Appendix 2

Agricultural Statistics in Mali:

Institutional Organization and Performance

by

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AFRISTAT	Economic and Statistical Observatory of Sub-Saharan Africa
AGRHYMET	*Centre Regional de Formation et d'Application en Agrométéorologie et Hydrologie Opérationnelle*/Regional Center for Training and Applications in Agrometeorology and Applied Hydrology
APCAM	*Assemblée permanente des Chambres d'Agriculture du Mali*/Permanent Assembly of Malian Chambers of Agriculture
BCRA	*Bureau Central de Recensement Agricole*
CCSI	*Comité de Coordination Statistique et Informatique*/Coordination Committee for Statistics and Computer Sciences
CMDT	*Companie Malienne pour le Développement des Textiles*/Malian Company for the Development of Textiles
CPI	Consumer price index
CPS	*Cellule de Planification et de Statistique*/Planning and Statistical Unit
CSA	*Commissariat à la Sécurité Alimentaire*/Food Security Commission
DNAMR	*Direction National de l'Appui au Monde Rural*
DNSI	*Direction Nationale de la Statistique et de l'Informatique*/National Directorate of Statistics and Computer Sciences
EAC	*Enquête Agricole de la Conjuncture*/Agricultural Situation Report
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross domestic product
GOM	Government of Mali
IER	*Institut d'Economie Rurale*/Institute of Rural Economy—the national agricultural research institute
MIS	Market Information System
MOA/CPS	See CPS
MSU	Michigan State University
OHVN	*Office de la Haute Vallée du Niger*/Agricultural Development Office for the Upper Valley of the Niger
OMA	*Observatoire des Marchés Agricoles*/Agricultural Market Information System
OPAM	*Office des Produits Alimentaires du Mali*/Malian Cereal Marketing Board
PASIDMA	*Projet d'Appui au Système d'Information Décentralisé du Marché Agricole*/Support Project for a Decentralized Agricultural Market Information System
PRMC	*Programme de restructuration des marchés céréaliers*/Program for cereal market liberalization
RGA	*Recessement Agricole Genérale*
SAP	*Système d'Alerte Précoce*/Early Warning system
SDS	*Schèma Directeur statistique/*National Statistics Strategy
SSN	*Système de Statistique National*
WB	World Bank

1. INTRODUCTION

This report on agricultural statistics in Mali is a desk study that describes how the agricultural statistics system relates to the national statistical system, how agricultural data are collected and analyzed, and how the statistics and information produced are disseminated and used. The traditional view of agricultural statistics in Mali has included three broad categories of information: rough estimates of cereal production early in the season for food security projections, more reliable food staple and cash crop production estimates for national accounts, and price information for valuing production and monitoring market trends that influence farm incomes and consumer access to basic foods. There is now an expanding view of needs that calls for more types of data and analyses, including but not limited to:

- Production information on emerging agricultural sectors such as horticulture, livestock and poultry;
- Indicators for monitoring progress on the Millennium Development Goals (MDG) and poverty reduction in rural areas;
- Information to improve planning and evaluation of alternative public and private investments;
- Monitoring productivity and trade trends and analyses to identify the determinants of those trends.

The focus of this study is the institutional organization of the statistical system (identification of key institutional actors and their assigned responsibilities) and its performance in meeting the statistical information needs of the government, the private sector, and development partners. The report deals primarily with the supply and use of data to meet the traditional needs, while noting changes that are taking place to make the system more responsive to the expanding demands identified above. The study draws on published and unpublished reports, personal communications with key actors, and the personal experience of the authors. Section 2 presents an overview, showing how agricultural statistics fit into Mali's national statistical system (*Système de Statistique National* or *SSN*). Section 3 describes the major data systems used to collect agricultural statistics, presenting information on the strengths and weaknesses of data collection, analysis, and dissemination activities. Section 4 examines budget and staffing issues. Section 5 synthesizes the key findings and lessons of general relevance to other countries.

2. OVERVIEW OF THE MALIAN NATIONAL STATISTICAL SYSTEM

A 2004 evaluation of the Malian *SSN* describes it as a hybrid system with a centralized national structure having multi-sectoral responsibilities functioning along side a multiplicity of sector level institutions with no formal links to the centralized structure.[1] The report notes that it is not the existence of the many sector level institutions that causes a problem but the lack of explicit legislation encouraging coordination of activities across institutions. The SSN can be broken down into five institutional components, all of which play some role in agricultural statistics:

1. The *Direction Nationale de la Statistique et de l'Informatique* (DNSI)[2] is the central statistical agency. It is located in the *Ministère de Plan et de l'Amenagement du Territoire*[3] and charged with the design of a national policy for statistics and computer applications;
    a. DNSI relies on nine regional planning and statistics offices (*Direction Régionales de la Planificiation, de la Statistique et de l'Informatique, de l'Aménagement du Territoire et de la Population* or DRPSIAP) for the implementation of data collection activities ;
    b. DNSI is comprised of a directorate (director and deputy director), a documentation center and 5 functional divisions (*Synthèse et suivi, Méthode et analyse, Statistiques démographiques, Statistiques courantes,* and *Informatique*)[4] ;
2. Six *Cellules de Planification et de Statistique* (CPS or planning and statistics units) were created during the 1990s to increase capacity within line ministries for analysis of development policies and programs, monitoring and evaluation of projects, and the design and management of statistical data bases. The creation of these CPS was an effort to compensate for perceived shortcomings of DNSI;[5]
3. Four *observatories* (observation units) are charged with data collection and/or analysis for narrowly defined topics (e.g. employment, transport, human development, and agricultural market information);
4. A variety of statistical services are provided by technical departments located in various ministries (e.g., livestock vaccination services and the *Bureau Statistique et Suivi Evaluation*[6] in the Direction of Agriculture); and
5. The major Government development agencies in the agricultural sector (e.g. four for irrigated rice, one for sugar, two for cotton)[7] are generally the major source of agricultural statistics for their sectors of intervention.

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[1] The evaluation was conducted in 2004. This report draws heavily on the following two documents prepared as part of the evaluation: *Projet de reforme des cellules de planification et de statistique (CPS), (Ministère du Plan et de l'Aménagement du Territoire, August 2005); Schéma directeur statistique, (DNSI Novembre 2005). A report by PARIS21 (2005)* also provided insights about Mali's national statistical system in general.

[2] National Directorate for Statistics and Computer Sciences.

[3] Ministry of Planning and Management.

[4] Monitoring and Synthesis, Methods and Analysis, Demographic Statistics, Annual Statistics, and Computer Sciences.

[5] Limited expertise among DNSI staff in agronomy or livestock production, for example, often raised questions about their ability to accurately measure agricultural variables and interpret the data they collected.

[6] Office of Statistics, Monitoring, and Evaluation.

[7] These offices include the *Office du Niger* (irrigated rice), *Compagnie Malienne de Développement Textile* (cotton), *Office de la Haute Vallée du Niger* (cotton and some diversification crops), *Office des Périmètres irrigués de Baguineda* (irrigated rice and horticultural production), *Office Riz Mopti* (rice), *Office Riz Ségou* (rice), *Office de Développement Rural Sélingué* (rice and other irrigated crops) among others.

Legislation describing DNSI's mission states that the Directorate is responsible for developing methods for data collection and analysis of national surveys, setting statistical norms, collecting and analyzing administrative statistics, coordinating the SSN and approving requests for official surveys, statistical and computer science training, promoting cooperation with national and international statistical services, publishing statistical information, developing computer applications, developing and supervising the implementation of a national plan for statistical and computer services, and harmonizing standards for computer technologies and software.[8] DNSI's internal organizational structure based on functional areas (those listed in point 1.b above) means that statistics of relevance to agriculture are collected and analyzed in a variety of divisions. For example, the *Synthèse et suivi* division uses agricultural production data to prepare the national accounts while the *Méthode et Analyse* division is involved in the agricultural surveys that collect the production data, and the *Statistiques courrantes* division develops the consumer price index. While this permits DNSI staff to focus on particular areas of statistical expertise, it does not build subject matter expertise as staff often have to apply their skills to diverse sectors.

Complementary legislation[9] created a consultative body, the *Comité de Coordination Statistique et Informatique* (CCSI or Coordination Committee for Statistics and Computer Sciences), under the supervision of the Ministry of Plan. This consultative body is to meet at least once a year to advise the Ministry with the definition, coordination, and planning for all surveys, studies, and statistical work conducted by public services (see Box 1 for more details). The CCSI role appears to be limited to one of providing perfunctory approval to programs that are presented to it. Evaluators noted, for example, that the committee is convened when DNSI wants to present a program for implementing a special operation. On these occasions, the discussion tends to touch on a mixture of technical and methodological issues that are often beyond the grasp of many committee members, thus reducing the coordinating role that the committee is able to play.

Box 1
Comité de Coordination Statistique et Informatique

The committee is to ensure cooperation among the various producers and users of statistical information in both the public and private sector. The committee is composed of representatives from all government services producing or using statistics and from 16 clearly specified organizations representing civil society (chamber of commerce, chamber of agriculture, unions, women's associations, NGOs, etc. etc.). The CCSI has four sub-committees designed to advise on statistical issues for different sectors: demography and social issues; agriculture, livestock, fishing, and natural resources; economics and finance (covering commerce, industry, energy, water, tourism and hotels); and computer sciences. Source: *Decret No*. 05267/P-RM of 14 June 2005

Legislation creating the various CPS made no mention of DNSI or of the CCSI, while appearing to give to the CPS some of functions already assigned to DNSI and the CCSI.[10] The main statistics and information tasks assigned to the CPS were to identify and express basic statistical needs and to assure the coordination of the production and diffusion of statistical information and basic studies. The 1992 legislation created five CPS with thematic areas that corresponded to the 1992 configuration of ministries:

- Agriculture, livestock, and environment;
- Transport, public works, and housing;
- Education;
- Mines, water and energy; and
- Public health, social action, and promotion of women.

