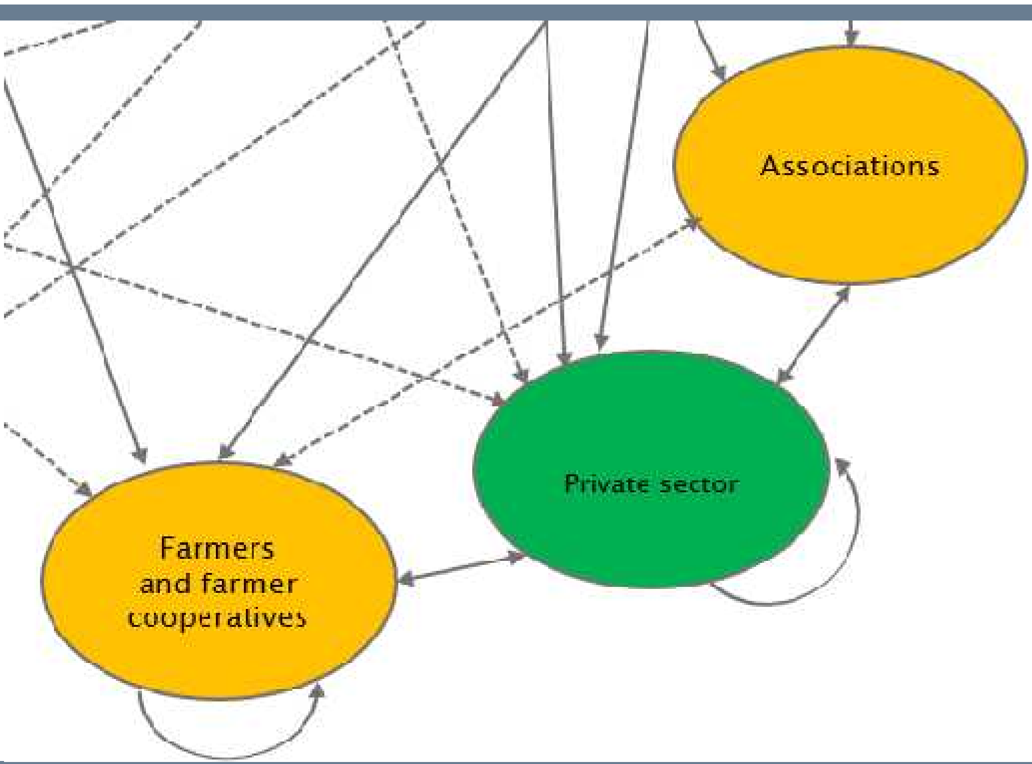

Analysis of the Agricultural Knowledge and Information System (AKIS) in Georgia

Final Report

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List of Abbreviations

AE	Agricultural extension
ACDA	Agricultural Cooperatives Development Agency
ACT	Analysis and Consulting Team
AKIS	Agricultural Knowledge and Information / Innovation System
APRC	Agricultural Policy Research Centre
ARDA	Agricultural and Rural Development Agency
AUG	Agrarian University of Georgia
A-VET	Agricultural vocational education and training
AYEG	Association of Young Economists of Georgia
BFH	Bern University of Applied Sciences
CRRC	The Caucasus Research Resource Center
CTC	Centre for Training and Consultancy
EIEC	Environmental Information and Education Centre
EMIS	Education Management Information System
ENPARD	The European Neighbourhood Programme for Agriculture and Rural Development
EPPM	The International Institute for Education Policy, Planning and Management
EQE	National Centre for Educational Quality Enhancement
FAO	Food and Agriculture Organization
GAAS	Georgian Academy of Agricultural Sciences
Geostat	National Statistics Office of Georgia
GITA	Georgia's Innovation and Technology Agency
GFA	Georgian Farmers Association
HAFL	School of Agricultural, Forest and Food Sciences
ICC	Information Consultation Centre
IDP	Internally displaced person
ISET	International School of Economics at Tbilisi State University
LLL	Lifelong learning
LMA	Laboratory of Ministry of Agriculture
MEPA	Ministry of Environmental Protection and Agriculture of Georgia
MoESCS	Ministry of Education, Science, Culture and Sports of Georgia
MoESD	Ministry of Economy and Sustainable Development of Georgia
MRDI	Ministry of Regional Development and Infrastructure
NGO	Non-government organization
NFA	National Food Agency
PMCG	Policy and Management Consulting Group
RFP	Request for proposal
RICC	Regional Information Consultation Centre
SASC	Swiss Agricultural School Caucasus
SRCA	Scientific-research Centre of Agriculture
SSO	Sector Skills Organization
TPDC	National Centre for Teacher Professional Development
UNDP	United Nations Development Programme
VET	Vocational education and training
WBL	Work-based Learning

Executive Summary

This report was prepared under the mandate 'Analysis of the National Agricultural Knowledge and Information System (AKIS) in Georgia' commissioned for the UNDP project 'Modernization of Vocational Education and Training (VET) System Related to Agriculture in Georgia'. The mandate includes three larger fields of inquiry, namely an analysis of the Georgian AKIS actors and linkages including a visualization, the identification of assets and gaps in the current system and recommendations on how to improve. For this purpose, semi-structured interviews were conducted with 36 key informants from different stakeholder groups (government, education and research, farmer-based organizations, private sector, and NGOs). This information was complemented with a brief literature review and data from various relevant websites, as well as the research team's own knowledge and observations. The preliminary findings were discussed during a multi-stakeholder workshop.

The study reveals that the Georgian AKIS comprises a wide variety of actors. On the government side, the most important entities are the Ministry of Environmental Protection and Agriculture (MEPA) with their Information Consultation Centres (ICCs) at regional and municipal levels, bodies of the Ministry of Education, Science, Culture and Sports (MoESCS) dealing with VET and tertiary education, and a number of subunits of the Ministry of Economy and Sustainable Development (MoESD) supporting exports and the creation of start-up companies in all economic sectors including agriculture. With respect to education, there are seven universities, one teaching university, and nine VET colleges offering programs in the field of agriculture. In research, there is the Scientific-Research Centre of Agriculture (SRCA) which was established in 2014, the long-standing Georgian Academy of Agricultural Sciences (GAAS), and research groups at different universities and private companies (especially input suppliers) conducting their own research. Furthermore, there are numerous general and commodity-specific farmer-based organizations out of which the Georgian Farmers Association (GFA), Farmer of the Future (FoF), Elkana, and the Georgian Wine Association seem to be the most active and powerful. The private sector—especially input suppliers—plays a crucial role in the provision of products, services, and information, and in the introduction of innovative technologies and practices. Overall, there exist up to 50 relatively large input suppliers producing or importing various types of inputs and distributing them to a large number of small-scale outlets in the regions. Many of these outlets were created during an agricultural voucher initiative from MEPA and are assumed to be the most important personal contact point for small-scale farmers. Last but not least, international donors and NGOs strongly influence the system through their programmes and projects linked to agriculture.

There are manifold linkages between the AKIS actors. Only a few linkages are solely about information exchange, namely the multi-stakeholder exchanges in the form of platforms and workshops and counselling of farmers by ICC staff. Most linkages are related to external donor or state funding under the auspices of projects. The same applies to coordination mechanisms: different mechanisms are in place, however, their efficiency is often low and key stakeholders agreed that there is a need for improvement.

Three major strengths of the present-day Georgian AKIS were identified: a shared will to strengthen the agricultural knowledge system, public and private country-wide networks, and strong 'leaders of change'. In spite of this, the Georgian AKIS has a lot of weaknesses which include a lack of coherence and coordination, a lack of sustainability, a lack of qualifications, and a lack of understanding of farmers' needs and practices.

Looking ahead, this study reveals three important perceptions: while there appears to be a shared understanding of the present-day AKIS as both relatively weak and relatively fragmented, and a shared understanding that the AKIS should become stronger, there is no common vision of where the AKIS should move. This is a fundamental question to be answered, followed by what measures it needs to move from where it is to where it aims to be. In order to overcome the existing challenges and further develop the Georgian AKIS, it is recommended to situate and integrate the AKIS concept in the larger strategy and policy context, to clarify roles and responsibilities of individual AKIS actors, to strengthen specific key actors and to support specific linkages between fragmented subsystems. It is further advised to support the creation of knowledge centers for specific agricultural domains, to continue successful digital transformation, to foster participatory approaches and applied research. It is further recommended to work towards institutional and financial sustainability of the system and to analyze the AKIS from farmers' perspective.

1. Introduction

This report is the central document of the mandate 'Analysis of the National Agricultural Knowledge and Information System (AKIS) in Georgia', or GEOAKIS. It is based on the Request for Proposal (RFP, Annex 3) developed by the United Nations Development Programme (UNDP)-funded project 'Modernization of Vocational Education and Training System Related to Agriculture in Georgia'. This project started in 2013 with the aim of contributing to the development of a system of high-quality agricultural vocational education and training (A-VET) and agricultural extension (AE) leading to improving the livelihoods of the rural population.

For this mandate, two institutions teamed up and forged a partnership of applied research and services, namely the Agricultural Policy Research Centre (APRC) of the International School of Economics at Tbilisi State University (ISET), in Tbilisi, Georgia, and the School of Agricultural, Forest and Food Sciences (HAFL), Bern University of Applied Sciences (BFH), in Zollikofen, Switzerland.

1.1 Objective and research questions

The objective of the UNDP's RFP is to "...know more on how and from what sources farmers receive reliable and relevant knowledge, guidance, information and support, to continuously evolve and solve problems successfully, and respond to external expectations & development opportunities." To this end, the RFP's Annex 4 goes into considerable detail on the tasks to be completed.

Above all, there are three larger fields of inquiry, namely an analysis of the Georgian AKIS including a visualization, the identification of assets and gaps in the current system, and recommendations on how to improve. This results in the following questions (for full list of questions see RFP, Annex 4 in Appendix 1):

- Who are the main actors of the Georgian AKIS? Are there key actors missing?
- How do various AKIS actors interact?
- Who are the main recipients/clients of knowledge and information?
- What are the main methods used for knowledge and information transfer?
- What are the main assets and gaps of the existing system?
- How can the Georgian AKIS be improved?

When clarifying expectations towards this mandate, it was agreed with UNDP VET that a so-called 'infrastructural view' in line with the European Union's PROAKIS project would be adopted (meeting minutes, October 16, 2019).

This mandate is highly relevant and timely, with various institutions taking a strong interest in the results. It is an important step towards a better understanding of the agricultural knowledge and innovation system in Georgia covering the perspective of service-providing organizations. It is noteworthy that the current mandate will however not answer a set of important questions, namely: (1) how and from what sources do farmers access knowledge and innovation, (2) to what extent do the offerings of service-providing organizations match farmers' needs, and (3) what role do the service-providing institutions really play in farmers' innovation behavior and decision-making. This will need a separate project of applied research that complements this mandate's 'infrastructural view' with an analysis from the bottom up, putting farmers' perspective at center stage.

