

Developing Sector Strategic Plans for Agricultural Statistics for Morocco and Jordan: the European support to Mediterranean Statistical Systems (First Draft)

November 2012

Hassan Serghini

Disclaimer Liability

The present publication was prepared with the help of the European Union. The contents of this publication are the sole responsibility of MEDSTAT III program and in no way is taken as reflecting the opinion of the European Union.

MEDSTAT III is implemented by ADETEF, in partnership with DoS (Jordan), HCP-DS (Morocco), INE (Spain), INSEE (France), ISTAT (Italy), KSH (Hungary), ONS (United Kingdom), Statistics Lithuania, ICON-INSTITUT Public Sector (Germany), InWEnt-GiZ (Germany) and SOGETI Luxembourg SA.

1. Introduction

Moroccan and Jordanian governments give high priority to agriculture development efforts. Jordan has developed a strategy for the development of this sector for the decade which ends in 2010 and currently it is in the process of adopting a strategy for the sector for the period of 2012-2015. Morocco has adopted in 2008 a plan to develop its agriculture. This plan called Morocco Green Plan, has set target growth for each sub-sector of agriculture. In order to implement their strategies and to deal with the increasing complexities of agricultural development, the need of comprehensive, reliable and timely data on agriculture economy is essential.

Both countries are undertaking important efforts for developing and producing agricultural statistics. Morocco has undertaken significant statistical operations, including census of all planted parcels (citrus, olives...), using GIS technics, the updating of the area frame sample, the stratification of the national territory, annual surveys and other surveys as requested. In 2014, Morocco will undertake a general agricultural census.

Besides the general agricultural census, Jordan undertakes regularly a set of surveys: cultivated area survey, Crops Production and its Inputs Survey, Nurseries Survey, Olives Oil Survey, Survey of the number of animals in the unorganized farms, Economic indicators' Surveys for Organized cattle, broiler, layer, hatchers and mother stock farms, Beekeepers' survey, Fisheries Survey, Production and input uses for livestock Surveys, Agricultural Prices Survey, Capital Formation Survey.

However, in both countries the production of agricultural data is insufficient to respond to the needs of users in particular for establishing national accounts for agriculture and the assessment of the impacts of agricultural policy on farmers and on the economy at whole.

The Jordanian National Strategy for the Development of Statistics (NSDS) was finalized in 2008. This NSDS aims at the development of sustainable the National Statistical System, the improvement of the quantity and quality of the data produced and the promotion of national statistical awareness. As DoS is in charge of all agricultural censuses and surveys, the Jordanian NSDS includes agricultural statistics.

Morocco does not have an official National Strategy for the Development of Statistics. The Statistical Directorate does have a long term action plan. The main objectives of this plan are the updating of the methodologies of statistical surveys, broadening the scope of thematic coverage, strengthening interagency coordination and greater openness to users. However this plan covers only the Statistical Direction activities and it does not cover agricultural statistics.

This paper presents the methodological approach for the results of the technical assistance to Jordan and Morocco provided by the European Commission through the MEDSTAT III project.

MEDSTAT III aims to strengthening the capacities of national statistical systems in the Mediterranean countries as part of the ENPI-South cooperation, and foster the use of statistical data for decision making in the region. The project ensures the complementarity of the regional and national approaches: while National Strategy for Developing Agricultural Statistics are national actions, they are reinforced in the frame of the regional MEDSTAT III project by benefitting of "scale economies" in the provision of technical assistance,

2. Overview of the Strategic Plans for Agricultural Statistics

2.1 Phase I: Launching the process of MEDSTAT III technical assistance to the Strategic Plans for Agricultural Statistics

MEDSTAT III organized a workshop on the National Strategies for the Development of Agricultural Statistics. Nine Mediterranean partner countries participated in this workshop. After this workshop 5 countries (Morocco, Jordan, Tunisia, Lebanon and Jordan) expressed their interest for building national strategies for developing agricultural statistics and asked MEDSTAT III to provide technical assistance for this purpose.

Following that Workshop, MEDSTAT III proposed terms of reference for the elaboration of the strategy for each country. In each of the 5 countries these terms of reference were reviewed by the ministry of agriculture and the National Statistical Institute (NSI).

