased utilization of markets	Percent of agricultural production that is sold	• Subsectors • Major commodities • Rural/Urban			
Improved emergency response	Number of early warning systems	• Rural/Urban			
	Capacity utilization of food reserve				
Improved capacity of ministries, public agencies, trade negotiators	Number of professionals per 1000 farmers	• Function (research, extension, trade specialists/negotiators) • Level of training (PhD, MS, BS, Diploma, other.) • Area of training (economics, crops, livestock, forestry, fisheries, NRM, etc.) • Gender			• Agriculture-related ministries • NARS offices • Ministry of Finance • Trade associations
	Proportion of staff that have left for other opportunities				
	Proportion of staff that have received training (total capacity level)				
	Number of approved but unfilled positions as ratio of total staff				
	Ratio of recurrent expenditure to capital or total expenditure				

Table A4b. Indicators on agricultural growth performance

Expected outcome	Indicator/Definition	Disaggregation	Data	Methods	Suggested data sources
Increased agricultural production, productivity and growth	Real agricultural GDP percentage growth rate (AgGR)	• Subsector (crops, livestock, forestry, fishery) • Major commodities	• Agricultural value-added at constant factor prices in international $ in current year (VA_{AG-T1}) and previous year (VA_{AG-T0}) • GDP deflator • PPP rate	AgGR = (VA_{AG-T1} – VA_{AG-T0})*100/ VA_{AG-T0}	• Ministries of Agriculture and Finance • National accounts • World Bank
	Agricultural factor (land, labor, capital) productivity (international $ per hectare) • Land (AgL) • Labor (AgW) • Capital (AgK)	• Subsector (crops, livestock, forestry, fishery) • Major commodities	• Agricultural value-added at constant factor prices in international $ (VA_{AG}) • Total agricultural land area in ha (A_T) • Total number of agricultural workers (W) • Total value of capital (K) • GDP deflator • PPP rate	AgL=VA_{AG}/A_T AgW=VA_{AG}/W AgK=VA_{AG}/K	
	Yield (tonne-equivalent per unit production unit) (YLD)	• Major commodities	• Total output of commodity i in MT (Q_i) • Crops and forestry: Total area under production of commodity i in ha (A_i) • Livestock: Total number of tropical livestock units (TLU) • Fishery: Total weight equivalent of fish stock (F)	• Crops and Forestry: $YLD_i=Q_i/A_i$ • Livestock: $Y_i= Q_i/$ TLU • Fishery: $Y_i=Q_i/F$	
	Share of AgGDP or yield derived from improved technologies	• Technology (hybrid seeds, fertilizers, pesticides, etc.)			
Increased food supply	Food production per capita (FDCAP)		• Amount of total food produced in MT (FDP) • Total population (YT)	FDCAP=FDP/YT	• Ministry of Agriculture • Ministry of Trade • Food balance sheets
	Food consumption-production gap ratio (FDPCRATIO)		• Amount of total food produced in MT (FDP) • Amount of total food consumed in MT (FDC)	FDPCRATIO = FDP/FDX	

Table A5. Agricultural trade performance indicators

Expected outcome	Indicator/Definition	Disaggregation	Data	Methods	Suggested data sources
Increased agricultural trade	Value and volume of total agricultural exports and imports	• Subsectors • Major commodities	• Value of total agricultural exports (AGX$) and imports (AGM$) in international $ • Volume of total agricultural exports (AGX) imports (AGM) in MT • Value of total food exports (FDX$) and imports (FDM$) in international $ • Value of total processed agricultural exports in international $ (PAGX$) • Value of total agricultural exports in international $ originating from and going to countries in the region (RAGX$) • PPP rate	Values (AGX$, AGM$) Volumes (AGX, AGM)	• Ministry of Trade • Ministry of Agriculture • Export promotions office
	Agricultural imports to agricultural exports ratio (AGM_{RATIO})	• Subsectors • Major commodities		AGM_{RATIO} = AGM$/AGX$	
	Food imports to agricultural exports ratio (FDM_{RATIO})			FDM_{RATIO} = FDM$/AGX$	
	Food import-export ratio ($FDMX_{RATIO}$)			$FDMX_{RATIO}$ = FDM$/FDX$	
	Share of intra-regional trade (AGX_{REG})	• Subsectors • Major commodities		AGX_{REG} = RAGX$/AGX$	
	Share of value-added content of trade (AGX_{VAD})	• Subsectors • Major commodities		AGX_{VAD} = PAGX$/AGX$	
Favorable prices	Ratio of domestic producer prices to international market prices (PIP)	• Major commodities	• Domestic producer or input price of commodity i in international $ per MT (X_i) • International market price of commodity i in international $ per MT (CIF_i) • Retail price of commodity i in international $ per MT (RTP)	$PIP_i = X_i/CIF_i$	• Ministry of Trade • Ministry of Agriculture • Export promotions office
	Ratio of retail to farm gate prices (RFG)	• Major commodities		$RFG_i = Xi_i/RTP_i$	