[8] *Ordonnnce No*. 04008/P-RM of 25 March 2004.
[9] *Decret* No. 05267/P-RM of 14 June 2005.
[10] *Ordonnance* No 92-052 / P-CTSP of 5 June 1992.

A sixth CPS, industry and commerce, was added at a later date.

As Mali has revised the number and functional areas of its ministries, the assignment of CPS to specific ministries creates challenges for those wanting to ensure continuity of data collection and reporting. For example, the Ministry of Rural Development, which had responsibility for the CPS covering agriculture, livestock and environment, has now been divided into one ministry for agriculture, another for livestock and fishing, and responsibilities for environment have been combined with those for sanitation. Following the creation of the new ministries a decision was made to maintain a single CPS in the Ministry of Agriculture to cover agriculture, livestock, and fishing; this has maintained continuity for most of the previous statistical programs concerning the agricultural sector.

The CPS legislation also called for the creation of advisory committees (composed of Ministry officials and other actors in the sector) to orient and evaluate the statistical programs proposed by each CPS. These committees had not been officially established at the time of the 2004 assessment.

The overarching problems identified by the 2004 SSN evaluation were the total absence of formal links between the different institutions with a role in the production and use of national statistics, inadequate budgets to accomplished assigned tasks, and inappropriate configurations of personnel in the various institutions. Although the CPS were created to compensate for perceived weaknesses in the centralized DNSI system, the CPS evaluation found these units generally coming up short (see Box 2). Given that our primary interest is in agricultural statistics, it is encouraging to note that the CPS evaluation singled out three CPS as the better performers: agriculture, education, and health. All three have developed a structured information system based on a *Schéma Directeur* (Master Plan), all possess adequate computer hardware and software, and all of their data bases draw on sector-level surveys and studies, usually conducted with substantial CPS involvement.

Box 2
Evaluation Results for Ministry-based Planning and Statistics Units (CPS)

In general, all CPS were found lacking in capacity for economic and financial analysis of projects and in the mastery of software for project management. CPS monitoring and evaluation activities were poorly performed, generally due to a lack of financial resources to conduct field work. In terms of the specific statistical tasks undertaken, few CPS were actively involved in identifying needs for data or information. While they all attempted to collect data to diagnose and monitor the socio-economic situation, most systems had time gaps and tended to be missing critical pieces of information. In some cases, the statistical validity of the information available was also questionable. Analysis of data rarely went beyond simple descriptive statistics. Dissemination of data and reports rarely went beyond the administration and donors and rarely presented information at a more disaggregated level than the Region (the largest administrative subdivision). Source: *Ministère du Plan et de l'Aménagement du Territoire* August 2005

3. PRINCIPAL COMPONENTS OF MALI'S AGRICULTURAL STATISTICS SYSTEM: STRENGTHS AND WEAKNESSES

To synthesize the salient characteristics of Mali's agricultural statistics system, we describe the major agricultural data bases and the institutions involved in producing and analyzing them.

In the early post-independence period agricultural statistics were used to support Mali's centralized approach to agricultural sector development planning, to estimate agricultural gross domestic product (GDP) for national accounts, and to monitor the impacts of government programs. After the major droughts in the early 1970s, the driving force behind the production of agricultural statistics in Mali became food security monitoring. Beginning in the second half of the 1980s, a market information system was added to report commodity prices and flows in an effort to monitor impacts of market liberalization. The market information also served as an indicator of potential supply problems affecting food security. Recent interest in understanding how agricultural productivity growth is transformed into poverty reduction is putting new demands on the agricultural statistical system.

Table 1 provides a list of the key data collection systems used in Mali to monitor rural development in general and the agricultural sector in particular. They are organized into five categories: agricultural production (both crop and livestock), rural living conditions and incomes, market information, trade, and general census information. In the following paragraphs we describe the institutional arrangements for the data collection and analyses of each of the key systems, pointing out their strengths and weaknesses.

3.1. The *Enquête Agricole de Conjoncture*

3.1.1. Overview

Until the late 1980s Mali had two uncoordinated sources of agricultural production data (see Box 3). Since 1988, the centerpiece of Mali's agricultural statistics production system has been the annual *Enquête Agricole de Conjoncture* (EAC or Agricultural Outlook Survey), which provides data for crop forecasts in May and final estimates of crop production by the end of the year for use in national accounts. The EAC also collects information on livestock ownership, farm assets, input use, and demography of farm households, but the exact nature and quality of these data vary from year to year. From 1988 to 2004, the EAC was conducted jointly by DNSI and the CPS for agriculture, with DNSI playing the lead role in managing the survey and producing the annual report. In 2004, following several years of the Food and Agriculture Organization of the United Nations (FAO) and World Bank training and capacity building efforts at CPS and simultaneous with the implementation of the first *Recensement Générale de l'Agriculture* (RGA or General Census of Agriculture), the CPS assumed the lead role. DNSI continues to collaborate with the CPS, providing primarily technical support on statistical and sampling issues, while CPS implements the annual survey and carries out the analyses.

Box 3
Historical Perspective: Merging Two Systems into One

Prior to the late 1980s Mali had two separate agricultural statistics reporting systems, one run by DNSI using statistically rigorous sampling methods and data collection procedures to estimate annual production at the end of the season and one run by the National Direction of Agriculture to produce rapid estimates of the food situation early in the production season and take remedial action if necessary. The estimates from the two sources were often different, leading to major decision-making bottlenecks. Beginning in 1988, DNSI's more rigorous sampling and statistical methods were kept in place, but procedures and resources were added that permitted DNSI to use the same data base to do crop forecasts and the final production estimates that feed into national accounts (also a DNSI responsibility). Source: *Office Statistique des Communautes Europeennes, Statistiques de Base Agriculture Élevage* 1988, Bamako.

3.1.2. Sampling

Until 2004, the EAC sampling frame was based on the 1998 national census, with an annual random selection of 400 to 500 rural enumeration units (geographic areas comprising a population ranging from 800 to 1000 people) followed by a random selection of 5 households from each enumeration unit. Total sample size ranged from 2000 to 2500 households per year[11]; funding considerations were a key factor in determining the sample size. A sample size in this range is considered adequate for producing statistics that are representative at the *Région* level.[12] A new sample was drawn each year so there is no panel with several years of data for the same households.

In 2004, the sampling frame was updated and modified in conjunction with the conduct of the first *RGA*; the modified frame, still based on the 1998 census, added two new categories: urban farm households and modern farms. The establishment of the new frame was accompanied by the establishment of a new goal: the production of results that would be representative at the *Cercle* level (one level down from the *Région*). To accomplish this, the sample needs to cover 1000 enumeration units and 5000 households. This goal was surpassed for the 2004 RGA (9834 households covered), but the CPS has had difficulty meeting the goal with subsequent EAC (only 4300 households covered in 2005/2006 and just 2232 in 2006/07).

3.1.3. Coordination and Organization

According to the CPS, DNSI has continued to provide technical expertise and assistance (particularly with sampling issues) and DNSI staff participate in a variety of meetings and committees concerning agricultural statistics that are convened by the CPS. Since the transfer of the lead role for EAC to the CPS there has been a greater effort to convene the various statistical committees described in section 2 and involve them in planning and decision making. The committees meet at least twice a year (October and March when major results become available) and bringing together individuals from a variety of institutions. In the past, these committees met only on an *ad hoc* basis when DNSI wanted to make a change in survey procedures and CPS participation was not the rule.

[11] Strictly speaking, Mali interviews *exploitations* or farm production units, which can include several households (e.g., a father and his married sons) that join together to operate a single production unit where the factors of production (land, agricultural equipment, and labor) are managed by the patriarch of the family. We use the term household in English to reflect this concept of *exploitation*.

[12] The *Région* is the 1st administrative level after national. Administratively Mali is divided into 9 regions. and 49 *Cercles.* The *Cercles* have also been grouped by agro-ecological zone, based on the *Inventaire des Ressources Terrestres* (inventory of land resources) conducted in the early 1990s.