The implementation of the technical assistance was performed through 2 phases to each country. The first phase performed a comprehensive overview of the organization of the agricultural statistical system, allowing an objective view of the entire chain of work and operations that produce statistical information and correctly assess the capacities, resources and constraints. The diagnosis focused in particular on:

- The degree of satisfaction of needs for agricultural statistics in particular, evaluation of the Jordanian and Moroccan Agricultural Development Strategy and the professional organization needs. The identification of the users' priorities focused both in terms of coverage and quality of the information requested.
- The analysis of the existing statistical programs and products;
- The evaluation of the production chain of agricultural statistics (design, collection, exploitation, analysis and dissemination for the main results);
- The methodologies employed and the quality of data produced;
- The evaluation of the quality control procedures of agricultural statistics in comparison with international standards and the satisfaction of the users;
- The establishment of an objective view of the entire chain of operations that produce statistical information ;
- The apprehension of the capacities, resources and constraints related to the production of agricultural statistics
- The assessment of the institutional environment and procedures for the production of agricultural statistics and the existing coordination between producers themselves and between producers and users.
- The assessment of the visibility and the role of agricultural statistics in the ministry of agriculture and the national statistical system;

A second phase defined, on the basis of the diagnosis drawn up during the previous phase, a national strategy for Developing Agricultural Statistics in Jordan and Morocco, for producing statistical data that meet users' priority needs:

- Improved coverage of agricultural statistics;
- Capacity building of the collection, analysis and dissemination of statistical data;
- Methodological proposals to improve the quality of statistical data;
- Coordination and sharing of tasks of collection and analysis between partners of the agricultural statistics;
- Identification of resource funding for the implementation of the national strategy for agricultural statistics development in Jordan;
- Proposition of mechanism for the monitoring and evaluation of the implementation of the strategy ;
- A road map and a timetable for the implementation of the strategy.

At the end of the first phase, a working group was established to discuss and validate the results of this first and the second phases. In Morocco this group includes members from the Ministry of agriculture (Division of Statistics) and the 'Haut Commissariat au Plan' (Statistical Direction and National Account Direction). Jordan has a standing committee of experts on agricultural statistics which meets monthly to discuss and approve results before publication and dissemination. The committee is made up of representatives of the DoS, Ministry of Agriculture, Ministry of Water and Irrigation, Ministry of Planning and International cooperation, Ministry of Municipalities, Jordan University, Central Bank, Customs Department and the Department of Land and Surveys. Jordan decided that this committee validates the 2 phases of the strategy.

The elements of the diagnosis and the strategy were discussed and reviewed during the meeting held with various producers and users of agricultural statistics. In particular, diverse thematic directions of the Ministry of agriculture, different agencies of the Ministry of agriculture, farmers' organizations, agricultural credit agencies and some facilities such as slaughterhouses and wholesale markets and some international organization present in the country. Of course in the case of Morocco, the division of statistics of the Ministry of agriculture, and the Direction of Agricultural Statistics in DoS were the main interlocutors in these meetings.

An interactive process of reviewing the national strategy developed during the technical assistance was developed. Each country proposed changes and modifications of the documents and MEDSTATIII reviewed the documents accordingly. A producers-users' meeting will be organized in each country for the validation of the national strategy of each country. Representatives of the Ministry of finance and key international donors (European Union, World Bank, African Development Bank, Islamic Bank, IFAD...) will be invited to this meeting. Then each country will have to validate the document by the political authorities.

When validated, the document will serve as a basis for discussion with donors and with the ministry of Finance. The department in charge of agricultural statistics can asked each donor to finance a part of the strategy.

2.2 Phase II: Assessment of the Current Status of the National Statistical System

Institutions:

Both Morocco and Jordan have legal frameworks that are broadly consistent with the UN Fundamental Principles of Official Statistics (UN FPOS, 1994). In Jordan, an Advisory Committee for Statistics chaired by the Minister of Planning and composed by the Director-General of the DoS as deputy chair and 9 other persons representing both the public (4) and private (5) sectors appointed by the Prime Minister. In particular this Committee reviews DoS annual plans, sets the priorities for statistical activities in Jordan.