2. Methodology

In its design and structure, the mandate is quite strongly aligned with the European Union's PROAKIS project (Prospects for Farmers' Support: Advisory Services in the European Agricultural Knowledge and Information Systems), a research project within the European Commission's Seventh Framework Programme.

PROAKIS (2015) defines AKIS as "[...] a system that links people and organizations to promote mutual learning, to generate, share, and utilize agriculture-related technology, knowledge, and information. Components of an AKIS are diverse actors from the private, public and non-profit sectors relating to agriculture. The system may include actors such as farmers, farm workers, agricultural educators, researchers, non-academic experts, public and independent private advisors, supply chain actors, and other actors in the agricultural sector."

The PROAKIS project produced country reports in 2013 compiling an inventory of AKIS systems in all 27 EU member states. A close alignment of this mandate with the PROAKIS project bears several advantages: (1) there is a methodology at hand that can serve as a basis for GEOAKIS; (2) comparisons with EU countries will be possible; and (3) valuable lessons can be drawn from other country contexts that were analyzed with a similar methodology.

The following changes were made to the PROAKIS methodology: (1) no quantitative survey but substantially more qualitative interviews, (2) in addition to a focus on agricultural advisory systems there is an emphasis also on VET, (3) a meaningful merging of PROAKIS with the RFP UNDP VET, and (4) a substantial change in the order of sections and questions. Table 1 provides an overview of the five methodological steps of this study.

Table 1: Methodological steps of the GEOAKIS study

Phase	Timing	Description
Review phase	Oct/Nov 2019	Review of existing literature on AKIS in general and in Georgia, of UNDP VET documents and relevant websites etc.
Empirical phase	Nov 2019	26 semi-structured key informant interviews[1] with Georgian AKIS actors (a list of respondents is available in Appendix 3); selection of actors using an influence / interest matrix (DFID 2003) and snowball method
Analytical phase	Dec 2019	Data analysis resulting in draft AKIS diagram
Reflection phase	13.12.2019	Workshop with stakeholders in order to collect feedback on draft AKIS diagram, actors and linkages, strengths and weaknesses and to reflect on the future of the Georgian AKIS
Reporting phase	Dec 2019 - Jan 2020	Finalization of the AKIS diagram and writing final report including feedback loop with UNDP VET project

[1] In some cases two respondents attended one interview

3. Agriculture in Georgia

In January 2019, the Georgian population was 3.7 million, out of which 1.5 million (41.3%) lived in rural areas (GeoStat 2019). In 2018, the GDP per capita in Georgia was 11,968 GEL (4,722 USD) and the contribution of the agricultural sector was 7.7%. 39% of the workforce was employed within the agricultural sector.

In 2018, the agricultural industry's output value at current prices was 4,037.4 million GEL, while the gross value added in the current prices was 2,736.4 million GEL. The value of total crop production the same year was 1,809.4 million GEL. In 2018, the production of vegetables was 142.2 thousand tons. As for livestock, there were 878.9 thousand heads of cattle, 163.2 thousand pigs, 819.1 thousand sheep and 50.3 thousand goats the same year (GeoStat 2018). The total value of animal production was 2020.9 million GEL (GeoStat 2019). Total production of major livestock products in 2018 was 22.9 thousand tons of cattle meat, 555.3 million litres of milk, 17.6 thousand tons of pig meat, and 9.1 thousand tons of sheep and goat meat.

According to the Agricultural Census 2014, there are 642,209 agricultural holdings with an area of 787,714 hectares of agricultural land.[2] The average agricultural land area operated by an agricultural holding was 1.37 hectares. The total number of holdings with agricultural land is 574,077 (GeoStat 2014). Agricultural land in Georgia is very fragmented: around 94% of all agricultural holdings are small-scale family farms with plots under 2 ha. Table 2 presents the detailed distribution of family holdings according to land size.

Table 2: Family holdings by agricultural land area (Source: GeoStat 2014)

Agricultural land (hectares)	Number of family holdings	Share of family holdings in total agricultural holdings
<0.10	86,988	15.0%
0.10-0.49	201,246	35.0%
0.50-0.99	154,306	27.0%
1.00-1.99	95,399	17.0%
2.00-4.99	27,561	5.0%
5.00-9.99	4,505	1.0%
>10.00	4,072	0.7%

48.2 thousand tons of mineral fertilizers were used by agricultural holdings in 2019 (GeoStat 2018). In addition, area under annual and permanent crops treated by pesticides was 44.7 and 60.9 thousand hectares respectively in 2018.

There are 639,963 family holdings. The distribution of family holdings by age of the holder is as follows: around 6% (38,090) of holders are young (less than 35 years old), 12% (74,008) are between 35 and 44 years old, 22% (139,109) are between 45 and 54 years old, 26% (164,471) are between 55 and 64 years old, and 35% (224,285)- over 65 years old.

As of November 2019, there are 110 certified registered organic holdings in Georgia (CAUCASCERT, 2019). As to the agricultural cooperatives, which started to emerge in 2013 as a result of ENPARD project, currently, there are 1,039 agricultural cooperatives (ACDA, 2019).

[2] Note that agricultural holdings comprise of family holdings and agricultural enterprises.

4. History of the Georgian AKIS

In line with Georgia's general history, the history of the Georgian AKIS can roughly be divided into four phases, namely the Soviet period, the 1990s, the first years after the Rose Revolution, and the 2010s.

The Soviet period - Central management

During the Soviet period, the central government invested heavily in the development of knowledge and the creation of local expertise in agriculture. Agrarian University of Georgia (AUG) provided knowledge and educated agronomists and other specialists, while dozens of research institutes focused primarily on applied research and also provided extension to kolkhozes (Shtaltovna 2017). Until the 1950s, the research centres were subordinated first to the Ministry of Agriculture and then to the Georgian Academy of Agricultural Sciences (GAAS). After a period of independent legal status, they were incorporated into AUG, and hence a body was formed that strongly integrated education, research, and extension. Moreover, Russian agronomists were intensively involved in providing extension to Georgian farmers (Assche et al 2013).

The 1990s - Collapse and informality

After the collapse of the Soviet Union, Georgia could not maintain the knowledge infrastructure under the GAAS and AUG due to the difficult socio-economic situation (Assche et al 2013). At the same time, the kolkhozes were dissolved and a large number of small-scale farms developed through the privatization of land. Knowledge generation and exchange mainly happened informally among farmers and with opinion leaders (e.g. former heads of kolkhozes).

The Saakashvili era - Negligence

After the Rose Revolution in 2003, the development of the agricultural sector was not high on the agenda. Thus, no investments were made into the re-creation and integration of the agricultural knowledge, research, and consultation system (European Initiative Liberal Academy Tbilisi 2012). Old A-VET institutions and colleges, as well as research institutes were closed. However, due to the numerous reforms in terms of ease of doing business, the formal private sector slowly started to develop, which included development in the agricultural sector. In 2010, AUG was privatized and many of the institutes were moved under the umbrella of this university (Assche et al 2013).

2010s - Reinvigoration

With the support of international donors and NGOs, the development of the agricultural sector came back into focus during the 2010s. In 2014 the Scientific-Research Centre of Agriculture (SRCA) was established which conducts and coordinates agricultural research in Georgia. Before that, in 2013, the Georgian Regional Agricultural Information and Consultation Centres (ICCs) were established under the then-Ministry of Agriculture of Georgia (FAO 2014). ICCs are the regional representatives of the Ministry, serving as their information dissemination tool to improve the competitiveness of the agriculture sector. Since 2019, the ICCs are a Non-entrepreneurial (Non-commercial) Legal Entity under the Agricultural and Rural Development Agency (ARDA). In the same year, the Ministry started to develop a National Strategy for Agricultural Extension in Georgia with technical assistance from the FAO and financial support from the European Union's (EU) ENPARD programme.

Apart from the creation of ICCs, the year 2013 was notable for the launch of the "Small Scale Farmers Assistance Spring Project". As part of this program, small scale farmers received two cards (vouchers): a "ploughing card" to finance land cultivation activities and an "agro card" for purchasing agricultural inputs. Research showed that the program led to increased demand for agricultural inputs and therefore many veterinary and plant protection shops opened after the introduction of these cards (ISET 2015). Nowadays, input suppliers are an important source of information for Georgian farmers.

The co-existence of American and European NGOs and donors led to competition between two models of extension: free market extension driven by the US model and capitalist state extension driven by the EU model, which acknowledges a more cooperative version of extension. Therefore, there are many services and forms of extension in Georgian agriculture, but they are not organized in systematic way (Assche et al 2013).

5. Present-day Georgian AKIS

This chapter describes the present-day AKIS in Georgia by means of an AKIS diagram and an interactive map (5.1). The visualization is followed by a description of the major national AKIS actors in Georgia (5.2), their sources of funding (5.3) and their linkages and coordination mechanisms (5.4). The last part of this chapter shows the strengths and weaknesses of the present-day Georgian AKIS (5.5) and its trends (5.6). The information is based on key informant interviews, AKIS actors' websites, and the research team's own observations.

5.1 AKIS diagram and map

The Georgian AKIS involves a wide variety of stakeholders, including the government, research and education institutions, the private sector, farmers and farmer-based organizations, NGOs, and donors. The actors and their linkages are visualized in a schematic diagram in Figure 1. As the diagram was substantially reworked after the stakeholder workshop, the original draft diagrams can be found in Appendix 4.

In addition to the diagram, an interactive geographic map was developed. The latter is shown as a screenshot print screen in Figure 2 and available online at the following address:

https://drive.google.com/open?id=1YGqilJfZ766nYtVZ8VX9puE9WBlBj120d&usp=sharing. This map is far from complete, but it may serve as a basis for more detailed and user-oriented mapping.

