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## AFRICAN COMMISSION ON AGRICULTURAL STATISTICS

### Twenty-Fourth Session

Kigali, Rwanda 1 – 4 December 2015

### IMPLEMENTING THE GLOBAL STRATEGY AT COUNTRY LEVEL: PILOT EXPERIENCE OF SAMPLE COUNTRY – RWANDA

#### I. INTRODUCTION

From one source or another, one or several estimates are available for most types of agricultural commodities in almost every country. These estimates are often based on nothing more than an educated guess, but there is usually no way to judge their accuracy because they are not based on any procedure based on probability sampling that allows for statistical analysis or evaluation.

The reasons why current agricultural statistics are poor for many countries are many. Lack of political support for data collection, the high cost of agricultural surveys, the lack of knowledge of their importance to take appropriate decisions in the agricultural sector, the shortage of requisite skills and the failure to identify the most appropriate methods are among the most commonly identified. Timely and reliable national statistics of a country's agricultural sector can only be provided by the establishment of an adequate, periodic, national agricultural survey based on probability sampling methods.

After careful analysis and informative discussions, the National Institute of Statistics of Rwanda has put in place a Programme of Seasonal Probability Surveys based on Multiple Frame Area and List Sampling Methods. This system may serve as a sort of survey laboratory to improve the Agricultural Statistical Systems of other countries in Africa.

For resolving the problem of the decline in the quantity and quality of agricultural statistics in many countries across the world, the Global Strategy (GS) for improving Agricultural and Rural statistics was adopted in 2010 at the meeting of the United Nations Statistical Commission in New York. The GS is a framework for improving agricultural statistics to enable countries meet emerging needs, for policy making, food security, research, etc. It is based on three pillars: a) establishment of minimum core data sets, b) proper integration of agricultural statistics into the National Statistical System (NSS), and c) fostering sustainability of the National Statistical System (NSS) through governance and statistical capacity building.

An Action Plan (AP) to implement the GS in Africa was thereafter developed and its Technical Assistance component is being implemented by the Africa Development Bank (AfDB). This component, among others, provides support to countries in the development of strategies for the development of agricultural and rural statistics.

It is in this context that Rwanda decided to address weaknesses or shortcomings in its agricultural statistical system through the development of a Strategic Plan called “Strategic Plan for Agricultural and Rural Statistics” (SPARS\_RWA). It is against this background that Rwanda requested technical assistance from AfDB to facilitate the preparation of SPARS\_RWA.

The design process of SPARS\_RWA has three phases namely the: launching (acknowledging, understanding, and preparation of a roadmap); assessing the existing weaknesses and strengths of the agricultural and rural statistical system; and planning (i.e. developing the strategy/ action plan).

## **1.1 Overview of the National Agriculture Statistical System**

The National Agricultural Statistical System (NASS) of Rwanda is composed of statistics produced in the subsectors of agriculture covering crops, animal resources (livestock, fisheries/aquaculture and apicultures), and natural resources (forestry, environment, land use, etc.). Individually the subsectors organize the production of their own statistics as per the demand of their stakeholders or the need to monitor and evaluate their performance in the subsector. Most of the statistics are expected to be generated from administrative records.

In terms of statistical activities, surveys are conducted to fill the gap of the much needed information for monitoring food security, which is the clear mandate of the Ministry of Agriculture and Animal Resources.

Before the 2014/15 agricultural season, the MINAGRI Policy and Planning statistics unit conducted a Crop Assessment Survey (CAS) that provided monitoring data on Crop area, Crop production and Crop yield for each agricultural season. In addition the CAS collected information on inputs, use of seeds, irrigation, etc. Beginning the 2014/15 crop season, the CAS was discontinued and MINAGRI was expected to depend on data produced from the Seasonal Agricultural Survey being conducted annually by the NISR.

In fact, given the central role of the agriculture sector within the NSS, the Agriculture & Environmental Statistics section of the Economics Statistics Department was established within NISR. While the NISR takes the lead in the conduct of the Seasonal Agricultural Survey, MINAGRI participates in the field activities of this survey. The MINAGRI planning Directorate and other users are looking forward to using data from the Seasonal Agricultural Survey to forecast or get an early warning situation on production of priority crops such as Wheat, Maize, Rice, Beans, Soya beans, Cassava, and Potatoes.

Other agricultural data that are produced are on market prices through the eSoko (Market Information System) project that seeks to empower farmers to enable them make more informed market pricing decisions and ultimately more successful farming. This Agricultural Market Pricing Information System was expected to significantly enhance the MINAGRI’s interaction with the farmers and traders as well as the planning function. The statistics produced in the agricultural statistics system are considered official statistics as per the Organic Law of the NISR.

The compilation of informal cross border trade data on agricultural commodities, collected from 2009-2015, at 54 cross borders of Rwanda with its neighboring countries. This activity is coordinated by five institutions in Rwanda (National Bank of Rwanda, Rwanda Revenue Authority,

NISR, MINICOM and MINAGRI). This data is used to monitor the flow of food commodities across the borders of Rwanda with its neighbors.

Data on animal resources (Livestock, Fisheries and Beekeeping) is being collected by the Rwanda Agriculture Board (RAB) since 2005 using administrative records. Such information includes numbers of livestock, production and disease incidence, etc. The data once received at the Rwanda Agriculture Board (RAB) is compiled and disseminated. Constraints faced by RAB in this exercise include lack of skills (hence capacity building) for the data collectors, untimeliness in submitting the data, etc. Among other issues, there are lacks of: a baseline for animal resources data, instruments used for data collection, supervision of the health workers, standard methodology for data collection, etc.

In the Ministry of Natural Resources (MINIRENA), using available administrative records data, agricultural data is compiled on land use, forestry, water use and meteorology. The agencies under the Ministry undertake to compile the data using statisticians they have in those agencies i.e. Rwanda meteorological agency; Rwanda Natural Resource Authority; Rwanda Environment management Authority.