Table 1. Data Bases Available for Agricultural Productivity and Policy Analyses

Type	Survey/Data Set Name	Institutions Involved	Frequency	Survey description (information collected, sample section, dates covered)
Agricultural Production (crops and livestock)	ECA: Enquête Agricole de Conjoncture	Before 1986: 2 separate, duplicative systems with conflicting results. 1986 to 2004 DNSI with MinAg/CPS assistance. Since 2004/05 CPS in lead with DNSI assistance.	Annual but combined with RGA in 2004/05.	Uses household survey to collect basic info on "traditional sector" for area planted to key crops, total production, and yields. Uses crop cuts to estimate yields. Supplemental information on household demographics collected every year. Varies from year to year for information on livestock holdings, input use, and productive assets (animal traction equipment). Sample has been representative at national and regional level; since RGA in 2004/05 sample is supposed to be representative at "*cercle"* level. Crops include principal cereals (millet, sorghum, maize, traditional rice, fonio, wheat), pulses (peanuts, cowpeas, bambara nuts), and some diversification crops (sesame, tobacco). Excludes "modern/industrial" sectors (primarily irrigated rice and sugar
	RGA: Recensement Générale de l'Agriculture	CPS with DNSI assistance	2001/02 migratory and nomadic livestock herd census. 2004/05 household RGA combined with ECA into a single survey	New sampling frame for RGA includes urban and rural farmers (to capture expansion of peri-urban horticultural production) and modern and traditional farms. RGA covers livestock, rainy and dry season crop production, irrigated agriculture, horticultural production (urban and rural), and tree production. This responds to gaps in ECA which focused only on "traditional" sector and rural farmers. Preference would be to have the RGA replace the ECA, but financial resources have not been adequate.
	EAP: Enquête Agricole Permanente, CMDT	IER/CMDT since early 1990s	Annual	Provides data on variables of interest to agricultural productivity in the CMDT cotton zones for a sample of 750 to 1000 households in 50 villages. Used as official estimates for national cotton production by DNSI/CPS. Other data used to analyze impacts of policies and investments on production and productivity. Often complemented with surveys on special themes of interest to the cotton sector (impact of anti-erosion practices, changes in costs of production over time, role of women in farmer associations, etc.). Only agricultural data series in Mali that is managed for longitudinal analyses. CD available with data from 1994/95 through 2000/01 aggregated to regional
	Commodity Production Statistics	Irrigated rice development agencies (ON, ORS, ORM, OHVN, etc.)	Annual	Individual agricultural development agencies provide information on aggregate production, area planted, and yields for their pricipal crops (irrigated rice, cotton, tobacco, and some horticultural products). This information is used by DNSI and CPS to complement similar data collected for the "traditional sector".
Living Conditions, Income, Expenditure	Budget/Consommation	DNSI	Conducted nationally in 1987	Collected detailed expenditure data for use in assessing incomes (proxied by expenditure) and well being. Many problems encountered in analysis of the data base. Reports were very late and questions about quality were frequent.
	EMEP:Enquête Malienne d'Evaluation de la Pauvreté	DNSI in collaboration with CSLP; primarily WB funding	Baseline collected in 2001; Update planned for 2006	Detailed expenditure and food consumption data to evaluate trends in incomes and poverty. Representative at the national and regional levels.
	ELIM: Enquête Légère Integré après des Ménages	DNSI in collaboration with CSLP; WB funding	periodic; 1st=1996/97; most recent = 2002/03	Expenditure and living condtions data. Urban (4020 hh)/rural (4707 hh) strata; results representative at provincial, regional (N. C. S), and urban/rural levels; ag content varies by year (high in 1996/97, low in 2002/03)
	EDS: Enquête Demographique et Santé	DNSI with USAID funding		Detailed health and reproductive information on women and anthropometric measures for children; useful for looking at differences in health status across different regions and agricultural systems.
Market Information	MIS: Market information system	OMA, attached to APCAM; primarily GOM funding with donor supplements.	Since 1989, weekly data collection and radio announcements followed by monthly synthesis reports.	OMA collects price and quanty data for transactions at markets throughout the country using non-survey, key informant interview techniques. Products covered includedcereals and selected horticultural products. OMA collaborates with other government services to report price and quantity data on livestock transactions. Data files are available in various configurations upon request and payment of appropriate fees.
	CPI: Consumer price index	DNSI	Monthly data collection; infrequent publication of results	CPI is estimated for Bamako. Data are also collected in regional capitals but there is no nationally applicable index.
Trade	Import/export data	Customs services and Min of Commerce with analyses by DNSI	Transactions data	Customs data are problematic as there is a general sense that they do not reflect (1) actual amounts that cross official borders due to negotiations to reduce taxes paid and (2) goods crossing informally where there is no customs post or in small quantities that are not captured by customs records.
General Census	RGPH: Recensement Générale de Population et Habitat	DNSI	Last conducted in 1998.	Official national census which serves to develop sampling frames for other surveys

3.1.4. Reporting and other Uses of the Data

Prior to turning the lead role for the EAC over to the CPS, DNSI had established a policy of publishing three annual reports for each agricultural campaign:

- A provisional forecast of expected harvests due in October;
- A report of the final harvest results for rainy season production and provisional estimate of cereal balances for the coming months due in March; and
- A report of the entire year (all rainy season and dry season production) due in June.

The first two annual reports are used extensively by Mali's Famine Early Warning Unit (*Système d'Alerte Précoce*) and the Food Security Office (*Commissariate à la Sécurité Alimentaire*) in assessing the food security situation, developing food balance sheets, and designing food aid interventions if necessary (see 3.5. below). The different reports present aggregate data (national and regional) on area, production, and yields for the most important crops. The reports also include statistics on the modern sector for irrigated rice and cotton (using data from the specialized agencies managing these production systems (see 3.3. below) and information on factors affecting crop production (rainfall patterns, pests, input use, equipment ownership, etc.). Reports became increasingly late and some stopped entirely in the early 2000s. Even when the reports were being published regularly, they frequently did not provide full descriptive statistics on all the data collected by the EAC and they rarely presented any type of time series analyses (the maximum was usually a comparison of the current year with the previous year or two). Since CPS has taken over, there has been an improvement in the regularity of the reports (see, for example, CPS Agriculture 2007, March) and some catching up on reports that had not been issued in the past (although the third report summarizing the entire year has not been issued since 2003). CPS has accomplished more regular reporting of supplementary information on topics such as market prices, trade, access to credit, production of gathered and secondary products (a variety of pulses, wild nuts and fruit, and watermelon). A longer time perspective has also been added by comparing current results with a 5-year average of past performance for the principal cereal crops.

The only other publication of results from the EAC identified by this study is a March 2001 publication by CPS that was a compendium of not only agricultural production data from the EAC but also other information of relevance to agricultural policy analysts.[13] Most of the statistical series included in the document covered the period 1984 to 2000. This excellent document combined demographic, crop and livestock production, transport, price, trade and other types of information of relevance to agricultural sector analysis. The report was disseminated in hard copy and electronic (CD) formats. Although a good step forward, the electronic format did not allow for a simple way to transfer the data to software permitting additional analyses (it could be done through cutting and pasting different tables from the CD into a spreadsheet). Another weakness is that the publication has not been updated since being issued in 2001.

Use of EAC data in policy analysis, other than citing the aggregate national and regional statistics in various reports, appears limited. In conjunction with the World Bank's preparation of a Country Economic Memorandum (CEM) in 2005, the consultants involved used the EAC household level data sets available from 1995 through 2003 in an effort to

[13] This 2001 publication refers to an earlier compendium of a similar nature, but we were unable to locate a copy or find out more about what it covered.

model the determinants of agricultural productivity.[14] DNSI gets high marks for the rapidity with which they provided access to data sets and for their assistance in helping the consultants use it (particularly parts that were not well documented). The effort did not produce what could be considered reliable estimates of the determinants of agricultural productivity, but it did provide a number of insights about weaknesses in the data base for this type of analysis. First, there are weaknesses in terms of data management:

- there is no official documentation and there has been little effort to standardize variable names and value labels from one year to the next;
- the data for each year are stored in a variety of sub-files that must be joined together to get the complete household picture for any given year; and
- the files with the data and calculations used for estimating plot sizes can be difficult to follow if one wants to understand the calculations and decisions about values to keep and values to reject (but it is not too difficult to find DNSI's final estimate of plot size).

Among the data quality issues are:

- year to year changes in the data collected, particularly for factors such as input use and access to equipment that affect productivity, making longitudinal analyses very difficult;
- collection of input use data at the household level rather than at the plot level (i.e., unable to link fertilizer use to crops/plots on which it was used and to specific yield estimates);
- collection of input use data in terms of expenditure rather than quantities (a problem because it is difficult to figure out if the expenditure includes costs of credit, transport, etc.); and
- large numbers of yields in the data base with questionable values.[15]

3.1.5. Strengths and Weaknesses of the EAC

The 2004 SSN evaluation identified collaboration between DNSI and the CPS of agriculture as one of four success stories for DNSI in terms of inter-institutional collaboration in statistical analysis, so the informal mechanisms in place to encourage DNSI-CPS collaboration appear to have been much more effective in the agricultural sector than elsewhere even though there continues to be no legally defined relationship between the two institutions. In general, DNSI provided statistical expertise (sample design and analyses) while CPS provided the technical knowledge needed to train enumerators and interpret the results.

Despite the relatively good inter-institutional collaboration, the 2004 evaluation noted the following shortcomings of the EAC:

[14] The principal author of this document was one of the consultants involved in the CEM analyses.

[15] Recent discussions with the current head of the CPS reveal that getting reliable yield estimates continues to be a challenge. There is substantial secondary evidence that yields are increasing for some crops, but this is not being captured in the EAC data. Efforts are underway to better supervise the yield data collection methods and review analysis procedures (particularly the identification of outliers) to reconcile the different sources of information.

- Financial resources allocated to the EAC often take time to mobilize and cause delays in data collection;
- The shortage of human resources handicaps the collection of data; the survey relies on an existing team of permanent interviewers who are getting old, dwindling in numbers, and lacking in motivation;
- Data entry and cleaning takes more and more time because there is not a clearly defined system in place to move from one step to the next;
- Publication of final results is often late; and
- There is a need for the survey to pay more attention to producing statistics disaggregated by gender to satisfy growing demand.

It was also noted that the sampling frame for the EAC had not been respected several years prior to the 2004/2005 season, that some crop forecasts had been contested and subsequently revised (this was again evident in 2005 when there were locust problems combined with location-specific droughts), and that annual reports were no longer issued regularly. Recommendations for improvements included:

- Developing a new sampling frame (subsequently addressed in conjunction with the implementation of the RGA the following season);
- Revising the objectives of the EAC to take into account the need to produce indicators for monitoring poverty; and
- A transition from reliance on a permanent staff of interviewers to use of literate farmers for data collection.

In terms of the broader integration of agricultural statistics into other indicators of economic and social development, it is worth noting a fairly long list of critiques of the current production of economic statistics that was contained in the *Schèma Directeur statistique* or National Statistics Strategy (SDS). Most of these points have some relevance for how well the agricultural sector is represented in economic and social statistics:

- Reporting on national accounts is often delayed because data feeding into the system is late or of questionable validity.
- The consumer price index is available and estimated using methods that are compatible with estimates for other UEMOA countries but the index is only valid for Bamako and its base is 1996. There is a need for a nationally representative index with a more recent base.
- A new base for the national accounts was adopted in 1997 to follow the principles of SCN93 (*Système des comptes nationaux* or National accounting system published in 1993). Using the new methods, the accounts were recalculated for 1997, 1998, and 1999 and the period 1980 – 1996 was adjusted. These revised numbers are available at DNSI but have not yet been published. Use of the new software (ERETES) has caused problems and delays the work. AFRISTAT (Economic and statistical Observatory of Sub-Saharan Africa) has been assisting.
- The experience with ERETES suggests a need to develop software for more rapid production of the national accounts so that the data are available to decision makers when needed.
- Government decentralization has raised the need for accounting methods appropriate for decentralized accounting; there is not a certified method for this type of accounting.