In Morocco, the law established the COCOES (Coordinating committee for statistical Studies) which is in charge of coordinating, promoting statistical studies and guaranteeing the validity of the methodologies used and the results. Besides the representatives of the Direction of Statistics and the Direction of Planning, it is composed of most of the ministries including the Ministry of Agriculture. It is chaired by the Prime Minister. It has 4 sub-committees among them the sub-committee for agricultural statistics.

So far, the COCOES in Morocco and the Advisory committee never meet. However, Jordan has a permanent committee of experts for agricultural statistics. It is composed of representatives of DoS, the MoA, the Land and Survey Department and experts from the users, the private and public sectors. It define data needed, prepare the scope of work for collecting information, define the agencies responsible for collecting information and review statistical information before its release.

In Morocco, The HCP and the MoA, signed a framework of understanding for the elaboration of a satellite agricultural account.

The responsibility of agricultural survey is:

- In Morocco the responsibility of the Division of Statistics of the MoA since 1975;
- In Jordan the responsibility of the Directorate of Agricultural Statistics of DoS.

In Jordan, the Directorate of Agricultural Statistics is in charge of the conception and the implementation of agricultural surveys undertaken by the DoS. It is also in charge of drawing samples for all the surveys. The field work is undertaken by 3 regional offices (north, center and south). Each one has one superintendent, the supervisors and the interviewers and an editor. The superintendent assigns weekly and daily work to supervisors and provides them with necessary documents, performs final checking on a sample of questionnaires in the field as well as in the office. The supervisor leads 3-4 interviewers, assigns daily work to interviewers, accompanies his teams at all times in the field, checks questionnaires. The interviewer fills the questionnaires by interviewing the holders' sample and reviews the questionnaire before leaving the respondent. The editor reviews all the questionnaires filled to ensure soundness of completed information and returns erroneous ones to the field for correcting the mistakes. Data entry is provided by the central office in Amman.

In Morocco, at the central level, the Statistics Division is responsible for designing, conducting surveys, coaching regional teams, analysis and publication of results and at regional level, statistical services are responsible for filling questionnaires relatives to the samples of their areas, checking

and inputting the data collected. Data entry is provided by the regional services of agricultural statistics.

Human and material resources:

In Jordan, the staff of the Directorate of Agricultural Statistics consists of 23 people among them 21 have bachelor degree. 70% of them are under forty and only 2 are above fifty. They have various specializations. 61% of them are agronomists but no one is statistician. They need training programs in the field of sampling and statistical analysis. All field staff in charge of agricultural statistics has bachelor degree. 23% of them are agronomists and 25% economists. Only 3 are agricultural economists and 1 statistician. Most of them are young: 21% are less than 30 years of age, 40% are 30 to 40 years of age and 6% is above 50 years of age.

In Morocco, at the central level, the staff of the division of statistics consists of 30 people, including 10 managers, 10 technicians, 3 officers and 7 secretaries. The number of professionals is insufficient to undertake the entire division programme. At the field level, staff currently consists of 186 agents, including 15 managers, 132 enumerators and 39 support staff. In fifteen years, the number of agents assigned to work in field surveys has declined by more than 75%. Over the next 5 years, 33% of the current employees at the field level will retire (26.7% for managers, 34.1% for investigators and 30.8% for support staff). This continuing diminution of the staff, constitute a serious threat for the realization of the statistical operations needed.

In both countries, statistical staff in charge of agricultural statistics has a wide experience in agricultural statistics. This experience is the result of a long process of capacity building and the devotion of their personnel. However, to meet the growing needs of different decision makers and researchers on reliable statistical information in timely manner, the system of agricultural statistics should better coordinate the efforts of the ministry of agriculture and DoS and mobilize additional resources.

Analysis of users' needs:

Meetings with key users of agricultural statistics have been used for the identification of current and future needs in agricultural statistics and for the clarification of priorities. Domestic demand of agricultural statistics comes mainly from ministries (agriculture, Economy, Trade, Planning Industry...), agricultural organizations, Central Bank, Agricultural Credit Corporation, business community and diverse analysts. International demands come from FAO, World Bank, EU, and AOAD.