In the context of CountrySTAT project, an informal **Technical Working Group (TWG)**, has been also established. The CountrySTAT Coordinator was from the Ministry of Agriculture while his Deputy was from NISR. The TWG included representatives from NISR, MINAGRI, MINECOFIN, MINICOM, National Bank of Rwanda, and other food and agricultural data producers. But, this TWG does not seem to be fully operational.

## **1.2 Sources of Agricultural Statistics**

There are four major sources of agricultural and rural statistics in Rwanda namely, the Population and Housing Censuses, Seasonal Agricultural Surveys, Food Security surveys, and Administrative records.

The Population and Housing Censuses (PHC) provide minimal data for establishing an area frame for surveys conducted in between decennial censuses. The last Rwanda PHC of 2012 included some key questions on agriculture. The Seasonal Agricultural Survey which is conducted annually by NISR in collaboration with the MINAGRI is a major source of Agricultural statistics since 2013 agricultural season. Food security surveys i.e. Food and Nutrition Security Surveys conducted twice in a year (March and September) and Comprehensive Food Security and Vulnerability Surveys and Nutrition Survey (CFSVA & NS) conducted once every three years. The NISR conducts an Integrated Household Living Conditions Survey or Enquête Intégrale sur les Conditions de Vie des ménages (EICV) every 2-3 years through which food security data is collected.

Administrative records are another major source of agricultural statistics. This data is collected mainly on livestock, forestry, fisheries, etc. Other sources of agricultural statistics include Rwanda Revenue Authority bills of entry at border posts on imports and exports of agricultural commodities. Also informal cross-border trade data collected at 54 border posts with Rwanda neighbors. Price data is collected through the eSoko (market information) system using SMS to transmit the information every two weeks from markets around Rwanda.

## **II. MULTIPLE FRAME SURVEYS IN RWANDA**

The overall survey design of the *Seasonal Agricultural Probability Survey Programme* is a seasonal, national, multiple-purpose, agricultural probability sample survey designed in order to obtain timely and reliable basic data for the agricultural sector.

The decision to base the Seasonal Agricultural Survey (SAS) on multiple frame sampling methods took into account alternative survey methods and the following local conditions, resources and existing knowledge:

- Rwanda has around 26.338 km<sup>2</sup> and is subdivided into 30 Districts and 416 Sectors. The districts are important political subdivisions. The estimated population of Rwanda is 11 million and around 1.2 million farms.
- Farmers generally do not know area or yield of their farms and most farms are small.
- Availability of good cartography, in particular, two sets of digital cartography (ortho-photos with a 2 meter resolution and ortho-photos of 25 cm. resolution) that would allow to measure areas on the photos; the availability of computer programs and Geographic Information Systems-GIS instruments, satellite imagery, as well as powerful software for data entry, processing, analysis and dissemination.

The multiple frame sampling methods applied combine a probability sample of land areas called *segments*, selected from an area frame, with a complementary short list of *Special Farms*. The multiple frame estimates combine estimates from the area sample with estimates obtained from the list of Special Farms.

The multiple frame agricultural survey methods described represent, in several ways, an improvement on those methods based exclusively on a list sample of farms or farmers' addresses currently used in most countries as the basis for their current agricultural surveys. Any survey system that will not allow for control over field works has huge Non-sampling errors. The area frame in particular allows for control over field work.

*Multiple frame methods result in greater precision of estimates of agricultural areas, the main crop areas and other key variables of all multiple-purpose agricultural surveys, since the area sample component involves a practical procedure for the objective measurement of agricultural areas on the Geographic Information System (GIS).*

*In addition, the area sample component provide the means for selecting probability samples of fields needed for yield surveys that provide objective crop production and crop forecasting estimates.*

- The Multiple Frame Survey (MFS) design in Rwanda combines a probability sample of segments selected from an area sampling frame, with a complementary list of Large Scale Farms (LSF) to be completely enumerated.
- **Area Frame Construction:** Most area frames are constructed by using satellite imagery and dividing the land into land-use and domain strata. In Rwanda, AF was constructed using the orthophoto imagery from RNRA.
- **List Frame:** The list of LSF includes those farms with the largest area for cropping or those with the largest number of livestock and the reporting unit is the *farm*.

## 2.1 SURVEY METHODOLOGY AND SAS RESULTS

The SAS is a Multiple Frame Survey (MFS), meaning that it starts from the area sampling frame based on Strata, described in the previous section, from which so called 'Segments' are selected (see later for the basis of this selection). In addition, a list of Large Scale Farmers (LSFs) was added to the SAS, all of which were included in the sample.

For both agricultural operators in the segments and for Large Scale Farmers, data collection is undertaken in two phases:

- Phase I is mainly used to collect data on land use. In this phase, the land area cultivated by agricultural operators operating within the selected Segment, and all LSFs was identified in terms of its area and detailed use, e.g. the types of crops being grown.
- Phase II is mainly concerned with the collection of data on demographic, social characteristics of interviewees, and the yield and production of crops. Because of the large number of operators in each Segment, and the limited resources available to the SAS, only a sample of operators and LSFs is selected for interview.

## 2.1.1 Sample selection

### 2.1.1.1 Area Frame Sample selection

The area sample can be considered as a stratified, cluster sample of *tracts*, a tract consisting of the part of a holding (or non-agricultural areas) included in the segment. A replicated systematic selection method was used to select the segments.

Among all strata, there are only five (5) strata that were sampled, covering 17.596 km<sup>2</sup> because the other strata do not contain information relevant to the survey program. 84 percent of the intensive agriculture is found in the first and second strata. These are key strata for the area frame construction and sample selection.