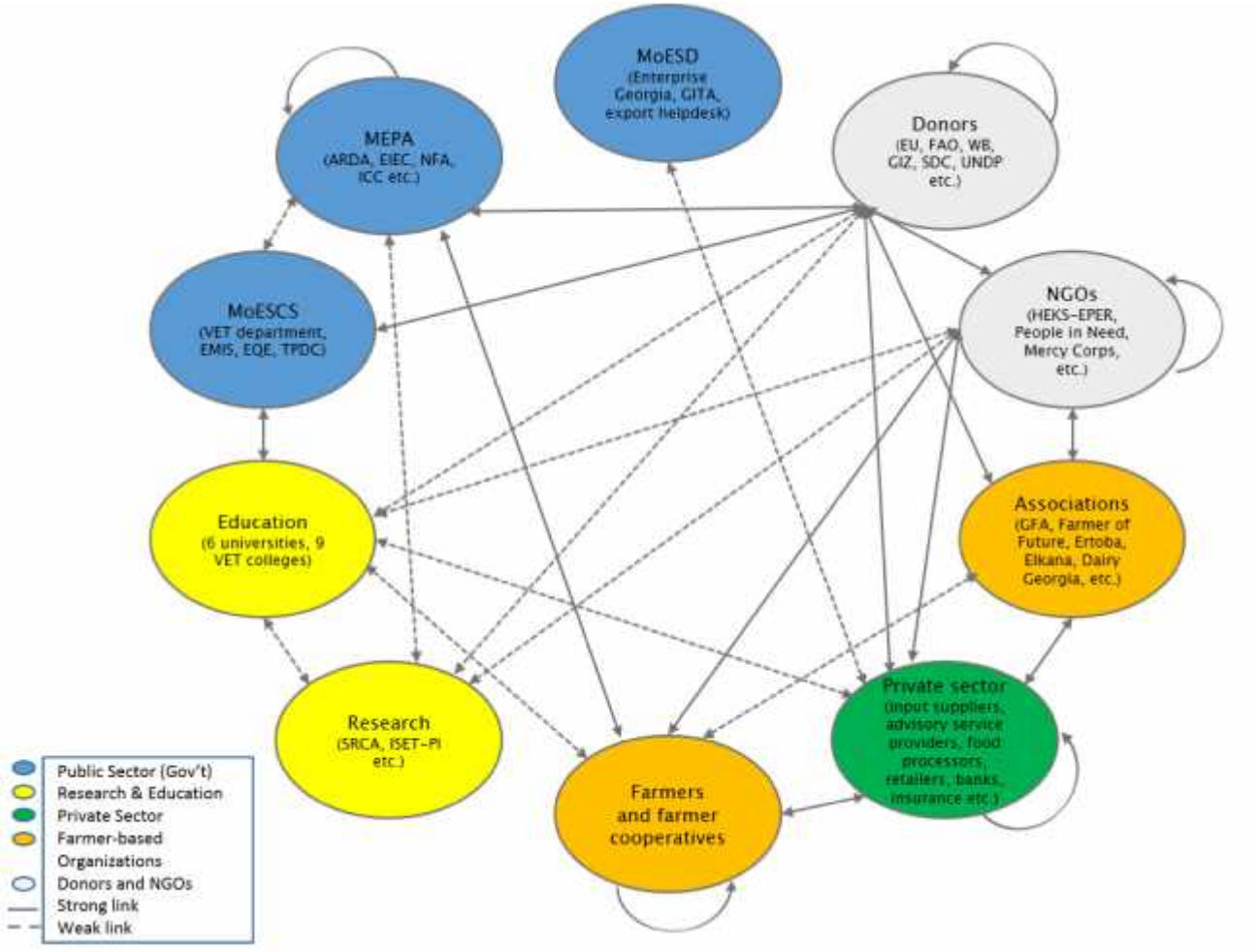

Figure 1: Schematic diagram of the Georgian AKIS

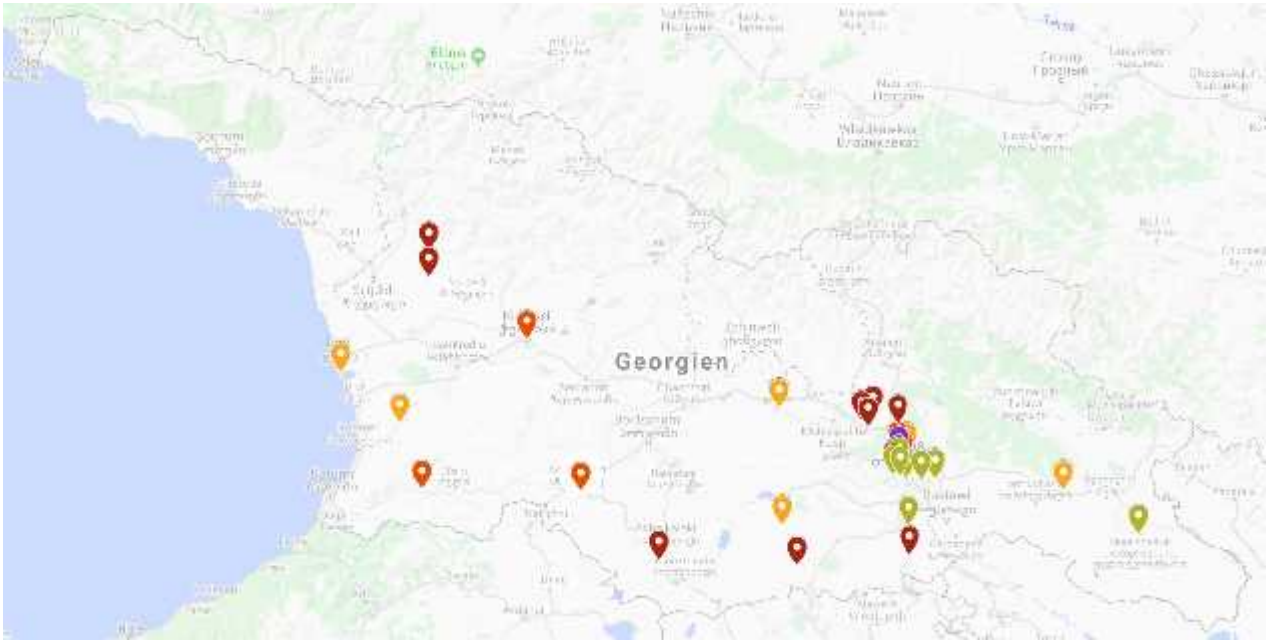

Figure 2: Print screen of a draft geographic interactive map of the Georgian AKIS

5.2 AKIS actors

This section describes the major national AKIS actors, divided into five categories: government, research and education, private sector, farmer-based organizations (FBOs), and NGOs and donors.

5.2.1 Government

The government plays a significant role in the Georgian AKIS. At the national level, there are above all two ministries directly involved: the Ministry of Environmental Protection and Agriculture (MEPA) and the Ministry of Education, Science, Culture and Sports (MoESCS). At the most general level, MEPA is responsible for public agricultural extension and research, while MoESCS, amongst other things, is responsible for the development and implementation of educational policies for vocational and higher education in all fields including agriculture.

MEPA counts 225 staff members at the national level. It has 14 departments and 15 subsidiary agencies that are related to the AKIS either directly or indirectly[3]. Table 3 lists the function and size of entities that are considered most important within MEPA and were therefore interviewed as part of this study.

Table 3: AKIS-relevant entities of the Ministry of Environmental Protection and Agriculture (MEPA)

Entity	Function	# of staff
Department of Agriculture, Food and Rural Development	Formulation and implementation of policies in agriculture and rural development.	12 at HQ
Department of Policy-Analysis	Formulation of strategies and policies for the entire sector; definition of general priorities for which other MEPA entities develop action plans.	11 at HQ
Agricultural and Rural Development Agency (ARDA)	Management of projects initiated by MEPA; supervision of 5 Regional Information Consultation Centres (RICC) who themselves coordinate the 54 municipal Information Consultation Centres (ICC) that count a total of 247 staff members with agronomy backgrounds. ICCs are the regional representation of the Ministry of Agriculture and serve as the information and dissemination tool to improve the competitiveness of the agriculture sector in Georgia by delivering quality advising services.	40 at HQ, 247 in total

[3] An organogram is available at the following web address: https://mepa.gov.ge/Ge/Structure.

	The main activities of ICCs include informing farmers about state policy and programmes, modern agricultural crop production and storage technologies, market opportunities, legal and tax liabilities, and rational use of pastures (FAO, 2014). Along with these activities, ICCs collect information and statistical data from farmers related to agricultural production, local context and current constraints.	
Environmental Information and Education Centre (EIEC)	Extension, consultation, and trainings with the help of the centre's permanent and outsourced staff on topics related to agriculture and the environment. EIEC conducts working meetings, competitions and conferences in addition to the regular trainings mentioned above. It also offers various electronic services such as distribution of information about the adoption of new laws, legislative amendments and new strategy documents; distribution of announcements about forthcoming public discussions; support and coordination of submission of electronic information to the respective state institutions about environmental law violations; receiving and responding accordingly to electronic inquires on environmental issues and conducting surveys and analysis of environmental issues.	NA
National Food Agency (NFA)	Extension and awareness-raising on issues related to food safety, veterinary and plant protection. NFA conducts veterinary and phytosanitary control of food/feed. In terms of veterinary, NFA does risk assessments for various diseases, registration of vet medicines, controls the distribution of vet medicines, ensures animal tracking and identification, and supervises animal transmission, biological waste collection, utilization, and recycling. In terms of plant protection, NFA's major activity is ensuring the protection of the country's territory from the threat of spreading diseases. NFA has 11 regional units.	12 at HQ, 86 in total
Scientific-Research Centre of Agriculture (SRCA)	Coordination of state agricultural research locations across Georgia which conduct research and provide extension through collaboration with EIEC and universities. SRCA conducts trainings for farmers with support from EIEC.	5 at HQ, 200 in total

The MoESCS has 14 departments and 10 subsidiary agencies. Table 4 lists the function and size of those entities considered most important with regard to AKIS. The information is based on one interview with a representative of MoESCS management as well as the web pages of the respective agencies (Table 4).

Table 4: AKIS-relevant entities of the Ministry of Education, Science, Culture and Sports (MoESCS)

Entity	Function	# of staff
VET development department	Coordination of VET education, policy development, coordination of subsidiary agencies and VET institutions; no particular focus on agriculture	13 + 5 project-based
Higher education and science development department	Establishment of rules for admission into higher education institutions, as well as rules for obtaining state scholarships to study at higher education institutions; definition of the number and terms of state scholarships to be issued to socially vulnerable groups of the population; issuing vouchers for secondary school students.	NA
National Centre for Educational Quality Enhancement (EQE)	Development of an outcome-oriented quality assurance system; promotion of quality enhancement mechanisms through consultancy and trainings; orientation towards global labor market needs; promotion of lifelong learning (LLL); fostering integration in the European Higher Education Area	NA

Education Management Information System (EMIS)	Development of affordable information-communication technologies (ICT) for education; development of management information system; collection and distribution of data about education	NA
National Centre for Teacher Professional Development (TPDC)	Formulation of policies, standards and ethical norms for continuous professional development of teachers; promotion and provision of teachers' professional development activities	NA

Also the Ministry of Economy and Sustainable Development (MoESD) has a significant role to play in AKIS. The following units within MoESD are considered the most relevant to the Georgian AKIS:

- Enterprise Georgia is a program which provides grants to businesses along with trainings in business management and operation. The program is staffed with eight people and outsources consultations and trainings to private consultation companies. The program "Produce in Georgia" under Enterprise Georgia supports entrepreneurs from the agricultural and other production sectors. There are currently around forty businesses listed in the food and beverage category which have received support, out of which some almost certainly have a link to local agricultural products (e.g. meat processers, dried fruit and juice producers).
- Georgia's Innovation and Technology Agency (GITA) aims to promote innovation through opening techno parks, innovation centres and fablabs, through offering grants for start-ups and through supporting improved access to the internet, organizing trainings and initiating regulatory changes aiming to stimulate innovation. One of the start-ups supported so far is Traktor / kalo, a company that aims to fill the gaps in modern agriculture and connect farmers to modern technologies and problem solving.
- Dcfta.gov.ge's export help desk is a search system where interested persons can obtain information about specific requirements, fees and rules of origin for exports.