The needs of **agricultural statistics can be grouped on:**

- Needs for monitoring and evaluation of agricultural strategy and impacts of agricultural policies;
- Needs of the establishment of economic accounts;
- Needs for the established of food balance sheet;
- Needs of agricultural organizations and private sector;

To cover these needs, agricultural statistics should cover:

- Crop and livestock, aquaculture and fish productions and agricultural land uses;
- Farm structures;
- Agricultural productions uses;
- Economic data: prices, agro-processing, production costs and input uses of fertilizers, chemicals, seeds...

Agricultural statistics should be available for irrigated and non-irrigated areas and for each governorate. They should permit to establish balance sheets for the major agricultural products. They then can be used to assess the global coherence of all data relative to the availability and uses of agricultural productions. The needs on agricultural statistics can be summarized in the following table:

Agricultural productions and uses	Areas and productions of crops and plantations according to irrigated and non-irrigated areas
	By-product productions of crops and plantations
	Harvest forecast of main cereals, olives, citrus and main vegetables
	Number of cattle, sheep and goats by sex, race and type of breeding and number of camels and draft animals
	Movements of the herds at the farm: births, calving periods, purchases, sales, mortality and slaughter on the farm...
	Productions of milk, wool, chicken meat, eggs, other birds and beekeeping products
	Numbers and live weight of controlled and non-controlled cattle, sheep, goats, camels and draft animal slaughtered
	Uses of agricultural productions at farm and national levels: losses, sales, seeds, animal consumption, own human consumption, farm processing and agribusiness and stock levels and exports
	Import and exports of agricultural products, number of animals, in quantities and values CIF et FOB,
Inputs and technologies	Uses of inputs in quantities and values for agricultural productions: labor, seeds, fertilizers, pesticides and pest control, mechanization, energy, medicines and veterinary services ...
	Uses of water by different crops and animal activities, billing of irrigation water to farmers, and authorizations of digging wells
	Animal feed: forage, rangeland, raw agricultural products, milk and milk products, by-products of agriculture and agribusiness, compound feed...
	Maintenance and repair of vehicles and capital goods and buildings
	Technologies used and calendar of agricultural operations undertaken for agricultural productions
	Rental equipment for work on the farm and non-residential buildings
	Needs and sources for financing farm activities
	Production costs of crops, plantations and animal productions
Marketing and prices	Farm capital and investments: agricultural equipment, vehicles, animals, agricultural land, farm buildings, hydro-agricultural equipment, fruit plantations, rejuvenation pruning...
	Nature and levels of public investments in agriculture and subsidies allocated by the state to farmers
	Transportation and marketing costs for agricultural products (plants and animals) and inputs
Marketing and prices	Farm gate and wholesale prices for agricultural products and live animals
	Agricultural input and equipment prices: agricultural equipment, vehicles, hydro-agricultural equipment, fertilizers, pesticides...
Farmer income sources: return on capital, land and family labor and other sources of income	
Level of underemployment of farmers and their families	

Gap between the statistics available and the needs of different users

In Jordan, information available covers the fields of production of major crops, structure by age, sex and breed of livestock, the poultry productions (white meat and eggs), honey production, foreign trade and price production of major grains, major fruit and vegetable. It covers also input uses, investments, capital formation and the uses of the production (storage at the beginning and the end of the period, sales, own consumption, gifts, losses) in quantities and values and the revenues of the farm.

In Morocco, information available covers the fields of production of major crops, structure by age, sex and breed of livestock, foreign trade and price production of major grains, legumes, olives and wholesale prices of major fruit and vegetable. Crop forecasts are also available for the three major cereals, olives and citrus.

Despite tremendous efforts, the gap between the needs of different users of agricultural statistics, and existing data with acceptable reliability is important. This gap in both countries mainly concerns:

- The objective estimates of crop and plantation yields;
- Animal productions (meat, milk, hides, cheese ...);
- By-products of agricultural production (straw, manure ...);
- The use of inputs (water, labor, fertilizers, pesticides, seeds, seedlings, agricultural equipment, animal feed, energy, veterinary services ...) by agricultural activity;
- Cost of production of crop and livestock productions;
- The transformation of agricultural products at the farm;
- Agricultural and non-agricultural farmers' income;
- The structure of agricultural production units and their evolution.

