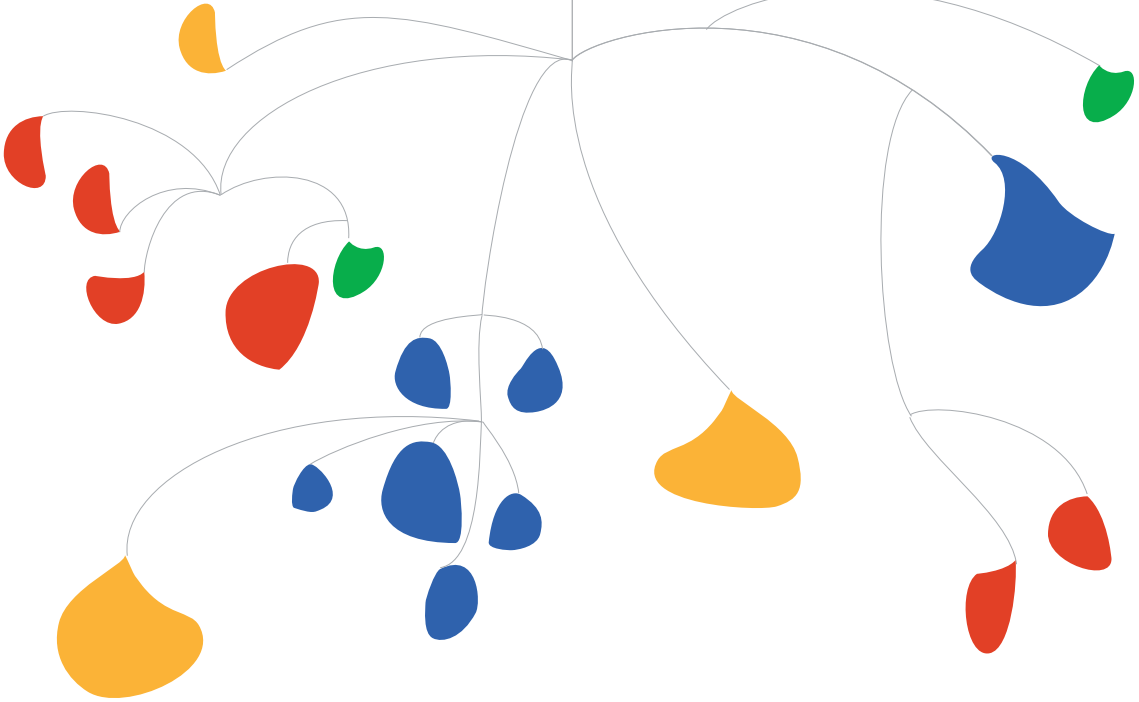
Food and Agriculture Organization of the United Nations

NIGERIA

AMIS Data Assessment Report

An assessment of production forecasts, market prices and stocks data produced and made available in Nigeria on AMIS crops: maize, rice, soybean and wheat

AMIS
Agricultural Market Information System



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Strengthening Agricultural Market Information Systems Globally and in Selected Countries. (Bangladesh/ India/Nigeria) using innovative methods and digital technology – MTF/GLO/359/BMG

SEPTEMBER 2014

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Background

The Nigerian Federal Ministry for Agriculture and Rural Development (FMARD) has embarked on the Agricultural Transformation Agenda (ATA), which sets out goals for enhancing agricultural production in a sustainable and inclusive manner as a driver for development. Under the ATA, FMARD plans to strengthen markets for agricultural commodities through the establishment of commodity marketing corporations. In this perspective, quality statistical information is of vital importance to decision making.

In 2012, FAO received a USD 5.6 million grant from the Bill & Melinda Gates Foundation to implement the project "Strengthening Agricultural Market Information Systems Globally and in Selected Countries (Bangladesh, India and Nigeria) using innovative methods and digital technology". The project is being implemented in the context of the AMIS initiative: http://www.amis-outlook.org/.

The project will improve market transparency in Nigeria by scaling up efforts to produce quality statistics and data on crop production forecasts, market food prices and stocks for the four AMIS commodities: maize, rice, soybean and wheat.

This report provides information on data availability and quality and will serve as a reference for the identification and prioritization of the upcoming AMIS support to Nigeria. A similar approach has been followed in other countries benefiting from the project.

Acknowledgements

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Disclaimer

This report has been produced on the basis of a desk review and interviews held in Nigeria over March-August 2014. The authors met a wide range of stakeholders who provided, to the best of their knowledge, information that is up to date, objective and reliable. The report's main findings and recommendations have been presented to, and discussed and agreed with, officials from the Nigerian Government. However, no formal endorsement mechanism from the Nigeria Government has been pursued for this report. Similarly, FAO is not responsible for, nor does it necessarily endorse, its content. Any views expressed are solely those of the authors and do not necessarily reflect those of FAO, the United Nations or its Member States.