Other government entities' institutions relatively weakly related to AKIS are: the Ministry of Justice's Samkharauli Bureau of Expertise which steps in when there is a dispute and laboratory results are used to resolve it (e.g. disputes between farmers and input suppliers because of low quality, inefficient inputs), the Ministry of Finance's Revenue Service generating information about tax laws, the Ministry of Regional Development and Infrastructure (MRDI) and the Ministry of Internally Displaced Persons (IDP), Labour, Health and Social Affairs of Georgia. The latter is responsible for research on the labor market and identification of the skills demanded in different sectors.

While all the above-mentioned actors operate at the national level, municipal authorities are the intermediaries between the central state and the local population in municipalities.

5.2.2 Education and Research

Table 5 provides an overview of educational institutions and their links to agriculture.

Table 5: Educational institutions in Georgia and their links to agriculture (Source: MoESCS)

Type of institution	Total #	Related to ag	Specifications
Universities	30	7	Agrarian University of Georgia (Tbilisi) Georgian Technical University (Tbilisi) Caucasus International University (Tbilisi) Akaki Tsereteli State University (Kutaisi) Samtskhe-Javakheti State University (Akhaltsikhe) Iakob Gogebashvili Telavi State University (Telavi) Batumi Shota Rustaveli State University (Batumi)
Teaching universities	20	1	Tbel Abuseridze Teaching University (Khichauri, Adjara)
Colleges (only Bachelor)	5	NA	NA
VET colleges public	17	5	Aisi (HQ in Kachreti, Kakheti, branches in Kvemo Alvani, Lagodekhi and Dedoplistskaro in Kakheti)

			Prestige (Telavi, Kakheti) Opizari (Akhaltsikhe, Samtskhe-Javakheti) Pazisi (Poti, Samegrelo-Zemo Svaneti) Ilia Tsinamdzghvrishvili (Tbilisi)
VET colleges public-private	6	2	Horizonti (Ozurgeti, Guria); Gantiadi (Gori, Shida Kartli)
VET colleges private	44	2 (3)	Amagi (Gori, Shida Kartli); Farmers' School (Ninotsminda, Sagarejo, Kakheti) From autumn semester 2020 onwards: Swiss Agricultural School Caucasus (Sarkineti, Kvemo Kartli)

Elementary and high schools have relatively little to do with agriculture. In 2017 a vocational education program was started in 259 public schools in 42 municipalities. In the framework of this program, students can choose from 43 specialties including agriculture (MoESCS 2019).

The major public research organizations are MEPA's Scientific-Research Centre of Agriculture (SRCA) and the Georgian Academy of Agricultural Sciences (GAAS). After the old research centers were closed, the SRCA was established in 2013. It currently operates mainly in villages around Mtskheta where there are a number of trial plots for annual and perennial crops. Other locations focusing on livestock breeding, forage, etc. are currently under construction. The GAAS, which was founded in 1957, is a legal entity under public law, an autonomous research institution with autonomous rights, funded by the state. The Academy coordinates scientific research activities, and acts as a scientific advisor to the Government.

NGO-type research organizations include ISET-PI; the Association of Young Economists Georgia (AYEG); Policy and Management Consulting Group (PMCG); The Caucasus Research Resource Center (CRRC), The International Institute for Education Policy, Planning, and Management (EPPM), Analysis and Consulting Team (ACT), Centre for Training and Consultancy (CTC) etc. The major activities of these research organizations include analysis of education policy and reforms, building capacity of universities, and monitoring society's inclusion into life-long leaning (LLL). Some of the research organizations focus on agricultural policy research and policy advice, building capacity of stakeholders in the sector, academic research, and teaching (e.g. agricultural economics).

Private and public laboratories are limited in terms of their number. The most prominent laboratory is MEPA's laboratory. Currently there are 3 MEPA public laboratories in the cities of Tbilisi, Kutaisi and Akhaltsikhe, and 8 regional laboratories in the cities of Gori, Marneuli, Dusheti, Gurjaani, Ambrolauri, Ozurgeti, Zugdidi, and Batumi (LMA, 2019). The most prominent private laboratory is "Anaseuli" laboratory, which belongs to Agrarian University of Georgia (AUG). AUG unites 21 scientific-research laboratories across Georgia.

5.2.3 Private sector

- Input suppliers and advisory service providers are the major private providers of information to farmers. Most of the input suppliers in Georgia also provide advisory services. Since there are a large number of input shops in the rural areas of Georgia, this type of information provider is more accessible to farmers than other sources of information. Some input suppliers have demonstration farms and are successful farmers themselves (e.g. Rural Advisory Service (RAS), Agroqiziki etc.). There are several large input supplier companies operating in Georgia. The most well-known input supplier companies include: Syngenta Agro Services AG representation in Georgia, Cartlis Agrosystems, Noblex LTD, Born Agro LTD, and Roqi etc. Overall there are 40-50 relatively large input supplier/importer companies whose contact information is publicly available. The largest of those companies are considered in more detail below:
  Syngenta Agro Services AG representation has operated in the Caucasus region since 2011 and its central office is located in Tbilisi. The company imports more than 40 types of plant protection products as well as seedlings from Switzerland. The company works with the SRCA to test new plant protection products. It also offers trainings and seminars on plant production issues to farmers and other interested parties. Syngenta's imported products are sold through several Georgian, Armenian, and Azerbaijani companies/distributors. Cartlis Agrosystems has operated on the

Georgian market for 22 years already and offers customers pesticides, fertilizers, seedlings, irrigation systems, inventory, etc. The company owns demonstration plots where it tests new crop varieties and production technologies (Cartlis Agrosystems 2019). Noblex LTD has been operating in agribusiness since 2005 and is now one of the largest distribution companies in this field. It has a corporate chain in Tbilisi and Kakheti called "Agrosphere." The company's product range includes: plant protection products, mineral fertilizers, agro technology, seed material, drip irrigation systems, work tools and other products for farmers, as well as a huge range of equipment for the manufacture of alcoholic and non-alcoholic beverages (Agrosphere 2019). Born Agro LTD has operated on the Georgian market since 2009 and imports agricultural inputs from the EU, US, Japan, and Turkey. It represents 22 international brands in Georgia, owns 11 farmers' service centres, and more than 30 retail locations. Its market share in Georgia is 30%. (Bornagro 2019). The distribution company Roqi was established in 2006. Its main occupation is selling agricultural and domestic animal medicines, vaccines, food and food additives, and a full spectrum of animal care items. It has distribution services all over the country. Roqi provides services to up to 300 veterinary drugstores and farmer service centres (Agrovet 2019).

There are also importers who focus on the supply of organic fertilizers. BioService LTD has operated on the Georgian market since 2011 and imports certified organic fertilizers from Latvia (BioService 2019). BioAgro LTD is another company offering organic agricultural inputs to farmers. The company also offers teaching and consultations in organic production technologies (BioAgro 2019).

Relatively large companies work with large modern farms and supply small local input shops. While it is widely known that these input shops play an important role in providing farmers with products and some product-related information, it is an open question whether the information is accurate and relevant and to what extent they offer extension services in a broader sense. There is no official database showing the exact number of these input shops in the country.

There are also international consultants working in the field and providing extension services mostly to large farmers who can afford to hire international consultants.

- Intermediaries, brokers and storages are closely related to producers and usually have information about the market requirements for the products. Most intermediaries are the immediate buyers of agricultural products. They might not be registered as taxpayers and usually do not engage in contract farming. Their exact number is unknown.
- Food processors usually set standards for the farmers supplying agricultural products to them. Since there are not a lot of fully, vertically integrated food processors in Georgia, most of them have to deal with farmers and/or distributors who collect agricultural products from farmers and supply them to the food producer. Some of the largest food producers include canned food producer "Marneuli Agro", tea producer "Gurieli" and dairy product producer "Sante".
- Retailers, similarly to food processors, set standards for farmers. The largest retailers in Georgia are Carrefour, Goodwill, Fresco, and SPAR. They are located not only in Tbilisi, but also in the regions.
- Banks and MFIs are involved in AKIS through state subsidy programs. The agricultural loans program implemented by ARDA involves commercial banks in Georgia who give farmers loans and advice. The latter is quite limited because provision of advisory services is not a major responsibility of commercial banks. All commercial banks in Georgia are involved in the loans program.
- Insurance companies, similarly to banks and MFIs, indirectly participate in AKIS through the agricultural insurance program implemented by ARDA. As part of this program, insurance agents explain to farmers the benefits and terms of insurance. The following 7 insurance companies participate in the program: Aldagi, GPI Holding, Insurance Company Euroins Georgia, Ardi, Alfa, TBC Insurance, Georgian Insurance Group, and Global Benefits Georgia.

5.2.4 Farmers and FBOs

Most of the individual farmers in Georgia are small-scale farmers with fragmented land plots. There is no formal typology of farms in Georgia and farmers with a land plot size of less than 5 hectares are usually considered small-scale farmers. Georgian farmers are still characterized by a relatively low

commercialization level and limited access to modern technologies. According to a study conducted by ISET and UNDP (2016), Georgian farmers underestimate the importance of knowledge and skills and attribute their low income and productivity to other factors such as access to finance and lack of government support. Furthermore, Georgian farmers underestimate the importance of knowledge related to the secondary areas of farming operations (such as farm management, marketing, etc.) and demand knowledge in areas that are important for their incomes and livelihoods (such as sector-specific knowledge regarding production, plant growing, beekeeping, etc.). As pointed out in the RFP, "the discussion about farmer's needs and sources of knowledge and information is based on assumptions. It would be useful to do a systematic analysis to confirm these assumptions."—a task that goes beyond this mandate and requires separate in-depth research.

As for FBOs, they include the following actors:

- Farmers' Associations include sectorial associations and multidirectional associations. Georgian Farmers Association (GFA) is the largest farmer association which unites over 3,000 members. There are a relatively large number of associations in the dairy sector (e.g. association "Georgian Dairy"). They include not only intensive dairy farms but dairy product producers as well. Other relatively well-known associations are Farmer of the Future (FoF), Dairy Products Producers Association, Georgian Wine Association, and Elkana.
- Farmers' cooperatives were established in Georgia with EU support with the aim of increasing the scale of production of Georgian farms. Currently there are 1,028 cooperatives in Georgia. These are mostly production cooperatives with an average of 11 members (2017).
- Local Action Groups (LAG) were created in selected municipalities of Georgia with EU support in order to support Georgia's rural development. LAG's major activity is to design a development strategy for the municipality and identify the most promising business ideas. LAGs provided grants to locals with selected business ideas and most of the ideas were not related to agriculture. So far LAG's role in AKIS is very limited.

