The project

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Food and Agriculture Organization of the United Nations (FAO),
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STRATEGIC PLAN FOR AGRCULTURAL, ENVIRONMENTAL AND RURAL STATISTICS IN GEORGIA 2016-2020

18 December 2015

Acronyms and Abbreviations

AA	Association Agreement between EU and Georgia
ADB	Asian Development Bank
AESD	Agriculture and Environment Statistics Division of Geostat
BEC	Broad Economic Categories
CAQ	Country Assessment Questionnaire
CAPI	Computer Assisted Personal Interviews
CATI	Computer Assisted Telephone Interviews
CPI	Consumer Price Index
EDGE	The United Nations Evidence and Data for Gender Equality
ENPARD	European Neighbourhood Programme for Agriculture and Rural Development
ESS	European Statistical System
FAO	Food and Agriculture Organization of the United Nations
Geostat	National Statistics Office of Georgia
GDP	Gross Domestic Product
GIS	Geographic Information System
GOG	Government of Georgia
GSBPM	Generic Statistical Business Process Model
GSS	Georgian Statistical System
HS	Harmonized System of Commodity Classification
IdCA	In-depth Country Assessment
ICC	Information Consulting Centres of the Ministry of Agriculture
IHS	Integrated Household Survey
LEPL	Legal Entity of Public Law
MCC	US Millennium Challenge Corporation
MENRP	Ministry of Environment and Natural Resources Protection of Georgia
MESD	Ministry of Economy and Sustainable Development of Georgia
MOA	Ministry of Agriculture of Georgia
MOF	Ministry of Finance of Georgia
MRDI	Ministry of Regional Development and Infrastructure of Georgia
NAPR	National Agency of Public Register
NASS	National Agricultural Statistics Service of US Department of Agriculture
NBG	National Bank of Georgia
NORC	National Opinion Research Centre at the University of Chicago
NSDS	National Strategy for the Development of Statistics
PPI	Producer Price Index
SDGs	Sustainable Development Goals
SITC	Standard International Trade Classification
SPAERS	Strategic Plan for Agricultural, Environmental and Rural Statistics
SWOT	Strengths, Weaknesses, Opportunities, Threats
USDA	United States Department of Agriculture
VIC	Village Infrastructure Census
WPI	Wholesale Price Index

Foreword

The Law of Georgia on Official Statistics creates a general framework for statistical system in the country and sets coordination principles for all institutions responsible for producing official statistics in Georgia. The central body of the statistical system is the National Statistics Office of Georgia (Geostat), which was established as an independent agency in February 2010.

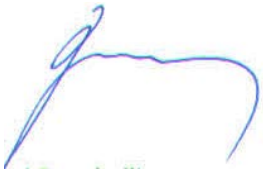
The main source of current agricultural statistics in Georgia is the Sample Survey of Agricultural Holdings. This annual survey dates back to 2006 and its methodology was elaborated with the support of FAO and the United States Department of Agriculture (USDA).

Environmental Statistics disseminated by Geostat is mainly produced by the Ministry of Environment and Natural Resources Protection of Georgia (MENRP). The memorandum of cooperation between Geostat and MENRP facilitates timely data exchange and effective communication between these institutions.

The Global Strategy to Improve Agricultural and Rural Statistics and in particular the Strategic Plan for Agricultural, Environmental and Rural Statistics (SPAERS) will help Georgia to improve the quality and coverage of agricultural and rural statistics and to support the government in evidence-based decision making.

We see the SPAERS as a very timely and supportive initiative since we are going to update the sampling frame of agricultural holdings in 2016 when the results of the General Populations and Agricultural Census are available. In addition, the Government of Georgia (GOG) has the Strategy for Agricultural Development in Georgia 2015-2020. Geostat is preparing a new strategy for national statistics. Besides, in 2014 Georgia signed the Association Agreement with the European Union, which aims to strengthen the capacity of the National Statistical System and progressively align it with the European Statistical System (ESS). Therefore, it is very important that, based on all the above-mentioned strategic documents, SPAERS identifies the existing gaps and further data needs in the area of agriculture and rural development and includes them in the future work plans.

We are very grateful for the Food and Agriculture Organization of the United Nations (FAO) Global Strategy Initiative and hope that the implementation of the recommendations provided in the document will lead to significant improvements in the quality of agricultural, rural and environmental statistics in Georgia.



Meri Daushvili
Executive Director, Chairperson of the Board
National Statistics Office of Georgia (Geostat)

Foreword

Thriving and vibrant agriculture and agribusiness are key ingredients to inclusive economic growth. This is particularly the case for Georgia given her history and cultural background.

Since declaring agriculture development as one of the key priorities of the country, the role of the sector became even more pronounced. Recent adoption of the Agricultural Development Strategy and launch of a comprehensive package of reforms and targeted programs necessitate long term planning and monitoring activities, which in turn, are only possible with availability of high quality statistical information.

The Strategy of Agricultural Development in Georgia 2015-20 sets out important strategic directions in the areas of enhancement of competitiveness of rural entrepreneurs, amelioration and soil fertility, regional and sectorial development, food security, food safety, veterinary and plant protection. Implementation of all of these measures requires thorough preparatory analysis of the issues, advanced planning through careful examination of policy options, and their efficient execution. None of the above is possible without the proper institutional set up and improvement of analytical capacity, which also is a key priority of the Ministry of Agriculture. This also stipulates for strengthening for strengthening of collaborative ties with the National Statistical Agency, Geostat, as well as international organizations supporting improvement of agricultural and rural statistics collection, analysis, and dissemination in Georgia.

We welcome the FAO's global initiative for improvement of agricultural and rural statistics and start of elaboration of the Strategic Plan for Agricultural, Environmental and Rural Statistics (SPAERS) within its framework. We believe that successful elaboration and implementation of the Strategy will serve as a valuable input to efforts of the Government of Georgia to enhance competitiveness of Georgia agriculture and agribusiness and contribute to the broad goals of achievement of sustainable growth, alleviation of poverty and betterment of economic conditions of the population.

Otar Danelia

Minister of Agriculture of Georgia

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Executive Summary

Background

1. In consultation with and support from FAO, Georgia is one of a number of pilot countries preparing strategic plans to put into effect the recommendations of the Global Strategy to Improve Agricultural and Rural Statistics.

2. The inclusion of environmental statistics within the scope of the Strategic Plan has been done at the specific request of the government. Because of the important links between the environment and agricultural activities in Georgia it was agreed to include environmental statistics explicitly in the title of the document.

3. The case for preparing a comprehensive strategic plan to improve agricultural and rural statistics in Georgia at this time has been compelling. In particular it has allowed the preparation of the Strategic Plan for Agricultural, Environmental and Rural Statistics (SPAERS) to be closely coordinated with the development of a new strategic plan for the development of the overall national statistical system.

4. The preparation of the SPAERS in Georgia has followed the guidelines prepared by FAO, with some modifications to take into account the special situation of the country and the need to coordinate closely with other related processes.

5. The scope of SPAERS for Georgia has been set reasonably widely, in order to respond to current and emerging data needs and to link with other planning processes. The scope, therefore, includes agricultural statistics, environmental statistics and rural statistics**,** where the focus is expected to be on the welfare and well being of the rural population and the ways in which livelihood choices are changing.

6. The time frame for the strategic plan has been set at 5 years, from January 2016 to December 2020, in order to fit in with the implementation of the Government's strategy for agricultural development.

Assessment and Evaluation

7. A detailed assessment of the current status and performance of the system of agricultural, environmental and rural statistics was carried out as part of the preparatory phase. As a part of assessment, a tentative core list of statistical indicators has been compiled, although this is expected to change as data needs evolve.

8. The main concerns identified by users, relate to the need to improve the coverage and timeliness of core statistics so that they can be used to make decisions both by the Government and individual farmers in line with the seasonal nature of production. In addition to this, there is a need to provide estimates of the production of crops and livestock products at lower levels of aggregation.

9. Generally speaking, crop and livestock statistics produced by Geostat are considered to be reasonably reliable and the quality is acceptable. Information about methods and procedures used to generate the data is accessible to data users and some

users found it difficult to access information on sampling errors and some other technical aspects of the survey.

10. Other concerns include: the lack of regional and municipal estimates; the lack of a comprehensive farm register; limited recent land and land use data; the absence of much rural data; a lack of fishery and aquaculture statistics; and the coverage of forestry and other environmental statistics.

The strategic plan

11. The vision for the agricultural, environmental and rural statistical system in Georgia is to provide the statistical evidence needed by Government and other users to support the development of the country as well as to meet obligations to report statistical data to regional and international agencies as efficiently and effectively as possible.

12. The mission is defined by the Law of Georgia on Official Statistics as the production of "independent, objective and reliable statistics in the country according to the fundamental principles of the United Nations and European Statistics Code of Practice."

13. Strategic objectives and a detailed action plan have been prepared covering five main areas: (i) coordination and management; (ii) meeting data needs; (iii) investing in human resources; (iv) making better use of technology and (v) building and developing the statistical infrastructure and registers.

14. If the vision for agricultural, environmental and rural statistics is to be realised and, if the strategic objectives are to be achieved, then it will be essential to use all available technical, financial and human resources as efficiently as possible to do this. A key element of the SPAERS therefore, is to put in place a coordinated statistical system to collect, compile, disseminate and make effective use of statistics on agriculture, the environment and rural concerns in Georgia by 2020.

15. Geostat will lead the statistical system and to be responsible for setting standards and for coordinating activities and for the production of official statistics. Geostat will also be responsible for national surveys and censuses. Ministry of Agriculture (MOA) and the Ministry of Environment and Natural Resources Protection (MENRP) will be responsible for the production of statistics in those areas where these agencies have specific technical competence and which are important for monitoring progress towards their key policy goals.

16. Statistical staff working in MOA and MENRP will be compliant with the requirements of Law on Official Statistics and will receive both training and professional support from Geostat as needed. Geostat will strengthen the capacity of the Department of Quality Management and Methodology so that it will be able to provide the technical support and advice needed by MOA and MENRP.

17. An annual report on the activities of the coordinated system for agricultural, environmental and rural statistics will be prepared and published by Geostat as part of their regular annual report, following formal approval by the Board.

18. There will be regular consultation and interaction with data users through meetings and other types of consultation.

19. Both MOA and MENRP will compile other indicators and data series to provide information for management.

20. The two agencies will work closely with Geostat to improve the coverage and quality of data derived from administrative and other sources.

21. By 2020, the statistical system will need to make greater use of data derived from administrative processes (registers) and other sources, including remote sensing and will, therefore, rely less on surveys.

22. New technology will also have a major impact on data collection especially in opening up opportunities for making use of new kinds of data. This will include making use of satellite imagery as well as other remote sensing technologies for monitoring characteristics such as land use, forest cover and livestock numbers. There is also, as yet untapped, potential for using data derived from cellular telephony and Internet use to monitor fast changing variables such as prices.

23. Geostat will continue to be the main data producer of official statistics, taking responsibility for large-scale surveys and censuses, for disseminating data and for managing the national data archive. Geostat will also provide the overall coordination of the system, ensuring that all official statistics are produced in line with the Law on Official Statistics, international and regional standards and good practice.

24. MOA will develop capacity to carry out specialist surveys on technical issues and individual sectors, but will increasingly be looking to improve the coverage and quality of administrative data (registers), which will be used to derive various statistics and as a frame for different surveys conducted by Geostat. It will also aim to strengthen its capacity to analyse agricultural and related data to support decision making in the Ministry and more generally.

25. MENRP will look to establish and then strengthen its capacity to make better use of data from administrative purposes and to report on current and emerging environmental and natural resource issues in the country. It will aim to build up a consolidated database, bringing together data from the various environmental management agencies under its control.

26. For Geostat, short-term actions are focused around making improvements to the coverage and quality of the agricultural sample survey in response to emerging needs. Actions in this and other areas will include:

- In 2016 - updating the sampling frame based on the 2014 Census of Agriculture;
- In 2016 - increasing the sample size from 5,000 to 12,000;
- From 2016 working closely with MOA and MENRP to identify potential of MOA and MENRP to produce official statistics;
- In 2016 - disseminating the main results from the 2014 Census of Agriculture;
- In 2016 – starting preparatory works for a data archive to include the data from agricultural surveys and censuses starting with the 2014 Census of Agriculture

and put in place a process to allow researchers to obtain anonymised data sets for further analysis;
- In 2016 starting preparatory work will in accordance with modern international standards to establish a micro data dissemination system;
- In 2016 - conducting a pilot survey of water supplier companies to get information on water supply and losses;
- In 2018 - introducing computer assisted personal interviewing (CAPI) using hand-held tablet computers, based on field testing carried out in 2017, in order to improve the quality and timeliness of the survey results;
- In 2017-2018 - conducting surveys on farmers' gross margins, aquaculture and greenhouses.

27. For MOA, the focus will be on strengthening the capacity of its statistical unit, developing comprehensive farm registers and on providing the main data series needed to monitor progress with the Strategy for Agriculture. Specific actions will include:

- In 2016 - starting a yield measurement and harvest estimation system for 4 crops based on fieldwork carried out in 2015. Additional crops will be added on annual basis;
- Having a market price information system with information available at the municipality level in 2017, with initial work starting in 2016;
- Completing the process of establishing a farm register by the end of 2016;
- In 2016, once the rural development strategy has been finalised and approved, identify what data will be needed to monitor the main indicators on rural development and discuss with Geostat how these can be provided;
- By 2017 setting up independent statistical unit at MOA;
- By 2017 producing statistics on crop yields and market prices based on the principles of official statistics;
- By 2017 having in place a database of statistical information on the activities of agricultural cooperatives;
- By 2017 completing the updating of geographical soil maps covering the entire territory of the country;
- By 2017 having in place a register of irrigated and restored land;
- By 2017, with the assistance of FAO, establish a national data portal including agricultural and related data series;
- By 2017 identify how progress with the rural development strategy can be monitored making use of data from business enterprise surveys, the labour force survey, the Sample Survey of Agricultural Holdings and the Integrated Household Survey;
- By 2017 develop an integrated geographically referenced database to monitor implementation of the Rural Development Strategy.
- By 2018 have a cattle identification and registration system in place;

28. For MENRP the main emphasis over the plan period will be on improving the basic source data, on improving the capacity to compile and disseminate data for key areas and improving the capacity of MENRP staff working on statistics. Specific actions will include:

- By 2017 - setting up independent statistical unit at MENRP;

- From 2016 in close cooperation with Geostat, updating methodologies and questionnaires which are used for current statistics produced by MENPR;
- By 2018 have in place a comprehensive forest register and management plans for all main forest areas;
- Work with Geostat to provide more comprehensive data on water accessibility on a regular basis from 2016;
- From 2017onwards be using data from the agricultural survey to improve annual estimates of carbon emissions from the agricultural sector;
- By 2018 - having in place a database of key environmental and natural resources indicators and time series data.

29. For the period from 2018 onwards it is not yet possible to identify a detailed work plan, but it is anticipated that this period will be used to consolidate the new activities initiated in the first three years. It is also expected that there will be a need to respond to new data needs and to make use of new technologies. More detailed plans for the years 2019 to 2020 will be developed as part of the proposed Mid-Term Review.

30. Over the period of the strategic plan it is proposed to increase professional staff working in agricultural, environmental and rural statistics from the baseline of 17 in 2016 to 37 by 2020. All staff will require training and continuing professional development throughout the plan period.