Acronyms

ADP	Agricultural Development Project
AMIS	Strengthening Agricultural Market Information Systems
APS	Agricultural Performance Survey
ATA	Agricultural Transformation Agenda
CBN	Central Bank of Nigeria
CPI	Consumer Price Index
DFID	UK Department for International Development
FAO	Food and Agriculture Organization of the United Nations
FEWSNET	Famine and Early Warning System Network
FGD	Focus Group Discussion
FMARD	Federal Ministry of Agriculture and Rural Development
GHS	Generalized Household Survey
GIEWS	Global Information and Early Warning System
IFDC	International Fertilizer Development Center
IGC	International Growth Centre
ILO	International Labour Organization
LGA	Local Government Area
MISTOWA	Market Information Systems and Traders Organizations in West Africa
NADA	National Data Archive
NAERLS	National Agricultural Extension Research Liaison Services
NAMDA	Niger State Agricultural and Mechanization Development Authority
NAMIS	National Agricultural Market and Information System
NASC	National Agricultural Sample Census
NBS	National Bureau of Statistics
NPFS	National Programme for Food Security
NSS	National Statistical System
PRSD	Planning, Research and Statistics Department
SDMX	Statistical Data and Metadata Exchanges
SGB	Statistical Governing Board
SGR	Strategic Grains Reserve
SPARS	Strategic Plan for Agricultural and Rural Statistics
SSA	State Statistical Agency
SWOT	Strengths, Weaknesses, Opportunities and Threats
UNDP	United Nations Development Programme
USD	United States Dollars
USDA	United States Department of Agriculture

1

Inventory of data produced and made available

A detailed data inventory matrix is provided in Annex 2.

Data currently produced, by statistical domain and crops

A large number of federal- and state-level institutions collect and produce data on crop forecasts, market prices and stocks for different crops including maize, soybeans, wheat and rice (referred to as "AMIS crops"). International institutions and the private sector also produce relevant data.

Data for crop production forecasts (and production estimates)

The National Agricultural Extension Research Liaison Services (NAERLS) is the only government agency in Nigeria that has been producing crop production forecasts for the last 20 years. It performs this task through its annual Agricultural Performance Survey (APS) for the wet and dry seasons. However, more recently, due to budget constraints the APS is being conducted only for the wet season. The survey is carried out to assess agricultural performance during the wet season, make production forecasts for the season, and identify constraints upon increased agricultural productivity. The survey also serves as a tool to provide feedback for improved research and policy directives. NAERLS produces national- and state-level reports as well as an executive summary, which is usually submitted to the Federal Government every October, to coincide with the World Food Day activities.

The primary data for the survey are collected through structured questionnaires, field visits/ observations and Focus Group Discussions (FGDs) made up of experts from the state Agricultural Development Projects (ADPs), the Nigerian Meteorological Agency, the Ministry of Agriculture and individual farmers. In each state, four Local Government Areas (LGAs) are selected to participate in the FGD. The production estimates from the previous year's APS/

Farm Output Survey, formerly known as Cropped Area Yield Survey, are used as a guide for the forecasts.

Crop production estimates are generated by different government agencies, including the National Bureau of Statistics (NBS), the National Programme for Food Security (NPFS) and the Planning, Research and Statistics Department (PRSD). NPFS conducts the APS/Farm Output Survey and has been one of the most reliable sources of information. The main objective of the survey is to estimate the production, area cultivated and yield of major arable crops that are mainly cultivated by small-scale farmers in Nigeria. The survey uses a multi-stage sampling technique whereby five wards are selected as the primary sampling unit from each LGA and five households are selected from each ward, using a simple random sampling technique. As was observed during visits to Kaduna and Niger States, the state-level ADPs are highly involved in data collection, and the final report is usually released after a national-level reconciliation workshop has been conducted.

NBS used to conduct the Annual Agricultural Sample Survey, using scientific methods to generate estimates of annual crop production and area cultivated. Both subjective and objective methods were used during data collection. However, due to budget constraints, NBS terminated the survey at the end of 2010. More recently, under its General Household Survey (GHS) Panel, NBS is collecting data on agriculture, including on the area cultivated and production obtained. The first wave of this panel survey was conducted in 2010/11 and covered 5,000 households drawn from 500 sub-sampled enumeration areas out of the 2,220 enumeration areas used for the GHS. The sample size is not adequate for state-level estimates. Therefore, the area under cultivation and production outputs obtained are reported only for the national level.

Data on market prices

Market price data are collected by many agencies at the federal level, including NBS, Central Bank of Nigeria, Abuja Commodity Exchange and NAERLS. The Famine Early Warning System Network (FEWS NET) also collects and produces its own price data on selected markets and commodities. Market price data are also collected at the state level by state statistical bureaus and ADPs. Agencies collect market prices for different commodities in different markets with diverse frequencies, employing a varied set of tools and specifications. Each agency collects market price data to suit its specific needs. This also contributes to duplication of efforts and user confusion, especially when the resulting data is conflicting.

NBS collects market prices on about 800 commodities from 5,000 markets across Nigeria, twice a week; the data are collated and compiled on a monthly basis. The market price data are used to produce the Consumer Price Indices (CPIs). The "raw" data are not public.

The Nigeria Commodity Exchange collects market price data on nine major crops, including maize and soybeans, from wholesale markets in 12 states in Nigeria on a daily basis. The daily market prices are also uploaded onto large electronic boards in selected markets in the country.

FEWS NET collects its own market prices on a weekly basis for rice and maize in eight selected major markets in food-insecure areas of the country.

The Strategic Grains Reserve (SGR) of the Federal Ministry of Agriculture and Rural Development (FMARD) collects field data for paddy rice, maize, millet, sorghum, soybeans and garri (cassava grits) through its 29 silo managers located in different parts of Nigeria. The data are used by the SGR to determine Guaranteed Minimum Prices once a year.