Table A6. Poverty, hunger and food and nutrition security indicators

Expected outcome	Indicator/Definition	Disaggregation	Data	Methods	Suggested data sources
Reduced poverty	Poverty incidence ratio (P1) Poverty gap ratio (P2) Share of poorest quintile in national income (P3)	• Rural/Urban and other subnational • Gender • Age group • Economic sector	• Population with consumption expenditure below national (NAT_{pov}) and international (INT_{pov}) poverty line • Total population (Y_T) • Purchasing Power Parity (PPP) rate for converting local value of consumption expenditure into international $ • Average consumption expenditure of the poor in international $ per day (C_{pov}) • Total consumption expenditure of the bottom 20% of the population in international $ ($C_{20\%}$) • Total consumption expenditure of the total population in international $ (C_T)	$P1_{NAT}=(NAT_{pov}/Y_T)*100$ $P1_{INT}=(INT_{pov}/Y_T)*100$ $P2=(1-(C_{pov}/1\$))*P1$ $P3=(C_{20\%}/C_T)*100$	• National poverty monitoring agencies • National Living Standard and Consumption Surveys (LSCS) • World Bank • UNDP
Reduced hunger	Proportion of the population below minimum dietary energy consumption (H1) Prevalence of underweight children under five years of age (H2) Global Hunger Index (GHI)	• Rural/Urban and other subnational • Gender • Age group • Economic sector	• Number of people with dietary energy consumption below 2414 kcal per day (Xhun-T) • Total population (YT) • Number of children under 5 years of age whose weight-for-age is less than minus two standard deviations from the median of the WHO reference population (Xhun-5) • Population of children below under 5 years of age (Y5) • Global Hunger Index (GHI)	H1= (Xhun-T/YT)*100 H2= (Xhun-5/Y5)*100 GHI	• Ministry of Health • Demographic and Health Surveys (DHS) • IFPRI • UNDP
Reduced food and nutrition insecurity	Dietary Diversity Score (DDS) Resilience Score (RS) Share of food expenditure (SFE)	• Rural/Urban and other subnational • Gender • Age group • Economic sector	• Dietary Diversity Score (DDS) • Resilience Score (RS) • Consumption expenditure on food in international $ (C_F)	DDS RS $SFE=(C_F/C_T)*100$	• CAADP Pillar 3 • National Living Standard and Consumption Surveys (LSCS)

Table A7. Agricultural investment–growth–poverty linkages indicators

Link	Indicator/Definition	Disaggregation	Data	Methods	Suggested data sources
Agricultural investment-agricultural productivity	Percentage change in agricultural factor productivity (i) per unit change in agricultural investment or (ii) per unit cost of intervention	Agricultural investment in or by: • Function (research, extension, irrigation, farm support, etc.); subsector; major commodities; CAADP Pillars; source (government, donors, private sector) Agricultural factor productivity in or by: • Subsector, major commodities	Indicators and data shown in Tables A1-A6 and A8	• Impact assessment • Program evaluation	• ReSAKSS • IFPRI • Universities
Agricultural productivity-poverty/ hunger/ food and nutrition insecurity	Percentage change in *outcome* per unit change in agricultural factor productivity growth: • Poverty rate or number of poor people • Hunger rate or number of hungry people • Food and nutrition insecurity rate or number of food and nutrition insecure people	Agricultural factor productivity in or by: • Subsector; major commodities Outcome by: • Gender; age group; subnational location	Indicators and data shown in Tables A1-A6 and A8	• Impact assessment • Program evaluation	• ReSAKSS • IFPRI • Universities
Agricultural investment-poverty/ hunger/ food and nutrition insecurity	Percentage change in *outcome* (i) per unit change in agricultural investment or (ii) per unit cost of intervention: • Poverty rate or number of poor people • Hunger rate or number of hungry people • Food and nutrition insecurity rate or number of food and nutrition insecure people	Agricultural investments in or by: • Function (research, extension, irrigation, farm support, etc.); subsector; major commodities; CAADP Pillars; source (government, donors, private sector) Outcome by: • Gender; age group; subnational location	Indicators and data shown in Tables A1-A6 and A8	• Impact assessment • Program evaluation	• ReSAKSS • IFPRI • Universities