31. Making better use of technology will be an important part of the strategy. It will include using hand-held computing devices to improve data collection in the field, using modern software to improve data processing and analysis, using new methods to make statistics accessible to users and managing databases.

32. It will also be important to develop and maintain statistical infrastructure, including a comprehensive geographical database, building and updating registers in all three agencies and promoting an open data approach to data management, subject to securing the confidentiality of data about individuals.

Implementation

33. Implementation will be managed by the existing management structures of all three agencies. It will be useful, however, to have in place administrative structures that will provide a forum for all three agencies to come together to monitor progress with the implementation programme, to identify issues and concerns and to respond to problems or difficulties as and when they arise. In order to do this it is proposed to maintain the Steering Committee that has been set up to guide and monitor the SPAERS preparation.

34. It will be important to be clear about the relationship between the Steering Committee and the Geostat Board. In addition, specific technical working groups may be established from time to time by the Steering Committee to deal with particular issues.

35. A detailed monitoring and evaluation framework has been developed that sets how activities will be implemented and how progress will be monitored. A formal Mid-term Review will be carried out in 2018.

36. The total cost of implementing SPAERS over the five years from 2016 to 2020 is estimated at GEL 14.3 million, including an allowance for inflation, which is equivalent at today's exchange rates to about US$5.9 million. Of this amount 29% is accounted for by the estimated costs of the sample survey of agricultural holdings.

37. Evidence suggests that the unit costs of carrying out surveys in Georgia are on the low side when compared to other countries at a similar stage of development, although direct comparisons may be misleading because costs are not always calculated on the same basis.

38. Implementing SPAERS will require some increase in the Budget allocation to agricultural, environmental and rural statistics to meet the costs of the regular recurrent items, especially salaries and the costs of the main data processes.

39. Support will also be required from development partners, in particular to support investment in equipment and human resources. The total financing gap over the five years is estimated at GEL 6.96 million, or US$2.90 million. It is felt that this level is potentially fundable from existing programmes and resources, especially European Neighbourhood Programme for Agriculture and Rural Development (ENPARD).

40. In addition, it is expected that the Georgian statistical system will continue to require support from international technical assistance. The total cost of the technical assistance programme is estimated at about GEL 0.98 million or US$ 0.41 million. Once again this is expected to be within the scope of existing programmes, especially existing support through ENPARD and from the US Department of Agriculture.

Chapter 1. Background and Process

1.1. Objective and rationale

In consultation with FAO, the Government of Georgia is one of a pilot group of countries preparing strategic plans to put into effect the recommendations of the Global Strategy to Improve Agricultural and Rural Statistics[1]. With support from the Asia and Pacific Regional Office of FAO, the Government, through Geostat, MOA and MENRP has been working to prepare this draft SPAERS. The objective of the SPAERS process has been to prepare a comprehensive and realistic strategic plan to improve the coverage and quality of statistics relating to agriculture, rural development and the management of natural resources in Georgia over the five-year period from 2016 to 2020.

The inclusion of environmental statistics within the scope of the Strategic Plan has been done at the specific request of the Government. During the preparatory phase it was clear that there was a need to incorporate environmental statistics within the scope of SPARS and for MENRP to be included as one of the main implementing agencies. This approach was endorsed by the Steering Committee managing the preparation of the plan and it was agreed therefore, to recognise this explicitly by including environmental statistics in the title of the document.

The case for preparing a comprehensive strategic plan to improve agricultural and rural statistics in Georgia at this time has been compelling. First, there has been the need to improve agricultural statistics to support the implementation of the Government's Strategy for Agricultural Development in Georgia 2015-2020 as well as to monitor progress and evaluate its impact. The strategy itself is comprehensive, covering just about all aspects of agriculture in the country and its implementation is already generating demands for new types of data. Second, the preparation of the SPAERS has taken place in close coordination with a new strategy for national statistics. With assistance from Statistics Lithuania, Geostat has been preparing a new strategic plan focusing on aligning statistical processes and outputs with the requirements of the European Statistical System (ESS). Preparing the strategy for agricultural statistics at the same time has had a number of obvious advantages and has helped to ensure that both documents are coordinated and consistent with each other.

At the same time, the EU has been providing financial and technical assistance to Georgia through ENPARD. This programme running from 2013 to 2018 aims to support the agricultural sector in Georgia. The programme provides both budget support as well as technical assistance. Negotiations for the second phase of ENPARD have recently been concluded and the Government is now committed to fulfilling a number of conditions specific to agricultural statistics. Coordinating the preparation of SPAERS with the ENPARD discussions has helped to ensure that the proposed action plan includes these specific conditions.

Finally, the timing of the SPAERS process has also had a number of other advantages. It has meant, for example, that the strategic plan has been able to take advantage of the baseline data that was collected during the 2014 censuses of population and agriculture. It has been prepared in parallel with consultations about a new rural development

[1] http://www.fao.org/economic/ess/ess-capacity/ess-strategy/en/#.VlLt_YRIAbY

strategy and the action plan takes the main components of this strategy into account. And, the plan also includes some provisions to help Georgia to meet its reporting requirements in relation to the recent 2030 Agenda for Sustainable Development approved by the United Nations in September and the launch of the Sustainable Development Goals[2].

1.2. The development process

The preparation of the SPAERS in Georgia has followed the guidelines prepared by FAO[3], with some modifications to take into account the special situation of the country and the need to coordinate closely with other related processes. In particular, the preparation of the strategic plan has involved the following phases.

- **Preparation** – including reaching agreement on the scope and timeframe for the strategy, identifying the tasks to be completed, specifying the resources that are needed, establishing the teams to carry out the work, setting up appropriate mechanisms to coordinate and manage the process and reaching agreement on what has had to be produced, by when and how the strategy is to be approved formally.
- **Assessment** –focusing on a detailed review of the current processes and products that make up agricultural and rural statistics in Georgia. The output from this phase was an in-depth Country Assessment and a Country Profile and included a number of indicators of the current capacity of the system. Information for the assessment was derived from a comprehensive standard country assessment questionnaire[4] completed by a number of key stakeholders.
- **Consultation** – in many respects this has been the most important part of the preparation. If the strategy is to be effective and especially if it is to be properly implemented, then it is essential that it is widely supported and agreed by most stakeholders. The stakeholders who have been consulted have included: the main producers of agricultural and rural statistics, including those agencies responsible for the main source data; and users of the statistics, including government agencies, researchers, the business sector, the media, international agencies, development partners and farmers and their families. Consultation involved a number of workshops and other meetings as well as individual conversations.
- **Planning** – completed by the technical team led by Geostat with support from consultants provided by FAO. Through this phase the goals and objectives of the strategy have been identified and priorities have been decided upon, based on a realistic assessment of needs, resources and constraints.
- **Approval and launching** – the last part of the strategy preparation process will be to have it formally approved and then launched. In general, if the strategy is to receive wide acceptance then it is important that it is seen to be a formal government document with widespread approval and support.

[2] https://sustainabledevelopment.un.org/post2015/transformingourworld
[3] FAO (2014)
[4] FAO (2014b) url: http://www.gsars.org/wp-content/uploads/2014/09/Guidelines_Country-Assessment_FINAL.pdf

1.3. Agriculture in Georgia, the policy context and the expected demand for agricultural data

Georgia has substantial agricultural potential, but its recent history has been characterized by periods when both agricultural output and incomes suffered significant declines. In the ten years following the collapse of the Soviet Union (1991-2001) there was a real contraction in agricultural output of around 11 per cent per year on average[5]. At its lowest point, Georgia's agricultural output was just below one third of what it had been towards the end of the Soviet era.

Since the turn of the century, however, the decline in the agricultural sector has levelled out and in recent years output has shown some growth. The real growth rate of agricultural sector, including forestry and fishing in 2013 was 11.3% and 1.5% in 2014. It is clear, however that the sector, while having considerable potential for contributing to economic growth and income generation, still faces many challenges. The Government places great emphasis on the need for investment in increasing output and productivity and earlier this year launched its strategy for the sector up to 2020[6].

The Strategy identifies the potential for growth, with more than 43 per cent of the total land area designated as agricultural land and a diverse range of agro-ecological conditions. Constraints include a fragmented land distribution with over three quarters of farms having one hectare of land or less and land registration still an outstanding issue. Results from the 2014 census of agriculture indicate a reduction in the total number of holdings by about 21 per cent from 2004[7] (from 815 thousands to 642 thousands). At the same time, however, the share of agriculture in Gross Domestic Product (GDP), while declining slightly since 2007, has remained more or less constant over the past four years at just under 10 per cent. The average annual real growth of total economy was 5.4 per cent in 2010-2014. In the same period, the average annual real growth of agriculture reached to 4.2 per cent.

1.4. Coverage of SPAERS and the participating agencies

In the preparation phase, it was agreed that the scope of the SPAERS for Georgia should be set reasonably widely, at least initially, in order to respond to current and emerging data needs and to link with other planning processes. The scope, therefore, was agreed to be as follows.

- **Agricultural production activities** – concerned with documenting the use of inputs, the production of agricultural commodities and their disposal.
- **Other rural production activities** – including forestry, fisheries, especially aquaculture, and other things considered to be important.
- **The management of environmental resources** – focusing especially on statistics related to the management and preservation of resources important to agriculture, including land fertility and water.

[5]Welton (2013)
[6] Strategy for Agricultural Development in Georgia, 2015-2020, Ministry of Agriculture (MOA), (2015)
[7]2004 Agricultural census (around 730 000 holdings) did not cover 5 large cities: Tbilisi, Kutaisi, Rustavi, Batumi and Poti (around 85 000 holdings)

- **Rural development** – where the focus is expected to be on the welfare and well being of the rural population and the ways in which livelihood choices are changing.

1.5. The timeframe

In order to fit in with the implementation of the government's strategy for agricultural development, it was also agreed that the timeframe for SPAERS would run from January 2016 to December 2020 – a five-year period. It was also agreed that detailed work programmes would only be prepared for the first three years – January 2016 to December 2018 – and activities for the remaining two 2019 and 2020 would be developed in more detail through a detailed mid-term review that will be planned to be completed in mid-2018.

1.6. Integration with the NSDS

The fact that Geostat is preparing a new national strategy for statistics at the same time as SPAERS is important for a number of reasons. First of all, both processes are clearly closely related and the results for each one support and feed into the other. The broader statistics strategy will set the framework for statistical development from 2016 onwards. In particular, it will set out how the Georgian Statistical System can be aligned more closely with the ESS. This has required the preparation of plans to updating the laws and regulations governing statistical activities and a review of the coordination and management of the statistical system as a whole. Two areas where action will be required are to develop further the concept of national statistics and to support the exchange of data between agencies. This SPAERS document has been designed to feed into the statistics strategy and to inform the need for investment in people and in infrastructure.

1.7. Coordination with other processes

In addition to the new national strategy for the development of statistics in Georgia and the Strategy for Agricultural Development 2015-2020, the SPAERS has been developed in close collaboration with a number of other processes. These include the following.

- The EU – Georgia Association Agreement: The Agreement aims to "to promote political association and economic integration between the Parties based on common values and close links, including by increasing Georgia's participation in EU policies, programmes and agencies"[8]. Strengthening the Georgian Statistical System (GSS) and ensuring that is aligned and consistent with the ESS is an important part of promoting economic cooperation between Georgia and the EU. In the medium to long-term the aim is gradually to align statistical legislation and processes with those operating in the EU. The Agreement includes a commitment to strengthen cooperation in a number of statistical domains including "*agricultural statistics, including agricultural censuses and environment statistics*".

[8] Association Agreement, between the European Union and the European Energy Community and their Member States, of the one part, and Georgia, of the other part, Article 1, (2).a.

- Implementation of The European Neighbourhood Programme for Agriculture and Rural Development: The ENPARD programme is providing budget support and technical assistance to support the development of agriculture in Georgia. While support for agricultural statistics is not explicitly included in the project documentation, it is widely recognised that better statistics are needed both in their own right and as a crucial input to agricultural development generally. Review missions have been carried out annually to review progress on the general and special conditions that govern the disbursement of the budget support tranches. As part of the review mission for the third tranche, specific recommendations were made about agricultural statistics, recognising the importance of the 2014 census of agriculture and making recommendations about a review of the statistical legislation, developing a farm register and a unique identification code and improving the coverage and timeliness of the annual crop surveys. All these issues have been included within SPAERS. In particular, those areas that have been identified as special conditions for the ENPARD 2 budget support programme are included as priority actions in for year 1 or year 2.
- Promoting Rural Development: Rural development is a key objective of ENPARD and is also highlighted in the strategy for agricultural development. The Government is preparing a draft Rural Development Strategy and high priority areas such as linking data from the agricultural and the integrated household surveys have been highlighted in this document.
- Environmental Management and Protection: Environmental concerns are one of the seven strategic concerns in the strategy for the development of agriculture, where managing the impact of climate change and protecting environmental resources are identified as key concerns. The SPAERS preparation team have worked closely with MENRP to identify priority areas for improving and extending environmental statistics as well as ways of integrating environmental data with statistics on agricultural production, poverty and the management of natural resources.

1.8. Key stakeholders

During the preparation of SPAERS there has been an extensive process of consultation with the main stakeholders including:

- **Data producers** – especially the main data producing agencies Geostat, MOA and MENRP.
- **Data users** – including officials from central and local government, politicians, researchers, NGOs working on agricultural and rural issues, the media and representatives of international agencies and development partners.
- **Data providers** – those people who will be asked to provide data through surveys, censuses and other data collection processes, especially farmers' associations.
- **Financing agencies** – the agencies that will provide the resources to implement the strategy, especially the Ministry of Finance and representatives of development partners.

The consultation process has involved two workshops in Tbilisi, direct meetings with key individuals and an on-line consultation process.

1.9. Outline of the document

This document consists of five further chapters and six annexes. Chapter 2 summarizes the information from the assessment process, looking at: user needs and the extent to which these have already been met; the current capacity of the data producing agencies; the quality of the main outputs; and an overall assessment of the main strengths, weaknesses of the agricultural, environmental and rural statistics system and the main opportunities and threats it faces over the next five years. Chapter 3 speaks about challenges and problems. Chapter 4 describes the proposed action plan, including: the proposed vision and mission statement; the main goals and targets to be achieved by 2020. Chapter 5 describes the performance indicators. Chapter 6 gives detailed information on implementation cost and the possible financial strategy. Chapter 7 describes implementation process, how the SPAERS will be implemented, including: how it will be coordinated and managed. Risk assessment is given in the chapter 8, while chapter 9 explains how progress will be monitored and reported on. The detailed activity plan is given in the chapter 10, where the list of activities is given with timelines, refering to responsible agencies and measurement indicators. The strategy has 6 annexes.

Chapter 2. Assessment and Evaluation

2.1. Assessment of user needs and satisfaction

The starting point in designing an agricultural statistics system for a country is to understand the users of the statistics. Agricultural statistics have many users in Georgia. Government is the primary user and it needs statistics to monitor the performance of the agricultural sector, make policy decisions and plan development programmes. Other users include international organizations, research institutes and the farmers themselves who need data in their regular activities. There is increasing demand on agricultural and environment statistics in Georgia. As agriculture is the priority area for Georgia, all kinds of data users (government, business, NGOs, international partners, journalists, students and researchers) are active users of agricultural statistics.