At the state level, ADP enumerators who reside in areas where these markets are situated also collect market prices. In Kaduna State, for example, market prices are collected on a weekly basis from both urban and rural markets in each LGA, but are transmitted to ADP headquarters once a month due to lack of funding. The Statistics Department of the Kaduna State Ministry of Economic Planning also collects its own market prices through appointed enumerators. In Niger State, both the Niger State Agricultural and Mechanization Development Authority (NAMDA) and the State Bureau of Statistics collect market prices using their own enumerators and without recourse to each other. As with NBS, the Niger State Bureau of Statistics calculates monthly state-level CPIs using the market prices collected.

Through Nigeria's National Agricultural Market and Information System (NAMIS) project, NPFS collected market price data on 75 commodities from two markets in each state; the data were published bi-weekly in the NAMIS Bulletin. The last data were collected and published in May 2012.

Data on stocks

Grain stocks are not monitored throughout the value chains – a circumstance which is not specific to Nigeria. The sole portion of stocks for which data exist is for government-administered strategic reserves, but this data is not public. FMARD, through the SGR, is the custodian of the national grain reserve, and is responsible for its monitoring and the related data production. Its silo capacity is of 1.3 million tons of assorted grains, which are procured through licensed buying agents and stocked in most of the 29 silos located in different parts of the country. The grains procured by the Government include: paddy rice, maize, sorghum, millet, soybeans and garri. The commodities are reported to be released to Nigerians during periods of emergency and high market prices.

Obtaining Government stock data at state level appears to be easier, as information was obtained on the buffer stocks currently available in certain State Government warehouses.

NAERLS collects data on available stocks of food commodities from both Government silos and State-owned warehouses during its APS. However, the data have not always been accurate or verifiable.

Data accessibility

The accessibility of statistical outputs is the ease with which users can obtain the data. It is determined by the conditions in which the data can be retrieved: the place of retrieval, how

it can be order, delivery time, pricing policy, availability of micro- or macrodata, richness of metadata, delivery formats (paper, files, CD-ROM, Internet, etc.) and stability of the systems over time[1].

NBS aside, there are no formal data access policies in place within the agencies that were contacted. In most agencies, the current method of data access is only by submission of a data request that must be approved by the chief executive officer, and which usually takes about one or two weeks to be processed.

NBS has developed a release calendar, which provides useful information for navigating the various online data platforms[2] that provide relevant and updated data series for AMIS.

FMARD makes part of its data available through its CountrySTAT portal[3]. However, there are no data on stocks or forecasts, and price information is limited to a national food CPI produced by NBS. Time coverage is rather limited; more detailed and up-to-date data are available on NBS platforms.

With support from the UK Department for International Development (DFID) and the World Bank, the Nigerian Government initiated an Open Data Initiative, which was inaugurated on 29 January 2014. This initiative seeks to drive innovation, investment and economic growth by enabling access to Government data. According to the Nigerian Government, the initiative is a consultative and inclusive process that will open up high-value datasets from across Government Ministries to Nigerian citizens, businesses and the rest of the world, for free. The Open Data Initiative is not only endorsed by the Federal Government; at the State level, the Government of Edo State has begun implementing the first sub-national Open Data Initiative in Africa.

The status of data accessibility on the AMIS project's three statistical domains is briefly described below.

Crop production forecasts and production estimates: Data on crop production forecasts by NAERLS are accessible mainly by contacting the agency in person. The agency distributes publications on the survey results only to governmental organizations and other partners. In some cases, if there are funding problems, printouts are not available and it is difficult to access the data. The data are also not easily accessible through the Web, and are not available in the public domain.

Similarly, data on production estimates by NPFS are not easily accessible. Usually, NPFS lacks the funds to print copies for distribution. For example, the APS/Farm output survey reports for 2010 and 2011 cannot be accessed. Therefore, interested users must visit the agency to request soft copies of the report in Excel format. NPFS reported that they do not

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1 Inspired by Eurostat's definitions of statistical quality: http://epp.eurostat.ec.europa.eu/portal/page/portal/quality/documents/ess%20quality%20definition.pdf

2 NBS has five data accessibility systems in place: NBS eLibrary (http://www.nigerianstat.gov.ng/nbslibrary), Nigeria Statistical Data Portal (http://nigeria.prognoz.com), Nigeria Open Data (http://nigeria.opendataforafrica.org), Nigeria National Data Archive (http://www.nigerianstat.gov.ng/nada/index.php/home), and Nigeria Info (http://www.devinfo.info/nigeria/).

3 http://www.countrystat.org/home.aspx?c=NGA.

have a website upon which to upload the APS/Farm output survey reports. This is most likely a coordination issue, as the CountrySTAT platform could serve for this purpose.

For NBS, APS reports are accessible on its website, but are not necessarily up to date. The NBS website also provides an online analysis tool through its data portal. The National Data Archive (NADA) system of NBS is also available online and has detailed metadata on surveys, but these are of limited relevance for AMIS. While crop production data can be found in the data portal for crops from 1995-2006, the NADA system contains only the production data for 2005.

Market prices: Market price data from NPFS were made accessible through its NAMIS Bulletin. NAERLS also publishes its data on market prices in newspapers and transmits them through sponsored radio programmes. In addition, FEWS NET and Abuja Commodity Exchange also publish their market prices on their websites for access by the public. The NBS data on market prices are also available on demand, and its CPI reports are available on its website and data portals.

At the state level, data on market prices are accessible mostly upon request and are only published when funds are available. In Niger State, for example, market price data from the State Bureau of Statistics are reported to be available on its website (www.nigerstatistics.org). However, only the home page of this website opens; the other links are not operative and it was difficult to confirm the availability of the data on the Web.