The strata, PSUs, zones, and sample segments have *identifiable physical boundaries* (roads, paths, rivers, etc.) that can be located both in the field and on the cartographic materials used for their identification. For 2014, Seasons A, B, and C the PSUs were delineated having a total size between 100 ha and 200 ha.

Sample size: Rwanda's sample design has segments of equal target size in each stratum. As a result of experience in data collection, it was concluded to delineate segments of approximately 10 hectares in the sampling universe (originally segments of 20 hectares were constructed) to reduce the size of the cluster in the survey design. However, for the Rangelands, due to lack of physical boundaries for small areas, selected segments are of 50 hectares.

The number of sample segments is determined by a large number of factors. For instance, the resources available, precision of data required and enumerator's workload. Based on work previously done, the total sample size was determined to be n = 540 segments in all strata distributed as follows:

Table 2: Sample Segments by Strata

Strata	Area_SQkm	Number of Segments	%
Intensive agriculture (Seasons A and B)	14,686	340	63
Intensive agriculture (Seasons A and B plus Season C)	484	48	9
Marshlands for rice	949	64	12
Marshlands for other crops	289	40	7
Rangelands	183	48	9
Total	16,591	540	100

The distribution of Segments in Strata is highest in the Intensive agriculture (Season A and B) Stratum (63%) followed by Marshland potential for rice (12%). Segments are equally distributed in both the Rangelands Stratum and Intensive agriculture Stratum (Season C plus Season A and B). The distribution of Segments is smallest in Marshlands for other crops Stratum (7%). In all cases a tolerance interval for segment delineation of 20% was adopted.

### 2.1.2 Sample Selection Methods

For the 2014 SAS, the samples in each stratum were selected at the national level using a replicated systematic selection method.

Each stratum was subdivided into Primary Sampling Units (PSUs). The PSUs of the stratum were ordered and listed in a serpentine fashion first by district and then within the district. Next, the GIS software was used to measure the size of the PSU in hectares. This size was then divided by 10 ha for strata 1.1, 1.2, 2.1 and 2.2; and 50 ha for stratum 3.0., and rounded to the nearest integer. Such was the assigned measure of size for each PSU. PSUs were then selected by Probability Proportional to Size (PPS), One segment was selected, following a systematic procedure in each selected PSU for the segment to be enumerated in the field.

## 2.2 Data entry, processing and analysis, report and final publication of data

Data entry of the completed and checked questionnaires is undertaken at NISR offices by 20 trained staff members using CSPro software. For data processing, analysis and presentation, the SPSS software is used.

After map digitalization and data collection, data is entered in computers (using CsPro), edited and cleaned and then summarized (using SPSS). The tables prepared using SPSS are then inserted and explained in the report for each agricultural season.

## 2.3 Multiple Frame Estimators

### 2.3.1 National Level Estimates

Field experience showed that weighted segment estimators could not be used in Rwanda. For this reason, the SAS area sample component used two types of estimators, namely:

- a) ***Closed segment estimators.*** For the closed segment method, the value of a variable in a segment is simply the sum of its values in each of the tracts of the segment. For a given variable and segment, data on the totality of a farm is not needed except for farms totally included in the segment. Effective use of the closed segment depends on having good Segment Photos to control data collection. Therefore, response and coverage errors would be relatively low. The closed segment is the normally accepted method to estimate planted crop areas.
- b) ***Open segment estimators.*** The open segment method (or farmer headquarters method) associates a segment to all farms with headquarters included in the segment. For this purpose, clear rules have to be established to define a unique reference point for each farm, called the *headquarters*. There are several ways to do this, but the most common procedure is to define the headquarters as the dwelling (residence) of the farmer. If an open segment method were to be used, the farmer must be *uniquely* identified which involves practical difficulties in cases where more than one person or household are involved in the operation of the farm. For estimating livestock in Rwanda, the open segment method is used.

A multiple frame estimator is the sum of an area sample estimator (using data collected in segments) plus the total data collected from the list of Special Farms. Standard statistical techniques were used for treatment of outliers and to make adjustments for missing data.

**The area frame estimator should not consider the tracts corresponding to farms of the list of special farms, in order to avoid duplications.** Therefore, all farms with tracts included in the sample segments were compared with those of the list of Special Farms, in order to eliminate duplications from the area frame estimator.

A total of 499 Special Farms were considered for the 2014 Phase 1, Season A Survey, and 540 area sample segments. Of those 540 segments only 20 segments had overlap with the Special Farms. Since the list of Special Farms is completely enumerated, the variance of the multiple frame estimator is equal to the variance of the area frame estimator, but the CV of the multiple frame estimator will always be less than or equal to the CV of the area sample estimator. Multiple frame surveys obtain therefore more precise estimates than area sample surveys for those variables partially accounted with the list of Special Farms.

### **2.3.2 District Level Estimates**

As already mentioned, the SAS sample is selected at national level, which means that the sample has been optimized for national level estimates. Therefore any subdivisions of the national level estimates start by subdividing these national estimates, the best method with the understanding that the number of samples in a district is too small to make a proper statistical inference (>20 in most cases).

## **2.4. Results**

### **2.4.1. Crop Land and Production**

In 2014 Season A, with respect to the total cultivated area, the main crops grown were Cassava (23%), Bananas (22%), Beans (18%), and Maize (12%). During 2014 Season B, the main crops grown by were Bananas (24%), Cassava (23%), Beans (17%), Sorghum (9%) and Maize (5%). Other crops take around 23% of the total cultivated area. The third season, Season C, has been quite different as the main crops were Irish Potatoes (52%), Beans (22%) and Vegetables (17% of the total cultivated area). Other crops take 9% of the total cultivated area. Potential land is still remarkable, as fallow land represented around 22% of arable land with more than 75% of fallow land in stratum 11. During 2014, the share of crop production by groups of crops in Rwanda was significantly high for Tubers and Roots followed by Bananas and Cereals.