- No consolidated data base exists where all the economic, financial, and monetary statistics needed for national accounts and policy making are available.
- Demand is strong for measuring women's contribution to the economy yet there is no established methodology for doing this and including it in national accounts.

In addition to the above critiques, we would also add that Mali is failing to fully capitalize on the investment being made in the EAC data base because of its relatively limited use for policy purposes other than food security assessments and national accounts. The need to create a consolidated data base for agricultural statistics was noted in the SDS assessment of the SSN. At present, there is no standard distribution system for making the EAC base data files (household level and plot level) available to others. Presently, anyone wanting to do agricultural policy analyses needs to go to a multitude of offices (DNSI, CPS, meteorological services, customs, etc.) to collect the basic data needed. Greater efforts to encourage use by others could lead to user feedback and gradual improvements in the data base and also contribute to building stakeholder support capable of lobbying government for more regular funding.

The SDS report identified 13 steps thought to be essential if Mali's agricultural and livestock statistics were to meet needs and future expectations:

- Implement the RGA household survey and do the descriptive analyses;
- Revision of the EAC methods: improve definition of households, better sampling, frame and techniques, improved data collection procedures;
- Conduct the EAC regularly;
- Publish EAC reports for 2001 to present;
- Develop and implement an annual horticultural survey;
- Complete the analysis of the RGA on migratory and nomadic livestock herds;
- Develop and implement on a periodic basis a survey of livestock herds;
- Conduct a survey on domestic livestock slaughtering;
- Improve statistics on commercial livestock slaughtering;
- Improve existing surveys of livestock markets;
- Develop a table of uses of livestock products;
- Create a general data base for agricultural statistics; and
- Provide training to CPS professionals to improve their skills in survey data analysis.

Since these recommendations were initially drafted in 2004, some progress has been made in almost all areas, but for many points the methodological work has not been followed up by funding for regular implementation. The census of migratory and nomadic herds was conducted in 2001 and results published in 2002. The RGA was conducted at the household level in 2004/2005 and preliminary results published in 2006 (including some gender analysis and data on access to services that was not previously available). A method for collecting horticultural data was tested but implementation has not started. This year (2007/2008) the CPS conducted its first assessment of informal animal slaughtering. Many of these advances were facilitated by funding and capacity building efforts associated with the RGA, which is discussed in the next section.

3.2. The *Recensement Général de l'Agriculture*

3.2.1. Overview

Since the late 1990s, the FAO and the World Bank have been supporting the Development of Food and Agriculture Statistics project. This project provided much of the capacity building at the CPS of Agriculture that permitted the unit to take over the direction of the EAC from DNSI and to implement the two modules of the RGA that have been conducted to date:

- A census of migratory (transhumant) and nomadic livestock herds in 2001/2002; and
- A full-scale RGA of almost 10,000 agricultural production enterprises in 2004/2005.

The Government of Mali (GOM) has had trouble getting the program fully funded, hence the implementation of only two modules of the overall RGA program.

As noted above, two objectives of the RGA were to improve the agricultural survey sampling frame and increase the sample size. A third objective was to increase the breadth of information collected and develop data collection techniques for these new categories of data. The RGA conducted in 2004/05 covered livestock, rainy and dry season agriculture, irrigated agriculture, horticultural production (urban and rural), and tree production. The general types of data collected were similar to that of the EAC (household demographics; area, production, and yield for products covered; input use); but more attention was given to disaggregation of the data by gender and to information on access to services (extension, credit, farmer organizations).

3.2.2. Sampling

The new sampling frame developed for the RGA and used on all subsequent EAC has been described in section 3.1. It includes both urban and rural locations as well as modern and traditional farms. The sample size far surpasses the number of production units (5000) needed to get representative results at the *Cercle* level. For the 2004/2005 RGA, CPS managed to collect data on 9834 of the 10460 production units anticipated, with the lowest rates of coverage success in Bamako (61%) and the northern regions (82% for Gao and 89% for Kidal). There appears to be general satisfaction with the new sampling frame as we have heard no criticisms of it.

3.2.3. Institutional and Coordination Issues

In creating the RGA, there is evidence that the key actors tried to resolve some of the inter-institutional coordination problems noted in the earlier discussion of the 2004 assessment of the national statistical system. According to a government website (www.maliagriculture.org/securi_a/rga.html) and a preliminary report on the 2004 RGA (BCRA 2006), the *Comité Technique National du RGA* (CTN or National Technical Committee for the Agricultural Census) was formed to provide technical advice to the implementing agents. The CTN includes the members of the CCSI[16] sub-committee for

[16] *Comité de Coordination Statistique et Informatique* or Coordination Committee for Statistics and Computer Sciences.

agriculture and livestock, the *Comité National de Coordination Statistique* (National Statistics Coordination Committee), and "all other national structures concerned with the operation". The CPS has the overall responsibility for implementing the entire RGA project. A *Bureau Central de Recensement Agricole* (BCRA or Central Office for the Agricultural Census) was formed to act as the implementing structure within the CPS of agriculture. BCRA has responsibilities for methods, field work, data entry and cleaning, analysis, and dissemination of results. The BCRA includes personnel from DNSI, *Direction National de l'Appui au Monde Rural* (DNAMR, which is the GOM extension service), *l'Office Malien du Bétail et de Viande* (Malian government office for livestock and meat), and the CPS of agriculture. Regional branches of the BCRA implement the field operations and there is a *Comité Technique Régional* (Regional Technical Committee) headed by the Governor of each Region and consisting of regional representatives of the relevant technical services. All these offices and committees were created by a Government decision[17] following the Government's 1998 acceptance of the RGA project. We have been unable to determine the extent to which these institutions have become permanent institutions within the Malian statistical system or remain temporary ones dependent on continued donor funding. Their role does appear to be limited to questions directly relating to RGA surveys, with no official responsibilities for the conduct of the annual EAC surveys.

3.2.4. Reporting and other Uses of the Data

To date, there have been three reports issued by the CPS related to the two RGA surveys, one on methods for the livestock survey and the other two on survey results:

- *Recensement National du Cheptel Transhumant et Nomade, Volume 1, Rapport Final. Méthodologies et Cartes thématiques,* May 2002.
- *Recensement National du Cheptel Transhumant et Nomade, Volume 2, Rapport Final. Résulats bruts,* May 2002.
- *Recensement Général de l'Agriculture 2004, Résultats Préliminaires,* August 2006.

The report on the 2004 RGA is one of five initially planned. The reports do not go beyond descriptive statistics, but as indicated above, the data analyzed do cover a broader range of topics than prior reports issued on only the EAC, with some gender analysis of access to services (primarily for female vs. male household heads).

Discussions with CPS revealed that they are developing a consolidated file of the RGA data that would contain a single observation per household that contained all the variables available from the RGA conducted in 2004. A file of this nature would be a big step forward in encouraging additional analyses of the data and use by policy analysts. This work is under way but is advancing slowly as the same people working on this must also work on the annual EAC and other routine reporting activities.

3.2.5. Strengths and Weaknesses of the RGA

Investments made in connection with the RGA to improve CPS survey implementation and analytical capacity have resulted in a shift of responsibility for the annual EAC survey from DNSI to CPS, the use of an updated sampling frame, more regular EAC reporting, and more

[17] Decision 0189/MDR-SG of 23 April 2001.

clearly defined roles for the various actors and committees – these are all positive contributions to the overall agricultural statistics program in Mali.

The stated goals of the RGA respond well to the growing demand for covering a broader range of agricultural products and disaggregating results by location and type of farmer. In terms of disaggregated analyses, those involved in women's programs would like to have production statistics disaggregated by gender. Those monitoring poverty would like to have data stratified by different indicators of poverty. Those involved in government decentralization would like to have agricultural statistics that are representative at the *Commune* level (one level down from the *Cercle*), where development planning is now taking place.

Also, there is interest in expanding the types of data collected for all agricultural production activities. In addition to quantities produced, those making decisions about agricultural investment programs or providing extension advice to farmers would benefit from having better information on income derived from different activities, inputs used, and investments made. The provision of this type of information requires not only an expansion of data collected but also moving toward more complex levels of analysis.

The CPS and DNSI have moved forward in developing improved capacity and methods for addressing many of these expressed needs, but in general the funding needed to implement the new methods on a regular basis is not yet forthcoming. It is also not clear to us which improvements should be implemented as part of the RGA and which should be incorporated into the annual EAC. Moving forward, there is a need for greater realism about what can and cannot be done by the EAC and the RGA with the resources available. Plans for supplementary surveys to cover emerging sectors have not been funded. Reporting on the two modules of the RGA that have been conducted is slow and thus far relatively superficial. We are unaware of the use of the RGA data for policy analyses. Additional budget and personnel will be needed to implement the RGA program as currently envisioned.

3.3. Contribution of the Agricultural Development Agencies and NARS

Specialized agricultural development agencies (often reformed parastatals) often provide production statistics for their zones and, in some cases, conduct supplementary surveys in collaboration with Mali's national agricultural research system led by the *Institut d'Economie Rural*e (Institute of Rural Economy).

3.3.1. Production Statistics

The EAC does not collect data for cotton or for rice grown in formal irrigation schemes. These data are supplied by the agencies (*offices*) that manage these production systems: *Office du Niger, Office Riz Ségou, Office Riz Mopti, Office de Développement Rural Sélingué*, and *Office des Périmètres irrigués de Baguineda* for rice and the *Companie Malienne pour le Développement des Textiles* and the *Office de la Haute Vallée du Niger* for cotton. The 2004 SSN evaluation noted potential sampling and other methodological problems raised by having multiple data collection systems. As there is no formal relationship between DNSI and/or CPS and the various agricultural agencies, the statistical services have no authority to influence how the agencies collect their data or make their production estimates. Nevertheless, the CPS has been working with the various agencies in the rice sector to ensure that the methods used are consistent with estimates produced by CPS for the rice produced in

other zones. CPS is generally satisfied with the progress, but believes that there is still room for improvement in the *Office du Niger*.[18] Cotton data continues to be provided entirely by the *Companie Malienne pour le Développement des Textiles (*CMDT*)* and the *Office de la Haute Vallée du Niger* (OHVN); CPS does not see a problem with this. All production data for other crops in the cotton zone come from the EAC survey.