Evaluation of the quality of agricultural statistics:

The quality of agricultural statistics had been assessed across 3 areas: institutional environment, statistical procedures and statistical results.

Institutional environment

In both countries, the institutional environment of agricultural statistics is broadly in line with European standards. The production of agricultural statistics is clearly assigned to the DoS in Jordan and to the MoA in Morocco. However, in Jordan, the MoA continues to produce agricultural statistics for its own uses and has established a permanent committee of experts for agricultural statistics for defining data and information needed for agricultural development and data collection including samples, survey questionnaires and review of statistical information before its release.

The objectivity of the staff is recognized. The confidentiality of individual information and the independence of the staff are guaranteed by the law. However instructions regarding the protection of statistical confidentiality are not available and the provisions guaranteeing the security and integrity of databases are not clearly defined.

DoS and DS have put in place control procedures for data collection, data entry and processing. However agricultural statistics are not subject to regular evaluation by an internal or external expertise.

Statistical procedures

Agricultural statistics produced by the DoS and DS are based on scientific methods and are conform to international norms. Samples are drawn according to probabilistic methods. On the occasion of each new survey an instruction manual for enumerators is developed. These manuals define the key concepts and clarify questions asked in the questionnaire. However item and unit non-responses are not documented. The magnitude of the non-response is not reported.

The burden on farmers is not evaluated and it is not minimized. Administrative sources are used whenever possible but the evaluation of these sources is not documented. The information technology and communications are increasingly used in the collection, processing and dissemination of data. Already for the general agricultural census, DoS and DS have used PDAs to collect and transfer the filed data. They are considering generalizing the use of PDAs to its agricultural surveys.

Statistical results

In both countries, all statistics produced are relevant but they are insufficient to meet user needs. Sampling errors are mastered but they are not published nor calculated. Samples are renewed every year in the case of Jordan. So the burden on correspondents is reduced. However, the opportunity to analyzing the evolution of the holdings is lost. In Morocco, the samples were drawn in the eighties and they are currently in the process of being renewed.

In both countries, data collection errors are neither evaluated nor documented. In Jordan there are no ways for confronting farmers' declaration with the actual facts. To do so for the areas statistics, DoS is considering the introduction of area sampling. In Morocco, due to the lack of staff, checks on the ground become irregular and unsystematic. However this control weakness is counterbalanced by the extensive experience of all enumerators. Significant efforts are being made to reduce data collection errors notably through the adoption of the area sample that allows for the closed segment, to compare farmers' declarations regarding the land to the area measured on aerial photographs. However for errors related to other variables, the efforts are limited and are not documented.

Timeliness and punctuality for agricultural statistics are generally satisfactory. Most agricultural statistics produced are published. But no predetermined schedule is available for agricultural statistic publications.

The concepts used are those recommended by FAO and they do not change from one survey to another, from one year to another and from one region to another. Consistency and comparability through time, regions and surveys are provided for agricultural statistics produced by DoS and DS.

Agricultural statistics publications are generally presented in tables with temporal comparisons and sometimes in graphics. Methodological summaries are also provided in each publication. However, the quality of agricultural statistics are neither reported nor documented. Little data analysis is performed. No procedure for provision of micro-data is established and no single database is available for all agricultural statistics evolution and for primary data at farmers' levels.

2.3 Phase III: Developing the vision and identifying strategic goals

The strategy for the development of agricultural statistics is a framework for the production of agricultural information needed for decision-making on the agricultural sector. The agricultural statistics systems in Morocco and Jordan face urgent requests to expand coverage and improve the quality of data produced. The main objective of the strategy is to provide users with accurate and timely statistics covering the needs:

- by improving the coverage and the quality of agricultural statistics,
- by strengthening the capacities for data collection, the analysis and the dissemination of agricultural statistics,
- by defining the role of each partner of the agricultural statistical system, in the collection and the analysis of agricultural statistical data.