Coefficients of Variation per Crop									
Crop	Area			Yield			Production		
	Season A	Season B	Season C	Season A	Season B	Season C	Season A	Season B	Season C
Sorghum	6%	2%	-	8%	3%	-	10%	4%	-
Maize	2%	2%	-	4%	6%	-	4%	7%	-
Wheat	6%	5%	-	11%	11%	-	12%	12%	-
Paddy rice	5%	8%	-	5%	8%	-	8%	12%	-
Beans	1%	1%	3%	3%	3%	12%	3%	3%	11%
Peas	3%	4%	7%	6%	10%	31%	7%	11%	32%
Ground nuts	3%	3%	-	11%	11%	-	12%	12%	-
Soya beans	3%	3%	17%	7%	7%	17%	8%	7%	23%
Bananas	1%	1%	-	5%	6%	-	5%	6%	-
Irish potatoes	2%	2%	5%	5%	7%	19%	6%	7%	19%
Sweet potatoes	1%	1%	-	4%	4%	-	4%	4%	-
Yams & Taro	2%	2%	-	11%	6%	-	11%	6%	-
Cassava	1%	1%	-	11%	7%	-	11%	7%	-
Vegetables	3%	3%	4%	12%	12%	34%	12%	12%	33%

### 2.4.2 Agricultural Practices

The survey results showed that the percentage share of agricultural land used by Agricultural Operators to grow crops in pure stand and mixed stand in 2014, in Season A was 27% and 73% percent respectively. The share of pure stand area was 19 % and 56% in season B and Season C respectively. For Large Scale Farmers, the share between pure stand and mixed stand in season A was 76 and 24 percent respectively while in season B, the percentage share was 47 and 53 percent respectively. In seasons A and B, between 2% and 3% of all agriculture operators practiced irrigation but in season C, their percentage was 26%. The share of Large Scale Farmers who practiced irrigation was between 13% and 15% while 49% of all Agricultural Operators practiced anti-erosion activities during season A and B.

### 2.4.3 Agricultural inputs

Regarding the use of agricultural inputs, the survey results show that the use of different inputs varies with agricultural seasons:

- between 87% and 94% of Agricultural operators and between 60% and 89% of all Large Scale Farmers used traditional seeds during all seasons.
- between 44% and 62% of Agricultural operators and between 57% and 80% of all Large Scale Farmers used organic fertilizers during all seasons.
- between 17% and 58% of Agricultural operators and between 37% and 58% of all Large Scale Farmers used inorganic fertilizers during all seasons.
- Around 11% of Agricultural operators and 33% of Large Scale Farmers used pesticides during all seasons.

### **III. IMPLEMENTATION OF THE ACTION PLAN OF THE GLOBAL STRATEGY IN RWANDA**

The Global Strategy (GS) for improving agricultural and rural statistics (2012-2017) is an international initiative which aims at:

- (i) Strengthening statistical capacity of developing countries to enable them provide reliable statistics on agriculture, food and rural development required for monitoring and evaluation of national development policies;
- (ii) Creating a sustainable statistical framework in which agricultural statistics is more integrated within national statistics systems; and to ensure that better governance of the national statistical system is in place.

The Global office is hosted by FAO and is responsible for the research (methodology) component; at the Africa level an Action Plan (AP) for Africa (2011-2017) has been developed and there are two implementing agencies: the African Development Bank (AfDB) for coordination at the level of the continent and provision of technical assistance component; and the United Nations Economic Commission for Africa (UNECA) for the training component.

The AP of the GS benefitted from funding by the Department for International Development of United Kingdom (DFID), the Bill & Melinda Gates Foundation (BMGF), the European Union (EU), and the African Development Bank (AfDB).

Among the main recommendations made by the Action Plan for Africa is that, each country shall have a **Strategic Plan for Agriculture and Rural Statistics (SPARS)**, ensure that SPARS is integrated in the National Strategy for the Development of Statistics (NSDS) and provide a framework for coordination statistical activities in the agricultural sector, with a view to having a long-term development of agricultural statistics as well as an integrated approach to national policy development and national mechanisms for consultation between the government and development partners.

The manual for developing SPARS has been developed by the Global Office in 2014, in close collaboration with AfDB, and has been made available to stakeholders in Rwanda. Rwanda serves as one of the first countries to use this new approach and serve as a model for other countries.

#### **3.1 Assistance from Development Partners in Rwanda**

Rwanda has over the years received technical and financial assistance in the field of statistics and in particular, agricultural statistics, from the followings development partners: DFID, USAID, World Bank, EU, The Netherlands, Belgium Technical Corporation; JICA, FAO, WFP, Korean Cooperation, Swiss Corporation, African Union Commission (AUC) and East African Community (EAC).

The following activities, but not limited to, are already being funded by development partners: (i) The preparation of Food Balance Sheets at the NISR is being funded by FAO; (ii) The Three next Seasonal Agricultural Surveys will be funded through Government budget; (iii) National Capital Counting System being initiated by MINIRENA will be funded by the World Bank; and (iv) the administrative data collection on livestock and Fisheries sub-sectors is being supported by AUC and EAC.

## 3.2 Roadmap

The Roadmap proposes a coherent framework for the design of the Strategic Plan for the development of Rwanda's agricultural and rural statistics (SPARS\_RWA). Therefore the Roadmap has the following objectives:

- Defining how concerned stakeholders will elaborate the SPARS\_RWA;
- Defining how activities will be coordinated;
- Proposing a realistic timeline for elaborating and approving the SPARS\_RWA; and
- Estimating the required budget and identifying funding sources to finance the elaboration of the SPARS\_RWA.

The implementation of the Roadmap will result into the production of a strategic document: the **Strategic Plan for the development of Agricultural and Rural Statistics of Rwanda (SPARS\_RWA)**, which will need to be validated by the National Agricultural Statistics Coordination Committee (NASCC) through NSTC and thereafter endorsed by the Board of Directors of NISR.