3.3.2. Supplemental Surveys

The CMDT has conducted a sample-based annual survey since the early 1990s (*Enquête Agricole Permante*) to collect key information at the village, household and plot level on crop productivity, assets, farming practices, etc. The annual surveys are often complemented by thematic surveys on topics such as the role of women in village associations, adoption and impacts of anti-erosion practices, diversification crops, etc. The sample has remained relatively stable over time in terms of the villages included (approximately 50 or about 1% of the villages in the cotton zone), but the households interviewed (10-15 per village) appear to change frequently so it is not clear that the data set provides a true panel. The *Institut d'Economie Rurale/Companie Malienne pour le Développement des Textiles* (IER/CMDT) teams have issued a wide range of reports based on this data set. The reports have improved the quality of policy discussions on cotton sector reforms and investments. While these data are considered the property of the CMDT, the summary statistics (not the base data) are generally available to others working in the sector. Financial support for this work has come from CMDT and donors. With the move toward liberalization of the cotton sector, it is not clear if there will be continued funding for this type of data collection and analysis. The *Office du Niger* has collaborated with IER on a wide range of agronomic and socio-economic studies of the irrigated rice sector (impact of the CFA Franc devaluation on incomes and productivity, prevalence of malaria, variety improvement, introduction of diversification crops, returns to investments in different levels of irrigation infrastructure investment, etc.). Most of these supplemental surveys are funded through donor contributions and there is no effort to carefully document the data bases and make them available to others. In several cases, the data have been lost due to computer failures.

3.4. Rural Living Conditions and Income

We began this report noting that efforts to reduce poverty and meet the MDG have put increased demands on national statistics systems to monitor key indicators of poverty. The *Cadre Strategique pour la Lutte contre la Pauvreté* (CSLP or Strategic Framework for Poverty Reduction) officially adopted by the GOM in May 2002 relies heavily on DNSI and the various CPS (not just agriculture) for reporting of poverty indicators. At present there are two national surveys used to collect living standards data (1) the *Enquête Malienne d'Evaluation de la Pauvreté* (EMEP or Malian Survey for Poverty Evaluation) and the (2) *Enquête Légère Integré après des Ménages* (ELIM or Light, integrated household survey). DNSI is responsible for the implementation and analysis of both surveys. The EMEP was first conducted in 2001 and is viewed as the baseline data for monitoring progress with the CSLP; the initial report of descriptive results was published in 2004. The survey objectives include:

[18] Personal communication from B.S. Ba, CPS.

- evaluating household consumption patterns in a manner permitting inter-regional comparisons, comparisons among major socioeconomic groups, and different poverty groups;
- evaluating consumption of home-produced goods;
- determining the nutrient quality (calories, proteins, vitamins, minerals) of foods consumed;
- measuring the nutritional status of children less than 2 years of age;
- describing the income distribution of households using expenditures as a proxy; and
- identifying the principal groups in the population who are poor or disadvantaged using a well defined poverty cut off point and proposing indicators for permanent monitoring of these groups.

A second round of the EMEP was planned for March of 2006. The ELIM survey is supposed to be conducted every two years to collect household level data on access to services (education, health, markets, transport) and perceptions of changes in well-being (this information is also collected as part of the EMEP). The first ELIM was conducted at the end of 2003.

A review of Mali's poverty M&E system notes that it continues to struggle with the definition of an appropriate set of agricultural and environmental indicators (CSLP 2005). At present the effort to keep the overall set of poverty indicators reasonable and the heavy focus on health and education has resulted in the agricultural and environmental sector in Mali being monitored by four basic indicators:

- Cereal production (MOA/CPS drawing on own surveys and irrigation offices for rice);
- Cotton production (MOA drawing on the CMDT cotton parastal data);
- Irrigated areas (MOA drawing on data from irrigation offices); and
- Area reforested (from statistics on formal projects covered by the Forestry Service).

Other problems facing the poverty analysts include a lack of baseline data for numerous variables, poor measurement of and ability to link actual performance to investments or policies, reliability and coherence of data due to the multitude of sources, weak capacity in the various institutions that are contributing data and indicators, superficial analysis of data from poverty surveys, and inadequate financing (CSLP 2005). While these problems exist across all sectors, the agricultural sector often performs better than others in reporting the current set of poverty indicators and in terms of having an established baseline.

Another source of information on rural well being is the *Enquête Démographique et de Santé* (Health and Demographic Survey) conducted intermittently (1987, 1995/96, 2001, 2006). The results can be used to develop indicators of health and nutritional status of the general population, women, and children in different regions of Mali; because the same study has been conducted several times, the entire data base provides a longitudinal profile of changes in health status. A special research project in the early 2000s used a subsample of the EDS survey to study the links between agricultural productivity growth and the nutritional status of children under five years of age.[19] A key study objective was to identify policy options capable of improving the health and nutritional impacts of agricultural growth and increases

[19] Mali Agricultural Growth and Nutrition Project (LICNAG), implemented jointly by Michigan State University and the Sahel Institute. For more details and publications see: http://www.aec.msu.edu/fs2/mali_nut/index.htm.

in rural incomes. This is one of the few examples we have found of researchers trying to collect health and detailed agricultural and expenditure data simultaneously to better understand the linkages between agricultural growth, income growth and some of the standard health and poverty indicators.

3.5. Institutional Reform in the Agricultural Market Information System

3.5.1. Overview

After the EAC, the next most important agricultural data base in Mali is the market information system (MIS) currently managed by the *Observatoire des Marchés Agricoles* (OMA or Agricultural Market Information System). OMA's mission is to collect, process, and disseminate statistical, regulatory, and all other types of information that can influence the formation of agricultural prices. OMA collects and disseminates price and product flow data for cereals (millet, sorghum, maize, and rice) and other key agricultural products (e.g., cowpeas, fruits and vegetables, and fish products sold in major markets). OMA collaborates with the *Direction Nationale des Productions et des Industries Animales* for statistics concerning livestock and poultry. It has also expanded coverage to include inputs (fertilizers, pesticides, and seeds).

3.5.2. Institutional Evolution of OMA

Mali's market information system has gone through a variety of institutional restructurings since its initial start in 1989 as a donor-funded unit located in the *Office des Produits Alimentaires du Mali*, (OPAM, the cereal marketing board which manages food security stocks and, prior to liberalization, set official cereal prices). The initial role was to collect price information as a means of monitoring the impacts of Mali's cereal market liberalization program. In 1998, USAID funded a program (PASIDMA, *Projet d'Appui au Système d'Information Décentralisé du Marché Agricole* or Project for the support of a decentralized agricultural market information system) implemented by Michigan State University that was designed to significantly reduce the MIS's reliance on donor funding, increase funding from domestic sources, and ensure the financial sustainability and high quality of the information produced. The project began with user surveys to assess information needs and how well the current MIS was responding to them: farmers, processors, traders, consumers and policy-makers were contacted. At the time, Mali was undergoing a democratic transition that saw farmers' organizations becoming more engaged and influential. As farmers are one of the key beneficiaries of market information, their organizations became important allies of the MIS in lobbying the government for financial support as well as an important source of feedback on information and restructuring needs.

Survey results were presented at a December 1998 workshop on the topic of restructuring the MIS. The workshop, presided by the Prime Minister, recommended that the OMA be created and attached to the *Assemblée permanente des Chambres d'agriculture du Mali* (APCAM), the national umbrella organization of the *Chambres Régionales d'Agriculture (Système d'information du marché céréalier (SIM) 1998).* This transfer gave the users of the MIS data a direct stake in the system and also gave the OMA management team more administrative flexibility and direct authority to manage their personnel (under the former system hiring and firing of staff required approval of the OPAM administration). The workshop also recommended that the government finance the public good activities of OMA through the

national budget and that the OMA be authorized to carry out specialized analyses for private firms and other organizations on a user-fee basis. These recommendations were adopted by the GOM.

Because APCAM is a national organization representing individual regional offices throughout the country, OMA's affiliation with APCAM also facilitated the decentralization of data collection and dissemination. This decentralization contributed to reduced costs and ensured that market information collected in each region responded to the expressed needs of APCAM regional offices. Through OMA's sustained efforts to satisfy its clients' information needs and strengthen their capacity to use market information more effectively, both farmers and traders have taken a sense of ownership of OMA. This has resulted in them putting more pressure on OMA to produce the information they want and to establish better links with neighboring countries' market information systems to help foster regional information flows that promote regional trade. The private sector's political support for OMA through the Chambers of Agriculture and Commerce ensures the continuation of government funding today.[20]

At present, funding from the Government continues to cover OMA's operating budget but not its capital budget, which is supported by donors. OMA also generates a small amount of revenue by doing analyses or creating special data bases in response to client requests. The National Coordination of OMA is now appointed by APCAM and can be revoked by the APCAM Board of Directors. In practice, APCAM has provided OMA with general oversight of a nature that allows OMA considerable administrative flexibility.

3.5.3. Reporting and Use of the Data

The OMA webpage lists six public service activities performed by OMA (http://www.oma.gov.ml/presentation.html) :

- Management of a data base on agricultural markets
- Production and distribution of situation reports when conditions call for it
- Production and distribution of a monthly report « Le Reflet ».
- Production and diffusion of market information throughout the country via local radio broadcasts
- Production of special radio and TV programs of interest to different agricultural sub-sectors and actors, in collaboration with professionals in the communications industry.
- Provision of data and information to government services responsible for agricultural and food security policy.