Stocks: The limited data available are not easily accessible. As a general rule, the data cannot be shared; however, localized data can (sometimes) be obtained by contacting silo managers.

Other data quality considerations

Governance and coordination: Statistical governance and coordination activities are often considered as prerequisites for assuring data quality: the more structured and clear responsibilities exist in the governance and coordination of data, the higher the quality of the data that will be generated by the statistical system. In Nigeria, agricultural- and market-related statistical data generation activities are undertaken in a decentralized manner, with very weak coordination and harmonization processes.

Except for some coordination observed by the departments under FMARD (PRSD, NPFS and NAERLS) during data collection and reconciliation, other institutions involved in generating agricultural and market price data conduct their activities with little or no harmonization. NBS is the main national agency responsible for the development and management of official statistics, the authoritative source and custodian of official statistics and the coordinator for statistical operations of the National Statistical System (NSS). However, in practice, it is not fully implementing these important mandates, given the resource constraints that it currently faces. Accordingly, the agricultural and market price data are generated in an uncoordinated manner, without clear and standardized guidelines and tools.

The problem of coordination does not affect only different federal institutions, but also those within states. In Niger State, for example, the Commissioner for Agriculture and

the Statistician General was not aware of the agricultural-related data generation activities performed by NAMDA (formerly, Niger State ADP).

Relevance: The relevance of statistical outputs is the degree to which they meet expressed users' needs[4]. A high degree of relevance implies that all the statistics required are produced, and that the concepts and classifications take account of user needs and international standards. The statistical data produced on crop production forecasts, production estimates and market prices in Nigeria generally fail to address the criteria for relevance – with timeliness, geographic coverage or comparability being major issues.

Accuracy: In the general statistical sense, accuracy denotes the closeness of computations or estimates to their exact or true values. Most survey reports in Nigeria do not include any sampling error measurements, such as a Coefficient of Variation or Design Effect. Therefore, it is difficult to provide assurances on the reliability (an aspect of accuracy) of such data. There are no systematic data quality assurance methods in place for the data collection activities conducted by most of the institutions in Nigeria. Checking the accuracy of data from the field merely depends on the knowledge of the expert analysing the data on the subject matter. Adequate information on non-response rates, one of the non-sampling error indicators, is not available.

Timeliness: The timeliness of statistical outputs is the length of time between their availability and the phenomenon or events that they describe. This is a critical problem for most agencies, in relation to most data series at stake. Despite the APS Report's Executive Summary that is submitted to FMARD in time for the World Food Day activities every October, the comprehensive crop production forecast data from NAERLS is released to the public very late. For instance, results from the 2013 APS by NAERLS and the APS/Farm Output Survey by NPFS have not yet been released. Similarly, market price data by most of the agencies are not released in a timely manner, except for the CPI data for the previous month (usually released by NBS on the 15th of the following month) and for market data by the Nigeria Commodity Exchange, that are released on a daily basis. For instance, market price data for 2013 collected by the Niger State Statistics Bureau have not yet been released.

Coherence and comparability: The coherence of statistics is therefore their adequacy to be reliably combined in different ways; comparability, on the other hand, aims to measure the impact of differences in applied statistical concepts and measurement tools/procedures when statistics are compared between geographical areas, non-geographical domains, or over time. As the statistical activities in Nigeria are not well-coordinated and to date, no significant effort has been made to harmonize them, each agency produces statistical data on the basis of its internal needs. There are no standardized concepts, definitions, classifications and specifications that are commonly used by different agencies. Accordingly, significant problems of coherence and comparability may be observed. For instance, NBS generates the national average maize prices using data obtained from 5,000 markets, while NPFS-NAMIS generates similar data based on the data collected from 72 markets. In this

[4] Inspired by the Eurostat definitions of statistical quality: http://epp.eurostat.ec.europa.eu/portal/page/portal/quality/documents/ess%20quality%20definition.pdf

regard, the difference is not only in the targeted population but also in methodological differences, which affect the concepts, definitions, classifications, measurement units.

TABLE1
Country-level production estimates (in '000 MT) for AMIS crops

Crop	2009		2010	
	NBS	NPFS	NBS	NPFS
Maize	9,113.71	8,645.55	7,338.44	9,302.60
Rice	3,373.52	4,320.08	3,540.94	4,601.60
Wheat		35.04		34.90
Soybeans	234.43	525.11	426.59	572.40

Source: NBS and NPFS annual surveys 2009, 2010

Table 1 displays the magnitude of the divergences between the estimates given by NBS and NPFS respectively.

2

Relevant ongoing / planned initiatives

Rationale

To avoid duplication of efforts, and to build upon the ongoing efforts, it is critical to identify the related initiatives that are taking place in Nigeria.

National initiatives

Both the Agricultural Production/Farm Output Survey and the APS by NPFS and NAERLS respectively are expected to continue, with funding from the Federal Government. Similarly, price data collection activities by State Statistical Bureaus are also expected to continue through the budgets allocated by the respective State Governments. To improve data accessibility, NAERLS is working towards improving its web administration, by enhancing its ICT infrastructure.

NBS has started conducting the 2014 National Agricultural Sample Census (NASC). This census was supposed to be undertaken every ten years, but due to several problems, it has not been conducted for the last 21 years. It was reported that the required budget for the census has been secured from the Government. NBS, in collaboration with the Federal Ministry of Agriculture & Rural Development, the Central Bank of Nigeria and other stakeholders, will now carry out the agricultural census for 2014/15. NBS conducted the pilot survey in March 2014, as part of the census project. This census is expected to generate data on agriculture at the local government council level, including data on the area cultivated and production obtained. Another large-scale data collection exercise, the General Household Panel Survey, completed its second wave in April 2013; the results from this survey are about to be released.