The activities to be performed during the three stages consisting of launching, assessing and planning are developed in the roadmap. Expected achievements at each stage of the process are various reports, which will be approved by national authorities. Five reports are expected to be prepared, namely:

- A Roadmap which is a report or reference document to guide the design of the SPARS\_RWA; this is already approved;
- An in-depth assessment report;
- A report on the vision, mission and strategic objectives;
- A report on the action plan and its financing, including other components of the SPARS document (M&E framework, advocacy/communication and financing strategies, etc.); and
- The final SPARS\_RWA document.

Also, a summary of the SPARS\_RWA document will be prepared, to serve as an advocacy tool.

## 3.3 Methodology and Organization

### 3.3.1 Principles for the Elaboration of the SPARS\_RWA

The development of the SPARS\_RWA will be based on following six principles:

1. **The process shall be inclusive and participatory.** It shall involve all concerned key players and stakeholders of the agricultural statistical system as a whole (including all sub-sectors) to ensure an ownership process at all levels. This will imply (i) an effective coordination mechanism at the management level of the process, (ii) unwavering commitment of national authorities, (iii) efficient consultation mechanisms between national authorities and development partners, (iv) organization of workshops and meetings for all

concerned stakeholders to enable dialogue between data producers and users, and (v) a dynamic advocacy strategy.

2. SPARS\_RWA shall be **integrated into the NSDS**. SPARS\_RWA will need to be undertaken so that the plan is fully integrated into the third NSDS generation which will be expected to cover the period 2019/2020 – 2023/2024 to correspond with the end of SPARS\_RWA. The development of following SPARS and NSDS generations will be planned in a consistent way so that the SPARS is always an integral input and part of NSDS. In fact, as the formulation of the NSDS will be following a bottom-up approach, it will use the SPARS\_RWA as one of its building-blocs (as far as agricultural statistics is concerned). In this regard, a continuous close collaboration between the SPARS\_RWA and NSDS teams will be always indispensable to ensure integration of the agriculture sector into the national statistics system.
3. In formulating SPARS\_RWA, due consideration must be given to the **demand and priority needs of national development policies**, especially the (i) EDPRS2, (ii) PSTA3, (iii) Rwanda Vision 2020, (iii) ASIP2, and (iii) all other existing sub-sectoral development strategies. SPARS\_RWA will also need to take into account the government's **international, regional or sub-regional commitments**, in terms of statistics, as well as the existing international recommendations concerning data collection, compilation and dissemination.
4. Considering the relatively limited capacities to absorb newly emerging activities, funding limitations, the demanding implementation of the technical assistance and training component activities that are proposed in the framework of the Global Strategy for Improving Agricultural and Rural Statistics, as well as the envisaged timeline for SPARS\_RWA, the action plan to be prepared will need to be **formulated in a pragmatic and realistic way and to identify certain priorities, while adequately integrating existing survey and capacity building programmes**.
5. To ensure the successful implementation of SPARS\_RWA, the process of its development shall integrate a **financing strategy because the Roadmap is validated and endorsed by appropriate bodies**.
6. To ensure a results-based management system, a logical framework as well as a set of result based indicators and a risk analysis shall be proposed, for the **monitoring and evaluation of the implementation of SPARS\_RWA**.

### **3.3.2 National Governance Structures, Roles and Responsibilities of Key Players of SPARS\_RWA**

As indicated in this Section, the NSS of Rwanda is of the responsibility of NISR which is governed by a **Board of Directors**. The Board of Directors oversees management and decision making for the achievement of the institute's mission. The Board of Directors comprises seven members from among specialists in statistics, information and communication technology, economics or other related fields. The Office of the Director General (DG) provides direction to all departments and manages the institute on a day-to-day basis, as well as managing the overall coordination of the NSS. The DG is assisted by two Deputy Director Generals responsible for studies and programs and corporate services, respectively. The Board of Directors, Director General and Deputy Director Generals are all appointed by Presidential Orders.

The Board of Directors, specifically, is responsible for the following: (i) approval of the internal rules and regulations of the Institute; (ii) proposing to the competent authority senior candidates to be considered for appointment; (iii) approving permanent appointments of members of staff; (iv) preparing a draft of the organic framework and the organizational chart or eventual modifications and thereafter to be approved by competent authority; (v) approving the action plan of the national statistical system and determining the priorities of the Institute in conformity with the national priorities; (vi) approving the annual budget proposal to be submitted to the supervising Ministry which in turn submits it to Cabinet for final approval; (vii) approving the development plan of the Institute and ensuring its implementation; (ix) approving the quarterly and annual administrative and financial reports of the Institute; and (x) examining any matter worth of value to the Institute.

The formulation of NSDS in Rwanda is in its second generation. In fact the second generation NSDS2 was completed in September 2014. For the future, it is foreseen to set up some other legal structures such as Sector Statistics Committees (Agricultural Statistics Committee, etc.). In the meantime, NISR remains (i) a principle agency of the Government for collecting, compiling, analyzing, abstracting and disseminating statistical information on specified matters and (ii) Custodian of official statistics, (iii) Responsible for establishing standards and promoting the use of best practices and methods in the production and dissemination of statistical information across the National Statistics System, and (iv) Responsible for planning, authorizing, coordinating and supervising all official statistics programmes undertaken within the national statistical system.