OMA posts its monthly reports and any situation reports it produces on its website. A check of the website in early April 2007 showed that it was being updated regularly with the February monthly report as well as a situation report on a February mission to the Kaye region both available.[21] OMA's data is regularly used in *Système d'Alerte Précoce* (SAP) and CSA food security assessments (see section 3.5.) and OMA staff are often called on to

[20] See Dembele, Tefft, and Staatz (2000) and Deme (2002) for more details about OMA institutional innovations and performance and PASIDMA project reports for implementation details (available at http://www.aec.msu.edu/fs2/mali_pasidma/ppr9899progress.pdf)

[21] It was interesting to note that of all the agricultural statistics services with websites, only OMA had a truly up-to-date, active website. We interpret this as evidence that what they do is truly driven by a need to satisfy their clients.

participate in food security assessment missions. OMA has also made its data available to regional MIS systems such as the *Réseau des Systèmes d'Information des Marchés en Afrique de l'Ouest* (http://www.resimao.org/html) and provides a variety of links from its website to other related services and data bases. OMA charges a fee for access to their established data bases, but unlike DNSI's system with the EAC, OMA will put the data in specific formats requested by the client rather than leaving the potential user on their own to figure out how to manipulate the data and create different series. The website lists the following data bases and instructs users to email OMA to learn more about the contents of the data bases and the conditions for access:

- Average national consumer and producer prices;
- Average regional consumer and producer prices;
- Average producer and consumer prices for a market of choice;
- Wholesale purchase and sales prices for Bamako wholesale markets;
- Quantities sold by producers at rural production markets;
- Quantities sold at consolidation markets (marches de regroupement);
- Quantities entering urban wholesale markets in regional capitals; and
- Consumer prices for horticultural products in Bamako markets.

3.5.4. Strengths and Weaknesses of Mali's MIS

While the Malian market information system (both OMA and its predecessor agency) have a reputation for being one of the best, if not the best agricultural market information system in West Africa, it should be noted that OMA has had some trouble in recent years keeping its reporting up to date. For the past two years, USAID funding to support the Malian *Commissariat à la Sécurité Alimentaire* (Food Security Commission) provided for technical assistance and equipment renewal that has gotten OMA back on track. The need for this assistance does raise questions about how adequate OMA staffing and funding is as it tries to expand its coverage to a wider range of products.

Despite the growing pains, the institutional model used by Mali's OMA is unique in Africa and should be carefully considered by other countries wanting to improve their MIS. Most MIS tend to be located in government offices or national research centers and suffer from bureaucratic blockages characteristic of such institutions. Mali's OMA seems to have developed institutional arrangements that foster stakeholder involvement and ensure access to both government and donor budget support while maintaining the administrative autonomy and flexibility needed to respond quickly to emerging market situations and private sector requests for special analyses.

3.6. Reinforcing the Food Security Side of Agricultural Statistics

Two other institutions merit mention here because they are key players in food security monitoring and coordination but do not figure officially in the SSN: the *Système d'Alerte Précose* (SAP, Famine Early Warning System) and the *Commissariat à la Sécurité Alimentaire* (CSA, Food Security Administration).

3.6.1. SAP Role and Responsibilities

SAP is an institution funded jointly by government and donors to collect and analyze information on crop forecasts, satellite imagery, price trends, potential threats due to climate or pests, etc. in order to provide early warnings of impending food crises and make recommendations for actions to ameliorate the situation. In addition, SAP conducts on the ground assessments of potential food security hot spots, with a focus on high-risk areas in northern Mali above 14 degrees latitude. SAP generally relies on existing sources of data for production estimates (e.g., the provisional EAC report in particular), rainfall, pests, and so forth; but they do conduct light surveys on infant nutritional status and population migrations to collect qualitative information for food deficit zones. SAP is the key official source of information and analysis provided to the GOM for food security decision making. SAP also compiles an annual report that feeds into a regional CILSS assessment of food security needs in the Sahel. Results of the assessment are used to make recommendations about policies to encourage commercial trade flows that would get stocks to where they are needed and for determining food aid needs.

3.6.2. SAP Strengths and Weaknesses

The Malian SAP exhibits some characteristics of effective Early Warning Systems noted in a recent FAO study of Food Security Early Warning Systems in Sub-Saharan Africa (Tefft, McGuire, and Maunder 2006):

- Location that is conducive to a reciprocal flow of information with primary decision making bodies (i.e., affiliation with the CSA that is attached to the Presidency);
- Administrative ease of access to primary and secondary data through relationships developed with line ministries, decentralized government units, donor projects, and NGOs; and
- Movement toward a livelihoods approach to analyze food security and the integration of both quantitative and qualitative data.

On the other hand, it is not immune from some of the weaknesses noted in the same FAO report:

- Political pressure when recommendations do not conform to politicians' views[22]; and
- Heavy reliance on data and information collected by donors or donor-funded activities[23].

3.6.3. CSA Role and Responsibilities

The CSA has overall responsibility for coordinating food security matters across a broad spectrum of actors. In this role the CSA is both a user and a producer of data and information needed to monitor food security. Following several years of trying to manage the multi-sector nature of food security concerns through a department in the Ministry of Agriculture and

[22] This was evident during the 2005 season, characterized by localized droughts and insect infestations, when Mali was extremely late in submitting their food security assessment to CILSS because of disagreements about the results among various actors.

[23] We do not have budget information for the SAP, but our impression is that donors provide the bulk of the funding.

Livestock, the GOM made a decision to create the CSA as a special office attached to the presidency. The CSA has a broad mandate to coordinate food security activities across all the relevant ministries (agriculture, commerce, livestock, health, education, etc.). According to the CSA website, two key institutions involved in collecting and analyzing agricultural statistics are considered part of the overall CSA family structure: SAP and OMA. This puts SAP and OMA in the unusual situation of having no formal ties to either DNSI or the CPS of agriculture, the institutions with the primary responsibility for producing, disseminating, and analyzing agricultural statistics. In Mali, however, good relationships between these various institutions prevail and the institutional structure does not appear to impede the different actors from collaborating in a manner that helps all to accomplish their missions.

3.6.4. CSA Data Management Activities

The CSA, in collaboration with OPAM and SAP, analyzes information on national cereal stocks, regional cereal trade and other information of relevance to food security analyses. In addition to the more traditional food security information management tasks, the CSA has been assisting local units of government at the C*ommune* level (next level below the *Cercle*) to develop and manage their own food security plans. These food security plans are available on the Internet and can be used by donors or development agencies to identify the priority needs of each commune as they attempt to reduce food security risk and dependence on food aid. The plans also include information on demography, local infrastructure and other resources (e.g., livestock herd numbers, irrigated areas) as well as summarizing existing sources of development assistance. The Food Security Plans, in combination with the more general local development plans, provide a wealth of information of relevance to the design of agricultural support and investment programs. The local commune plans are also being consolidated and coordinated at the *Cercle* and Regional levels.

3.7. Technical Services in Ministries, Weather Information, and Trade

Other sources of agricultural statistics are the directions of different ministries which report administrative statistics on the forestry, fishing, and livestock sectors (e.g., estimates of trees planted, animals vaccinated, or fish farming activities launched). We have no information on how these statistics are collected, but they appear to feed into the national accounts developed by DNSI and indicators used for poverty assessment.

An important player who seems to be outside the general SSN framework is the meteorological service, which tracks climate data. The quality of the data and geographic coverage appear to be good, but access is not always easy. This service has instituted a policy of selling its data, although institutions or individuals with good connections appear to be able to get access without paying. The agricultural development agencies and SAP include rainfall statistics in their annual and monthly reports, but an analyst who needs a particular series of rainfall data to examine a productivity problem will need to spend a bit of time tracking down the data and getting access. Metéo-Mali does not appear to have a public access website that would help analysts identify and order appropriate data series. The OMA website provides links to other sites for weather information (FAO/*Système mondial d'information et d'alerte rapide sur l'alimentation et l'agriculture*, AGRHYMET (*Centre Regional de Formation et d'Application en Agrométéorologie et Hydrologie Opérationnelle*), but theses sites tend to be regional sites that report assessments of current situations rather than rainfall data *per se*.

Another actor is the *Direction du Commerce et de la Competitivité* (Directorate of Trade and Competitiveness). It is responsible for trade statistics and price information on processed commodities such as milk, sugar, fertilizer and seeds.

3.8. National Census

The underlying foundation of all the sample-based surveys in Mali that are considered representative at the national, regional or *cercle* levels is the national census of population and housing. The last full census was conducted in 1998. DNSI has the responsibility for implementing the census, analyzing the data, and helping the CPS in various ministries use the results for the design of their own sector-specific sampling frames. As noted above, the 1998 census data was used to develop the sampling frame for the EAC and RGA but in 2004 modifications were made to improve the coverage of urban agriculture and modern farms. The plan is to conduct one full census every ten years. The extent to which funding is available for the regular implementation of the national census can have an impact on the quality of the sampling frame used for agricultural data collection, thus it is an important part of the overall agricultural statistics system.

4. STAFFING AND BUDGET ISSUES

In our view, staffing and budget are the major constraints in the two institutions fulfilling the most important roles in agricultural statistics collection and analysis: DNSI and the CPS.

4.1. Staffing

For the CPS, the 2004 evaluation found that the official personnel plan did not adequately reflect current responsibilities of the unit either in numbers or in types of employees needed. Of the 44 professional staff, three had statistician/planner qualifications and two were economists, leaving many individuals with good technical qualifications in various agricultural fields in positions requiring statistics, planning, and analysis skills for which they lacked the necessary qualifications. In addition, CPS had 44 professional staff working but only 29 in officially recommended positions, thus using budget for salaries that was initially intended for operating expenses.

In connection with the 2004/2005 transfer of responsibility for the EAC from DNSI to CPS an effort was made to build CPS staff capacity and the results have been evident in terms of more regular reporting of EAC survey results. Continuation of timely reporting may be threatened, however, as low salaries are making it difficult for CPS to maintain its analytical staff. At present there is only one person with strong analytical skills and he spends much of his time on the general supervision of the entire CPS unit. Continued weakness in this area is illustrated by the fact that only one of five planned reports drawing on the 2004/2005 RGA survey data has been published to date.