Table A8. Other indicators

Indicator/Definition	Disaggregation	Data	Methods	Suggested data sources
Population	• Employment (economic sectors) • Rural/Urban • Age group • Gender • Education achievement • Affected by (conflict, HIV/AIDS)	• Population census		• Statistical office • Ministry for labor affairs • Ministry of Health
Annual average amount of rainfall (mm)	• Agroecology or subnational distribution			• Meteorological office
Real labor wage	• Economic sectors (agriculture, services, industry) • Rural/Urban • Gender	• Average labor wage per man-day • PPP rate • CPI deflator	Deflate labor wage by CPI and convert to international $ using PPP rate	• Ministry for labor affairs • Statistical office • National Living Standard and Consumption Surveys (LSCS)
Labor wage gaps	• Agricultural and nonagricultural (WRAG) • Rural/urban labor wage gap ratio (WRRU) • Gender labor wage gap ratio (WRWM)	• Agricultural labor wage (WAG) • Nonagricultural labor wage (WNAG) • Urban labor wage (WU) • Rural labor wage (WR) • Rural labor wage for men (WM) • Rural labor wage for women (WW)	WRAG=WAG/WNAG WRRU=WR/WU WRWM=WW/WM	• Ministry for labor affairs • Statistical office • National Living Standard and Consumption Surveys (LSCS)
Real household income per capita (INC)	• Economic sectors (agriculture, services, industry) • Rural/Urban	• Consumption expenditure at constant prices in international $ of household i (CEi) • Number of adult equivalents in household i (AEi) • Total number of households (N) • CPI deflator • PPP rate	$INC=\Sigma i(CEi/AEi)/N$	• Statistical Office • National Living Standard and Consumption Surveys (LSCS)
GDP percentage growth rate (GR_{GDP})	• Economic sectors (agriculture, services, industry) • Major subsectors	• Total value-added at constant factor prices in international $ in current year (VA_{T1}) and previous year (VA_{T0}) • GDP deflator • PPP rate	$GR_{GDP} = (VA_{T1} - VA_{T0})*100/VA_{T0}$	• Ministry of Finance • National accounts • World Bank

Annex B: Sample Draft Data Collection Format (Government Agricultural Expenditures)[9]

The purpose of this survey is to collect information on government agricultural expenditures in your country. This information will be collected annually and used to make a report to the African Heads of State and Government on: (i) the Maputo Declaration of 2003 of allocating at least 10% of total government budget expenditure to the agriculture sector; and (ii) assessing whether and how investments are having their desired impact on raising growth and reducing poverty, hunger and food and nutrition insecurity.

Country:_____ Name: _____ Ministry/Institution:_____

Date:_____ Title:_____ Email:_____ Phone:_____

Calendar Year: _____, or **Fiscal Year** from: month _____ year_____ to month _____ year_____

Local currency_____ _in: Thousands (1,000) □ Millions (1,000,000) □ Billions (1,000,000,000) □	**Entire Agricultural Sector (crops, livestock, fishery, forestry)**			**BY AGRICULTURAL SUBSECTOR**											
				Crops			**Livestock**			**Fishery**			**Forestry**		
	Recurr	Capital	Total	Recurr	Capital	Total	Recurr	Capital	Total	Recurr	Capital	Total	Recurr	Capital	Total
General public administration															
Research and development															
Extension															
Other support services [1]															
Irrigation development															
Subsidies for inputs and capital items [2]															
Credit or loans for inputs and capital items [2, **]															
Other (please specify)_____															
TOTAL															

[1] Other support services include veterinary services, pest and disease control, produce inspection and grading, forest fire-fighting and fire prevention, etc.

[2] Inputs include seed, fertilizer, other chemicals, feed, etc. Capital items include seedlings, animals, fish fingerlings and hatcheries, tractors, outboard motors, pumps, other machinery, etc.

[**] If any credit or loans for inputs or capital items, what was average recovery rate?_____%.

[9] Other formats can be obtained from the ReSAKSS nodes.

Annex C: Terms of Reference for a Country SAKSS Node Coordinator/Manager[10]

Position title: Country SAKSS Coordinator / Manager
Hiring institution: Implementing Institution responsible for SAKSS
Reporting to: Country senior representative of implementing Institution and head of local host institution (e.g., Ministry of Agriculture)

Job Description

[Implementing Institution] seeks to hire a [Country] national to work jointly with the [Implementing Institution] country representative and [Local Host Institution or the Ministry of Agriculture] in the coordination and implementation of a country SAKSS program. The program aims to enhance local capacity for evidence-based policy and data analysis, as well as knowledge and information exchanges, in the areas of agriculture and rural development. It is to be established within a local government body (such as the Ministry of Agriculture) to provide a means to better manage existing and new knowledge on the agricultural sector and rural economy in the country, and ultimately, strengthen the foundation of evidence for policy formulation and for informing development strategy decisions in general. A SAKSS network will be established to fundamentally consist of local and international data providers, researchers and analysts working in the country. The network will help provide key data analysis, knowledge and information exchange, and capacity strengthening needs within the Ministry (or other local host institution).