The limited resources available (especially human resources) militates for a deeper integration of the systems to avoid duplication and to ensure coverage of priority needs. With an integrated survey framework, it will be possible to undertake from different surveys, in-depth analysis with cross tabulation of variables. With the integrated framework, it will possible to undertake, for example, an analysis that links economic variables to crops and livestock variables. The integrated survey framework takes into account data sources (including administrative data, agribusiness and market information system) and includes the sample design, questionnaires, data-collection methods, analysis, and estimation. The adoption of a master sampling frame is a key element of the integration of agricultural statistics.

To achieve the objectives mentioned above, are proposed sets of:

- Extension of the coverage of agricultural statistics and integration of agricultural statistical operations without duplication and release of conflicting statistics,
- Methodological improvement actions,
- Propositions to improve the quality of the agricultural statistical system,
- Propositions related to the institutions governing the agricultural system and
- Propositions to strengthen human and material resources.

Proposed Statistical operations

In order to respond to the need identified in the diagnostic, the program proposes restructuring some current operations and undertaking new ones. The program is anticipatory to respond to current and future demands of users in terms of regularity, reliability and clarity. The program is built on the effort undertaken by Jordan and Morocco for developing their agricultural statistics with realistic and affordable budget.

The proposed strategy is based on:

- The distinction between variables that are structural and those that change slowly overtime;

- The implementation of a program of integrated set of statistical operations for the next 10 years, responding to the needs of the users;
- The establishment of data base for agricultural statistics;
- The strengthening the visibility of agricultural statistics;
- The mobilization of human resources (recruitment and training)

The proposed operations can be regrouped into the following groups:

- **Censuses and structural surveys:** The following table summarizes areas covered by each census:

Surveys	Uses of agricultural land	Number of animals	Production uses	farm legal status	Equipment	Investments	irrigation	Labor uses	Prices	Costs	Income	Input uses	Processing	Periodicity
General agricultural census	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>							10 years
Greenhouses census	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							10 years
Plantation census	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>							10 years
Structure of the farms				<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	5 years				
Production cost and input use								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		5 years
Production uses			<input checked="" type="checkbox"/>										<input checked="" type="checkbox"/>	5 years

- **Areas and productions' survey:** Next table summarizes the main ones:

Surveys	Uses of agricultural land	Objective yields	Productions	Number of animals	Periodicity
Area survey	<input checked="" type="checkbox"/>				Every year
Yields of major crops:		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Every year
Fodder survey		<input checked="" type="checkbox"/>			
Straw and stubble		<input checked="" type="checkbox"/>			
Field losses		<input checked="" type="checkbox"/>			10 years
Forecast of major productions			<input checked="" type="checkbox"/>		Every year
Livestock			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Every year

- **Agricultural markets' surveys:** Next table summarizes the main ones

Surveys	Prices	Marketing costs	Productions	Periodicity
On farm price survey	<input checked="" type="checkbox"/>			Every year
Wholesale market survey	<input checked="" type="checkbox"/>			Every year
Slaughterhouse survey	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	5 years
Marketing of agricultural products survey		<input checked="" type="checkbox"/>		Every year

Methodological improvement and quality control:

Because it is very difficult to update farmer list and for the reduction of measurement errors and frame list errors, Morocco has chosen the use of area frame as the main basis for its sampling and Jordan is considering the introduction of area sampling techniques for its agricultural surveys. Already DS is in the process of renewing its area sampling frame (digitizing sample segments and parcels, new replicated samples...).

It is proposed for both countries:

- To draw a master sample;
- For localized and infrequent crops to draw special samples.
- To evaluate of the use of multiple frame (area and list frames);
- To use of closed segments for area surveys and, open segments for variables related the holding or the farmer household and to test the use of weighted segments;
- To choose the average size of the segment on the basis of the CVs and the average number of holdings and fields within the segments;
- To evaluate ant test the replacement of the segments with identifiable boundaries with squared segments;
- To calculate the CVs in order to assess sampling errors and to adjust sample size (the use of replicate technique in drawing samples is very efficient);
- To update the sampling frame and to renew frequently the samples;
- To proceed to a complete revision of all the questionnaires in order to avoid duplications of questions from one survey to the other, and to cover all the questions needed for responding to the users' needs. They should be systematically tested;
- To establish procedures for monitoring statistical quality control of data collection, processing and dissemination of agricultural statistics. It is particularly important to proceed with the drafting of reports on the quality of different statistical operations conducted at all

levels including data collection. This material will constitute a base for continuous and pertinent improvement of the quality of agricultural surveys.