However, there is a need to complement the existing Organic Law and facilitate a smooth operationalization of statistical activities being carried out in the sector of agriculture, among which all the work about the SPARS\_RWA design and its implementation. At that end, a proposal for a governance structure for the National Agricultural System (NASS) is proposed here for consideration. The proposed structure separates the technical and policy committees. The policy committee, the “National Steering Committee (NSTC)” on Agricultural statistics would be co-chaired by DG Planning and Policy of MINAGRI, and DG NISR; while that the “National Technical Coordination Committee (NTCC)” on Agricultural Statistics would be chaired by DG NISR. Both the NSTC and NTCC would constitute the National Agricultural Statistics Coordination Committee (NASCC), composed of Directors representing all sub-sectors of agriculture and key agricultural data uses. A Technical Working Group (TWG) composed of statisticians of all sub-sectors of agriculture (STWGs) would be coordinated by a National Strategy Coordinator (NSC) and Alternate from NISR and MINAGRI, respectively.

It should be noted here that, in the framework of the implementation of the “*Action Plan for Africa of the Global Strategy (GS) for Improving Agricultural and Rural Statistics*”, Rwanda had already designated the **National Strategy Coordinator** for Agricultural Statistics (the Director General of Planning and Policy, MINAGRI), and the process for the replacement of his **Alternate** (from NISR).

In order to reinforce the technical organizational needs and cover adequately all sub-sectors of agriculture, and bearing in mind the complexity of the sector, due to the themes to be covered, it is proposed that four **Thematic Technical Working Groups (TTWG)** be established to cover agriculture sub-sectors as following:

- **TTWG 1: Crops (including Irrigation and inputs), Food Security/Safety/Nutrition;**
- **TTWG 2: Animal Resources (Livestock, Fisheries, Apiculture);**
- **TTWG 3: Natural Resources (Environment/Forestry/Land/Water use); and**
- **TTWG 4: Cross-cutting areas including and not limited to (Trade, Prices, Statistical Capacity Building (SCB), Legislation/Legal framework/Institutional development for agricultural statistics as a whole, Governance, Resource mobilization, Research, etc.)**

Each of the TTWGs will need to designate a focal point (who will represent others at the TWG level) and establish a sub-group to work on the part of SPARS\_RWA which falls under its responsibility. To that end:

- TTWG 1 will include sub-groups which will be working on (i) Food crops including horticulture, (ii) Cash crops, (iii) Food security/safety/nutrition, and (iv) Irrigation and inputs.
- TTWG 2 will include sub-groups which will be working on (i) Livestock including the emerging one, (ii) Fisheries (In-land and aquaculture fisheries), and (iii) Apiculture.
- TTWG 3 will be composed of sub-groups working on (i) Forestry, (ii), Environment, and (iii) Land use.
- TTWG 4 will be composed of sub-groups from NISR to work on cross-cutting areas and issues related to Agricultural Statistics.

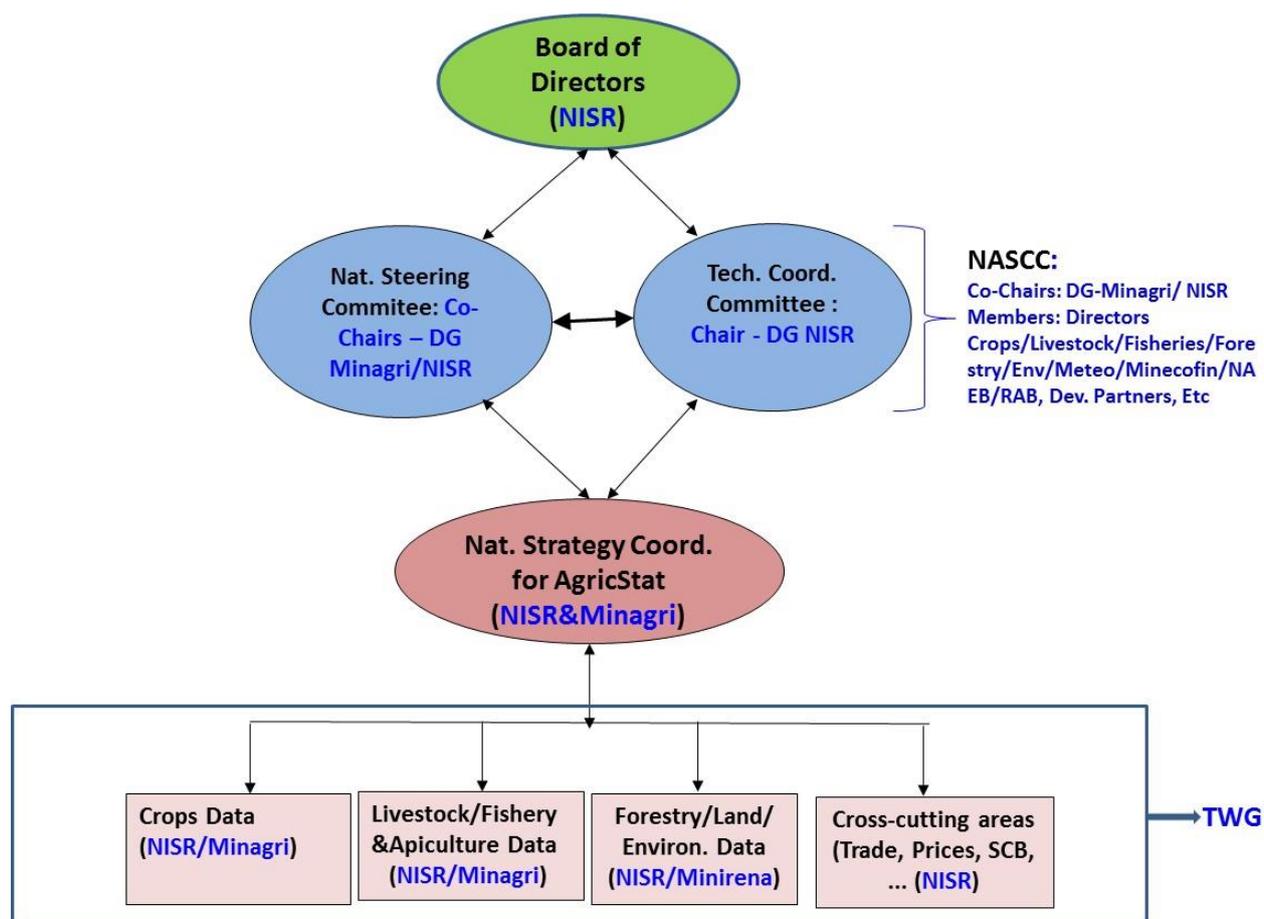
If needed, each TTWG and/or sub-group may call upon given structures/institutions to join them to make some contribution on specific questions and issues related to agricultural statistics ( e.g. the Agricultural Research Institutes/Universities, BNR, Rwanda Revenue Authority, Meteorology, key users and Development partners, etc.).