5.2.5 NGOs and Donors

Donors and NGOs represent some of the strongest players in the Georgian AKIS today. As of today, the system is strongly driven by and depends upon donors' support. Some of the donors working on the topic of agricultural knowledge and information are UNDP, SDC, GIZ, WB, KfW and FAO.

The NGOs' implementing agencies include Mercy Corps, People in Need (PIN), OXFAM, CARE, and Action against Hunger (ACF) etc. There are also a number of local NGOs like Association of Business Consulting Organizations (ABCO).

5.3 Sources of funding

Table 6 provides an overview of the sources of funding of the 24 interviewed actors.

Table 6: Sources of funding of the interviewed AKIS actors

	Sources of funding (%)						
	Donor	State	Region	Foundations	NGO	Memb. fees	Clients
Government		100					
	30	70					
	50	50					
	50	50					
	20	80					
		100					
	30	67					3
	20	80					
Education & research							
	2	98					
		100					
	95						5
	70						30
Private sector	18	2					80
	85						15
							100
	80						20
							100
	100						
Associations & NGOs	100						
	95						5
	100						
	90				10		
Donor	100						

Bright yellow = up to 33%, medium yellow = 34-66%, dark yellow = 67% and more

Looking at the table, it becomes obvious that many respondents / AKIS actors are quite strongly dependent on donor funds. As such, funds are mainly project-based and are presumably going to end at a certain point in time, the question of institutional sustainability arises. Figure 3 shows a comparison of the AKIS diagram with and without donor funds which demonstrates that several institutions and many linkages would disappear or be weakened. The most stable actor group would probably be the private sector, and therefore there might be a certain imbalance between product-oriented versus public good-oriented activities, especially in the field of agricultural extension.

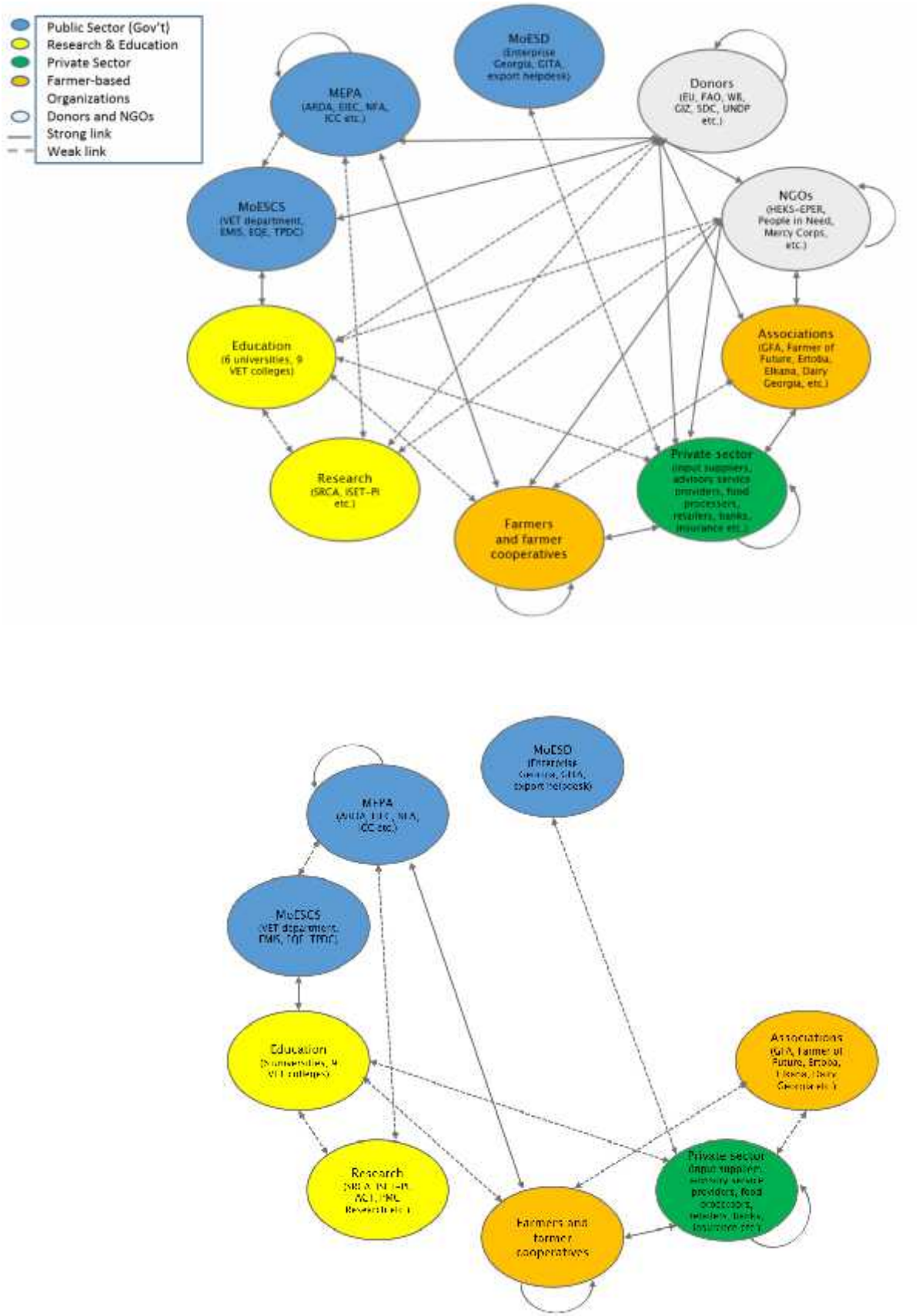

Figure 3: The AKIS diagram with and without donors and NGOs

5.4 Linkages and coordination mechanisms

AKIS actors are linked to each other in many ways. All the links are, to some extent, about information and knowledge exchange but the number of linkages involving purely information and knowledge exchange is relatively low. The examples of such "purely informational" links are:

- Roundtables, board meetings and presentations between public sector, FBOs, donors, and NGOs;
- Trainings and forums among private sector actors;
- Consultations and trainings by FBOs and ICCs for individual farmers

Many linkages are, in addition, about funding. These are mostly project-based links connected to an external donor or state funding. Examples of such links include:

- Partnership between the public sector and FBO in the framework of a donor-funded WBL program—GFA works with MoESCS and has the responsibility to select farms where VET students can do WBL;
- Partnership between the public and private sectors under the auspices of state programs: private banks participating in state programs on agricultural loans, agricultural insurance etc.;
- FBOs providing financial support to farmers as part of donor-funded projects;
- Joint projects between private input suppliers and VET institutions—input supplier "RAS" developing joint project with VET institution "Opizari";
- FOBs and NGOs jointly implementing donor-funded projects;
- Public sector and donor organizations working with research organizations in the framework of donor-funded projects.

The linkages also show that information travels with people creating opportunities to share experience between stakeholders. Examples of such links are:

- Collaboration between research and education institutions and the public sector--MEPA's employees teaching at AUG;
- Collaboration between the private sector and educational institutions—private input suppliers hiring AUG graduates;
- University graduates doing internships at MEPA's scientific research centre.

There are also linkages that include the exchange of goods and services between AKIS actors. The examples here are as follows:

- Public sector hiring private companies to conduct trainings for beneficiaries of grant programs;
- Public sector outsourcing laboratory tests to private laboratories.

A more detailed description of these linkages is provided in Appendix 5.

Based on the above, it can be concluded that a large part of the linkages between AKIS actors are project-based. Another observation is that farmers, when dealing with associations and the public sector, usually provide them with information about their needs in exchange for extension and/or funding, while the public sector perceives itself as an intermediary between farmers and donor organizations. It should also be noted that during the interviews respondents sometimes had mixed assessments of linkages' strength and two parties could assess the same link differently. One party could assess its link to the other party as strong, while the other party stated that the same link was weak. This finding signals the differences in perceptions of AKIS actors regarding some of their linkages with other actors and going forward it is important to ensure that different actors' expectations and perceptions are aligned with one another.

In addition, one part of the interview addressed questions to do with coordination mechanisms among different AKIS actors in Georgia. 'Coordination mechanisms' here stand for platforms, roundtables, planning workshops etc. that individual institutions are engaged in for the purposes of joint planning, creation of synergies or integrated operations; how such mechanisms are assessed in terms of effectiveness/suitability; and whether coordination among actors should be improved, and, if so, how.

Different types of coordination mechanisms that respondents understood as relevant for their work were mentioned, including:

- Sectorial councils bringing together experts from sub-sectors of agriculture, for example MEPA's 22 sectorial councils (e.g. Potato, Tea, Dairy, Sheep, etc.); councils/platforms from other state

agencies, for example NFA and ARDA; or two platforms for livestock and plant protection created with the support of USDA;

- Animal Health Steering Committee (AHSC) established as part of a USAID project, and with FAO contribution, where most donors and NGOs working on livestock meet and update each other on ongoing and planned activities;
- Thematic interagency councils at the national level, such as the rural development policy council which holds meetings and workshops to discuss problems, share different units' action plans, and update one another on the progress of strategy implementation;
- Platforms to ensure coordination between donors, associations and NGOs, for example the donor coordination council at MEPA ensures that all activities related to agriculture, including agricultural extension, are well-coordinated between the donor community and the ministries;
- VET coordination mechanisms such as VET donor coordination meetings, National VET Council and VET Strategy and Strategy Implementation Actions Plan (SIAP);
- Internal meetings and workshops for coordination within the individual government departments.

Looking at the examples listed above, it becomes apparent that coordination mechanisms are mostly with state agencies and the donor community/NGOs. The private sector is by and large absent or only marginally involved. In fact, one respondent from the private sector highlighted that he sees "...no coordination [IR25:2.4] it has been 25 years of the same type of projects with very little output" [IR25:2.4]. One private sector respondent said that there "...were different initiatives to gather on a regular basis for roundtable discussions and we saw that it does not work in practice. Sometimes, this kind of meeting was a waste of time. It would be better if everyone does their activities and if the mandate gives an opportunity for collaboration so that different actors can work together." [IR18:2.6].

The perception that 'mechanisms come and go' as coordination mechanisms are oftentimes 'part of projects' came up in a number of interviews. Indeed, it appears that in one way or another many coordination mechanisms directly involve the donor community, were established as part of projects, and/or are financially supported by international agencies. Donor-dependency in this context, again, becomes quite apparent. One respondent pointed out that the "sustainability of the existing coordination mechanisms should be improved; most such mechanisms exist in the framework of some projects and then stop functioning" [IR5:2.6]. This touches two core aspects of such mechanisms, namely their institutional sustainability and meaningfulness.