- To document of all the procedures and methodologies used;
- Analysis of the surveys' results;
- To increase the value of the results of various operations by conducting statistical analyzes, using cartographic and graphics illustrations,
- Review the presentation of agricultural surveys' publication to make regular and timely publications. The latters need improving the quality of the presentation of the results
- To publish the CVs associated with published variables,
- To publish in depth analysis of some important topics such as irrigation;
- Establish a database of primary data and results of various statistical operations conducted: to enable
 - users to access to the official agricultural data;
 - Data managers to store and retrieve survey results, and
 - Researchers to access to link data from household surveys and farm surveys becoming possible by using master sample.
- Increase the visibility of agricultural statistics: This visibility can be strengthened through communication operations. Publication of the main results, with improved form and content of the survey results on time is one example of what can be done in this matter. The presentation of the main survey results to the media and the organization of an annual agricultural statistical day where users and producers met for discussing all issues related to these statistics are 2 other examples.

Institutional issues

The coordination among different producers of data related to the agricultural sector should focus on using the same standards and nomenclature and on the allocation of responsibilities to avoid duplication and publication of divergent data.

In Jordan, the permanent committee of experts for agricultural statistics could play an important role in the harmonization of the concepts, definitions and nomenclature. The Ministry of Agriculture could play more important role in the production of agricultural statistics. A close coordination between this Ministry and the DoS is more than desirable and can lead to an ambitious program of coordination and sharing of agricultural tasks between these 2 entities. The Ministry of Agriculture has a large expertise in subject manner (agriculture, forestry fisheries and land use) and DoS has large expertise in statistical methodologies and sample frames. Possible cooperation domain could be the elaboration of questionnaires, and the execution of some surveys on the field, in particular the collect of price data. Dos could also provide methodological advice for surveys that the MoA is undertaking for its special needs.

In Morocco, a bill is currently in the process of government approval. The National Council of statistical information, considered in this bill, may be part of the framework for the coordination of

statistical operations on the agricultural sector. In order to ensure statistical confidentiality, this bill should stipulate that:

- The statistics staff sign the Confidentiality of individual information collected in surveys;
- Sanctions for every deliberate violation of statistical confidentiality;
- The responsible for statistics sets in writing instructions on the protection of statistical confidentiality and made them available to the public;
- The responsible for statistics takes all measures to ensure the security and integrity of statistical databases.
- The uses of individual data are governed by strict protocols.

Human resources

Planning and conducting the proposed strategy requires high-level expertise in survey methodology, agricultural statistics system and physical and financial resources for collecting data.

DoS and DS must have sufficient and appropriate resources to enable them to conduct all operations while respecting the requirements of statistical rigor. In particular, they must have competent and dedicated executives with diverse profiles. It must also have well trained and experienced enumerators.

It is clear that the staff available at DoS and DS is sufficient for undertaking all the agricultural statistical operations proposed in this strategy. To conduct all tasks for the implementation of the program of statistical operations planned over the next decade, it is essential to define and analyze skills available, and those required for the achievement of the planned statistical operations.

The training of managers and enumerators is a key element in the success of the proposed strategy. It is necessary to define for all staff, training needs and establish a medium and long term training program (Courses, on the job training and study tours) tailored to the specific needs of agricultural statistics, especially in the areas of methodologies, information technology, collection, processing and data analysis, and dissemination.

Technical assistance and use of external expertise to the DoS and DS could overcome the insufficiencies of the available staff. This expertise could particularly covers the following topics:

- The review and integration of all questionnaires;
- The drafting of the various manuals for enumerators;
- The drafting of procedures' manual;
- Quality reports of the various statistical operations;
- The choice of samples and their sizes;
- The design and organization of the general census of agriculture;
- The definition of a plan for training.

Schedule for the implementation of the proposed operations

The proposed timetable was developed taking into account the availability of human resources and the balanced distribution of the workload over the years. It is indicative. The general agricultural census programmed constitutes the corner stone of the calendar (see the annexes).