The day-to-day business of the design process of SPARS\_RWA will be led by the NSC of the Africa Action Plan of the GS and his Alternate.

Four resource-persons/national consultants (one for each of the TTWGs) and one international consultant will be recruited, to support the work of TTWGs along the whole process of SPARS\_RWA design. The national consultants will provide to their respective sub-sectors the required support and guidance at all the stages of the SPARS\_RWA design, including the assessing and planning process, as well as the preparation of related reports and thematic plans that they will need to consolidate thereafter together with the international consultant.

The African Development Bank will follow-up and monitor regularly the whole process through backstopping missions within the framework of the implementation of the Action Plan for Africa of the GS.

## Proposed governance structure for SPARS\_RWA design and Implementation



### 3.4 Stages and calendar of SPARS\_RWA design

#### 3.4.1 Stages for SPARS\_RWA design

The elaboration of SPARS\_RWA shall conform to the principles for elaborating NSDSs as described in the new PARIS21 manual as well as in the guidelines for the formulation of Strategic Plans for Agricultural and Rural Statistics (SPARS). This consistent approach will ensure the integration of the SPARS\_RWA into the generations of NSDS of the country.

The formulation of SPARS\_RWA shall be operated in three main phases, as indicated in the calendar below.

- The **first step** is the **launching** phase which includes and has the following main objectives: (i) the preparation of the draft Roadmap, (ii) validation/endorsement of the Roadmap by the appropriate bodies, (ii) establishment of technical working teams by groups and sub-groups, including the identification and recruitment of resource-persons/national consultants, and (iii) holding a national launching workshop of SPARS\_RWA design process. This step has been completed.
- The **second step** will be the phase of an **in-depth assessment** of the National Agricultural Statistics System (NASS), with the following main objectives: (i) conducting an in-depth assessment by collecting documented material and conducting interviews with functionaries in various areas; (ii) Preparation of an assessment report on the NASS, on the basis of the sub-sectors' in-depth assessment, (iii) holding a national workshop to present and discuss

the assessment report, and (iv) validation/endorsement of the Roadmap by the appropriate bodies.

- The **third step** will be the **planning** phase of the SPARS\_RWA. Its main objectives will be: (i) preparation of a synthesis of the strategic objectives, a proposal of a Vision and Mission, and action plans based on the sub-sectors’ work, (ii) preparation of the SPARS\_RWA document integrating the results of the assessment phase, the mission, the vision, the synthesis of the strategic plan, the calendar of surveys, the cost action plans as well as the monitoring and evaluation mechanism and reporting system, and a financing plan for the implementation of the SPARS\_RWA, (iii) the SPARS\_RWA document presented and discussed at a national workshop, (iv) the approval of the SPARS\_RWA document by the Board of Directors of NISR, and (v) advocacy activities and dissemination of the SPARS\_RWA document.

### 3.4.2 Calendar of the design of the SPARS\_RWA

Month	Mar-15	Apr-15	May-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16
Step 1 - Launch									
Step 2 - Assessing									
Step 3 - Planning									

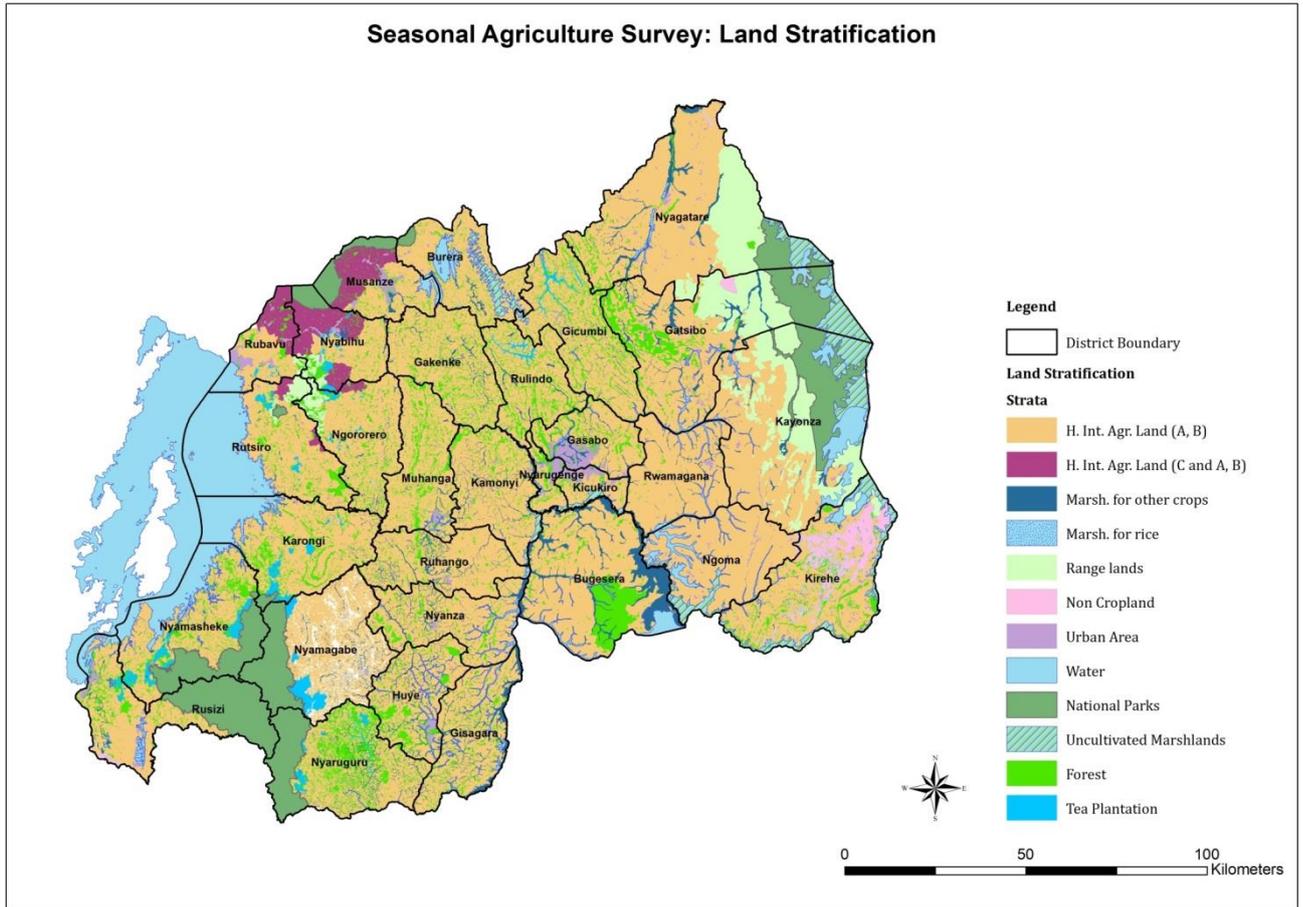
Launching has been completed. The next stages to implement are assessing and planning.