For DNSI, we do not have staffing information that can be broken out for agricultural statistics as DNSI is organized along broad functional lines. Globally, the 2004 evaluation recommended that DNSI revise its official list of personnel needs from 92 to 130 professionals. In addition, the report noted that current staffing was (1) strong in terms of statisticians, (2) weak in terms of computer scientists, (3) and too heavily weighted toward senior rather than junior and mid-level professionals. There were no comments concerning strengths and weaknesses in terms of subject matter expertise (health, agriculture, etc.). Given that much of this expertise comes from the various CPS, the issue may not have been considered in the evaluation. Nevertheless, DNSI's ability to perform its agricultural survey functions would seem to depend on the availability of subject matter expertise (whether supplied by DNSI or CPS) so, in our view, the topic should have been covered in the DNSI staff assessment.

Although there have been few problems with maintaining staff at OMA since the institutional changes that removed its personnel from the civil service rosters, it is not clear that there is a plan in place to train lower level staff to move into the leadership positions when the current leaders of the unit begin to think about retirement options. Some forward planning will be needed to ensure continuity in the provision of the existing services, including rapid response to private sector requests for data and analyses.

4.2. Budget

In terms of budget for the EAC and RGA surveys, the agricultural sector has managed to cover a larger share of its major data collection efforts through Government funding (i.e., less

reliance on donors) than other sectors. Major surveys such as the national census, the demographic and health survey, and the *Enquête Malienne d'Evaluation de la Pauvreté* (EMEP) get from 17% to 24% of their funding from the GOM while the EAC from 1999/2000 to 2005/2006 (including the RGA in 2001 and 2004/2005) covered 80% of costs with GOM funding. Despite the GOM support, funding for the ambitious RGA remains very problematic. Funding for the EAC is made available every year by the GOM but the amount changes and it is often announced late in the season; this can have a negative impact on the quality of the data. During the recent past, inter-annual budget changes have been substantial; 200 million FCFA for the 2007/08 EAC compared to only 120 million for 2006/07. To conduct an EAC for a 5000 household sample (the sample size needed for representative results at the *Cercle* level) the budget should be about 400 million FCFA (Personal communication, B.S. Ba, CPS).

GOM budget for OMA's year to year operations has been more predictable, but the capital budget remains donor-dependent and appeared to be at least partially responsible for a slowdown in reporting.

5. SUMMARY OF KEY POINTS AND LESSONS OF GENERAL RELEVANCE

By way of conclusion, we offer a series of questions that were listed in our terms of reference followed by short responses based on the detailed discussion presented above.

5.1. Sources of Information for Agricultural Policy: Who Does What?

5.1.1. Sources

The primary sources of information used for agricultural policy making in Mali are the preliminary and definitive crop production statistics coming from the *Enquête Agricole de la Conjoncture,* (EAC) market information (prices and flows), livestock herd and consumption data, location-specific food security assessments, and meteorological and hydrological data and modeling results. Additional information that contributes to the agricultural statistics data base or can be used by agricultural policy analysts includes:

- national census surveys;
- national consumption/expenditure surveys;
- national poverty assessments and indicators;
- national budget numbers on investments of relevance to the agricultural sector (irrigation infrastructure, roads, markets);
- agricultural research on improved technologies and practices;
- project related benefit/cost analyses or monitoring and evaluation results; and
- trade statistics.

5.1.2. Who Does What?

Until 2004, the central statistics office (DNSI), working in collaboration with the statistical unit at the Ministry of Agriculture (CPS), was the primary source of data collected for crop forecasts, final crop production statistics, and livestock numbers. Since 2004, the CPS has taken on the lead role for conducting the annual agricultural survey (EAC) that provides base data for crop estimates and livestock monitoring and for a variety of other surveys conducted as part of a new agricultural census program (RGA) to improve Mali's agricultural statistics. The RGA program includes supplementary surveys to improve statistics on livestock numbers and meat consumption, improved methods for collecting horticultural production data, and more data on farmers' gender and access to services. DNSI/CPS do not collect their own data for estimates of irrigated rice and cotton production but rely on statistics provided by seven government agencies that manage these sectors.

In addition, there are other actors, most notably the CSA and SAP, who conduct analyses of the food security situation using both the DNSI/CPS data, secondary data (e.g., meteorological information) and the results of their own field assessments (often funded by donors in crisis situations). The Ministry of Agriculture is responsible for the food balance sheets produced each year; they use the DNSI/CPS data as well as other sources of information (e.g., trade statistics produced by the Ministry of Commerce and OPAM stock numbers). DNSI also has responsibility for calculating the Consumer Price Index (CPI) (using their own survey data collected in Bamako) and agricultural GDP for the national accounts (using the DNSI/CPS crop production estimates) – both the CPI and the GDP

estimates are used in general agricultural policy analysis. All the actors mentioned here and in the previous paragraph are government services staffed largely by civil servants.

The next most important agricultural data base in Mali is the OMA-managed market information system which reports weekly prices on the radio for a large number of agricultural commodities (including inputs) and publishes a monthly situation report on market trends (volumes as well as prices). OMA's distinctive characteristic is that it is not a government service but attached to the national association of chambers of agriculture (APCAM). This provides them with flexibility in personnel arrangements and makes them accountable to their clients.

Among the additional sources of policy information listed in the bullets above, DNSI is the key producer of census data, poverty assessments, and consumption studies. Through their efforts to produce the national accounts, they are also a source of GOM budget data for various investments that influence the agricultural sector. While these data sets are available, we found no evidence that they were being integrated with other sources of agricultural data for regular use in policy analyses. A complicating factor may be that agricultural policy analysis is often best done using agro-ecological zones rather than the administrative districts that form the basis of the DNSI sampling frame for these studies.

The *Institut d'Economie Rurale* (IER) is Mali's national agricultural research center. Their research focuses on the identification of improved technologies and practices; but they do conduct some research of direct policy relevance (e.g., subsector analyses, crop budget analyses for particular technologies, and, in collaboration with the cotton company (CMDT), IER researchers conduct a regular monitoring and evaluation program on cotton productivity and farm incomes). Most of the IER policy research is project-related and funded by donors; as a result, it is not systematically integrated into any type of generalized agricultural data base. The same can be said of project-related cost-benefit and subsector analyses. Some recent examples include studies conducted in conjunction with the design phase of the Millennium Challenge Corporation investments (expansion of the irrigation infrastructure in the Office du Niger, improvements in airport infrastructure to facilitate exports of agricultural products, and the development of an industrial zone near the airport that would include facilities for processing agricultural products).

Trade statistics in Mali come primarily from customs records and are available from the Ministry of Commerce.

5.2. What Are the Linkages, Overlaps, Duplications, Conflicts?

Since the late 1980s, there has been good collaboration between the central statistics office (DNSI) and the ministry of agriculture (CPS) in collecting crop forecast and production data. The roles of each partner have changed, with DNSI recently turning the lead role over to the CPS. The transition was implemented over time and included a substantial investment (funded by the FAO and the WB) in capacity building at CPS to ensure a smooth transition. Linkages between the two institutions have been strengthened through the RGA process, which has established a number of committees to ensure user and stakeholder input into the survey planning and result reporting processes. We found no duplication of effort in the basic EAC and RGA activities as currently designed and implemented.

5.3. What Are the General Types of Data Collection Methodologies Used?

The EAC and the RGA use sample-based statistical methods for collecting data. Although the current sampling frame is based on the 1998 census, it was recently revised to better reflect the full range of agricultural producers, including urban and large-scale commercial producers. Statistics are generally reported by administrative units, but some results are also reported for Mali's 12 agro-ecological zones. Data is collected through the use of questionnaires that are administered by a combination of full and part-time field workers. EAC preliminary crop forecasts are based on information about area planted to different crops, rainfall and pest patterns, and farmers' expectations. Final crop production numbers are obtained from crop-cuts conducted for a sub-set of the sample farms and a sub-set of fields on those farms.

OMA has developed and refined its methods for collecting market information during the past 20 years. Data collection is not based on a rigorous statistical sampling technique. Interviewers are instructed to stratify the traders present on a market day into categories by the size of their typical transactions (e.g., 50 kg sacks, 10 kg sacks, small cups or bowls) and then to randomly select at least 5 traders for each category to be interviewed. The trained agents collect information using both market observation techniques and key informant interviews. Data is collected weekly and transmitted via solar powered radios to the central office for analysis and reporting.[24] It is also sent to local radio stations for same-day transmission. There is regular updating of products and markets covered in response to user needs and some adjustments made in approaches used for collecting the data when new products are added.

5.4. Do Different Methods Used by Different Institutions Produce Different Results?

Although Mali's official agricultural statistics are collected using a single method that eliminates the possibility of obtaining conflicting results, there is some evidence of political influence in how EAC results and other food security assessments are interpreted. This tends to happen when preliminary production forecasts are lower than average (i.e., politicians prefer to err on the side of building more food security stocks than needed and early distribution of food aid); but in general the collaborative effort among the key technical actors at CPS, DNSI, SAP, and OMA plus the *Programme de restructuration des marchés céréaliers* (PRMC) structure that has been supported by a consortium of donors since the mid 1980s has prevented a political take-over of the process. The challenge is in (1) sorting out the different types of forecasts that come from the nationally representative DNSI/CPS sample surveys and the more targeted hot-spot analyses conducted by SAP and donors and (2) encouraging politicians to consider policy options other than food aid (e.g., reduced import tariffs, as was done in 2005).

There may be some issues of different methods and results for reporting the prices of agricultural products in urban areas as both DNSI (for the consumer price index) and OMA collect such data. OMA informed us that for cereal prices (their traditional area of specialization), DNSI does not collect their own data but uses OMA prices for the consumer price index; for some of the newer products monitored by OMA (such as onions, tomatoes,

[24] OMA is currently introducing a new way of transmitting information via SMS-computer devices to improve the efficiency and speed of the data transmission.

meat and fish products), DNSI is probably continuing to use their own data. The two institutions are planning to meet to assess ways of improving the complementarities of the two systems and reducing duplication, if it exists.