To improve the use of administrative data in Nigeria, NBS has initiated a consultation with federal ministries to solicit and elicit cooperation with respect to regular reporting of sector-specific data. To facilitate this, NBS has recently developed an online platform that provides real-time data collection templates for all the federal Ministries, Departments and Agencies (MDAs) as well as the State Statistical Agencies (SSAs).

The National Strategy for the Development of Statistics (NSDS) is being implemented, and a new phase is currently being initiated. This effort provides some elements of reference for the prioritization of statistical outputs and support, and seeks to improve coordination between various stakeholders at the federal level. Similar exercises are being conducted in a few states.

The Kaduna State Statistics Bureau is expected to start operation soon. The State House of Assembly has passed the law establishing the State Bureau of Statistics, while the appointment of a substantive Statistician General by the State Government is in progress. These developments are expected to improve statistical data production, as well as statistical coordination. Moreover, the Kaduna State Commercial Agriculture Development Project, the Commercial Agricultural Development Association and other market associations have signed a Memorandum of Understanding to establish the market information kiosks. The kiosks are expected to address the constraints associated with market information flows by providing up-to-date and accurate market information. The Niger State Ministry of Agriculture has established a data centre to improve its data management and dissemination system. The Ministry has set up a small computer room with Internet connectivity, and has assigned dedicated experts to work on data management.

Initiatives by international partners

The World Bank is finalizing a project to build further statistical capacity in Government agencies. This support follows the SRF project that has just been completed.

The United Nations Development Program (UNDP) is providing support to FMARD for the monitoring and evaluation of ATA. This support will include specific assessment and strategic development of the crop monitoring system.

A number of private companies are using innovative methodologies based on mobile technology and crowdsourcing to collect, produce and sell tailored market price series. These companies include Premise and eSoko.

FAO, in conjunction with FMARD, is implementing the CountrySTAT project funded by the Bill & Melinda Gates Foundation. The project's main objective is to help develop and sustain a nationally owned Internet-based agro-food information system. Little information related to the AMIS statistical domains is made available.

The SGR is initiating a project that will connect its 29 silos located in different parts of the country in a network system. The aim is to improve stock data management through

a wholly computerized system. With improved transparency, this system is expected to enhance the accessibility of real-time data on stocks.

FEWS NET conducts regular analyses of markets and trade, monitoring local staple food prices and regional trade flows as well as macro-economic drivers.

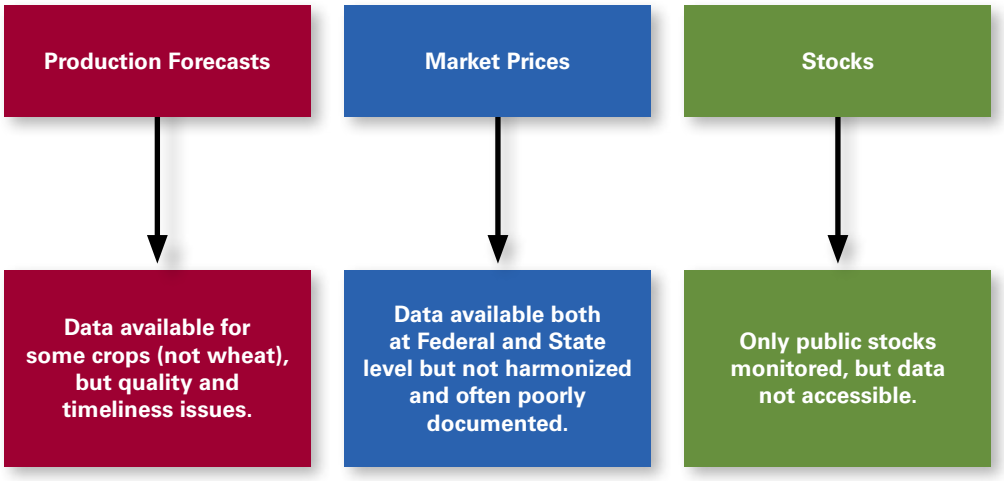
The AMIS project will build specific partnerships with the abovementioned initiatives, to leverage available resources and foster the sustainability of its outputs and outcomes.

3

Data gaps

Data gaps can be identified in all three AMIS statistical domains, for each AMIS crop. Details are provided in Annex 2, and a summary is provided in Figure 1 below, although with different magnitudes, as highlighted in Figure 1 itself.

FIGURE 1
Identified data gaps by statistical domain



4

SWOT analysis

The strengths, weaknesses, opportunities and threats (SWOT) analysis for the AMIS in Nigeria is summarized below.