### REFERENCES

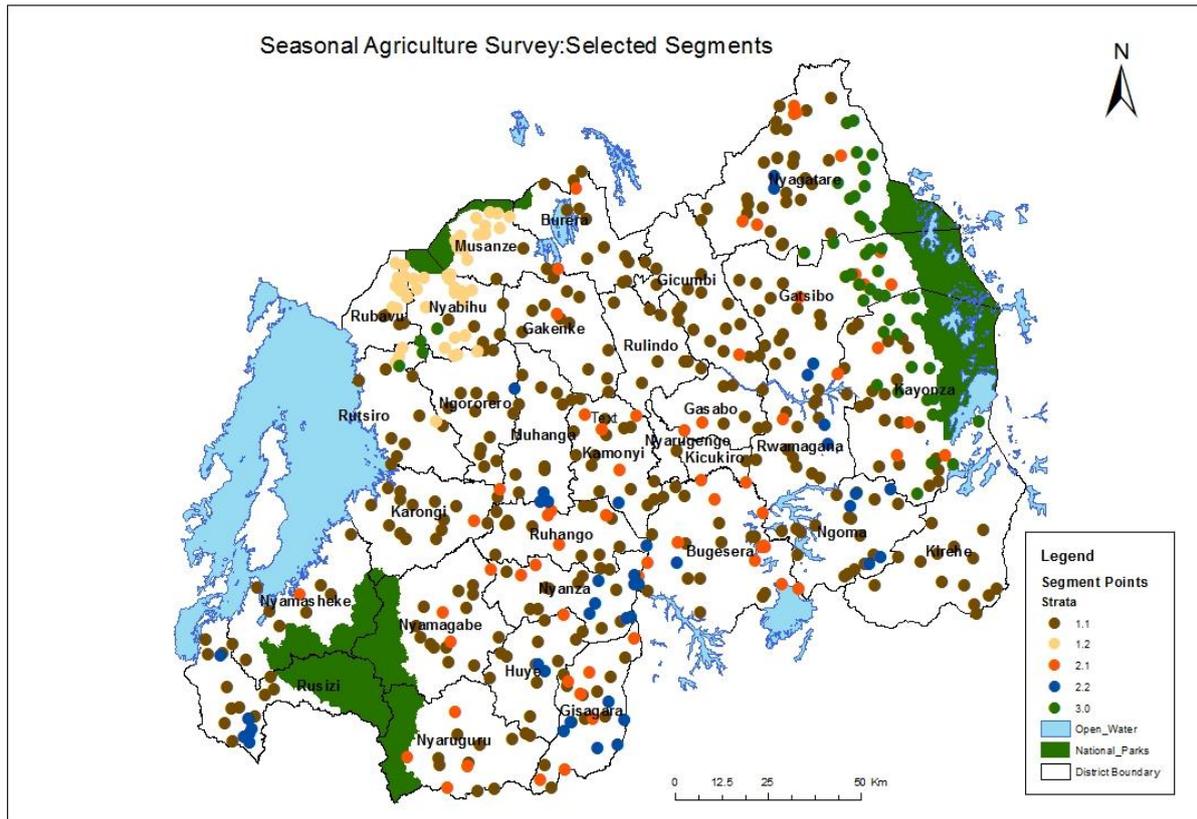
1. 2015, SPARS-RWA Roadmap, Mr Vincent NGENDAKUMANA, AfDB consultant and Et al.
2. 2014, SAS Report, National Institute of Statistics of Rwanda
3. NSDS 1&2, National Institute of Statistics of Rwanda

# ANNEXES

## Annex 1: Land stratification



## Annex 2: Seasonal Agricultural Survey: Distribution of selected segments



### Annex 3: Segment Map



**Legend**

- Landmark
- Plot boundary
- ▭ Segment Boundary

Landuse	Area_SQ Meters
Agriculture land	96,037.03
Fallow	5,923.35
Non Agriculture	9,373.99
Pasture	0.00
<b>Grand Total</b>	<b>111,334.36</b>