A recent example to address the above challenges is the initiative to establish a so-called 'Sector Skills Organization' (SSO) in the field of A-VET. The basic idea is that the private sector (i.e. associations) should be involved closely in defining the requirements for VET programs and guide them in developing programs that best fit their sector, i.e. a demand-driven approach. It is also an attempt to transfer some activities from state agencies to the private sector and associations and to institutionalize this type of partnership between the state, students, and associations. As one respondent pointed out, there is a need to increase the private sector's awareness of their role in the provision of VET education, e.g. in Work Based Learning (WBL), and that the provision of VET education is impossible without such types of public-private partnerships.

Almost all interview respondents indicated a need to improve coordination: "All stakeholders should act independently but [...] we should coordinate the system and be aware of activities undertaken by different actors" [IR17:2.6]. Someone else stated that it "...is very important not to duplicate things, rather to coordinate even among the competitors" [IR8:2.6]. Of course, the challenge of coordination and cooperation is also prominent due to the fact that AKIS actors, at least partly, have the same sources of financing, and therefore often become competitors rather than cooperators. The question of sharing information and of co-creating knowledge is thus also hampered by the dominant funding mechanism. A starting point for a better understanding of what works and what does not might be the analysis of lessons learned from existing platforms and initiatives in order to better understand the success factors in the given context. It needs to be remembered that coordination does not necessarily mean integration, of course.

5.6 Strengths and weaknesses

The Georgian AKIS can be better understood through its strengths and weaknesses, some of which are summarized below:

Strengths

Shared will to develop a strong AKIS in Georgia. Overall, there is a clear commitment to a strong AKIS, acknowledging the importance of a well-functioning knowledge system for a strong agricultural sector in Georgia. The government, together with the donor community, aims to provide an enabling environment with a number of initiatives that target the strengthening of AKIS actors (e.g. concessional loans, subsidies for farmers and agro enterprises, provision of infrastructure for VET colleges).

Country-wide networks. There exist different, country-wide networks such as the state's extension system (ICCs) and private input supply shops. This does not mean that these networks live up to their intended functions but the presence of such networks is a strength in its own right.

'Leaders of Change'. One of the great assets of the Georgian AKIS is the presence of innovative, capable, well-connected and strong individuals – not only in the private sector, where they are most visible, but throughout the system. Some champion/lead farmers as well as a number of upstream and downstream actors of the agro-food value chain (e.g. input suppliers, food processors) are drivers of change by way of introducing innovation in the agricultural sector.

Weaknesses

Lack of coherence. There are many actors in the Georgian AKIS but they lack an awareness that they all work in and contribute to the same overall system. While a commitment to a strong knowledge system exists (see above), there seems to be little awareness that 'they are all in the same boat', as one interview respondent pointed out. This also hinders a shared vision for AKIS in the future.

Lack of coordination. Some donor-funded projects and programs compete or duplicate rather than complement each other. Among private sector actors, there is a lack of intra-sector coordination e.g. by means of associations. Further, the government and the private sector seem to look at each other rather sceptically. The lack of coordination also has to do with the fact that there is no clear strategy about the target group, namely which type of farms and farmers are to be addressed.

Lack of sustainability. Many of the state- and donor-funded initiatives lack mechanisms that ensure their long-term sustainability.

Lack of qualifications. There are few agricultural professionals with relevant up-to-date knowledge and skills. Most of the actors, including the ICCs, lack qualified, capable staff. The information and methods they use are often outdated or only partly relevant as compared to the needs of farmers.

Skills mismatch in the agricultural labor market. There is a considerable gap between the theory taught in A-VET programs and the everyday practice of Georgian farmers due to the fact that there is little understanding of the labor market's needs. Moreover, A-VET courses are amongst the weakest in terms of quality compared to other VET programs in Georgia. To work against this skills mismatch, a so called Sector Skills Organization (SSO) was established in December 2019 which unites representatives of the public and the private sector for the joint shaping of A-VET curricula in line with the labor market's needs.

Overload of ICCs. The ICCs have a broad portfolio of tasks including the collection of data at farm level. This absorbs resources and weakens the core duties of the ICCs, namely to provide relevant, up-to-date and customized agricultural advice.

Lack of control over small input supply shops. While state support led to an increase in the number of input suppliers, it also led to the fragmentation of their knowledge and lack of control over their activities. It is an open question whether shopkeepers provide quality information along with inputs.

Questionable relevance and quality of data. Many interview respondents pointed out that a lot of data is being collected by different state institutions (e.g. MEPA, GeoStat) but that they were unsure about the relevance and quality of the data. In addition, it appears that the data is only partially used, meaning that it is not fully utilized in decision-making processes and designing policies. Thus, in the field of agriculture the question of evidence-based decision- and policy-making remains open.

Lack of information about farmers' needs and practices. In the development and implementation of policies and development projects, a top-down approach is often adopted. There is a lack of understanding of how farmers create, share, and acquire new knowledge and what type of advice they need.

Trends

In Georgia, farming and agriculture-related professions were undervalued for a long time, partly seen as 'backward' and associated with poverty, where no money could be made. Recently this attitude has been changing, especially among the rural youth, with agro-related professions slowly becoming more popular among young, mostly rural people. Currently, more students are applying for ag-related courses at colleges and universities (Geostat 2019). A growing number of farmers and agro-companies are applying new production technologies (e.g. drip irrigation), which contributes to attracting youth interest. In addition, banks and microfinance organizations have been developing products for farmers and agro-businesses that provide a potential source of funding for this change process (e.g. matching-loans with state or donor-financed projects).

In and of itself, the Georgian AKIS has been developing more generally. This is observed in the public sector which can be seen in the evolving legal and policy framework, for instance in the new VET law or the recently approved extension strategy and action plan (e.g. including activities in pilot regions, mobile extension, e-library etc.). Agricultural policy is changing and evolving, not only in its formulation but also in its drive for implementation. The strengthening of the ICC system since 2013 (integrated yet decentralised) is a case in point, and the merging of the Ministry of Agriculture with the Ministry of Environment to form MEPA indicates a certain drive towards integration. Meanwhile, this is also the case in the private sector where a trend of more active private sector actors and increasing private sector involvement is observed. This is especially the case in AE but also, to a certain extent, in A-VET. A special initiative in this field is the so-called Swiss Agricultural School Caucasus (SASC) that will offer vocational education in line with the Swiss curriculum from autumn 2020 onwards. It will be interesting to see whether the SASC will catch on and develop into a lighthouse project inspiring similar follow-up initiatives.

The linkages and communication (and partly also coordination) among various AKIS actors have been improving and the practice of work-based learning (WBL) is being established with the support of donor and international development organizations. In addition, farmer-based organizations are more active. There are quite a number of such FBOs (sub-sectorial or umbrella) that are getting stronger and acknowledged by sector stakeholders (e.g. farmers, government, donor community). Linked to this is a drive for digitalization. More and more online platforms have been established such as websites, social media (e.g. Facebook), applications (e.g. Agronavt, Traktor), video-lessons, etc.

Looking at a number of these trends, one open question remains: which path will Georgia take in terms of structural development, in the number of full-time farmers for example, or in the size of farms? This is closely connected to a second question: do the current agricultural extension system (with ICCs etc.) and the current A-VET system—and more generally the AKIS overall—meet the needs of farmers in a changing policy environment and under changing national, regional, and global economic, ecological, and social conditions.

6. Comparison with the EU

As the present analysis of the Georgian AKIS is strongly aligned with the PROAKIS project, it is meaningful to compare the findings with those of the 27 EU member states.

Based on the PROAKIS country reports, Knierim and Prager (2015) located the 27 EU member states' AKIS in a matrix according to their strength and level of integration (Figure 4). They (ibid.) define a strong AKIS as a system that is supported by powerful actors, has dedicated resources (for example public investments) and reaches out to and benefits farmers. In contrast, a weak AKIS lacks these features and advisory services reach farmers poorly. An integrated AKIS is held together by a coordinating body and national policies shaping the linkages within the system, whereas in a fragmented AKIS several independent knowledge networks operate in parallel, are not well coordinated, and typically compete with each other (ibid.).

Looking at the matrix (Figure 4), it becomes evident that there is a large diversity of systems; a fact that is explained by the different historical, political, and economic contexts of the countries (Kania et al. 2014). There are both strong and weak fragmented AKIS, as well as strong (but not weak) integrated AKIS, and systems in between. Two examples: the AKIS in the Netherlands is characterized by the existence of numerous actors providing advisory services to farmers and a crossbreeding of their functions and activities (Caggiano 2014). Despite being very fragmented, the Dutch AKIS is considered very strong, as the actors are powerful and provide farmers with relevant knowledge and information. The AKIS in the Republic of Ireland is highly integrated through a unique national body named Teagasc (The Agriculture and Food Development Authority) that combines research, extension and education (Prager and Thomson 2014). Teagasc's activities are complemented by private agricultural consultants and research entities, various public agencies, and other actors. As a result, Ireland has a very strong AKIS that is primarily publicly funded and is based on a model of recovering 33% of its cost from farmers. This shows that a fragmented AKIS (Netherlands) can be as strong as an integrated one (Ireland).

Based on the analysis above, especially the strengths and weaknesses described, the present-day Georgian AKIS can be considered very fragmented and rather weak. This was confirmed during the workshop held on December 13 where stakeholders placed Georgia on the European AKIS matrix next to Greece, Portugal, and Romania (Figure 4). While there was a shared understanding that the Georgian AKIS should become stronger (thus moving down in the matrix), there was no common opinion on where it should move in terms of integration level.