STRENGTHS	WEAKNESSES
Expertise in producing agricultural statistics	Non-adherence to the 2007 Statistics Act
Availability of trained and experienced personnel	Insufficient coordination between data producers
Recognition by stakeholders of weaknesses in the system and of the need for reform	Insufficient feedback mechanisms between data producers and users
Recognition in the system of the pivotal coordinating role of NBS as the main body on statistics in Nigeria	Limited implementation of the NSDS
Adoption of the NSDS	Inadequate funding for statistical activities
	Unwillingness of some market private stakeholders to provide data
	Cultural beliefs preventing data collection
	Difficult geographical terrain and lack of safety in some parts of the country, for data collection purposes
	Lack of statistical standards and quality measures
	Lack of adequate documentation
	Inadequate data management, analysis and dissemination system
	High turnover of skilled staff
	Outdated facilities, including computers and software
	Poor use of ICT and modern technology for statistical activities, including data collection
	Delays in release of data
	Lack of disaggregated data at lower administration levels

OPPORTUNITIES	THREATS
Increased demand for data and information to inform Government programmes ICT cheaper and widely available GDP rebasing, which has created momentum on prices Confirmed interest of federal and (some) state governments to strengthen the statistical system General interest among development partners in statistics for monitoring Greater donor interest in building the nation's statistical capacity Availability of online data analysis systems e.g. NADA, Nigeria Info and data portals at NBS Nigerian Government's commitment to move towards Open Data New NSDS cycle The Global Strategy to improve agricultural and rural statistics[7] AMIS initiative and corresponding capacity building initiatives.	Unwillingness of some market private stakeholders to provide data Inability to attract and retain qualified staff Challenges to innovation and performance Lack of commitment to coordination between government agencies Lack of transparency in the release of official statistics Lack of adequate budgetary provisions for statistical activities

[7] http://www.gsars.org/

5

Recommendations

In line with the assessment made above, the following recommendations are made:

Fill data gaps

1. Sustainable and cost-effective methodologies should be adopted to fill critical data gaps. This is the case for data on crop forecasts and stocks especially.

Foster strategic and technical coordination between institutions

1. Improved coordination should lead to a greater return on investments in statistics, with a focus on (a) greater data exchange and use (b) greater data harmonization and utility and (c) less duplication of efforts, and consequent data user confusion.
2. AMIS and the systems that generate them should be developed strategically, as a key element of the development of agricultural statistical capacity. The development of Nigeria's agricultural statistical capacity could be articulated in a Strategic Plan for Agricultural and Rural Statistics (SPARS), in connection with the overall National Strategy for Development of Statistics.
3. The SGB, established under the Statistics Act, should be reactivated. It could be instrumental in providing strategic direction and guidelines to agencies and their partners. In addition, the SGB could play an advocacy role, assisting agencies to mobilize and secure adequate funding to deliver the outputs expected in their approved work plans. NBS has a key role to play in technical coordination, and in support of the SGB.
4. Legal and technical efforts should be continued at the state level to set up and sustain efficient coordination.

Improve documentation and archiving of existing datas and methodologies

1. Agencies should systematically document their statistical production with the right metadata, in line with international standards and the current practices at NBS. Metadata form an essential part of data quality.
2. Long-term preservation of statistical data is critical to sustain their future use and to enable statistical capacity development – therefore, preservation efforts should be enhanced.

Foster data quality and harmonization between sources

1. Quality approaches should be made more systematic in existing surveys and data production systems. Comprehensive data quality assessment frameworks could be designed, adopted and implemented, in connection with the work being conducted in this field at NBS.
2. Common standard concepts and definitions should be developed for market data and relevant agricultural data. Enforcement of the use of these standards should be supported by capacity-building efforts.
    - Adequate training and capacity should be provided to agencies to design and implement quality statistical processes, from data collection to data dissemination. In particular:
    - A continuous training plan could be developed within the SPARS to sustain efforts to improve statistical skills and infrastructure; and use of mobile data collection/ transmission devices should be adopted (GPS, PDAs, etc.) to improve data quality and timeliness. This could be relevant for price monitoring, as well as for other AMIS data items. Leveraging existing platforms in Dawanau (Kano) and Mile 12 (Lagos) markets, established under the MISTOWA project, could be explored.

Promote open-data access policies

1. All statistics-producing agencies, and especially those involved in AMIS domains, should have a clear data access and dissemination policy, including a data release calendar and other information relevant to users. Attention should be given to compliance with the Federal Government's open data strategy.
2. Data sharing should move from hard copy reports to web-based and mobile technologies.
3. Statistical Data and Metadata Exchanges (SDMX) standards should be adopted and agreed upon, to foster data sharing within agencies. In particular, this would improve:
    - Inter-operability between the different web-based data dissemination platforms maintained by agencies, in line with their mandate; and the quality of production forecasts and stocks estimates, which are dependent on data-intensive models.
    - Data exchange protocols should be agreed between NBS and federal ministries and relevant federal agencies, including on administrative data sources. Recent initiatives by NBS should be sustained. A data quality assessment framework should be developed to enable federal ministries to ensure proper data management in the state agencies under their supervision.

ANNEX 1:
List of agencies visited and persons met / interviewed

NATIONAL BUREAU OF STATISTICS

Dr. Yemi Kale	Statistician General of the Federation, Chief Executive Officer
Babalola D.A.	Director
Omole C.S.	Agric. Statistics Division, Real Sector & Household Statistics Dept.
Bishop O.E. Ohiama	Agric. Statistics Division, Real Sector & Household Statistics Dept.