Methodological improvements should be done in a gradual and continuous way. The calculation and publication of CV should begin as early as 2013. Using these CVs, the sizes of all samples used in agricultural should be revised and new samples drawn. By 2014, samples for all regular and structural surveys planned should be drawn.

In Jordan, the introduction of the area sampling frame should start in 2014 by the construction of an area sample in one zone and undertake a pilot survey using this sample. If the pilot is successful then its generation will start in 2015 and spread over 5 years. Already a technical assistance for the introduction of area sampling frame is planned for this year under MEDSTAT III program.

The establishment of quality control procedures must accompany each survey. The documentation for all procedures, methods, classifications and criteria for monitoring and quality control of the collection, processing and dissemination of statistics should be done as quickly as possible. The year 2013 should see the completion of this work.

The programme has been conceived to not generate a large supplementary budget. The supplementary budgets are estimated for ten years at 1.4 million euros for Jordan and 30 million euros for Morocco (half of it is for the general census).

3. Conclusion

The strategy was developed for Morocco and Jordan and it is being prepared for Tunisia, Lebanon and Egypt. It is planned that all of them will be achieved by March 2013.

For Morocco and Jordan, MEDSTAT III proposes that stakeholders meetings will be organized for the validation of the respective strategy. Then it is up to the countries to adopt them officially. In parallel countries may be willing to elaborate an implementation plan.

Although the implementation of these strategies is a national issue, the regional approach increases the potential for cooperation between countries and the possibilities for them to benefit from economies of scale (examples: in the design of new surveys and methodologies).

Strong and capable national agricultural statistical systems are a pre-requisite for sound decision-making in Euro-Mediterranean – and also European – policies, in the domain of agriculture but also in domains such as foreign trade, support of the productive sector.

Annexes

Schedule for the implementation of the proposed operations in Jordan and Morocco

Surveys	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
General agricultural census	M				J					
Greenhouses census		M					J			
Irrigation census			M							
Citrus census					M					
Plantation census		J							M (except citrus)	
Structure of the farms		M		J			M		J	
Production cost and input uses	J		M			J		M		
Production uses	J			M		J			M	
Area survey	J,M	J,M								
Yields of cereals	J,M	J,M	J,M	J,M	J,M					
Yields of legumes						M	M	M	M	M
Olive yield	M	J,M	J,M	J,M	J,M	J,M	M	M	M	M
Citrus yield	M	M	J,M	J,M	J,M	J,M	J,M	M	M	M
Peanut and sunflower	M	M	M	M	M	M	M	M	M	M
Tomatoes yield				J	J	J	J	J		
Potatoes yield					J	J	J	J	J	
Clover trefoil yield						J	J	J	J	J
Straw and stubble	J,M	J,M	J,M	J,M	J,M	M	M	M	M	M
Forecast of the production of wheat, barley and olives	M	J,M	J,M							
Forecast of the production of citrus	M	M	M	M	M	M	M	M	M	M
Farm losses' survey	J,M	J,M								
Nurseries	J	J	J	J	J	J	J	J	J	J
Traditional Livestock and organized farms	J,M	J,M								
Organized poultry productions	J	J	J	J	J	J	J	J	J	J
Structural organized poultry			J					J		
Bee production	J	J	J	J	J	J	J	J	J	J
Structure of bee production			J					J		
Fish breeding productions	J	J	J	J	J	J	J	J	J	J
Structures of fish breeding				J					J	
Sea fishing production	J	J	J	J	J	J	J	J	J	J
Structures of sea Fishing				J						
On farm prices	J,M	J,M								
Wholesale markets	J,M	J,M								

Ramadan prices	M	M	M	M	M	M	M	M	M	M	M
Slaughterhouse	J	J	J	J	J	J	J	J	J	J	J
Marketing of agricultural products		J					J				
Olive oil	J	J	J	J	J	J	J	J	J	J	J
Uses of agricultural products				J					J		
Vegetable survey				M					M		
Date palm survey					M						M
Cannabis survey						M					
Forage survey				M					M		
Small flour mills			M					M			
Olive oil				M					M		

J: Jordan

M: Morocco