The size of the sample of the Survey of Agricultural Holding of Geostat is not sufficient to produce all indicators for all regions. Data at the municipal level is not available at all. This is the most serious concern of all types of data users. The survey started in 2007 and data on 2006 was collected. The data before 2006 was produced using out-dated methodology and is less available. This is the next main concern of data users. Annual statistics on annual crops are produced by Geostat. Preliminary data are published in April and the final data are available by June of the following year. Most of the data users complain that the data release is too late (but it could be mentioned that Statistical Compendium of Eurostat has an almost the same dissemination calendar).

The best guide to data needs in Georgia comes from the Country Assessment Questionnaire (CAQ), where the list of core indicators is given (the list of core data items is given in the annex 7). In addition, different data users (including MOA) speak

about data gaps and highlight indicators they would like to have regularly. The list is following:

- Production, productivity, sown and harvested area of all kinds of fruits, vegetables, grasses, grapes, citruses, tea by municipalities;
- Geostat does not publish land area under permanent crops which is a big concern of all data users;
- Municipal level crops and livestock statistics;
- Production of bio products;
- Winter and spring sown areas of wheat, barley and rye;
- CPI index of important agricultural commodities and agriculture PPI;
- Gender dis-aggregated statistics on agricultural production and ownership;
- Data on rural tourism, including agro-tourism;
- Land and land use data at the regional and municipal level;
- Data on simplified customs declarations of agricultural products;
- Data on farmers' production expenses;
- Food processing statistics of core items by sectors;
- Data on crop damages;
- Farm register dis-aggregated by farm size and ownership;
- Number of aquaculture holdings by municipalities;
- Agricultural machinery by municipalities;
- Farm Gross Margin Survey;
- Monthly data on consumption of agricultural and food products (by each product) by calories, fats and proteins;
- Food balance sheets on fruits (by each), vegetables (by each), citruses (by each);
- Number of buffalos and horses;
- Number of livestock by age (breeding, young stock and fatstock);
- Data on the loss of livestock by age;
- Number of laying hens, broilers and turkeys;
- Fishery statistics including fishery production of aquaculture holdings (farming);
- Survey on rural development indicators;
- Waste management statistics;
- Data on access to sanitation system and water use;
- Income of household from the selling of agricultural products by each products;
- Animal manure applied to soils;
- Sewage sludge applied to soils;
- Data on irrigated and non-irrigated crops;
- More detailed segregation of data on water use and water resources availability;
- Crop productivity by regions and by irrigation systems command area;
- Information on beneficiaries of government agricultural or rural subsidy or aid programs.

2.2. Assessment of the capacity of the participating agencies

2.2.1. Legal framework for the collection of statistics

The legal basis for statistical activities in Georgia is stipulated under the Law on Official Statistics, which was adopted in 2009 and came into force from 2010. The goal of the law is to ensure producing independent, objective and reliable statistics in the country according to the fundamental principles of United Nations and European Statistics Code

of Practice. The Law defines the essence, goal and principles of the official statistics and prescribes the legal foundations for producing statistics, storing and disseminating the information as well as conducting the population census. According to the law, annual statistical work program is prepared by Geostat. The program is agreed with all ministries, at initial stage is reviewed by Geostat Board and finally approved by the decree of Government of Georgia. Annual plan consists of the list of works to be carried out and their implementers, the frequency of observation and dates of publishing.

2.2.2. Institutional structure of the national statistical system

Statistical system is centralized in Georgia. The law defines the Geostat as the executive agency for all statistical activities. Geostat is independent Legal Entity of Public Law (LEPL), managed by the Board. The main functions of the Board are: to submit relevant recommendations with regards to the statistical activities of Geostat, review the annual statistical work program, review and approve the annual report of Geostat, review the statistical standards and methodology etc. The board consists of 8 members, including Executive Director of Geostat, who is the Chairman of the Board at the same time. Three members (one from each) are representatives of the Ministry of Finance (MOF), the National Bank (NBG) and the Ministry of Economy and Sustainable Development (MESD). Other five members (including the Chairman) are not public servants.

2.2.3. Coordination of the National Statistical System

According to the law, production and dissemination of statistics shall be based on the 10 basic UN principles of official statistics. National coordination is one of those principles and it is stated in the law that coordination among statistical agencies within the country is essential to achieve consistency and efficiency in the statistical system.

Cooperation with the local organizations means the cooperation and coordination of Geostat with the bodies producing the statistics in order to effectively produce the statistics. The National Statistical System is a system with a main operating office for general statistics. Geostat is the agency taking a coordinating role in the entire statistical system of Georgia.

At the present, Geostat is preparing a new strategy for national statistics. The first national strategy for statistics was approved in 2011 and covered the period to 2014. The new strategy will have a particular focus on aligning processes and outputs with the requirements of the European Statistical System (ESS). Preparing the strategy for agricultural statistics at the same time has a number of obvious advantages and will help to ensure that both documents are coordinated and consistent with each other.

The Strategy for Agricultural Development in Georgia 2015-2020, prepared by MOA, has a strategic vision on institutional development. One of the measures of this strategic vision is supporting an efficient market information collection, processing and dissemination among the different stakeholders actively engaged in the agricultural sector. It sets the goal to improve the quality of agricultural statistics in close collaboration with Geostat. Besides, ENPARD sets the recommendations on improvement of the quality of agricultural statistics. The working group for creation the Farm Register is set up by MOA and Geostat is a part of this working group. Special attention has to be paid to several detailed technical issues, for example the coordination of the definition of an agricultural holding, definition of type of crops and

animals has to be harmonized etc. International technical assistance is recommended as well.

To enable efficient coordination, annual statistical work program is prepared by Geostat, where responsibilities of all administrative sources and timeline of the submission of statistical data is defined. In addition, Geostat has memorandums of cooperation with the main partners in the national statistical system, including MOA and MENRP. These memorandums set the rules and procedures as well as mutual responsibilities of signed parties.

There is no statistical coordination council or some other relevant format in the country. But representation of public servants in the Geostat Board supports the coordination of the national statistical system.

In 2014 Geostat created Quality and Methodology Sub-Division. There is an interagency working group, where the representatives from different line ministries are presented. Quality and Methodology Sub-Division has presented EU Code of Practice to other partner institutions.

2.2.4. Data producing agencies

Geostat is managed by a Board and the Executive Director of Geostat is also Chairman of the Board. The Executive Director has three deputies. Geostat has 8 regional offices and is divided into eleven divisions. From an agricultural, environmental and rural statistics point of view, the relevant divisions are: Agricultural and Environment Statistics Division, National Accounts Division, Social Statistics Division, Population Census and Demography Division, Price Statistics Division, External Trade and Foreign Investments Statistics Division, Business Statistics Division, Information Technology Division, Quality and Methodology Sub-Division.

Statistical data collection of Geostat, including agricultural statistics, is supported by the regional offices and implemented by municipal coordinators and enumerators.

MOA is responsible for the formulation and implementation of national agricultural policies and development plans. The main department of MOA responsible for statistical work is the Policy – Analysis Department. There are Information Consulting Centres (ICC) at the municipality level, which are collecting information for internal use. For statistical purposes MOA has 2 people at the head office and 59 at ICCs. MOA produces its own statistics for internal use. The list of data collected by MOA is following:

- Crop production data– during the season it is collected forecast data and after harvest - final data;
- Sown areas by crop - annual;
- Aggregated sown areas - weekly;
- Livestock Numbers - annual;
- List of companies in agricultural sector - annual;
- Land balance, land distribution by size of agricultural holdings – annual;
- Agricultural Machinery and Equipment – annual;
- Market price information – weekly.

MOA ICCs will conduct monthly collection of data during the crop-growing season and provide data to MOA headquarters: i) corn objective yield survey; ii) crop conditions and progress survey; iii) apple, wheat, citrus peaches, nectarines, potatoes and hazelnuts objective yield surveys.

Within the project "Capacity Development of the Ministry of Agriculture" FAO is assisting MOA by international consultancy. The objective of the assignment is to assist MOA in organizing available statistical information for better use for evidence based decision and policy making. The specific aims are: a) To prepare technical description of the data warehouse (a statistical platform for storing available statistical data with tools for data export/import and reporting, together with the predetermined calendar of new data addition, information flows and dissemination); b) to design the templates of periodical statistical outlooks to be produced by MOA.

MENRP and its agencies are responsible for collection of statistics on forestry, water, air pollution, protected areas and natural disasters. MENRP is administrative source of Geostat for environment statistics. For statistical purposes MENRP has 25 people, 16 in headquarter of National Forest Agency and 9 in field offices. 21 people are working on forestry, 2 on air and 1 on water resources. One person is coordinating statistical activities of MENRP, but statistics is not her primary duty.

MRDI is responsible for the implementation of regional policy and for the development and maintenance of general infrastructure of the country. Development of rural infrastructure is the part of MRDI responsibilities. MRDI potentially could be a source of information for rural development statistics.

Capacity indicators for the resources of three main agencies responsible for agricultural and environment statistics as well as financial and human resources is given in the Annex 1.

2.3. Assessment of Statistical Outputs

2.3.1. Censuses

Geostat is the agency responsible for censuses of population and housing, as well as agricultural census and economic censuses. Also, a village infrastructure census (VIC) was conducted in 2010 with support of US Millennium Challenge Corporation (MCC). The Census covered all populated villages except for the Occupied Territories. National Opinion Research Centre (NORC) at the University of Chicago participated in the VIC. The recommendations of NORC experts were implemented in both census methodology development as well as final version of questionnaires. Census covered the following issues: natural gas supply, electricity supply, drinking water supply, sewage system, intensity of natural disasters, irrigation system and access to other important services.

The first population census was conducted in 7th century in Georgia. In the historical sources there is information about 9th and 13th century's censuses. During the period when Georgia was under Russian Empire census was conducted in 1897. Then were censuses during the period when Georgia was a part of the Soviet Union (1926, 1939, 1959, 1970, 1979, and 1989). The first national census after the independence was conducted in 2002. The second population census was conducted in 2014 and the

agricultural census was a part of 2014 census. 2002 and 2014 censuses did not cover the occupied territories of the country. The 2014 census was undertaken in November and in high mountainous areas census was conducted by the end of September. 2014 census collected demographic, educational, labour force, migration, agricultural and other characteristics of the population as well as housing characteristics. This census was the first census in the region conducted with the help of digital (Geographic Information Systems, GIS) maps. One year earlier, during 2013 initial listing of dwellings and households was conducted. The first results showing population data by municipalities were published in April 2015 and the final results will be available in April 2016.

The first agricultural census in Georgia was conducted in 2004. The census covered all villages and towns (excluding occupied territories of Georgia), however 5 big cities were not included in the census. In 2014 together with the population census, agricultural census was conducted. This census covered all villages and cities (excluding the occupied territories of Georgia). In the spring of 2015 the census of legal entities invlved in agricultural production has been conducted. The census methodology was prepared based on FAO guidelines (A system of integrated agricultural censuses and surveys - World Programme for the Census of Agriculture 2010) and provides data on land use, crops, irrigation, fruits, vines, livestock, reservoirs for aquaculture, greenhouses, usage of agricultural products, and agricultural machinery and equipment. The census identifies agricultural holdings (any economic unit engaged in agricultural production operating agricultural land, livestock, poultry or beehives) without regards to the scale of production, legal status of the unit and the tenure form of agricultural assets). Preliminary results of the agricultural census were published in April 2015 and the final results of the census (including agricultural census for enterprises) were published in April 2016.

The economic census has never been conducted in Georgia. Some countries are doing regular update of the frame. Georgia is among these countries. Geostat regularly updates its frame from internal and external sources. Internally Geostat has quarterly and annual business survey. Geostat also conducts monthly Computer Assisted Telephone Interviews (CATI) for the companies in the business register to update information about status, kind of economic activities and actual addresses by each local unit of the companies. This is a monthly survey aiming the frame update with prioritised sample. Referring to external source updates, Geostat is receiving information on newly registered businesses from the National Agency of Public Registry (NAPR) on the monthly basis and the list of active taxpayer companies from the Revenue Service on the quarterly basis.

2.3.2. Crop statistics

Geostat is the only agency in Georgia responsible for the collection and dissemination of area, yield and production statistics for all crops. Sample Survey of Agricultural Holdings is the main information source for current agricultural statistics in Georgia. The survey is designed according to FAO methodology. Each year a new sample of agricultural holdings is selected. It should be noted, however, that large agricultural holdings are sampled with complete coverage, so they are interviewed each year systematically. The survey covers entire territory of Georgia (excluding occupied territories). Each round of the survey covers one reference year and consists of 5

interviews. Agricultural and Environment Statistics Division of Geostat (AESD) is responsible for the collection, compilation and dissemination of statistics on agriculture. Sampling frame is formed from 2004 Agricultural Census results. The sample size is 5000 out of more than 800 000 agricultural holdings.

To fill all data and coverage gaps mentioned in the chapter 2.1, Geostat has a plan to increase sample size from 5000 to 12 000 after the 2014 agricultural census results is available.

Annual crops include: wheat, barley, oats, maize, haricot beans, potato, melons, hey of perennial grasses, hey of annual grasses, vegetables (tomatoes, cucumbers, red beets, cabbages, capsicum and paprika peppers, garlics, dry onions, green onions, greens, carrots, eggplants and other vegetables). The data on the production of wheat, barley, maize, haricot beans, potato, potato, melons, perennial grasses, annual grasses and vegetables are available at the regional level.

Annual statistics on the production of permanent crops includes fruits (apples, pears, quinces, plums, cherries, apricots, peaches, sour plums, walnuts, hazelnuts, subtropical fruits, berries, other fruits), grapes, citruses (tangerines, orange and lemons) and tea. Production statistics on almost all of the fruits (except quinces, apricots and berries), citruses and tea, is available at the regional level. A preliminary data is published in April and the final one in June of next year.

Geostat also produces the data on sown areas of winter (wheat, barley, rye) and spring (wheat, barley, rye, oats, maize, pulses) annual crops. Sown area of winter crops includes the area under winter crops in autumn of the previous year, which will be harvested in the next year. Sown areas of wheat, barley, maize, haricot beans, potato, melons, perennial grass, annual grasses and vegetables, is available at the regional levels as well. Express data on winter crops is published in March and on spring crops in September of the current year.

2.3.3. Livestock statistics

The same sample survey of agricultural holdings is the source of annual statistics of livestock number, livestock production including average parameters of production as well as litter and loses. The number of livestock and the production of animal products are available on the quarterly basis as well (excluding beehives).

The annual number of livestock includes thousands of heads of cattle, pigs, sheep and goats, poultry and thousands of hives of beehives. The data is also available at the regional level. The annual animal production includes meat of beef, pork, sheep and goat, poultry and other meat in thousands of tons as well as milk in millions of litres (including sheep and goat milk), eggs, wool and honey. All these data is available at the regional level too. On the quarterly basis only meat (aggregated), milk and eggs production is published and only at the national level. Average production of milking cows and buffaloes (litres/year) by regions and average clip per sheep (kg/year) by regions is published on the annual basis.

Geostat also produces annual litter of calves and buffalo-calves by regions, average litter of calves and buffalo-calves per 100 females by regions, loss of cattle by regions

(thousands of heads), litter of sucking-pigs by regions, average litter of sucking-pigs per 100 families by regions, loss of pigs by regions, litter of kids and lambs by regions, average litter of kids and lambs per 100 families by regions and loss of sheep and goats by regions.