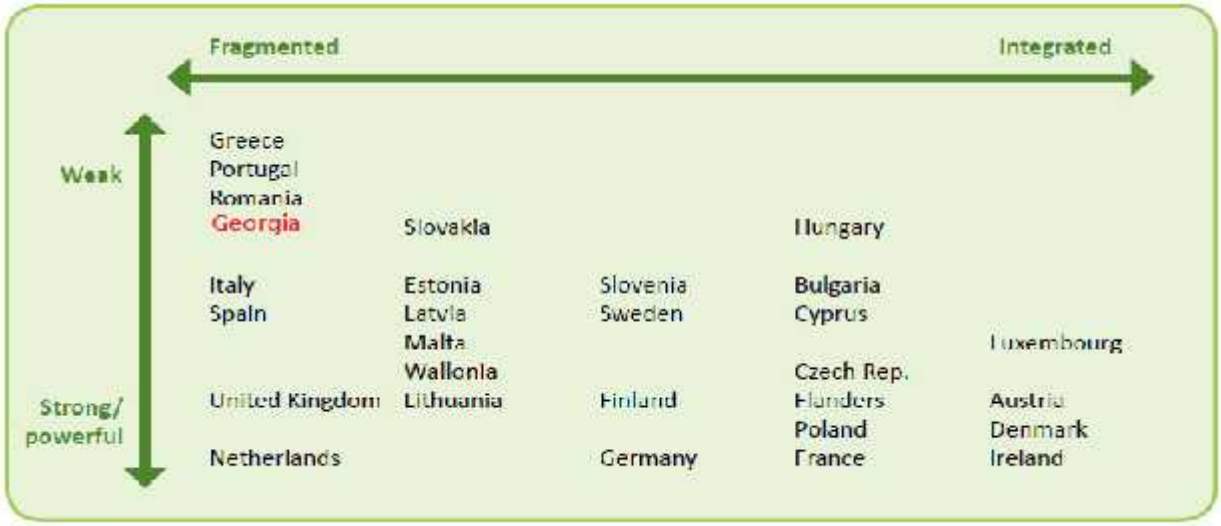

Figure 4: Georgia's place on the European AKIS (Source: Knierim and Prager 2015; own data)

In the PROAKIS research, countries were further categorized according to the dominant providers of advisory services (Table 7). Prager et al. (2015) distinguished between public, private, farmer-based, and NGOs. In the majority of EU countries, the agricultural advisory services are dominated by farmer-based organizations (FBOs) or public organizations (11 and 8 respectively) but there are also a few countries where a private organization is in the lead (Estonia, The Netherlands). A mix of dominant organizations is also common in six countries (Germany, Malta, etc.).

As for Georgia, agricultural advice seems to be provided by a mixture of all types of organizations without clear dominance by a particular group. At the same time, it should be noted that this conclusion is drawn based on an infrastructural view, not from the farmers' perspective. In fact, local tacit knowledge and informal networks are probably one of the most important sources of advice in Georgia, particularly among small-scale farmers—a hypothesis that should be further researched.

Table 7: Types of dominant advisory organizations in the EU-27 and Georgia (Source: Prager et al. 2015; own data)

Type of dominant actor	**Country**							
Public	Bulgaria	Greece	Hungary	Ireland	Latvia	Poland	Romania	Slovakia
Private	Estonia	Nether-lands						
FBO	Austria Slovenia	Belgium Spain	Cyprus Sweden	Denmark	Finland	France	Lithuania	Portugal
Public/Private	Czech Republic	UK						
Public/Private/ FBO	Germany	Italy	Malta					
Public/FBO	Luxem-burg							
Private/Public/FBO/NGO	Georgia							

Based on the PROAKIS research, Knierim et al. (2015) developed a set of policy recommendations which may also be considered for the further development of the Georgian AKIS. These recommendations are related to policy design, governance of AKIS and support to specific actors. Policy design assumes more focus on supporting innovations and systemic evaluation of knowledge systems and advisory services, while governance-related recommendations focus more on using AKIS as a diagnostic tool and encouraging research practices in policy design and decision-making processes. As for support to specific actors, the role of both public and private advisory service providers is emphasized in the recommendations. Knierim et al. (2015) also discuss the importance of supporting training and education of AKIS actors and the development of multi-actor innovation networks.

7. Conclusion

AKIS is an integral part of agricultural and rural development in Georgia. The findings presented above reveal that the Georgian AKIS consists of a large diversity of actors, both public and private, linked to each other in manifold ways. The AKIS diagram is a rough visualization only, yet already hints at the highly dynamic and considerably complex nature of the system. Different types of actors have different roles to play, partly different target clientele and different impact on their respective networks—yet they are equally important to the overall functioning of the system. The existence of manifold linkages between individual actors and groups should not be confused with an ability to coordinate. In fact, the need for improved inter- and intra-sectoral coordination is recognised by many interview respondents, along with the need for more inclusive participation, especially from the private sector. In this context it is an added value that both the government and donors see a strong AKIS as a key part in agricultural and rural development in Georgia and give the issue visibility and resources for the change process. However, the current situation is heavily dependent on international funding (donors, multilaterals)—a setup that also fosters competition rather than collaboration. It does not seem entirely clear which elements of the AKIS will survive or falter once the funding is no longer there. There is no way around it: institutional sustainability is key.

As of now, it seems important to jointly develop a strategic plan on AKIS that corresponds with broader policy objectives in Georgia. As the government is now combining its agriculture and rural development (and extension) strategies, it is an ideal moment to integrate the concept in these strategies and to develop a shared vision and action plan for the Georgian AKIS. While doing so, the issue of structural change in Georgian agriculture needs the utmost attention, as it will define the target clientele and the direction the AKIS will take for years to come.

In terms of positioning the AKIS in Georgia, this study reveals three important perceptions: i) a shared understanding among involved actors of the present-day AKIS as both relatively weak and relatively fragmented; ii) a shared understanding that the AKIS should become stronger; but iii) no shared vision of where the AKIS should move. This is a fundamental question to be answered, followed by what measures it needs to move from where it is to where it aims to be.

For the further development of the AKIS in Georgia, one might be well advised not to be preoccupied with the weaknesses of the system but rather to focus on its strengths. The identified strengths of the present-day AKIS are preciously few—namely a shared will, country-wide networks and ‘leaders of change’ (see above). But they all build on the most valuable resource at hand: people.

8. Recommendations

Based on the above analysis, the research team formulates the following recommendations. Some address the Georgian AKIS at large, while some address particular actors within the system. The recommendations also hint to potential entry points for intervention as well as to the potential role of an organization such as the UNDP. In brief, there could be three major fields of UNDP engagement, namely: (1) advocacy and convening power, or *doing the right thing*; (2) piloting specific actions for improvement, or *doing things right*; and (3) research and learning to support (1) and (2).

R1. Situate and integrate AKIS in the larger strategy and policy context. Ensure that the strategic plan on AKIS corresponds with broader policy objectives in Georgia. As the government is currently combining its agriculture and rural development strategies, it is an ideal moment to integrate the concept and to develop a shared vision and action plan for the Georgian AKIS. While it may make sense for the lead to come from the government, all stakeholders should be proactively involved in this process.

In terms of vision, two aspects seem noteworthy: i) It is important to develop a common understanding of the term AKIS, i.e. to decide whether the “I” is about information or innovation. This has implications on which actors and processes are concerned. ii) The AKIS potentially generates public goods far beyond agricultural productivity, e.g. environmental and landscape management, food security, and job creation, as well as on-farm and off-farm farm diversification. These aspects should be equally weighed in the country’s policy agenda including the AKIS.

R2. Clarify roles and responsibilities of individual AKIS actors. Work towards clarifying roles, distinct profiles of institutions and a lean overall setup avoiding duplication. Recognize that different types of actors have different roles and foci (public goods, productivity increase, quality assurance etc.), different target clientele (small vs. large, subsistence vs. commercial farms) and different impacts on their respective networks, yet they are equally important to the overall functioning of the system.

R3. Strengthen key actors within AKIS. Across the board, targeted interventions to build the capacity of key actors might prove meaningful. An example, for the purpose of illustration: in addition to technical knowledge, ICC staff should also know about and ideally have experience in extension methodology. As there is a shortage of people with such a profile in Georgia, there is a need for capacity building—partly as on-the-job training. The establishment of a minor in teaching and extension at Samtskhe-Javakheti University is a good start, which should be closely followed up on and possibly replicated in other universities. As ICC staff need to cover a very broad range of topics—from agricultural production to value addition, 'para-agriculture' etc.—it may make further sense to include staff with diverse disciplinary backgrounds on the teams (not only agronomists but also e.g. rural development specialists and social workers) and to transform their role into "information and contact brokers" who link farmers to knowledge hubs (institutions, individuals, digital sources) with more in-depth knowledge and expertise in particular areas.

R4. Strengthen linkages between specific key actors and fragmented subsystems. Work towards actors being linked in meaningful ways and strengthen key connections to close some of the prominent gaps in order to make the system perform better. This may include the following:

- MEPA/MoESCS: While within both ministries, exchange and sharing seems to work well, the coordination and cooperation mechanisms between the two need to be strengthened; this is also important for legitimizing more integration between A-VET and AE at field level.
- A-VET/AE: Contribute to linking more closely A-VET and AE at the field level, e.g. by way of integrating physically, where possible, RICCs in A-VET colleges; by having some of the same staff in A-VET and AE (example of Switzerland); by organizing common study tours for advisory service providers and A-VET providers; or by identifying education and training services that can be shared by several stakeholders.
- Public/private: Both the private and the public sector are crucial to the AKIS overall and A-VET and AE in particular. In some cases, there needs to be a sound complementarity between the two (e.g. AE of input suppliers focusing on production and of ICCs focusing on public goods), while in others it is important to work towards more interaction (e.g. through PPPs, matching funds, joint "Centers of Excellence", WBL etc.).
- Research/practice: It is important to enhance knowledge flows and strengthen links between applied research and farming practice and to foster participatory approaches in research.

R5. Foster coordination and cooperation among AKIS actors. A starting point for the better understanding of what works and what does not might be the analysis of lessons learned from existing platforms and initiatives. It should be noted that coordination does not necessarily imply integration.

R6. Strengthen knowledge centers for specific agricultural domains. Bring together specialized knowledge in one place rather than dispersing it. Ideally, such 'knowledge hubs' serve both A-VET and AE. They may be newly created, or an existing structure could be given this function. Such centers could become valuable platforms for VET and work-based learning, as well as for short training courses and technical backstopping.

R7. Capitalize on individual capacity. In order to make the system more sustainable there is a need for stronger institutionalization, thus moving from individual capacity ('leaders of change') to institutional capacity. Thereby the system is strengthened from inside out and from bottom up.

R8. Support the digital transformation and capitalize on existing IT applications. To improve the effectiveness of knowledge and information flow, government and donors should support the supplementation of human- and paper-based channels with ICT-based channels. Such channels allow for improved access to information, easier selection of relevant information, enhanced stakeholder engagement, better networking and production of joint outcomes (SCAR 2019, pp. 310). Currently available applications in Georgia (e.g. Traktor, Agronavt) should be used more intensively for information and knowledge exchange

R9. Work towards the institutional and financial sustainability of AKIS. It needs critical reflection and meaningful measures to achieve, step by step, institutional and financial sustainability. This equally applies to institutions (e.g. Farmers' Associations, NGOs etc.) and processes (e.g. coordination mechanisms). Such independence from international funding might come as direct government support (national, regional), membership fees, fees for services, and the like. Yet above all, the post-donor era needs to see a long-term commitment on the part of the government to invest time, resources, and effort in improving the AKIS infrastructure. This commitment should be reflected in AKIS-related action plans. Such action plans should include: (1) Specific actions for each type of AKIS stakeholders (farmers, agro-businesses, private advisory providers, research and educational institutions, etc.) as well as details (e.g., respective incentives) on possible collaboration between these stakeholders; (2) Feasible ways of converting existing projects (and their coordination mechanisms) into institutions.