Duties and Responsibilities

- Establish a SAKSS node for agriculture and rural development policy and program analysis, design, monitoring, and evaluation
- Establish a SAKSS Network of data providers, and analysts and researchers
- Manage the compilation of information on past research and relevant data sets on agriculture and rural development
- Contribute to data analysis upon demand, including spatial data, in order to serve the needs of the strategy development process and ongoing dialogue in a timely fashion.
- Contribute to the preparation of policy briefs and reports based on the data analysis, ongoing research of collaborators, and emerging policy issues.
- Manage the day-to-day program management and coordination in close collaboration with the implementing institution, local host institution, relevant ministry, and other key local stakeholders.
- Serve as a key liaison and link on the SAKSS program between the Ministry of Agriculture (or other local host institution) and the scientific community, development partners, private sector, non-governmental organizations and civil society
- Serve as the champion for SAKSS in the sense of achieving active participation and support from local institutions, government ministries, donors, private sector investors, farmers' organizations, research institutions, and other clients.
- Promote greater knowledge and data sharing through various media (e.g., policy seminars, web-based platforms, news media) and the coordination of dialogue linking policy analysis and decision making

[10] See Johnson and Flaherty (2009) for details.

- Assist with managing program budgets, raising resources and prepare progress reports relevant to diverse stakeholder groups
- Coordinate research teams for generating new evidence for policymaking

Qualifications and Experience

- Masters Degree in Agricultural Economics, Rural Development, Statistics, Geography, Rural Sociology, or closely related field.
- Proven skills in building network linkages, promoting information exchange
- Excellent management, interpersonal, networking and team building skill
- Experience with the management of databases or library holdings
- Proven skills and ability to work with complex quantitative data sets and experience with Geographic Information Systems (GIS).
- High level of computer literacy, particularly with software for database and library management, data analysis, and CD and web-page authoring.
- Evidence of having a strong attention to detail.
- Excellent written and spoken English and main local languages.
- Willingness to travel, both in country and abroad

Other Desirable Qualifications

- Knowledge of and experience in working with the principal public sector providers of analysis and information in the country.
- Experience in research on development issues in the country
- Familiarity with quantitative research techniques would be an added advantage.
- Possess a holistic and solid knowledge regarding the country's agriculture and policy environment (government, private sector, NGOs) and its evolution in recent years.

Annex D: Partnership and Collaboration for Implementing CAADP M&E System

LEVEL	ACTIVITIES/CORE ACTORS				
	Data collection and management	**Analysis**	**Reporting, communication and dissemination**	**Review and dialogue**	**Coordination**
NATIONAL	Agricultural planning units, statistics bureaus, M&E units within relevant MDAs, budget units in ministries of finance, PRSP units, NARS	Country SAKSS Nodes, NARS, universities, think tanks, statistics bureaus, agricultural planning units, policy analysis units	Country SAKSS Nodes[†]	Agricultural sector expenditure and performance review committee, agricultural sector units, parliament	Supervisor of country SAKSS node coordinator[‡]
REGIONAL	SROs, RECs, research networks (e.g., AERC, ACTESA, EAGC, AGRHYMET, etc.), professional organizations	SROs, research networks, professional organizations	ReSAKSS nodes, RECs, SROs, regional technical agencies	RECs Summit, CAADP Advisory Council	ReSAKSS Steering Committee (chaired by representatives of RECs)
CONTINENTAL	FARA, AERC, ECA, AfDB, CGIAR centers, professional organizations	ReSAKSS-Africa wide Node, NPCA, AERC, ECA, AfDB, CGIAR centers, CAADP Pillar Lead Institutions	ReSAKSS-Africa wide Node, AUC, NPCA	AU Assembly, CAADP-PP	ReSAKSS Continental Steering Committee (co-chaired by AUC and NPCA)
GLOBAL	UN technical agencies, World Bank, OECD, IMF	ReSAKSS-Africa wide Node and network, CGIAR centers, international universities, UN technical agencies, World Bank, OECD, IMF	Development Partners CAADP Teams	G8, G20, WTO	Development Partners CAADP Task Team

[†] Where the Country SAKSS Node does not exist, the respective ReSAKSS Node will work with the national agricultural planning units.