2.3.4. Other agricultural data

In the annual publication, Geostat also produces general information on agriculture which includes data on: rural population as of the beginning of the year; structure of GDP; intermediate consumption and value added of agriculture, hunting, forestry and fishing; output of agriculture; shares of plant growing, animal husbandry and agricultural services in agricultural output; annual volume indices of output of agriculture; share of income from selling agricultural production in the total income of household; average monthly income from selling agricultural production per household; average annual food prices; average annual consumer price indices of the staple foodstuff; mineral fertilizers used by agricultural holdings by regions; area under annual crops treated by mineral fertilizers by regions; area under permanent crops treated by mineral fertilizers by regions; area under annual crops treated by pesticides by regions**;** area under permanent crops treated by pesticides by regions.

Geostat also produces annual food security information which includes: food production, exports and imports of food, food prices, food balance sheets and share of food expenditure in the total consumption expenditure.

Geostat New Surveys. In 2015, upon request of MOA, Geostat has already finalized preparatory works and started field work activities for three new surveys: commercial livestock slaughter, storage in grain elevators and storage in cold storage facilities. Surveys results are planned to be available till the end of 2016.

From 2017, upon request and with assistance of MOA, Geostat is planning to start working on three new surveys: survey on aquaculture, survey on greenhouses and farm gross margin survey. Surveys are planned to be conducted after Census results will be available.

In addition, in 2016 Geostat will implement the pilot survey on water supply provider companies in order to get data on water supply, losses and the number of water users by categories.

With the possible ENPARD support to the Georgian agricultural statistics, objective yield crop measurement surveys should be implemented and tested in 2016 for apples, citrus, corn and wheat, in major producing areas by MOA. Objective yield crop measurement survey procedures should be developed and tested in 2016 for hazelnuts, nectarines, peaches and potatoes, and surveys implemented in 2017. Objective yield crop measurement survey procedures should be developed for other important crops such as grapes.

Corn objective yield surveys will be conducted during the growing season in major corn producing areas of Georgia. MOA ICCs will collect data monthly during the corn-growing season and provide data to MOA headquarters. For surveys on crop condition and crop progress ICCs will provide MOA headquarters with weekly indication on crop condition

and crop progress during the growing season. For apple, wheat and citrus objective yield surveys as well as for the crops pilot survey work will take place during the summer and fall of 2016.

MOA has the future plans for following surveys: farming practices, farm production expenditures, fruit variety, and vegetables.

All these surveys will be conducted with the technical assistance of USDA-NASS (National Agricultural Statistics Service). Accurate and timely information on crop production is extremely important for MOA for making policy decisions. MOA had highlights statistics on crop production as a major priority.

2.3.5. Forestry Statistics

Forestry statistics are compiled annually. MENRP is the administrative source of forestry statistics for Geostat. Forestry statistics is collected by the National Forestry Agency, the Forestry Agency of Adjara Autonomous Republic (which is not part of MENRP) and the Agency of Protected Areas. These agencies are under the supervision of MENRP. MENRP collects data from its agencies and delivers to Geostat according to the calendar set by the memorandum of cooperation between Geostat and MENRP. Annual publication includes following forestry statistics: forest area of Georgia, forest cover of Georgia, number of employees in the National Forestry Agency, operating costs of the National Forestry Agency, forest fire, forest restoration by regions, forest seeding and planting, facilitating natural recovery of the forest, volume of timber harvested in the forest, illegal logging, export and import of non-processed timber. These data have a different time-leg. Some data have been available since 1995, some since 2000 or 2001.

Fisheries and Aquaculture Statistics. There is no fishery statistics in Georgia. Some data users request fishery data, including MOA, but there is no experience of fishery statistics collection in the country. In 2015, Geostat started preparation for the new survey on aquaculture production with assistance of MOA (the survey will be conducted in 2016). In the questionnaire of 2014 agricultural census question on aquaculture was also included.

2.3.6. Water and Other Environmental Statistics

MENRP is administrative source of water, air pollution, protected areas and natural disasters statistics. The following information is included in the annual publication: big and medium rivers of Georgia (length and basin), main lakes and reservoirs of Georgia (surface area, water volume and depth), main indicators for protection and use of water resources: indicators for water extraction use and discharged waste-waters by administrative-territorial units; hazardous substances emitted into the atmosphere; hazardous substances generated in stationary sources; exhaust emissions from road transport by type; absorbed or neutralized and emitted hazardous substances from stationary sources by regions; structure of protected areas of Georgia by administrative units, protected areas of Georgia by categories, number of animals and birds preserved in the protected areas of Georgia, expenses on maintenance of the protected areas and the number of employees; frequency of geological phenomena (landslide, mudflow), approximate monetary loss, number of human fatalities and vulnerable objects and number of hydro-meteorological events by months.

2.3.7. Land Use Statistics

There is no recent land and land use data. The last annual data of land and land use (cropland, forest land, grassland, wetlands, settlements, and other land) was published by the State Department of Land Management of Georgia in 2004. The data are published in Geostat annual statistical publication "Natural Resources of Georgia and Environmental Protection". The following data are available: land cover and land use by categories (on April 1, 2004).

2.3.8. Rural Development Statistics

Rural development statistics are available from various sources. Censuses of population and housing provide data on housing conditions and access to services such as water, electricity and communication facilities for occupied dwellings. The last census of 2014 will give the updated information. Some data on rural infrastructure is available at the municipal level such as roads and railways. Besides, the data on local services such as sanitation, water supply are available on the municipal level. Agricultural census of 2014 will deliver the data on the area equipped for irrigation at the municipal level. Government of Georgia is working on Rural Development Strategy. Strategy will identify the needs of rural data, which will supposedly cover demography, education, infrastructure (including roads), health, labour, poverty, income and expenditure, tourism (number of tourists and service providers).

2.3.9. Other Statistics

Geostat produces CPI index, which is published every month in four different base periods: to previous month, to the same month of previous year, 12 months average over the previous 12 months average, in 2005 prices (2005=100). CPI report does not include separate indices of important agricultural commodities used for direct consumption. There is no index to monitor agricultural input prices. WPI index is not produced in Georgia. There is no separate PPI index on crops, livestock or fisheries. Geostat also produces four different monthly PPI indices: i) for industrial products (information is collected from more than 500 companies), ii) for material inputs to construction industries (information collected from more than 200 companies), iii) for freight transport (information collected from more than 130 companies), iv) export price index (information collected from more than 120 companies). Geostat has piloted import price index survey since 2015. The number of companies in this survey is 300. From 2017 the sample size will be increased and index will be officially published. Geostat has experience of calculation of agricultural PPI. Agricultural PPI has been calculated during 2008-2010.

Statistics of external trade in goods are produced by Geostat. They are based on the Harmonized System of Commodity Classification (HS) (2012) and Standard International Trade Classification (SITC) Rev. 4 and classification on Broad Economic Categories (BEC). Data on imports and exports are published by Geostat are mainly based on the information received from the Revenue Service (customs). Geostat compiles monthly statistics of: (i) imports by value, country of origin and major groups such as consumer goods, intermediate goods and investment goods; (ii) exports by value, country of destination and major commodities.

Quarterly IHS integrates labour force survey and household income and expenditure survey. Sample size for IHS is approximately 3400 households out of 1.2 million. Sample is done from 2002 census results. 2014 census will significantly improve the quality of data derived from IHS. Survey has been conducted since 1996 and covers the entire territory of Georgia (controlled territories). Labour force module measure trends in the labour force, including employment and unemployment. The survey is quarterly, but Geostat publishes only annual data. The latest available results are 2014 data. Labour force data is also derived from the Quarterly Establishment Surveys (Business Survey and Survey on Non-business Organizations and Financial Establishment). In addition, the IHS collects data on demography, education, health, household income, household expenditure, ownership of durable goods, access to basic facilities, household debt, housing, sanitation, natural disasters, and ownership of land and livestock. The latest available results are 2014 data. From 2017 Geostat is going to split IHS into two independent surveys – labour force survey and household income and expenditure survey.

Geostat will conduct a survey on asset ownership and entrepreneurship from a gender perspective, with the financial aid from Asian Development Bank (ADB). The survey includes the following modules on dwelling, agricultural land, livestock, agricultural equipment, enterprise and enterprise assets, real estate, durable goods, financial assets, liabilities and valuables. Survey will be conducted by the methodological guidelines of the United Nations Evidence and Data for Gender Equality (EDGE) project. Because most of the assets are owned by individuals (either solely or jointly), individual-level data are better, more reliable than household-level data to provide insights into three broad sets of policy issues. These are: (1) women's empowerment and decision-making, (2) understanding livelihoods (including entrepreneurship), and (3) reducing poverty and vulnerability. Yet, relatively little data exist on individual ownership of assets. Sample size of the survey will be approximately 3200 households. Interviews will be conducted with up to 3 adult members of the sampled households.

2.4. Main Findings of the SWOT Analysis

During the first stage of SPAERS project In-depth Country Assessment (IdCA) has been prepared. IdCA report includes SWOT analysis for the agricultural statistics system as a whole, as well as for each of the three sub-sectors: crops and livestock; fisheries and aquaculture; forestry. Results are shown in Annex 2.

Chapter 3. Challenges and Problems

Crops and livestock statistics produced by Geostat are considered reliable. The quality is acceptable in general. The methodology for the national agricultural surveys is accessible to the public. Generally, information on the sampling error of estimates, post-enumeration surveys and technical issues faced during the survey are not published. But there are several constraints, which have been identified by data users. The most important are:

- Timeliness of statistics: the preliminary annual data is published in April and final data in May. Many data users complain that the data is not timely;

- Absence of municipal data and some regional data. Updating of the frame still remains a major challenge of the Sample Survey of Agricultural Holdings. The sample size is 5,000 out of more than 800,000 holdings. The frame is from the 2004 agricultural census;
- There is no farm register in Georgia. MOA has a plan to create a farm and other relevant registers in a joint project with Geostat and other stakeholders;
- There are no recent land and land use data. Annual data of land and land use (cropland, forest land, grassland, wetlands, settlements, and other land) was published by the State Department of Land Management of Georgia in 2004;
- There is a need for improvement of the quality of administrative data;
- Not sufficient of rural statistics data;
- There is no fishery statistics in Georgia. Some data users request fishery data, including MOA, but there is no experience of fishery statistics collection in the country;

The lack of updated questionnaires as well as technical and methodological capacities of forestry and other environment statistics. There are many questions on the quality of the forestry data in Georgia. The methodology also needs to be reviewed. No statistical system exists for measuring timber production from home gardens or private land (this should have not been collected by MENRP). Data on forest production of wood and non-wood don't exist in Georgia. This is a major data gap for the national accounts statistics, especially given the importance of firewood as a source of cooking fuel. Integrated Household Survey (IHS) provides some information on the use of firewood.

Chapter 4. Objectives

In this chapter we set out a broad vision for the development of agricultural, environmental and rural statistics in Georgia, the main strategic objectives and outputs that are to be generated over the five years to 2020 and a more detailed set of actions that will need to be put in place if these objectives are to be achieved. The plan identifies what will need to be taken by the main data producers – Geostat, MOA and MENRP – as well as some actions that will be needed at the level of the national statistical system as a whole.

4.1. Vision and mission

The Vision for the agricultural, environmental and rural statistical system in Georgia is to put in place the institutions, the processes and the infrastructure that provide the statistical evidence needed by Government and other users to support the agricultural, environmental and rural development of the country as well as to meet the obligations to report statistical data to regional and international agencies and use all available national resources effectively and efficiently.

Georgian agricultural, environmental and rural statistical system commits to be managed by open and accountable agencies, providing information about how efficiently the resources are used, including new technologies, to promote the wider use of agricultural and rural statistics in the cause of national development.

The Mission of the agricultural, environmental and rural statistical system of Georgia is defined by the Law of Georgia on Official Statistics. The mission is to produce "independent, objective and reliable statistics in the country according to the fundamental principles of the United Nations and European Statistics Code of Practice and on the basis of internationally recognized principles of statistics".

One of the basic principles of official statistics is to have effective national coordination among statistical agencies to achieve consistency and efficiency in the statistical system.

4.2. Strategic objectives and outputs

In order to fulfil mission and to achieve the vision, Geostat, MOA, MENRP and all partner agencies in the Georgian statistical system will need to agree on strategic objectives. Overall the objective is to deliver better results, that is, better statistical data in forms that promote their use for decision making and planning at all levels. Because resources are scarce, it is difficult to expand activities, there are clear limits on the budget and on the capacity to hire staff and on the demands the statistical system can place on respondents.

The strategic plan proposes to set priorities in five main areas: (i) coordination and management; (ii) meeting data needs; (iii) investing in human resources; (iv) making better use of technology and (v) building and developing the statistical infrastructure and registers. More information on specific targets and the indicators that will be used to monitor and report on progress is provided in Chapter 9.

4.3. The action plan

4.3.1. Coordination and management

As identified in Section 2.2 above, at present the statistical system in Georgia is centralised, with Geostat – together with the National Bank of Georgia, which has responsibility for a number of economic and financial statistics – as the only agency with the capacity and the mandate to compile and publish official statistics. In the field of agricultural, environmental and rural statistics, MOA and MENRP compile management information from source data derived from a number of administrative processes, but it is the responsibility of Geostat to use this information to prepare official statistics. The Law on Official Statistics as include a provision under Article 16 for other administrative bodies to produce official statistics compiled and prepared in line with standards and protocols that have been recognized and approved by the Board of Geostat.

If the vision for agricultural, environmental and rural statistics as set out in Section 3.1 is to be realised and, in particular, if the strategic objectives are to be achieved, then it will be essential to use all available technical, financial and human resources as efficiently as possible to do this. A key element of the SPAERS therefore, is to put in place a coordinated statistical system to collect, compile, disseminate and use statistics on agriculture, environment and rural concerns in Georgia by 2020. Without close cooperation, coordination of activities and a comprehensive action plan that builds on the comparative advantages of all three agencies, it will not be possible to provide the statistics needed with the right quality at the right cost.

Geostat has projects with Statistics Sweden and Central Statistical Office of Poland and environmental statistics is part of these projects. MENRP participates in the trainings and missions conducted under these projects. This will provide the substantial contribution to the capacity building of both agencies and will promote coordination between Geostat and MENRP.

By 2020, therefore, it is proposed that a coordinated system for agricultural, environmental and rural statistics will be in place with the following characteristics.

- MOA and MENRP will be responsible for the production of statistics based on the principles of official statistics in those areas where these agencies have specific technical competence and which are important for monitoring progress towards key policy goals.
- Agreement will have been reached with Geostat on the standards and protocols to be used with these data series and they will have received formal approval from the Geostat Board.
- MOA and MENRP will create an independent statistical unit within their systems;
- In line with article 16.2 of the Law on Official Statistics formal procedures will be in place to share information between Geostat and the two other agencies as needed and appropriate.
- Statistical staff working in MOA and MENRP will be compliant with the requirements of Law on Official Statistics and will have received both training and professional support from Geostat as needed.

- An annual report on the activities of the coordinated system for agricultural, environmental and rural statistics will be prepared and published by Geostat as part of their regular annual report, following formal approval by the Board.
- There will be regular consultation and interaction with data users through meetings and other types of consultation.
- Both MOA and MENRP may compile other data series to provide information for management, but these will not be published as official statistics.
- The two agencies will work closely with Geostat to improve the coverage and quality of data derived from administrative and other processes.

In order to achieve these outputs, a number of specific activities and actions will need to be carried out and these have been identified as follows.