5.5. Where Are the Methods Stretched and Objectives Unrealistic?

The ambitious program outlined in the context of the RGA has not been implemented in full. It calls for substantial improvements in the quality of livestock and horticultural data, annual production of statistics that are representative at the *Cercle* level in addition to the Regional level (Mali has 9 Regions divided into 49 *Cercles*), and more disaggregation of the data to facilitate both gender and poverty analyses. At present, the constraint appears to be more budgetary in nature than methodological, but it is possible that there are methodological issues that have not been documented in writing or mentioned during interviews with key statistics personnel. The only methodological problem raised by CPS/DNSI staff was lack of confidence in current yield estimates, but work is underway to improve on this. There is also a problem of regularly delivering on the promise of representative statistics at the *Cercle* level. Our understanding is that it is a budgetary problem that has prevented CPS from conducting the EAC on a large enough sample (5000 farm units) to provide the *Cercle* level analyses every year. There has also been work on improved methods for estimating vegetable production and livestock production and consumption, but inadequate funding has kept CPS from using these methods on a regular basis.

Data collection methods used by OMA for cereals have been developed and refined over a long period of time and are considered reliable. Demands to expand the products covered (e.g., horticultural and livestock products and inputs) have required some revisions in methods; we have not found assessments of the quality of the data provided for these diversification products.

5.6. What Is the Timeliness and Reliability of Data Collection, Analysis, and Publication?

Timeliness and reliability of reporting on the EAC have improved in recent years, but the current level of staffing at CPS is not adequate to simultaneously produce all the anticipated RGA reports and maintain the regular production of the EAC results. EAC is given precedence, hence only one of five reports anticipated for the RGA 2004 survey have been completed. Even with the priority given to EAC, one of the three planned EAC reports (the final synthesis) has not been published since 2003.

A 2002 assessment of OMA data reporting performance found that roughly 75% of the planned reports, radio broadcasts, etc. were effectively implemented by field personnel, suggesting room for improvement. Having only one agent assigned per zone was cited as a cause of some of the gaps as illness or travel for training led to gaps in data collection and transmission. Since the 2002 assessment, OMA has made improvements in this area.

5.7. What Needs Are Well Met and Poorly Met for Key Users of Statistics?

The agricultural statistics system in Mali is currently meeting the need for national and regional statistics on basic crop forecasts and final crop production statistics in a timely

manner and user confidence in the results of the EAC is good. The key users of these data are the food security analysts and those producing the national accounts. Efforts are underway to improve EAC statistics on livestock and horticultural products, but much remains to be done. Users needing disaggregated results at the *Cercle* level or below are not yet well served by the EAC because funding has been inadequate to conduct large enough surveys to obtain statistically significant results at this level on a regular basis.

There is general satisfaction with the market information data produced by the OMA, particularly the improved regularity of reporting in the recent past and OMA's efforts to be responsive to its clients by expanding the product coverage. These data are used not only by government services and donors but also by private sector operators (farmers, traders, processors) trying to make investment or marketing decisions.

A weakness for those interested in macro-economic analyses is the failure of DNSI to completely convert all prior data on the national accounts to the new system adopted in 1996. This had led to confusion about what data to use (particularly for short-term consultants) and the circulation of reports containing different numbers depending on the system used.[25]

The major weakness in terms of micro-economic analyses is the lack of a single, longitudinal data base that would permit policy analysts to easily conduct time series analyses on the EAC or RGA data using household level observations. At a minimum, the various data bases should be organized in a manner that facilitates combining data from different years or surveys (e.g., OMA price data and EAC production estimates from multiple years). Documentation of the data bases is also an issue. Policy analysts or scholars wanting to work with the EAC data will generally need assistance from DNSI/CPS staff to understand the files.

One area of weakness in the overall system is a failure to make maximum use of the Internet. Most services producing statistics of relevance to the agricultural sector have websites, but few are maintaining the websites. DNSI, for example, has detailed information on the CPI for the early 2000s, and then it stops abruptly in 2004. The MOA (http://www.maliagriculture.org) is now providing information collected by the CPS on the current agricultural campaign of 2007/08 (e.g., production estimates, rainfall and pest situation, input use, area planted), but there is no electronic access to past reports. OMA is the most up-to-date and complete with access to monthly reports that are unusually posted within 4-6 weeks of the end of the reporting period. In addition, they have an email system available from their website for ordering specific data series. The desire to recover data collection costs through fees for access to data sets (the OMA and meteorological service approach) and the sale of publications is understandable. On the other hand, making agricultural data more available to stakeholders, analysts, and potential investors via the Internet may have a greater payoff in the long run. Some benefit/cost analyses of different approaches to distribution of reports and data sets would be useful, particularly given how expensive it is in Mali to produce hard copies of documents and the limited number of users that get access.

[25] This was a particular problem with the WB Country Economic Memorandum when consultants in Mali were using the new system and economists based in Washington continued to use the old system.

5.8. Could the System Be Organized Better? If so, How?

At present the issues of funding and staffing appear to be greater constraints than the institutional organization *per se*. We find the main institutional weakness of the EAC and RGA to be its inability to obtain the funds necessary to implement its full data collection and analysis program. This suggests that the CPS may need to develop institutional linkages such as those developed by OMA whereby the users of the data produced lobby the government for adequate funding. Given the limited distribution of published reports and the relatively superficial analyses that are conducted on the data to date, it is understandable that the users of the data are limited and primarily in government and donor offices. We believe that with minor adjustments in the way data are collected and managed there would be good potential for the EAC and the RGA results to be subject to more in-depth micro-economic analyses that would provide important insights about returns to agricultural investments poverty reduction.

5.9. Are there Relevant Funding Issues to Be Addressed?

The combination of GOM and donor funding available for the currently proposed agricultural statistics program is inadequate. Because the program has been designed in consultation with users who have demanded more geographically disaggregated results and gender analysis as well as greater coverage of diversification activities, one would expect the funding to follow but this has not happened. Given that the GOM is carrying a much larger share of the cost of agricultural statistics (about 80%) than it does for other sectors (usually under 30%), one is led to ask why there is not more donor support. Donors, particularly the WB and the FAO, have been strong supporters of capacity building efforts and the development of improved methods, but they have been reluctant to support most of the recurrent costs for survey implementation, analysis, and reporting. This is the area that needs increased and more reliable levels of funding.

5.10. Are there Lessons from Mali of Relevance to Other Countries?

Given the focus of this study on institutional arrangements for agricultural statistics systems, we find the lessons from Mali's approach to its market information system to be the most interesting. The decision to transform the earlier, government-managed MIS into a private sector entity officially tied to a national farmers' organization was a pivotal decision. It ensured that the information produced would evolve over time to remain relevant to stakeholders, thereby creating the necessary support and political pressure to ensure an adequate level of government funding for the public goods aspects of the MIS work. There is general agreement among Malians consulted that had the MIS remained a government service it would not have had the administrative authority needed to reduce costs nor the flexibility needed to respond rapidly to emerging market situations and changing stakeholder needs. While other countries may not find it appropriate to administratively link their MIS with a farmers' organization, the general process (survey of needs, conceptualization of alternative institutional arrangements, consultations with government and stakeholders, decentralization of activities to reduce costs, etc.) by which the earlier MIS was transferred from government to private sector control should be of relevance to other countries who have government operated MIS that are not performing as well as desired.

Lessons concerning institutional arrangements for the basic agricultural production and agricultural census data are less clear. We do not find evidence that either the National Statistical Service (DNSI) or the Ministry of Agriculture provides a better home for this type of work. Their staffs have different configurations of skills that are generally complementary, with DNSI being strong in statistical skills (particularly sampling and working with software for statistical analyses) and the line ministries having the complementary subject matter knowledge that is essential for properly designing questionnaires, implementing surveys, supervising field work, and interpreting the results.[26] Recently FAO and WB funding have gone to building more statistical and analytical capacity in the Ministry of Agriculture (CPS); this led to a transfer of the lead responsibility for the agricultural surveys (from conceptualization all the way through the analyses and reporting) to the CPS. It is still too soon to know if this is a sustainable solution as CPS remains understaffed and under-budgeted for the tasks at hand and is having trouble retaining personnel that have improved their skills. CPS argues that they have been able to produce annual reports in a timelier manner than DNSI had been doing, that they can provide better supervision of the data collection process, and that they have better links to the users of agricultural statistics. On the other hand, they are very cognizant of inadequate (though improved) capacity for data analysis and reporting (evident in the slow pace of publishing reports for the 2004/2005 RGA and the lack of supplementary analyses of the annual EAC data).

A recurrent message in all the documentation that we reviewed and from discussions with key actors at DNSI and CPS was that informal collaboration between the two institutions is as important, if not more important, than decisions about where the key responsibility for the statistical reporting activities is located. Unfortunately, we were not able to explore this more fully to better understand what factors are driving this positive inter-institutional collaboration and to what extent it can be improved or replicated by different actors and institutions.

Another point is that budget and staff capacity is probably more important than the particular institutional structure selected for managing agricultural statistics. Both DNSI and CPS have mentioned budget constraints faced in implementing the EAC and conducting the analyses. Improving the analytical capacity of CPS without ensuring an adequate budget to retain the staff with improved skills is not a sustainable approach. It may be in the interests of both institutions to consider how they can build stakeholder support for their services as OMA did and use stakeholders to help them increase their budget allocations. This may mean some changes in data collection and reporting to make it more timely and relevant to different stakeholders.

[26] We suspect that the functional area structure of DNSI (versus a sector-based structure used in other countries) may weaken its ability to develop staff expertise in particular subject matter areas, but we were not able to confirm this.

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CSA	www.csa-mali.org
DNSI	www.dnsi.gov.ml
FEWSNET	www.fews.net
MOA	www.maliagriculture.org
MSU/FSIII	http://www.aec.msu.edu/fs2
OMA	www.oma.gov.ml
PARIS21	www.paris21.org
SAP	www.sap.gov.ml