[‡] Where the Country SAKSS Node does not exist, the respective ReSAKSS Node will work with the directors of the national agricultural planning units.

Annex E: Glossary of Selected Terms

Agriculture expenditures include recurrent and capital expenditures in crops, livestock, forestry, fishing, and hunting as defined by the classification of functions of government (COFOG) system (Source: IMF 2001, Government Financial Statistics Manual).

Capacity building is the strengthening and/or development of human resources and institutional capacities (Source: UNEP International Technical Guidelines for Safety in Biotechnology). It is the process by which individuals, organizations, and societies develop abilities to perform functions, solve problems, and set and achieve goals premised on ownership, choice, and self-esteem (UNDP). It is the sustainable creation, retention, and utilization of capacity in order to reduce poverty, enhance self-reliance, and improve people's lives (Source: Whyte 2004).

Capital expenditures are expenditures that do not recur, i.e., spending on fixed assets or adding value to existing assets such as equipment or buildings.

Capacity utilization compares actual use and potential use of a (e.g., food reserve), if it was fully used.

Early warning system is any system of biological or technical nature deployed to inform of future danger and allow relevant authorities or people that would be affected to plan for the oncoming danger in terms of how to deal with it, avoidance or mitigation.

Emergency response is a form of development assistance that includes humanitarian aid in the form of emergency and distress relief in cash or in kind and relief food aid. Short-term reconstruction relief and rehabilitation, disaster prevention and preparedness, and aid to refugees are not included.

Expenditures are outlays (paid and unpaid) incurred, which include items such as compensations of employees, use of goods and services, payment of interest, subsidies, grants, social benefits, or capital (Source: IMF 2001, Government Financial Statistics Manual).

Farmgate price is the net value of agricultural produce when it leaves the farm or the price of agricultural produce charged by farmers on the farm. It does not include marketing costs.

Food supply is the quantity of food that is available and or accessible to everyone in a country at any time.

Impact assessment is a particular type of evaluation that aims to determine whether and the extent to which a program / policy / strategy causes change in the desired indicator among a target population.

Institutions are the humanly devised constraints that structure human interaction. They are made up of formal constraints (rules, laws, and constitutions), informal

constraints (norms of behavior, conventions, and self imposed codes of conduct), and their enforcement characteristics (North 1993).

Institutional capacity strengthening is the development and enhancement of the "rules of the game", i.e., institutions. It includes the development of human skills and related resources to enhance the development and enforcement of the "rules of the game".

Investments refer to an increase in the stock of capital goods or items any expenditures designed to increase future output or returns.

Irrigation refers to the artificial application of water (e.g., by spreading, sprinkling, or dripping) to crops and other plants to supplement natural precipitation.

Marketing margin is the difference between retail price and farm gate price.

Official Development Assistance (ODA) is flow of official financing administered with the promotion of the economic development and welfare of developing countries as the main objective, and which are concessional in character with a grant element of at least 25 percent (using a fixed 10 percent rate of discount). By convention, ODA flows comprise contributions of donor government agencies, at all levels, to developing countries ("bilateral ODA") and to multilateral institutions. ODA receipts comprise disbursements by bilateral donors and multilateral institutions.

Policy is a set of principles or rules to guide decisions and actions. Policies are often legislated and enacted. Several policies, as well as programs, may fit into the larger strategy.

Program is a plan of structured activities or steps to be carried out (or goals to be accomplished).

Retail price is the price of agricultural produce charged to consumers by retailers.

Strategy is a long-term plan of action designed to achieve a particular goal.

Sustainable management refers to the use, development, and protection of natural resources (fish, land, water) so as to meet physical, social and economic needs of the present generation without impinging upon the ability of future generations to meet theirs.

Technology is the application of scientific knowledge—including any tool, technique, product, process, method, organization or system—to (agricultural) practical purposes. An agricultural technology is major if it significantly contributes to increasing agricultural yields, for example.

Trade associations are organizations, nonprofit, cooperative and voluntary, that help with promoting traded goods and services on behalf of their members.

Trade negotiation occurs between pairs of governments, or among groups of governments, exchanging commitments to alter their trade policies, usually involving

reductions in tariffs, and sometimes nontariff barriers (Source: University of Michigan).

Trade specialists are individuals with specialized knowledge and or training in trade related issues.

ReSAKSS Africa Wide

Regional Strategic Analysis and Knowledge Support System

FACILITATED BY IFPRI | A PROGRAM IN SUPPORT OF CAADP IMPLEMENTATION

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