- In 2016-2018 Geostat will have convened a technical working group with representatives from MOA and MENRP to identify the priority indicators and data series. Geostat will assess the complaince of these indicators and data series with the qulity criteria of European Code of Practice of official statistics.
- In 2016-2017, Geostat will provide the technical support (training) and advice to MOA and MENRP.
- By the end of 2017, technical specifications and standards for these priority indicators and series will have been identified and approved by the Geostat Board and MOA and MENRP will have disseminated at least the first set of official statistics.
- By the end of 2016 the technical working group will also have identified a training programme for MOA and MENRP statistical staff.
- By the end of 2017, statistical activities in MOA and MENRP will be in line with agreed principles and standards of official statistics.
- By the end of 2017, a programme to improve the quality of data derived from administrative processes in MOA and MENRP will have been prepared and agreed.

4.3.2. Meeting data needs and improving data processes

The anticipated tentative data needs have been set out in the core data set outlined in Annex 7. It is likely that the needs of data users will change over the next five years in response to as yet unforeseen changes in the agricultural sector, new markets opening up and new technologies being developed. There will be a requirement, therefore, to update the tentative core data set from time to time and it will be important to ensure that different data processes can be developed and modified as the needs of data users change.

It will also be important to ensure that the integrated agricultural, environmental and rural statistical system can also respond to longer term trends that are driven by changing technology and the overall economic and social development of Georgia. Over the next five years it is expected that some of the key changes that will affect the statistical system will include the following.

- The statistical system will need to make greater use of data derived from administrative processes (registers) and other sources, including remote sensing and rely less on surveys. Experience from Europe and many other countries

indicates that as a country develops, the scope of government increases and the potential for using administrative data (registers) becomes greater. At the same time, increasing salaries and other costs mean that surveys and censuses are much more expensive and there is pressure on statistical systems to be more efficient and cost effective. It is almost certain that this process will continue to accelerate in Georgia.

- New technology is also likely to have a major impact on data collection especially in opening up new opportunities for making use of data that previously was not possible. This will include making use of satellite imagery as well as other remote sensing technologies for monitoring things like land use, forest cover and livestock numbers in some cases. There is also, as yet untapped, potential for using data derived from cellular telephony and Internet use to monitor fast changing variables such as prices. While it may not be possible to identify now what technology will be common in Georgia in 2020, it will be important that the statistical system is able to identify new opportunities and take advantage of them.
- As the agricultural strategy is rolled out and farmers increasingly operate as businesses, it should be possible to collect data in different ways, including using on-line processes, with less reliance on teams of enumerators in the field.
- The role of official statistics in providing information to farmers, entrepreneurs, investors and citizens generally is likely to increase. It will be important therefore for all three agencies to identify new ways of making their information available to users outside government. This may well involve working with NGOs and businesses that can operate as data intermediaries, taking the statistical data provided by the agencies and translating this into information that different audiences can use for their own decision making. If this is to work effectively, it will be essential for the statistical system to be as open and transparent as possible, adopting a formal "open-data" approach.
- The association agreement with the European Union will continue to influence the development of the national statistical system as a whole, ensuring that national statistical policies and practices are increasingly aligned with the requirements of the ESS.

Within this overall framework, the strategic plan focuses on the having a coordinated system for agricultural, environmental and rural statistics in place by 2020, involving Geostat, MOA and MENRP. In this system, Geostat will continue to be the main data producer, taking responsibility for large-scale surveys and censuses, for disseminating data and for managing the national data archive. Geostat will also provide the overall coordination of the system, ensuring that official statistics are produced in line with the Law on Official Statistics, international standards and good practice. By 2020 both MOA and MENRP will have increased the capacity of their statistical units and will be compiling and publishing some official statistics, focusing mainly on using their own data and on technical areas where they have the required expertise.

MOA will develop some capacity to carry out specific surveys on special issues and individual sectors, but will increasingly be looking to improve the coverage and quality of statistics data derived from various administrative processes. It will also aim to strengthen its capacity to analyse agricultural and related data to support decision making in the Ministry and more generally.

MENRP will look to establish and then strengthen its capacity to make better use of data from administrative purposes and to report on current and emerging environmental and natural resource issues in the country. It will aim to build up a consolidated database, bringing together data from the various environmental management agencies under its control. It will also work closely with the Ministry of Regional Development and Infrastructure to improve the statistical coverage of solid waste management and disposal. The Ministry will also look to make more effective use of data derived from remote sensing stations measuring variables such as air pollution and water quality.

At present coverage is very limited and data are collected manually. Over the period of the strategic plan, however, it is expected that there will be substantially increased interest in environmental monitoring and the use of automatic remote sensing in a number of areas. There is also the possibility of making use of new technology such as unmanned aerial vehicles (drones) for tasks such as forest and protected area monitoring. As and when these changes occur, the amount of data that MENRP will be required to handle will increase dramatically and it will be important to ensure that there is capacity to manage this.

All three agencies will put in place effective data quality assurance processes based on the Generic Statistical Business Process Model (GSBPM) that is widely used in the ESS[9]. The model identifies eight phases of each statistical process that is used to collect, compile and disseminate statistical information. It covers the design of data collection processes, developing data collection instruments and their testing, data collection, data processing, data analysis, dissemination and evaluation.

Particular actions that will be put in place to achieve the broad objectives outlined above will be as follows.

- For Geostat, short-term actions are focused around making improvements to the coverage and quality of the agricultural sample survey in response to emerging needs. Actions will include:
    - In 2016 - updating the sampling frame based on the 2014 Census of Agriculture;
    - In 2016 - increasing the sample size from 5,000 to 12,000;
    - From 2016 onwards working closely with MOA and MENRP to identify potential of MOA and MENRP to produce official statistics;
    - In 2018 - introducing computer assisted personal interviewing (CAPI) using hand-held tablet computers, based on field testing varied out in 2017, in order to improve the timeliness of the survey results;
    - In 2016 - disseminating the main results from the 2014 Census of Agriculture;
    - In 2016 – starting a preparatory work for setting up a data archive to include the data from agricultural surveys and censuses starting with the 2014 Census of Agriculture and put in place a process to allow researchers to obtain anonymised data sets for further analysis.

[9] For more information see:
http://www1.unece.org/stat/platform/display/GSBPM/Generic+Statistical+Business+Process+Model

    - In 2016 – starting a preparatory work for implementation of micro data dissemination system in accordance with the modern international standards. The policy of micro data dissemination will be developed. The policy of micro data dissemination will be improved, the structure of the system will be prepared, testing of its elements will be conducted;
    - In 2016 - conducting a pilot survey of water supplier companies to get information on water supply and losses;
    - In 2017-2018 - conducting pilot surveys on farmers' gross margins, aquaculture and greenhouses and then carrying out the surveys from 2018 onwards, depending on the results of the pilots.
- For MOA, the focus will be on strengthening the capacity of its statistical unit and on providing the data series needed to monitor progress with the Strategy for Agriculture. Specific actions will include:
    - In 2016 - starting a yield measurement and harvest estimation system for 4 crops based on fieldwork carried out in 2015. Additional crops will be added on annual basis;
    - Having a market price information system with information available at the municipality level in 2017, with initial work starting in 2016;
    - Completing the process of establishing a farm register by the end of 2016;
    - In 2016, once the rural development strategy has been finalised and approved, identify what data will be needed to monitor the main indicators on rural development and discuss with Geostat how these can be provided;
    - By 2017 producing statistics on crop yields and market prices based on the principles of official statistics;
    - By 2017 having in place a database of statistical information on the activities of agricultural cooperatives;
    - By 2017 completing the updating of geographical soil maps covering the entire territory of the country;
    - By 2017 having in place a register of irrigated and restored land;
    - By 2017, with the assistance of FAO, establish a national data portal including agricultural and related indicators and data series;
    - By 2017 identify how progress with the rural development strategy can be monitored making use of data from business enterprise surveys, the labour force survey, the Sample Survey of Agricultural Holdings and the Integrated Household Survey;
    - By 2018 have a cattle identification and registration system in place;
    - By 2017 develop an integrated geographically referenced database to monitor implementation of the Rural Development Strategy.
- For MENRP the main emphasis over the plan period will be on improving the basic source data and on improving the capacity to compile and disseminate data on key areas such as air quality and air pollution, climate change, forest and land management, the impact of natural disasters, protected areas, waste management and water quality. Specific actions will include:
    - In 2017 creation of indpendent statistical unit at MENRP;
    - By 2018 have in place a comprehensive forest register and management plans for all main forest areas;

- By 2017 in intensive cooperation with Geostat, updating methodologies and questionnaires which are used for current statistics produced by MENPR;
- Ensure that data on water accessibility is being captured in Geostat surveys on a regular basis by 2017;
- From 2017 onwards be using data from the agricultural survey to improve annual estimates of carbon emissions from the agricultural sector;
- By 2018 have in place a database of key environmental and natural resources indicators and time series data.

For the period from 2018 onwards it is not yet possible to identify a detailed work plan, but it is anticipated that this period will be used to consolidate the new activities initiated in the first three years. It is also expected that there will be a need to respond to new data needs and to make use of new technologies. More detailed plans for the years 2019-2020 will be developed as part of the Mid-term Review.

4.3.3. Investment in human resources

The number of staff presently working on agricultural, environmental and rural statistics in the three agencies are shown in Table 1, together with the projected staff numbers over the period of the strategic plan.

The 2015 numbers represent the baseline situation, with 15 professional staff in Geostat and 2 in MOA, while MENRP does not have any statisticians at present, relying on staff working with technical agencies. Only Geostat has field staff in post, since MOA and MENRP do not undertake surveys and existing staff based in the regions undertakes no data collection.

Over the period of the strategic plan it is proposed to increase professional staff working on agricultural, environmental and rural statistics from the baseline of 17 to 37. 21 will be employed by Geostat, 12 by MOA and 4 – making up a small statistical unit in the ministry – in MENRP. It is also proposed to increase the number of Geostat field staff by 70% to support the increase in the sample size for the Survey of Agricultural Holdings.

Table 1. Projected number of statistical staff at Geostat, MOA and MENRP

Type of staff	2015	2016	2017	2018	2019	2020
Geostat – professional staff	15	18	19	20	21	21
Geostat – field staff	230	390	390	390	390	390
MOA – professional staff	2	4	10	10	12	12
MOA – field staff[1]	59	70	80	90	100	108
MENRP – professional staff	0	2	3	3	4	4

Notes:

1 MOA Field Staff are already employed by the extension service and are present in all municipalities. Between 1 and 2 persons per municipality will be working on data collection and will require training every year

All staff will require training throughout the plan period. It is assumed that all field staff will receive 7 days of training per year. For professional staff that have been in post for

more than two years it is assumed that 5% of their time – or 12 days per year – is devoted to continuing professional development. For recently recruited staff, more training will be required, for 25% of the time in the first year and 20% in the second year. These parameters have been incorporated into an outline training plan as indicated in Table 2.

Table 2. An outline training plan (number of person days)

Agency	2016	2017	2018	2019	2020
Geostat – professional staff	360	384	324	336	288
Geostat – field staff	2730	2730	2730	2730	2730
MOA – professional staff	264	456	264	240	216
MOA – field staff	490	560	630	700	756
MENRP – professional staff	120	156	72	96	84

It is anticipated that this training will be provided through a number of different formats, including:

- Training for recruited staff, run by Geostat senior specialist staff
- Local courses with external experts
- Regional short courses, especially those based in the EU
- International short courses

4.3.4. Making use of new technology

The potential for making use of technological innovations to improve the coverage, quality and use of official statistics in Georgia is immense and that is before allowing for any new innovations that will emerge in the next five years. Information technology, especially the development of computing hardware and software has revolutionised the science and practice of statistics and there is no reason for thinking that the pace of change will slow down. If anything it is accelerating.

Of course, most if not all of the innovations currently being used by national statistical systems across the world were not originally developed for statistics per se. Typically these were originally designed for use within commercial businesses or among the general population. This is just as likely to be the case in the next five years as it has been for the last twenty. It will be important, therefore for statistical agencies, especially Geostat, to remain abreast of what is happening in the world of technology and to have the capacity to understand when some particular new development has the potential to have an impact on statistical processes and activities. And, since not every national statistical system is able to adopt new technology at the same time, it will be important to keep in touch what is happening elsewhere, especially in the ESS.

In general, even though it may not be possible to predict exactly what new innovations will be introduced, it is expected that their impacts will be felt in different stages of the statistical process. In general, it may be possible to consider innovations along the following lines.

- Those that have an impact on the design, build and data collection phases, especially through, for example, making use of hand-held computing devices for

data collection and capture as well as the replacement of paper questionnaires with on-line forms for use by respondents.
- Innovations to reduce the time required for data capture, error identification and editing and data processing and improve the timeliness of the main results.
- Improvements in the transfer of data between agencies using agreed standards and electronic transmission.
- Improvements that promote and support data security at all stages of the statistical process.
- Data handling software that allows for large data sets from different sources to be compared and combined.
- Software and hardware that promote and support the access by users to statistical data and which allow them to interrogate databases, subject to the need to protect confidentiality and to ensure the robustness of the results.
- Finding new ways to present statistical data to users, especially those who do not have much experience in their use, so that they are able to understand the information and make use of it.

The main action points under this heading that have been identified so far – bearing in mind that we cannot predict what technology will be available in three to five years time – are as follows.

- Geostat
    - The development of CAPI software in 2017, initially for the survey of agricultural holdings.
    - Purchase of tablets.
    - Upgrading the tablets after two or three years if needed.
    - The development of CAPI software for other surveys and applications.
    - Upgrading of data processing hardware and software.
    - Improvements to data security processes and equipment.
    - Software to manage a data archive and to provide access to anonymised data sets from the agricultural census and other surveys.
    - Software to upgrade the Geostat website and to support open data access and use.
- MOA
    - The development of CAPI software in 2017, initially for the yield measurement and harvest estimation survey.
    - Purchase of tablets.
    - Upgrading the tablets after two or three years if needed.
    - In 2016-2017 - usage of tablets for for the yield measurement and harvest estimation survey.
    - Software and hardware to develop and manage the farm register and similar databases.
    - Hardware and software to support data sharing with Geostat and to upgrade security of the databases.
    - Updating computer hardware and software in head office of MOA as well as in each municipality
    - The provision of hardware and the development of software to disseminate price information in every municipality.

    - The development of applications to disseminate price and other agricultural data
    - Software and hardware to support the development and implementation of a geographic information system.

- MENRP
    - Software and hardware to develop and manage the forest register and similar databases.
    - Hardware and software to support data sharing with Geostat and to upgrade security of the databases.
    - Software and hardware to support the development and implementation of a geographic information system.

4.3.5. Building and developing statistical infrastructure and registers

Statistical infrastructure relates to those statistical activities that do not, of themselves, produce statistics, but which are essential for different statistical processes to work effectively. They include things such as registers, classifications, database structures, sampling frames and the design of geographic information systems. Like all infrastructure they need to be put in place initially and then updated from time to time to ensure they are still useful and useable.

Key action areas for the period of the strategic plan have been identified as follows.

- Geostat
    - Developing an updated sampling frame for the Survey of Agricultural Holdings mainly using data from the 2014 Census of Agriculture. Over time it is expected that the sampling frame will be updated using the farm register being developed by MOA and other registers for specific agricultural sectors.
    - Updating the classification of agricultural holdings to ensure that it meets the needs of users and reflects changes in agricultural activities.
    - Developing and extending the geographical information system used for the 2014 censuses of population and agriculture to include physical features and infrastructure.
    - Putting a data archive in place for documenting and preserving the data and metadata from censuses and surveys and setting up policies and procedures to provide researchers with access to anonymised data sets for further analysis.
- MOA
    - Establishing a database structure, with appropriate controls over access and security controls, for data collected and compiled by the Ministry.
    - Setting up the farm register and the register of irrigated land
- MENRP
    - Setting up the register of forest areas
    - Establishing a database structure, with appropriate controls over access and security controls, for data collected and compiled by the Ministry.