FEDERAL MINISTRY OF AGRICULTURAL AND RURAL DEVELOPMENT (FMARD)

T.J. Oyedemi	Director FDA
Kanu M.O.E.	FMARD (FDA) - Deputy Director
Racheed S.A.	FMARD (FDA) - Chief Agriculture
Onyeneke, Victor	Desk Officer, FMARD (FDA), Rice Value Chain
Hope Atsengo	Desk Officer, FMARD (FDA), Soybeans Value Chain
Unamma Victor	Desk Officer, FMARD (FDA), Maize Value Chain
J.S. Odoesen	Desk Officer, Soybeans Value Chain,
Titilola Akinpelu	Desk Officer, Wheat Value Chain
Dabir Jonathan	Assistant Chief Agriculture Officer, Rice, FMARD
Olonilua R. Taiwo	Deputy Director, FMARD
Onyeri Ndubuisi C.	Deputy Director, Planning Research and Statistics (PRS)
B.B. Jibrin	Assistant Director

NATIONAL PROGRAMME FOR FOOD SECURITY (NPFS)

C.U. Okonjo	National Facilitator, Monitoring & Evaluation
Agwu Okorie A.	National Facilitator
Oyigoga Godwin	National Facilitator, Marketing

STRATEGIC GRAIN RESERVE

Alebode Isedu	Deputy Director
Umar Abbas Mustapha	Produce Officer

NIGERIA COMMODITY EXCHANGE

Zaheera Baba Ari	Head of Management Services

NATIONAL PLANNING COMMISSION

Mukhtar Y. Tanko	ITO
Jonathan O. Esin	Senior Staffer

COMMERCIAL AGRICULTURAL DEVELOPMENT PROJECT

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ANNEX 2:
AMIS data inventory matrix

A summarized data inventory matrix is provided on the next page, for the AMIS crops and relevant statistical domains. It reflects the data status as at the date of the report.

The matrix covers both international and national sources. It is divided into two parts: (1) data that are accessible online ("online inventory") and (2) data reported as being produced but that are not accessible online ("off-line inventory").

ONLINE INVENTORY

Source Name	URL	Indicators	Domains												Availability in AMIS
			Forecasts				Market Prices				Stocks				
			Maize	Rice	Soybeans	Wheat	Maize	Rice	Soybeans	Wheat	Maize	Rice	Soybeans	Wheat	
NBS	Nigeria Statistical Data Portal	Yearly Farm Gate Prices (State level)					1995-2006	1995-2006							No
Federal Ministry of Agriculture and Rural Development, ASCE[8]	ASCE-Essential Commodities Prices	Daily Market Price (Market Level)					18/09/2007 -23/04/2013	18/09/2007 -23/04/2013	18/09/2007 -23/04/2013						No
		Weekly commodity prices (Market Level)					6/08/2008 -18/08/2010 and 2/11/2010	6/08/2008 -18/08/2010 and 2/11/2010		6/08/2008 -18/08/2010 and 2/11/2010					No
FAO	FAOSTAT database	Yearly Producer Price [LCU/tons] (National level)					1966-2008	1966-2008	1966-2008	1966-2008					No
	FAOSTAT database	Yearly Producer Price [SLC/tons] (National Level)					1991-2008	1991-2008	1991-2008	1991-2008					No
		Producer Price[USD/tons] (National Level)					1991-2008	1991-2008	1991-2008	1991-2008					No
	FAOSTAT Commodity Balance	Yearly Stock Variation (National Level)									1961-2009	1961-2009	1961-2009	1961-2009	No
	FAO-GAEZ	Yearly Potential Yield (t/ha) (National Level)	2020, 2030, 2080	2020, 2030, 2080	2020, 2030, 2080	2020, 2030, 2080									No
	AMIS website	Yearly Closing Stocks (National Level)									2004/05 -2014/15	2004/05 -2014/2015	2004/05 -2013/14	2004/05 -2014/15	Yes (since 2004)
		Yearly Production (National Level)	2004/05 -2014/15	2004/05 -2014/15	2004/05 -2013/14	2004/05 -2014/15									Yes (since 2004)
	FAO-GIEWS[9]	Monthly Wholesale price (Market Level)					2003-2014								No

[8] The type of price (Wholesale or Retail) is not specified, and the data are not available for all the periods.
[9] Markets covered by GIEWS: Kano state, Dawanau market.

Source Name	URL	Indicators	Domains												Availability in AMIS
			Forecasts				Market Prices				Stocks				
			Maize	Rice	Soybeans	Wheat	Maize	Rice	Soybeans	Wheat	Maize	Rice	Soybeans	Wheat	
FEWS NET[10]	FEWS NET	Monthly, Quarterly and Yearly Retail Prices XOF/kg (Market Level)					2013-2014	2013-2014							No
WF11	WFP-Prices Data Stores	Yearly, Quarterly, Monthly Wholesale Prices (XOF/kg) (Market Level)					2002-2014	2002-2014		2003-2006					No
ILO[12]	ILO-LABORSTA	Yearly Retail Prices [Naira/Kg] (Market Level)					2005-2006 (Abuja), 1985-1987, 1989 -1995, 1997,2000 -2001, 2005-2006 (Lagos)	2005 -2006(Abuja), 1985-1987, 1989 -1995,2000-2001, 2005 -2006 (Lagos)	1987, 2005 -2006 (Lagos)						No
OECD-FAO	OECD-FAO Agr Outlook	Yearly Ending Stocks (National Level)										1983-2014		1982-2014	No
		Yearly Production (kt) (National Level)		1983-2023		1983 -2023									No
IGC[13]	IGC Report	Yearly Production (National Level)	2003/04 -2014/15*	2003/04 -2014/15	2003/04 -2014/15	2003/04 -2014/15									Yes (Since 2005; only for Rice and Wheat)
	IGC Report	Yearly Opening/ Closing Stocks (National Level)									2003/04 -2013/14*	2003/04 -2013/14	2003/04 -2013/14	2003/04 - 2013/14	Yes (Since 2005; only for Rice and Wheat)
USDA[14]	USDA-PSD	Yearly Beginning/ Ending Stocks (National Level)									1977/78 -2013/2014	1977/78 -2013/2014	1988/1989 -2013/2014	1965/66 -2013/14	Yes (Since 2000)
		Yearly Production (National Level)	1960/61 -2014/15	1960/61 -2014/15	1985/86 -2014/15	1968/69 -2014/15									Yes (Since 2000)