Chapter 5. Performance Indicators

Strategy has quantitative and qualitative performance indicators. Chapter 10 describes the action plan with quantitative and qualitative indicators. Each action has detailed indicator. The list of indicators are following:

- Created working groups;
- Programs prepared;
- The number of training and training participants;
- Technical specifications and standards for selected data series;
- Published press-releases and reports;
- Increased sample;
- Conducted CAPIs;
- Registers, data series and datasets;
- Created independent statistical unit;
- Created and updated geo-referenced maps;
- Created cattle identification and registration system;
- The number of purchased tablets;
- others.

Chapter 6. The cost of implementing SPAERS

6.1. Implementation cost

Tables 3 and 4 set out an estimate of the costs of implementing SPAERS in full, including an annual contingency of 10% and an allowance for inflation of 5% per year. These are provisional numbers, based on a set of assumptions about unit costs and progress with the whole programme from year to year. More details are provided in Annex 5.

As can be seen from Table 3, the largest expenditure component is for the data processes that will be needed to meet the needs of users, with the largest single component accounted for by the costs of the five rounds of the survey of agricultural holdings that will be carried out every year. There is no direct expenditure allocated specifically to activities that are strengthening coordination and management or to building statistical infrastructure. In these two areas, it is anticipated that no additional resources will be required other than investment in human resources and in information and computing technology.

Table 3. Estimated cost of implementing SPAERS by type of activity ('000 GEL)

	2016	2017	2018	2019	2020	Total
Staff costs (salaries)	390	480	495	555	555	2,475
Meeting data needs	891	936	1,029	1,044	1,048	5,949
Human resource development	684	793	667	680	654	3,478
Upgrading technology and equipment	258	54	59	277	67	715
Other costs	15	18	20	20	23	95
Contingencies	224	228	227	258	235	1,171
Total at 2016 prices	2,462	2,509	2,497	2,834	2,581	12,883

Total including inflation	2,462	2,635	2,753	3,281	3,137	14,268

Table 4. Estimated cost of implementing SPAERS by agency ('000 GEL)

	2016	2017	2018	2019	2020	Total
Geostat	1,820	1,646	1,693	1,925	1,696	8,781
MOA	331	512	486	534	531	2,394
MENRP	87	123	91	117	120	538
Contingencies	224	228	227	258	235	1,171
Total at 2016 prices	2,462	2,509	2,497	2,834	2,581	12,883
Total including inflation	2,462	2,635	2,753	3,281	3,137	14,268

The total cost of implementing SPAERS over the five years from 2016 to 2020 is estimated at GEL 14.3 million, including an allowance for inflation, which is equivalent at today's exchange rates to about US$5.9 million. Of this amount about 29% is accounted for by the estimated costs of the annual survey of agricultural holdings. Evidence suggests that the unit costs of carrying out surveys in Georgia are on the low side when compared to other countries at a similar stage of development, although direct comparisons may be misleading because costs are not always calculated on the same basis.

6.2. A possible financing strategy

The cost of implementing the SPAERS will be met from a number of sources. In the first place and, most importantly, the Government Budget will meet the costs of the regular recurrent items, in particular salaries and the costs of the main data processes. Table 5 and 6 shows the proposed allocation from the central government budget for Geostat and an estimate for the statistical activities of MOA and MENRP and a possible projection over the remaining period of the strategic plan.

Table 5. Estimated allocation from the central government budget for agricultural, environmental and rural statistics by type of activity ('000 GEL)

	2016	2017	2018	2019	2020	Total
Staff costs (salaries)	390	480	495	555	555	2,475
Meeting data needs	863	899	1,003	1,022	1,048	4,835
Total	1,253	1,379	1,498	1,577	1,603	7,310
Percentage change		10%	9%	5%	2%	6%

Table 6. Estimated allocation from the central government budget for agricultural, environmental and rural statistics by agency ('000 GEL)

	2016	2017	2018	2019	2020	Total
Geostat	1,102	1,125	1,187	1,202	1,202	5,818
MOA	118	206	256	305	331	1,215
MENRP	32	49	55	70	70	276
Total	1,253	1,379	1,498	1,577	1,603	7,310
Percentage change		10%	9%	5%	2%	6%

The budget allocations for 2017 onwards are based on the assumption that the full staff costs are met and that an increasing proportion of statistical activities to meet data needs are also met over time. The largest increase will be in 2017.

The financing gap is shown in Table 7. Most of these costs represent investment in the capacity of the three agencies to produce official statistics that meet the needs of the Government and other users. They include training of statistical staff – the costs of training field staff are included under the heading meeting data needs – and upgrading of computing and other equipment.

Table 7. The estimated funding gap for SPAERS

	2016	2017	2018	2019	2020	Total
Financing gap (GEL'000)	1,209	1,255	1,256	1,704	1,534	6,958
Financing gap (US$ '000)	504	523	523	710	639	2,899

The total financing gap over the five years from 2016 to 2020 is estimated at GEL 6.96 million, or US$2.90 million. It is felt that this level is potentially fundable from existing programmes and resources, especially ENPARD I and II.

In addition, it is expected that the GSS will continue to require support from international technical assistance. An overview of the cost of providing this, based on existing levels of need is provided in Table 8.

Table 8. The estimated requirement for international technical assistance during SPAERS implementation

	2016	2017	2018	2019	2020	Total
Technical assistance (person days)	60	70	100	70	70	370
Technical assistance (GEL '000s)	159	186	265	186	186	981
Technical assistance (US$ '000s)	$66	$77	$110	$77	$77	$409

At this level of need, the total cost of the technical assistance programme is about GEL 0.98 million or US$ 0.41 million. Once again this is expected to be within the scope of existing programmes, especially support through ENPARD and from the US Department of Agriculture.

Chapter 7. Managing and Coordinating Implementation

At the level of each implementing agency, responsibility for managing the implementation of the SPAERS will rest with the management structures already in place. The Geostat will also retain its responsibility for managing official statistics.

It is recommended to maintain the Steering Committee that has been set up to guide and monitor the SPAERS preparation. The Committee will maintain more or less the same representation and will meet at least once in a year, or more frequently if required. As previously it will include senior management from the three implementing

agencies and the Head of the Agricultural Statistics Division of Geostat will be the Secretary. Draft terms of reference for the Steering Committee are provided in Annex 3.

It will be important to clarify the relationship between the Steering Committee and the Geostat Board, within the framework provided by the Statistics Law. The Steering Committee will be responsible for monitoring and following up the implementation process.

In addition, specific technical working groups may be established from time to time by the Steering Committee to deal with particular issues. Draft generic terms of reference for these groups are provided in Annex 4.

Chapter 8. Risk Assessment

The possible risks of SPAERS implementation could be financial, economic, social and the risks related to the competence of relevant staff.

Quality official statistics needs permanent and growing financial support as well as investment in human capital. In comparison with other public spending, statistics does not require too much financial and human resources, but growing demand on statistical data as well as changing methodology or technical infrastructure needs regular updates.

Some potential risks are discussed in the Annex 2, where the SWOT analysis is given.

The potential risks of SPAERS implementation could be following:

- Risks related to the Government's fiscal adjustment;
- Risks related to non-response from respondents of statistical surveys;
- Competence of staff to adopt the new methodologies and practices;
- Absense, law quality as well as problems related to updating of registers, databases and related statistical infrastructure.

Chapter 9. Reporting, Monitoring and Evaluation

The long-term vision provides for continuous development and improvement of the statistical system. For the institutions producing official statistics as well as for the statistical system it is important to be open and transparent and to provide information to data users, including the government and donors, who are financing the activities.

The goal of monitoring is to analyse implementation progress of the activities envisaged by the SPAERS with a certain periodicity. The monitoring will allow for revealing the reasons due to which a concrete measure has not been implemented.

Every year Geostat prepares and submits an annual report of its activities. SPAERS monitoring and reporting progress could be a part of Geostat's annual report. This mechanism can be used to disseminate information on implementation of SPAERS and on the results achieved. Besides, information about on-going activities is published on the webpages of Geostat, MOA and MENRP.

The detailed monitoring framework is set out in Chapter 10, where the information how the activities will be implemented and how the progress will be measured. Progress will be reviewed each year and minor changes to the work programme made as needed. It is proposed that a formal Mid-term Review will be carried out in 2018.

Chapter 10. Planned Activities, Tentative Implementation Period and Monitoring Indicators

Coordination and management				
Activity	**Responsible Agency**	**Implementation Period**		**Measurement Indicator**
		Start date	**End date**	
Formation of technical working group to identify the priority indicators and data series and their compliance with the European Code of Practice of Official Statistics	Geostat, MOA, MENRP	January, 2016	December, 2016	Formed technical working group
A training programme design for MOA and MENRP statistical staff	Geostat, MOA, MENRP	January, 2016	December, 2016	Training programme
Programme to improve the quality of data derived from administrative processes in MOA and MENRP prepared and agreed	Geostat, MOA, MENRP	January, 2016	December, 2017	Prepared and agreed programme
Training of MOA and MENRP statistical staff conducted	Geostat, MOA, MENRP	January, 2016	December, 2017	The number of trainings and the staff trained
Technical specifications and standards for priority indicators and series of MOA and MENRP identified and approved by the Geostat Board	Geostat, MOA, MENRP	September, 2017	December, 2017	Agreed and approved technical specifications and standards for priority indicators and series
Mid-term review of SPAERS implementation	Geostat with possible assistance of FAO	September, 2018	December, 2018	Report published

Meeting data needs and improving data processes				
Updated sample frame based on the 2014 Census of Agriculture	Geostat	January, 2016	January, 2016	Updated sample frame
Increasing the sample size from 5,000 to 12,000	Geostat	January, 2016	January, 2016	Increasing the sample size
Dissemination of the main results from the 2014 Census of Agriculture	Geostat	April, 2016	April, 2016	Uploaded information to the Geostat webpage, disseminated news press-releases
Creation of data archive to include the data from all agricultural surveys and censuses starting with the 2014 Census of Agriculture and provision of anonymised datasets for researchers	Geostat	April, 2016	December, 2020	Data archive
Start of preliminary work for creation of micro-data dissemination system	Geostat	April, 2016	December, 2016	Conducted preliminary work
A pilot survey of water supplier companies conducted to provide information on water supply and losses	Geostat	September, 2016	December, 2016	Survey results
Field testing of computer assisted personal interviewing (CAPI)	Geostat	October, 2017	December, 2017	Analysed results of field testing
CAPI introduced using hand-held tablet computers	Geostat	January, 2018	December, 2018	The first survey results
Pilot survey on aquaculture	Geostat	April, 2017	December, 2017	Survey results
A pilot survey on farmers' gross margins conducted	Geostat	April, 2018	December, 2018	Survey results
A pilot survey on greenhouses conducted	Geostat	April, 2018	December, 2018	Survey results
Yield measurement and harvest estimation system in place for 4 crops	MOA	January, 2016	December, 2016	Survey results
A farm register established	MOA	January, 2016	December, 2016	Farm register shared with Geostat
Rural development data needs identified	MOA	April, 2016	December, 2016	Rural Development Strategy Finalized and the list of data shared with Geostat
Preliminary work for establishment of market price information system at the level of municipalities	MOA	January, 2016	December, 2016	Conducted preliminary work
Creation of an agricultural data warehouse system	MOA	January, 2017	December, 2017	Data warehouse system

Establishment of market price information system at the level of municipalities	MOA	January, 2017	December, 2017	Market price information system in place
Establishment of a database of statistical information on the activities of agricultural cooperatives	MOA	April, 2017	December, 2017	The first results distributed
Geographical soil maps covering the entire territory of the country completed the updated	MOA	April, 2017	December, 2017	Updated maps
Establishment of a register of irrigated and restored land	MOA	April, 2017	December, 2017	Register in place
Rural development strategy progress monitoring system	MOA	April, 2017	December, 2017	The first report prepared and submitted to MOA leadership and shared with Geostat
Integrated geographically referenced database developed to monitor implementation of the Rural Development Strategy	MOA	June, 2017	December, 2017	Geographically referenced database in place
Creation of a cattle identification and registration system	MOA	January, 2018	December, 2018	The system in place
Data from the agricultural survey to improve annual estimates of carbon emissions from the agricultural sector used	MENRP, Geostat	January, 2017	December, 2017	The first data
Establishment of a comprehensive forest register and management plans for all main forest areas	MENRP	January, 2018	December, 2018	Register and management plans in place
Creation of database of key environmental and natural resources indicators and time series data	MENRP	January, 2018	December, 2018	Database in place
Investment in human resources				
Number of professional staff increased (in 2016 from 15 to 18, in 2017 from 18 to 19, in 2018 from 19 to 20, in 2019 from 20 to 21 and keep 21 in 2020)	Geostat	January, 2016	December, 2020	The number of staff
Number of field staff increased (in 2016 from 230 to 390 and keep 360 onwards)	Geostat	January, 2016	December, 2020	The number of field staff
Creation of independent	MOA	January,	December,	Statistical unit

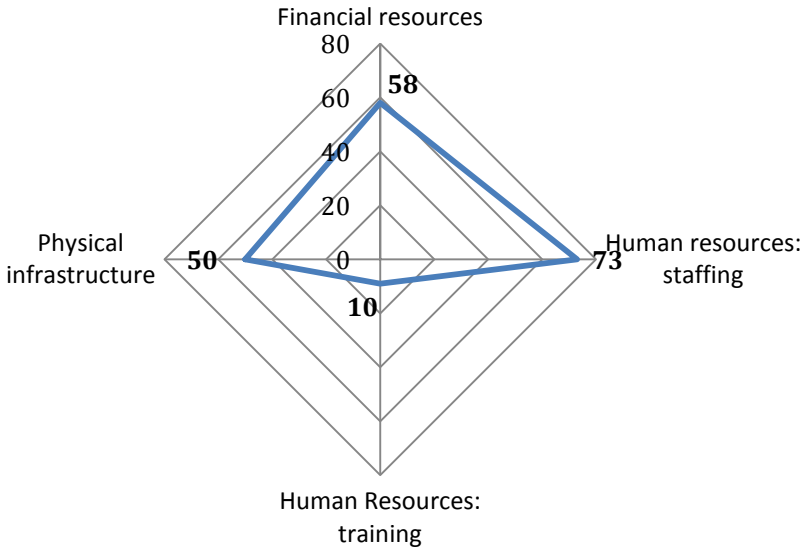
statistical unit at MOA		2017	2017	created
Number of professional staff increased (in 2016 from 2 to 6, by 2017 to 10, by 2019 to 12)	MOA	January, 2016	December, 2020	The number of staff
Number of field staff increased (in 2016 from 59 to 70, in 2017 from 70 to 80, in 2018 from 80 to 90, in 2019 from 90 to 100, in 2020 to 108)	MOA	January, 2016	December, 2020	The number of field staff
Creation of small statistical unit MENRP	MENRP	January, 2017	December, 2017	Statistical unit created
The posts of statisticians created and the number of staff increased (in 2016 2 post, by 2017 3 and by 2019 4)	MENRP	January, 2016	December, 2020	The number of staff
Training of professional staff (in 2016 360, 2017 384, in 2018 324, in 2019 336, in 2020 288 - number of person days)	Geostat	January, 2016	December, 2020	The number of personnel trained
Training of field staff (from 2016 to 2020 2730 each year)	Geostat	January, 2016	December, 2020	The number of personnel trained
Training of professional staff (in 2016 264, 2017 456, in 2018 264, in 2019 240, in 2020 216 - number of person days)	MOA	January, 2016	December, 2020	The number of personnel trained
Training of field staff (in 2016 490, 2017 560, in 2018 630, in 2019 700, in 2020 756 - number of person days)	MOA	January, 2016	December, 2020	The number of personnel trained
Training of personnel (in 2016 120, 2017 156, in 2018 72, in 2019 96, in 2020 84 - number of person days)	MENRP	January, 2016	December, 2020	The number of personnel trained
Making use of new technology				
Hand-held computing devices (tablets) procured	Geostat	January, 2016	December, 2017	The number of purchased devices
CAPI software developed	Geostat	January, 2016	December, 2017	The software in place
Data archive software to provide access to anonymised data sets from the agricultural census and other surveys	Geostat	April, 2016	December, 2020	The software in place
Data processing hardware and software updated	Geostat	January, 2017	December, 2020	Updated software in place, the number of

				new equipment
Data security processes and equipment improved	Geostat	January, 2017	December, 2020	The new processes and equipment in place
Software developed to upgrade the Geostat website and to support open data access and use	Geostat	January, 2017	December, 2020	The software in place
Development of CAPI software for other surveys and applications	Geostat	January, 2018	December, 2020	The software in place
Hand-held computing devices (tablets) procured	MOA	January, 2016	December, 2017	The number of devices
Development of CAPI software	MOA	January, 2016	December, 2017	The software in place
Development of CAPI software for other surveys and applications	MOA	January, 2020	December, 2020	The software in place
Software and hardware to develop and manage the farm register and similar databases developed	MOA	January, 2016	December, 2016	The software in place
Hardware and the development of software in MOA and each municipality (including for the dissemination of price information)	MOA	January, 2016	December, 2016	The software in place, the number of hardware equipment
Development of an applications to disseminate price and other agricultural data	MOA	January, 2017	December, 2017	Application in place
Hardware and software to support data sharing with Geostat and to upgrade security of the databases developed	MOA	January, 2018	December, 2018	The software in place, the number of hardware equipment
Software and hardware to support the development and implementation of a geographic information system developed	MOA	January, 2019	December, 2019	The software in place, the number of hardware equipment
Development software and hardware to manage the forest register and similar databases	MENRP	January, 2016	December, 2016	The software in place, the number of hardware equipment
Hardware and software to support data sharing with Geostat and to upgrade security of the databases developed	MENRP	January, 2018	December, 2018	The software in place,, the number of hardware equipment
Software and hardware to support the development	MENRP	January, 2019	December, 2019	The software in place, the number of

and implementation of a geographic information system developed				hardware equipment
Building and developing statistical infrastructure and registers				
Updating classification of agricultural holdings in compliance with international standards and data users' needs	Geostat	January, 2017	December, 2020	Updated classification in place
Development and extension of geographical information system used for the 2014 censuses of population and agriculture to include physical features and infrastructure	Geostat	January, 2016	December, 2018	Updated geographical information system
Policies and procedures developed to provide researchers with access to anonymised data sets for further analysis.	Geostat	January, 2016	December, 2017	Developed policies and procedures in place
A database structure established, with appropriate controls over access and security controls, for data collected and compiled	MOA	January, 2019	December, 2019	The report prepared and submitted to MOA leadership
A database structure established, with appropriate controls over access and security controls, for data collected and compiled	MENRP	January, 2019	December, 2019	The report prepared and submitted to MENRP leadership

Annex 1. Overview of the Capacity of the National Statistical System

Figure 1. Indicators of the capacity of the national statistical system in Georgia by type of resource



Financial resources

As an independent LEPL, Geostat has a separate budget, which is fully used for statistical activities. Draft of annual budget is prepared by Geostat management, reviewed and approved by Geostat Board and finally discussed and agreed with MoF. Budget is discussed together with the draft of annual statistical work program. According to law, Geostat is allowed to have commercial works. In 2010, Geostat Board approved the tariffs for different statistical products and since 2010, Geostat has commercial income. Budget for sample survey of agricultural holdings is independently drafted and approved in Geostat's annual budget.

Table 1. Geostat annual budget ('000 GEL)

	2009	2010	2011	2012	2013	2014	2015
Annual Budget (State budget financing)	4,332.0	3,280.6	4,201.0	4,500.0	5,800.0	14,600.0	8,900.0
Commercial works	-----	208.8	325.4	230.4	124.8	267.5	160.0
Grants	1,082.5	1,637.0	311.0	137.3	784.1	2,067.0	573.4
Budget for sample survey of agricultural holdings	380.0	350.0	345.0	350.0	350.0	345.0	362.0

*2013, 2014, 2015 census years

MOA has a separate budget, but the Policy and Analytical Department does not have a separate budget for its activities. The main responsibilities of the department are to define agricultural sector development policies, strategies and action plans, faultlessness in agriculture sector existing database and analytical work completion. Statistical work is not the only task of the department; it's the part of its activities. There is a Statistics and Analytical Division in the department. The division is responsible for

statistical works. The same situation is found at the Department of Environmental Policy and International Relations of MENRP.

Human resources: staffing

Geostat has established 221 permanent posts for official statistics and 15 posts are in AESD. All 15 posts are filled. The turnover of professional staff is a relevant constraint. The number of staff at AESD has been increased in 2014.

Table 2. The number of Geostat staff

	2009	2010	2011	2012	2013	2014	2015
Total number of staff	169	149	149	149	149	208	221
Number of staff at AESD	7	5	5	5	5	15	15
Number of Enumerators		420	420	400	346	360	364
Enumerators at Agricultural Sample Survey		250	254	238	214	192	193

The number of officially established posts in the Statistics and Analytical Division of MOA is 4 but 2 only to posts are filled. The number of workers at Information Consulting Centre is 59. Collection of statistics is not primary job of the workers at Information Consulting Centres.

For statistical purposes MENRP has 25 people, 16 in headquarter of National Forest Agency and 9 in field offices. 21 people are working on forestry, 2 on air and 1 on water resources. One person is coordinating statistical activities of MENRP, but statistics is not her primary duty.

Human resources: training

There is no regular training programme for statistical staff of Geostat and the line ministries. Periodically, Geostat interviewers are trained by Geostat staff and USDA experts. During the last 12 months three people from Geostat AESD and one person from MOA have been trained abroad.

Physical infrastructure

Geostat has 17 four wheeled vehicles. There is no personal car for AESD, but one car in duty is used for AESD if needed. MOA and MENRP does not have any cars allocated specifically for statistical purposes.

Transport equipment, office space and office equipment are relevant constraints for all three institutions.

Annex 2. SWOT Analysis of Agricultural and Environmental Statistics System in Georgia

A. THE OVERALL AGRICULTURAL AND ENVIRONMENTAL STATISTICAL SYSTEM

	Strengths		Weaknesses
1	The national statistical system of Georgia is progressing every year and there have been clear improvements in the quality and coverage of official statistics in recent years.	1	Limited financial resources.
2	Geostat is an independent agency, independently running its budget, using the international methodologies and dealing with international cooperation.	2	Limited opportunities of trainings for agricultural and environmental statistics staff of Geostat, MOA and MENRP.
3	Georgia has a legal basis enabling to produce official statistics according to the fundamental principles of UN and European Statistics Code of Practice on the basis of internationally recognized basic principles of statistics.	3	Weak infrastructure.
4	Government's support, commitments and willingness to improve the quality of agricultural and rural statistics.	4	Lack of experience in local authorities to produce statistics.
5	Centralized and well-developed national statistical system.	5	Incomplete regional statistics and absence of municipal data.
6	An active participation of all stakeholders in the efforts to improve the quality and coverage of agricultural and rural statistics in Georgia.	6	Absence of officially agreed strategic plan for agricultural, environmental and rural statistics.
		7	New technology is not fully utilized for data collection and data processing, which can delay dissemination of data.
		8	Low level of core data availability.
		9	Absence of fishery statistics.
		10	Absence of crop forecast data.
		11	Weak administrative data (registers).
		12	Absence of up-to-date land data.

	Opportunities		Threats
1	Strong mandate of leadership of Geostat.	1	Impact of the Government's fiscal adjustment.
2	General recognition within Government of the importance of agricultural, environmental and rural statistics.		
3	Recent overall policy framework and strategic documents (AA with EU, ENPARD, National Strategy for Agricultural Development in Georgia 2015-2020, Geostat's new strategy).		
4	Donors' assistance from USDA, FAO, EU, Sida and Ministry of Foreign Affairs of Poland.		

B. CROP AND LIVESTOCK SUB-SECTOR

	Strengths		Weaknesses
1	Accepted leading role of Geostat.	1	A small size of the sample.
2	Good level of coordination between Geostat and MOA.	2	Gaps in crop condition and crop forecast data.
3	Centralized system of data collection.	3	Absence of CPI and PPI of agricultural products.
4	Coverage of entire territory of Georgia (excluding occupied territories).	4	Absence of farm register.
5	Adequate information technology facilities.	5	Timeliness of statistical information.
6	Experienced data collection and survey management staff.		
	Opportunities		**Threats**
1	The importance of crop and livestock sector in Georgia.	1	Funding.
2	The availability of the new frame for the sample survey of agricultural holdings from 2016.	2	Respondent fatigue.
3	New surveys to be conducted by Geostat and MOA.		
4	ICCs of MOA, which might be used for data collection at the municipal level.		
5	Support from donors, particularly support of USDA.		

FORESTRY SUB-SECTOR

	Strengths		Weaknesses
1	Presence of National Forestry Agency and its network for data collection.	1	The lack of updated questionnaires as well as technical and methodological capacities and financial resources.
	Opportunities		**Threats**
1	Annual statistical work plan of Geostat.	1	Funding.
2	Memorandum of cooperation between Geostat and MENRP.	2	Competence of staff to adopt the new methodologies and practices.
3	Government's commitment to improve the quality of forestry statistics.		
4	International partnership and donors' support.		

C. FISHERIES AND AQUACULTURE SUB-SECTOR

	Strengths		Weaknesses
		1	Absence of practice of producing fisheries and aquaculture statistics.
		2	The lack of methodology as well as lack of data collection staff.
	Opportunities		**Threats**
1	Government's commitment to have fisheries and aquaculture statistics.	1	Funding.
2	International partnership and donors' support.	2	Difficult to introduce the sound statistical methodology.
		3.	Absence of list of producers.

E. WATER AND ENVIRONMENT SUB-SECTOR

	Strengths		Weaknesses
1	Existing data collection practice at MENRP.	1	Data gaps.
2.	New survey of water supplier companies.	2	The lack of updated questionnaires and methodology.
	Opportunities		**Threats**
1	Annual statistical work plan of Geostat.	1	Funding.
2	Memorandum of cooperation between Geostat and MENRP.		
3	Government's commitment to improve water and environment statistics.		

4	International partnership and donors' support.	

F. RURAL STATISTICS

	Strengths		Weaknesses
1	Availability of data on rural infrastructure.	1	Data gaps.
2	Data on local services.	2	Lack of methodology.
	Opportunities		**Threats**
1	Government's commitment to have rural statistics.	1	Funding.
2	Government's plans for rural development strategy.		
3	International partnership and donors' support.		
4	2014 census results, which will provide data on housing conditions and access to local services.		

Annex 3. Draft Terms of Reference for the Steering Committee

The purpose of the Steering Committee is to provide high-level government oversight of the implementation of SPAERS and to monitor and review progress. It will provide overall guidance to the development implementing agencies, advise on how best to address issues and concerns that arise and promote coordination generally.

It is proposed that the Steering Committee will have the following members:

1. Chairman – Executive Director Geostat
2. Deputy Executive Director – Geostat
3. Deputy Minister – Ministry of Agriculture
4. Deputy Minister – Ministry of Environment and Natural Resources Protection
5. Head of FAO Office in Georgia
6. Agricultural Specialist US Embassy
7. EU Agricultural Attaché
8. One or two senior representatives of NGOs or research institutes with a special interest in agricultural and rural statistics
9. Secretary – Head of the Agricultural Statistics Division, Geostat

In particular it is proposed that the SC will carry out the following tasks:

- Provide guidance and supervision on the alignment of SPAERS with national policy and development priorities;
- Ensure that SPAERS is coordinated with the new NSDS as it is rolled out;
- Monitor progress on a regular basis, approve progress reports and liaise with development partners;
- Make recommendations to the Government on how the implementation of SPAERS can be financed;
- Identify how best SPAERS can be integrated with relevant national strategies and development plans;
- Help to resolve coordination issues between stakeholders

It is anticipated that the SC will meet as needed, at least once a year.

Annex 4. Draft Terms of Reference for Technical Working Groups

The Steering Committee may set up Technical Working Groups to be responsible for particular issues arising during the implementation of SPAERS. In collaboration with consultants and in consultation with different stakeholders the groups will bring together technical specialists from different agencies, usually under the leadership of Geostat. It is anticipated that the working groups will carry out the following tasks.

- Bring together professional staff from different organizations as needed to support the implementation of SPAERS.
- Guide the implementation process and report on progress to the Steering Committee from time to time
- Provide guidance on roles and responsibilities of major data producing agencies in the NSDS/SPAERS process
- Liaise with Geostat on the integration of SPAERS within the NSDS
- Identify the approaches and mechanisms needed to overcome data gaps to improve data quality, improve methodology and remove duplications.
- Examine current and emerging demands for data across agencies, their frequency of collection, appropriateness of existing methodologies and recommend prioritization in the SPAERS framework
- Guide and monitor the implementation of annual work plans of SPAERS through quarterly and annual reports

Membership of the TWG may well vary depending on need, but is expected to include the following.

- Convenor: Head of the Agricultural Statistics Division of Geostat or some other suitable senior official
- Senior staff from relevant divisions in Geostat
- Staff from the Policy and Analysis Division of the Ministry of Agriculture
- Staff from the Ministry of Environment and Natural Resources Protection
- Representatives of other major users, including research agencies and NGOs.
- Other major stakeholders as needed.

It is expected that different TWGs will start work to a timetable established by the Steering Committee. The working pattern will depend on needs and progress within the overall implementation timetable.

Annex 5. The Detailed Budget

The budget assumes a number of unit costs for different items, based on information provided by Geostat. They are as follows.