[10] Markets covered by FEWS-NET: maize – Kauna, Saminaka, Giwa, Bodija; rice – Bodija, Dandume.
[11] Markets covered by WFP: Dammassack, illela, Jibia, Mai Adoua, Mai Gatari.
[12] Markets covered by ILO: Abuja, Lagos.
[13] Restricted access to the data (the price of accessing the database is £300 / $465 / €355).
[14] When the information for a particular commodity is not available in a specific year, the data is set as equal to zero in the database.

OFFLINE INVENTORY

Source Name	Source Type	Indicators	Domains												Type of information	Original source
			Forecasts				Market Prices				Stocks					
			Maize	Rice	Soybeans	Wheat	Maize	Rice	Soybeans	Wheat	Maize	Rice	Soybeans	Wheat		
NBS	National, Public	Annual Farm Gate Prices (State Level)					2007-2013	2007-2013							Nigeria Statistical Data Portal	Farm Gate Prices for each state
SGR (FMARD)[15]	National, Public	Annual Stocks (National Level)									1999 -2000; 2003 -2004; 2006 -2007	1999 -2000; 2003 -2004; 2006 -2007	1999 -2000; 2003 -2004; 2006 -2007		SGR Report	SGR Annual Reports
Kaduna Agricultural Development Project[16]	State-based institution, Public	Monthly Retail Urban Market (X/Unit) (State Level)					2013-2014	2013-2014	2013-2014						Report	Market Price/ Questionnaire developed by ADP/ NBS/etc.
Niger Agricultural Development Project[17]	State-based institution, Public	Monthly Retail Urban Market (X/Unit) (State Level)					2013-2014	2013-2014	2013-2014						Report	Market Price/ Questionnaire developed by ADP/ NBS/etc.
		Annual stocks									2014	2014				
Kaduna State Statistics Department[18]	State-based institution, Public	Monthly Retail Urban and Rural Market (X/Unit) (State Level)					2009-2013	2009-2013	2009-2013						Report and Excel Datasets	Market Price/ Questionnaire developed by the Statistics Department of Kaduna State

[16] The decentralized units hold data.
[17] Only 8 markets in 3 States are covered.
[18] The data was provided in Excel format, during the visit.

Source Name	Source Type	Indicators	Domains												Type of information	Original source
			Forecasts				Market Prices				Stocks					
			Maize	Rice	Soybeans	Wheat	Maize	Rice	Soybeans	Wheat	Maize	Rice	Soybeans	Wheat		
NAMIS[19]	International Organization Initiative	Weekly RetailUrban Market (X/ Unit) (National Level)					2009-2011; 01/2012- 04/2012	2009-2011; 01/2012- 04/2012	2009-2011; 01/2012- 04/2012						NPFS Price Bulletin	Farm Gate Prices for each state
NAERLS[20]	Research Institute	Annual Crop Forecast (National Level)	2003 -2013	2003-2013	2003 -2013										Annual Performance Assessment Report, Wet Season	NAERLS questionnaire
		Annual Food Commodity Price [zone [SLC/ton] (National and State Level)					2010-2011 -2012-2013	1991-2008	1991 -2008						Annual Performance Assessment Report, Wet Season	NAERLS questionnaire
		Annual Food Commodity Price [zone [SLC/ton] (National and State Level)					1991-2008	1991-2008	1991 -2008	1991-2008					Agricultural Performance Survey/State/ Annual national report	NAERLS questionnaire
		Weekly Market Price (Weekly)** (State Level)					2013-2014	2013-2015	2013 -2016						Radio/ Newspapers	NAERLS Questionnaire/ ADP in Selected Market
		Annual Commodity Prices from Urban Markets (Jan and July 2006) (National Level)					01/2006 07/2006	01/2006 07/2006	01/2006 07/2006						Field Situation Assessment Report	

[19] Data accessible in Excel format.
[20] The 2012 report is available.

Source Name	Source Type	Indicators	Domains										Type of information	Original source
			Forecasts		Market Prices				Stocks					
			Maize	Wheat	Maize	Rice	Soybeans	Wheat	Maize	Rice	Soybeans	Wheat		
Nigeria Commodity Exchange	National, Public	Annual, Quarterly, Monthly Wholesale Prices (Naira/kg) (National and Market Level)			2002-2014	2002-2014	2002-2014	2003-2006					Food and commodity prices data store	ASCE Questionnaires
Central Bank[21]	National, Public	Annual Average Prices of Selected Cash Crops (National Level)					2000-2012	2000-2012					Annual Prices of exportable cash crops	CBN/NBS Socio-Economic Survey
Niger State Statistics Bureau[22]	State-based institution, Public	Monthly Retail Urban and Rural Market (X/Unit) (State Level)			2006-2012	2006-2012	2006-2012						Report	Market Price/ Questionnaire developed by the Niger State Statistics Bureau

[21] Reports are available.
[22] It was reported that the data is available on the web; this, however, is not the case at the time of the publishing of this Report.

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