Unit costs	
Staff costs	
Professional staff - average annual salary costs plus overheads	GEL 15,000
Field staff - average staff costs per interview	GEL 15.7
Training costs	
Average cost of training professional staff per person day	GEL 400
Average training cost for field staff per person day	GEL 120
Equipment costs	
Tablets and hand-held computing devices	GEL 500
Servers	GEL 5,000
Other computing equipment	GEL 1,000
Software - average costs per year	GEL 1,000
Vehicles - annual cost including depreciation	GEL 7,000
Other costs	
Interaction with data users - average costs per workshop	GEL 2,500
Contingencies as a percentage of total costs	10%
Inflation rate per year	5%
Exchange rate US$1.00 = GEL 2.4	2.4
International technical assistance - average costs per person day	GEL 2,650

Geostat

		2016	2017	2018	2019	2020
Geostat Activities						
Permanent and contracted staff		18	19	20	21	21
Meeting data needs						
Survey of agricultural holdings	No. of interviews/year	53,000	52,000	52,000	52,000	52,000
Survey of aquaculture	No. of interviews/year		1,500	1,500	1,500	1,500
Survey of greenhouses	No. of interviews/year			1,500	1,500	1,500
Farmers Gross Margin Survey	No. of interviews/year			1,500	1,500	1,500
Equipment and IT technology						
Tablets	No.	400			400	
Servers	No.	2			2	
Other computing equipment	No.	4	4	5	6	6
Software	No. of versions	18	19	20	21	21
Vehicles	No.	1	1	2	2	2
Development of human resources						
Professional staff	No of training days/ year	360	384	324	336	288
Field staff	No of training days/ year	2,730	2,730	2,730	2,730	2,730
Other costs						
Interaction with data users	No. of workshops	3	4	4	4	4

	2016	2017	2018	2019	2020
Cost of Geostat Activities					
Professional staff	270,000	285,000	300,000	315,000	315,000
Meeting data needs					
Survey of agricultural holdings	832,100	816,400	816,400	816,400	816,400
Survey of aquaculture		23,550	23,550	23,550	23,550
Survey of greenhouses		23,550	23,550	23,550	23,550
Farmers Gross Margin Survey			23,550	23,550	23,550
Equipment and IT technology					
Tablets	200,000			200,000	
Servers	10,000			10,000	
Other computing equipment	4,000	4,000	5,000	6,000	6,000
Software	18,000	19,000	20,000	21,000	21,000
Vehicles	7,000	7,000	14,000	14,000	14,000
Development of human resources					
Professional staff	144,000	153,600	129,600	134,400	115,200
Field staff	327,600	327,600	327,600	327,600	327,600
Other costs					
Interaction with data users	7,500	10,000	10,000	10,000	10,000
Total	1,820,200	1,646,150	1,693,250	1,925,050	1,695,850
Contingencies	182,020	164,615	169,325	192,505	169,585
Total in 2016 prices	2,002,220	1,810,765	1,862,575	2,117,555	1,865,435
Total allowing for inflation	2,002,220	1,901,303	2,053,489	2,451,335	2,267,448

MOA

		2016	2017	2018	2019	2020
MOA Activities						
Permanent and contracted staff		6	10	10	12	12
Field staff		70	80	90	100	108
Meeting data needs						
Crop yield survey	No of person days/year	500	600	700	700	700
Crop condition survey	No of person days/year	900	1,200	1,440	1,680	1,800
Market price survey	No of person days/year	1,500	2,599	3,070	3,070	3,070
Development of farm register	No of person days/year	700	800	900	1,000	1,160
Development of cattle registration system	No of person days/year		700	800	900	900
Survey of agricultural cooperatives	No of person days/year			1,500	2,000	2,000
Equipment and IT technology						
Servers	No.	1			1	
Other computing equipment	No.	4	5	5	3	3
Software	No. of versions	6	10	10	12	12
Development of human resources						
Professional staff	No of training days/ year	264	456	264	240	216
Field staff	No of training days/ year	490	560	630	700	756
Other costs						
Interaction with data users	No. of workshops	2	2	3	3	3

	2016	2017	2018	2019	2020
Cost of MOA Activities (GEL)					
Professional staff	90,000	150,000	150,000	180,000	180,000
Meeting data needs					
Crop yield survey	7,850	9,420	10,990	10,990	10,990
Crop forecast survey	14,130	18,840	22,608	26,376	28,260
Market price survey	23,550	40,804	48,199	48,199	48,199
Development of farm register	10,990	12,560	14,130	15,700	18,212
Development of cattle registration system		10,990	12,560	14,130	14,130
Survey of agricultural cooperatives			23,550	31,400	31,400
Equipment and IT technology					
Servers	5,000			5,000	
Other computing equipment	4,000	5,000	5,000	3,000	3,000
Software	6,000	10,000	10,000	12,000	12,000
Development of human resources					
Professional staff	105,600	182,400	105,600	96,000	86,400
Field staff	58,800	67,200	75,600	84,000	90,720
Other costs					
Interaction with data users	5,000	5,000	7,500	7,500	7,500
Total	330,920	512,214	485,737	534,295	530,811
Contingencies	33,092	51,221	48,574	53,430	53,081
Total in 2016 prices	364,012	563,436	534,311	587,725	583,892
Total allowing for inflation	364,012	591,608	589,078	680,365	709,724

MENRP

		2016	2017	2018	2019	2020
MENRP Activities						
Permanent and contracted staff		2	3	3	4	4
Meeting data needs						
Develop the forest register	No of person days/year		100	200	200	200
Analysis of water quality and waste management	No of person days/year	100	100	200	200	200
Analysis of carbon emissions	No of person days/year	50	50	50	50	50
Database of environmental data and indicators	No of person days/year			200	200	200
Equipment and IT technology						
Servers	No.		1			1
Other computing equipment	No.	2	1	2	2	2
Software	No. of versions	2	3	3	4	4
Development of human resources						
Professional staff	No of training days/year	120	156	72	96	84
Other costs						
Interaction with data users	No. of workshops	1	1	1	1	2

	2016	2017	2018	2019	2020
Cost of MENRP Activities (GEL)					
Professional staff	30,000	45,000	45,000	60,000	60,000
Meeting data needs					
Develop the forest register		1,570	3,140	3,140	3,140
Analysis of water quality and waste management	1,570	1,570	3,140	3,140	3,140
Analysis of carbon emissions	785	785	785	785	785
Database of environmental data and indicators			3,000	3,000	3,000
Equipment and IT technology					
Servers		5,000			5,000
Other computing equipment	2,000	1,000	2,000	2,000	2,000
Software	2,000	3,000	3,000	4,000	4,000
Development of human resources					
Professional staff	48,000	62,400	28,800	38,400	33,600
Other costs					
Interaction with data users	2,500	2,500	2,500	2,500	5,000
Total	86,855	122,825	91,365	116,965	119,665
Contingencies	8,686	12,283	9,137	11,697	11,967
Total in 2016 prices	95,541	135,108	100,502	128,662	131,632
Total allowing for inflation	95,541	141,863	110,803	148,942	159,999

Annex 6. Core Data

Group of variables	Key variables	Core data items	Detail required	Frequency	Source
ECONOMIC DATA					
Output	Production	**Temporary crops:** winter and spring wheat, winter and spring barley, oat, sunflower, beans, maize, potato, melons (water-melon, melon, pumpkin), annual grasses, perennial grasses, tomato, cucumber, beet, cabbage, pepper, dry onion, garlic, greens, eggplant, carrot. **Permanent crops:** grapes, apple, hazelnut, walnut, sour plum, plum, cherry, pomegranate, mushmala, mulberry, peach, aprocot, pear, kiwi, quince, tangerine, orange, lemon, tea. **Livestock production**: beef, pork, sheep and goat meat, poultry meat, chicken meat, turkey meat, duck and goose meat, buffalo milk, cattle milk, sheep and goat milk, egg, wool, honey. Fish production. **Aquaculture:** volume of fish produced **Forestry Production:** forest area, forest cover of Georgia by regions, forest fire, forest restoration (by regions), forest seeding and planting (by regions), facilitating natural recovery of forest (by regions), area of infected forest and measures taken, volume of timber harvested in forest (by regions), illegal logging (by regions), export and import of non-processed timber (by countries), number of employees in the National Forestry Agency, operating costs of the National Forestry Agency	Regional, national Regional, national	Annual	Geostat MENRP (forestry)
	Sown and harvested area Land under permanent crops	**Temporary crops**: winter and spring wheat, maize, potato, winter and spring barley, oat, tomato, cucumber, garlic, pepper, cabbage, dry onion, eggplant, carrot, greens, sunflower, beans, melons (water-melon, melon, pumpkin), beet, annual grasses, perennial grasses. **Permanent crops**: grapes, apple, hazelnut, walnut, sour plum, plum, cherry, pomegranate, mushmala, mulberry, peach, pear, kiwi, capers,	Regional, national	Annual, Once in every 3 years Annual for selected	Geostat

Group of variables	Key variables	Core data items	Detail required	Frequency	Source
		tangerine, orange, lemon, tea.		crops	
	Yield	**Temporary crops**: winter and spring wheat, maize, potato, winter and spring barley, oat, beans, tomato, cucumber, garlic, pepper, cabbage, dry onion, eggplant, melons (water-melon, melon, pumpkin), beet, carrot, greens, sunflower, annual grasses, perennial grasses. **Permanent crops**: grapes, apple, hazelnut, walnut, sour plum, plum, cherry, pomegranate, mushmala, mulberry, peach, pear, kiwi, capers, tangerine, orange, lemon, tea.	Regional, national	Annual, Once in every 3 years	Geostat
Trade	Export in quantity and value	Wheat, maize, potato, barley, haricot beans, melons, tomatoes, cucumbers, cabbages, dry onions, other vegetables, grapes, apple, hazelnuts, other fruits, tangerines, other citruses, tea, cattle, pigs, sheep and goats, poultry, meat, honey, milk, eggs, wood and wood materials, fish. Fertilizers, agricultural machinery	National	Monthly	Geostat
	Import in quantity and value	Wheat, maize, potato, barley, haricot beans, melons, tomatoes, cucumbers, cabbages, dry onions, other vegetables, grapes, apple, hazelnuts, other fruits, tangerines, other citruses, tea, cattle, pigs, sheep and goats, poultry, meat, honey, milk, eggs, wood and wood materials, fish. Fertilizers, agricultural machinery	National	Monthly	Geostat
Stock of resources	Land cover and use	Arable land, land under permanent crops, natural meadows and pastures.	Municipal, regional, national	Census, administrative sources	Geostat
	Stocks of main crops	Quantity of wheat, maize, barley in agricultural holdings	National	Annual	Geostat
	Farm register	The list of agricultural holdings and other registration data	Municipal, regional, national	Annual	MOA
	Economically active population by gender	Number of employees (including agriculture), number of self-employed (including agriculture)	Regional, National	Quarterly, annual	Geostat
	Livestock	Number of live animals: cattle by age, pigs, sows, sheep, ewes, goats, mother goats, horses, donkeys and mules, chicken, turkeys, duck and geese, beehives.	Regional, national	Quarterly, annual	Geostat
	Litter and loses of livestock	Litter: calves, pigs, kids and lambs. Loss: cattle, pigs, sheep and goats.	Regional, national	Annual	Geostat

Group of variables	Key variables	Core data items	Detail required	Frequency	Source
	Agricultural Machinery	Number of tractors, harvesters, seeders, etc	Municipal, regional, national	Annual	Geostat, MOA, MIA
	Storage of main crops in grain elevators	Number of elevators, volume of product stored, number of service users	Regional, National	Quarterly, Annual	Geostat
	Storage of main crops in cold storage facilities	Number of storage facilities, volume of product stored, number of service users	Regional, National	Quarterly, Annual	Geostat
Inputs	Irrigation	Irrigated land, irrigable land area (water-provisioned)	Municipal, Regional, national	Census	Geostat
	Water supplied by water supply provider companies	Water supply, losses and number of water users	Regional, national	Annual	Geostat
	Energy consumption	Energy used in agricultural activities	National	Annual	Geostat
	Pesticides and fertilizers	Area treated by core fertilizers and pesticides	regional, national	Annual	Geostat
	Feed in production	By core crops	National	Annual	Geostat
	Production expenses of holdings	By type of expense	National	Annual	Geostat
Agro-processing					
	Wine production	By types of wine and by companies	National	Quarterly, Annual	Geostat
	Meet proceeded in commercial livestock slaughter	Number of slaughterhouses, livestock slaughtered, meet proceeded, working conditions of slaughterhouses	Regional, National	Quarterly, Annual	Geostat
Food balance sheets	Food Balance sheet	Wheat, maize, potato, vegetables, grapes, meat, beef, pork, sheep and goat meat, poultry meat, milk and milk products, egg	National	Annual	Geostat
Prices	Consumer prices	Core agricultural products	National	Monthly, annual	Geostat
	Farm-gate prices	Core agricultural products	regional, national	Annual	Geostat
Final expenditure	Government expenditure on agriculture and rural development	Public spending, investments and subsidies, number of beneficiaries of government agricultural or rural subsidy or aid programs	National	Annual	MOA Geostat
	Private investments in fixed assets	Investments in agriculture	Regional, National	Annual	Geostat
	Foreign Direct Investments (FDI)	FDI in agriculture	Regional, National	Quarterly, Annual	Geostat
	Household consumption	Consumption of core agricultural products and its value	National	Annual	Geostat
	Income of household from the selling of agricultural products	Amount of income	national	annual	Geostat

Group of variables	Key variables	Core data items	Detail required	Frequency	Source
Rural Development Data	Economic and social data	Demography, education, infrastructure (including roads), health, labour	Municipal, regional, national	Census, Annual	Geostat
International transfer	Official development assistance for agriculture, environment and rural development	By sub-sector, activities and amount	National	Annual	MOA, MoF, MENRP
SOCIAL DATA					
Demography	Number of population	By sex, age, birth country, education level	Municipal, regional, national	Census	Geostat
	Economic status	Employed (hired, self-emloyed), unemployed, out of labor force	Regional, national	Quarterly, annual	Geostat
	Employement by economic activities	By sex, by types of ecomonic activity (International Standard Industrial Classification)	Regional, national	Annual	Geostat
	Total income of household	In Georgian Lari	Regional, national	Annual	Geostat
	Household composition	By sex	Regional, national	Annual	Geostat
	Head of the holding	By sex	National	Annual	Geostat
	Housing conditions	Type of housing and conditions	Municipal Regional, national	Census	Geostat
ENVIRONMENT DATA					
Water	Big rivers	By size (length and basin)	National	Annual	MENRP
	Lakes and reservoirs	By size (surface area, water volume and depth)	National	Annual	MENRP
	Indicators for water extraction, use and discharged waste waters	By volume by activities	Regional, national	Annual	MENRP
Air	Hazardous substances emitted into the atmosphere	By type	National	Annual	MENRP
	Hazardous substances generated in stationary sources	By type	National	Annual	MENRP
	Exhaust emissions from road transport	By type	National	Annual	MENRP
	Absorbed or neutralized and emitted hazardous substances from stationary sources	By type	Urban, national	Annual	MENRP
Protected areas	Number of protected areas	By structure, by category	Municipal, regional, national	Annual	MENRP
	Number of	By type of animals and birds and by	Municipal,	Annual	MENRP

Group of variables	Key variables	Core data items	Detail required	Frequency	Source
	animals and birds preserved in protected areas	protected areas	regional, national		
	Expenses on maintenance of protected areas and number of employees	By type, by sources	Municipal, regional, national	Annual	MENRP
Natural disasters	Frequency of geological phenomena (landslide, mudflow),	By monetary loss, number of human fatalities and vulnerable objects	Municipal, regional, national	Annual	MENRP
	Number of hydro meteorological events	By type of natural disaster	National	Monthly, annual	MENRP
Other	Field burning of agricultural residues		National	Annual	Geostat
	Losses of water during transport (leakages, evaporation, burst mains, meter errors		National	Annual	Geostat
GEOGRAPHIC LOCATION					
GIS coordinates	Location of settlements (enumeration units)	Village GIC coordinates, municipality, region, country	Municipal, regional, national	Census	Geostat
Degree of urbanization	Urban/rural areas	By type of settlements (city, village)	Municipal, regional, national	Annual	Geostat