R10. Foster participatory approaches. The concept of AKIS aims to undo a linear understanding of innovation development and information transfer where the underlying pattern is one that sees research institutions producing knowledge, extension handing it over to farmers, and farmers applying it. It should be quite the contrary: farmers and other non-academic stakeholders are brought into all stages of the process leading to co-creation and co-ownership of knowledge and innovation. It is therefore important to genuinely involve farmers and other non-academic stakeholders in the development of new technologies and practices. In this sense, and in terms of AKIS, the government—and also donors—could emphasize both an infrastructural view (supporting institutions through structural funds) and a process view (supporting innovation processes through incentives). Several so-called "Multi-Actor" projects by the EU could serve as insightful case studies to learn from their experience.

R11. Strengthen applied research. Applied research on the ground is key, even more so in a setting of diverse agro-ecological zones and production systems. AKIS is not only about linkages, coordination, and networks but also about generating specific, useful new knowledge as well as adapting international experience and best practice to the local context. Strengthen the links between universities, ICCs, A-VET college staff, the private sector, and farmers.

R12. Invest in future professionals. The Georgian AKIS requires professional teachers and extension workers educated with up-to-date agricultural knowledge and methodology. This may be enhanced by supporting the education of motivated youth in high-quality Georgian and international universities and by organizing summer schools and other events allowing for knowledge exchange and co-learning.

R13. AKIS is highly dynamic—follow it up. Make sure there is a mechanism in place to track change in this dynamic and permanently evolving system. Establish a regular rapid appraisal and inventory of the AKIS and its regulatory and policy framework. Such reviews should describe change in AKIS infrastructure, in fragmentation/integration and in main assets and gaps. Tracking change will allow the design of meaningful policies and plans of activities for adjusting and improving the system. The regular review of AKIS-related activities should be accompanied with a clear communication plan that will help stakeholders understand their roles and responsibilities, avoid duplication, and learn from different initiatives. In this sense, AKIS can be used for stakeholder accountability.

R14. Learn from other AKIS systems, above all from the EU. The European Union is at the forefront of analyzing, assessing and understanding AKIS both in theory and practice—as well as in keeping track of their learning across the 27 different EU systems. It is a rich source of learning that might inform—at least from a comparative perspective—what potentially lays ahead for Georgia. The most recent publication in this regard, to provide an example, is a document entitled *Preparing for Future AKIS in Europe* (SCAR 2019) covering the period 2021-27.

R15. Invest in a better understanding of AKIS 'from the bottom up'. The formal AKIS is only viable if it corresponds to farmers' needs and practices which are currently not well understood. Therefore, there is a need to complement the infrastructural analysis with an analysis of the Georgian AKIS from the bottom up. A crucial set of questions needs to be answered, namely: (1) how and from which sources do farmers access knowledge and innovation, (2) to what extent do the offerings of service-providing organizations match farmers' needs, and (3) what role do formal institutions really play in farmers' innovation behavior and decision-making. This will allow for an in-depth understanding of the system and recommendations which contribute to evidence-based policies and development interventions that support the effective co-creation and spread of reliable and relevant agricultural knowledge and viable innovations—and hence foster inclusive and sustainable agricultural and rural development in Georgia.

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Appendices

Appendix 1: Terms of Reference: Mandate UNDP VET, Annex 4 of RFP

ANALYSIS OF THE NATIONAL AGRICULTURAL KNOWLEDGE AND INFORMATION SYSTEM (AKIS) IN GEORGIA TERMS OF REFERENCE

The SDC/UNDP project "Modernization of Vocational Education and Training (VET) system related to agriculture in Georgia (VET Phase 2)" will provide support to further develop and strengthen effective public private partnerships and well-developed A-VET and extension systems that ensure improved delivery of relevant, high quality A-VET and extension services. The project is launching a call for proposals to analyse the National Agricultural Knowledge and Innovation System (AKIS) for Georgia.

I. BACKGROUND INFORMATION

The UNDP/SDC collaboration on VET and Agricultural Extension (AE) started in 2008. Support was provided for effective policy making, developing capacities of VET service providers, and improving quality of VET and AE services with the aim of increasing (self) employability of VET graduates and effectiveness of self-employed farmers. In 2013 the SDC and UNDP cooperation intensified, and, together with the MoESCS and the Ministry of Environmental Protection and Agriculture of Georgia (MEPA), the four partners emphasized more on systemic change and focused on the biggest community of rural population- the farmers. An extensive 5-year project started to contribute to the development of a system of high-quality VET and AE services in agriculture that results in improved livelihoods of the rural population.

Upgrading the skills and technical capabilities of farmers and rural entrepreneurs to improve productivity and overall farm management and competitiveness is a fundamental objective of both ministries, the MEPA and the MeESCS. Because of the special circumstances in the agricultural sector with up to 90 % of farmers being self-employed and where most farmers live far away from VET colleges in rural and isolated areas AE is an important element of knowledge and skills transfer. Most farmers are using outdated technologies, old machines and varieties of low productivity. They have limited access to quality information on modern technologies, training and advisory services. At the same time, there is a lot of knowledge and information on modern agriculture available in Georgia among the various universities, research institutions, VET colleges, (R)ICCs, private AE providers, farmers organizations and others. It is important that the MoESCS and MEPA have a coordinated and harmonized approach on VET and AE to make the best use of all available knowledge and information. As a basis for further collaboration between all organizations active in A-VET and AE, to improve the flow of knowledge and information in agriculture, and to work more strategically the project will commission an analysis of the national AKIS in Georgia in view of improving it.

The idea for developing an AKIS originates from phase 1 of the project when the project team advocated for a more holistic approach to the provision of VET and extension services and closer cooperation between the MEPA and the MoESCS. This included the suggestion to develop a knowledge and information strategy for agriculture owned by both ministries rather than having a VET strategy owned by the MoESCS and an extension strategy owned by the MEPA. The idea of developing a national AKIS has been revived in phase two.

As a first step, a reflection workshop was organized by the project to share the idea of analyzing and improving the Georgian AKIS with various local knowledge and information providers. The following could be observed during the workshop:

- The discussion about farmer's needs and sources of knowledge and information is based on assumptions. It would be useful to do a systematic analysis to confirm these assumptions.
- It is important to recognize that public and private actors are equally important in providing services to farmers and that public and private actors have a similar vision and mission on the future of agriculture in Georgia and the needs of farmers. However, more attention needs to be paid on how different actors can complement each other rather than on competition.

- It would be useful to do a map all knowledge & information sources available in Georgia (Organizations, suppliers and other actors, data basis, etc.).

II. DEFINITION OF AN AKIS

For the purpose of this analysis AKIS is defined as a system that connects people and institutions involved in agriculture to promote mutual learning, creation, exchange and use of agricultural technology, agricultural knowledge and information to support decision making, problem solving and innovation in agriculture. It is a set of agricultural organization and/or persons, and the links and interactions between them in the generation, transformation, transmission, storage, retrieval, integration, diffusion and utilization of knowledge and information.

III. OVERALL OBJECTIVE OF THE ASSIGNMENT

The objective of this assignment is to know more on how and from what sources farmers receive reliable and relevant knowledge, guidance, information and support, to continuously evolve and solve problems successfully, and respond to external expectations & development opportunities. The analysis will include three steps:

- In a first step a mapping will be done of all agricultural organizations and/or persons engaged in the generation, transformation, transmission, storage, retrieval, integration, diffusion and utilization of knowledge and information, The mapping will include links and interactions between these actors.
- In a second step, the mapping will be analyzed to identify assets and gaps of the existing system.
- Finally, the study will come up with recommendations on how the Georgian AKIS can be improved to better serve the sector. The study will propose and develop practical ideas to support innovation, knowledge transfer and information exchange in Georgia as instrument that will help in strategic decisions making.

IV. SPECIFIC OBJECTIVES, TASKS AND QUESTIONS

- Mapping of agricultural organizations and people
  - Identify the major AKIS actors (institutions and people), both public and private, in the areas of agricultural research, agricultural extension, agricultural education and the farming profession;
  - Who are the main suppliers of VET and extension services?
  - Record their perceptions on their roles in in the AKIS system;
  - Describe the current formal and informal mechanisms that link various actors for the purpose of creation of synergies, joint planning and integrated operations within the context of AKIS, and assessment of their suitability and effectiveness. How do they cooperate?
  - Collect information on the human, physical and - especially - financial resources of actors and the technical and geographical scope of their operations. Identify current or planned modalities for sharing resources, especially aimed at cost-sharing;
  - Collect the views and suggestions of various actors for joint planning and implementation of activities;
  - Who are the main recipients (clients) of knowledge and information?
  - What are main topics of information and knowledge asked for by the Georgian farmers and what are the main methods used for knowledge and information transfer?
  - What client-oriented and participatory approaches are used for planning, programming and implementation, involving several actors?
  - Are there any key actors missing in the system?
  - What are the main sources of funding?
  - Visualize all actors how they interact and relate in an AKIS diagram;
- Identification of assets and gaps of the existing system
  - Identify the main constraints such as institutional, physical, political, financial, human resources, etc. that discourage various actors from planning and operating jointly;

- Analyze the importance the government attaches to each actor as an information and knowledge provider in terms of recognition, collaboration, budgetary allocations, staff benefits (incentives), promotion and career development opportunities (enabling environment);
- Assess the extent of decentralization, delegation of power and decision making and authority for financial control of income and expenditure to lower administrative levels, such as the district level;
- Assess the importance attached by various actors to human resources development, such as through development of problem solving skills, participatory learning and empowerment, as compared with a mainly technology and production focus;
- Identify any unique, innovative steps undertaken to strengthen AKIS that seem promising and may be tried elsewhere;
- Identify any assets and gaps of the current system and the reasons for those assets and gaps;

➢ Recommendations for an improved Georgian AKIS
- Based on the mapping and the identification of assets and gaps of the existing system:
  - Come up with recommendations that aim at building on identified assets and on strengthening specific gaps;
  - Comment on the need to create new actors within the system;
  - Formulate guidelines that can be used for establishing effective AKIS.

V. SUGGESTED METHODOLOGY

The methodology for this analysis involves a combination of approaches including document and secondary data review, rapid appraisals, questionnaires, group and individual interviews with key stakeholders and workshops/seminars.

➢ A desk review & analysis of different existing documents, strategies, policies, laws and other documents related to the transfer of agricultural knowledge and information in Georgia;
➢ Discussions/reflections, interviews and focus group discussions with various key stakeholders involved in AE and A-VET and representing the public and private sector;
➢ Organization of a workshop for stakeholders to present, findings, discuss and describe the existing
➢ AKIS model (UNDP will cover costs related to workshop);
➢ Development of the final report (ready concept) to UNDP.

VI. EXPECTED DELIVERABLES

It is expected that the consultants will provide:

➢ An inception report describing the methodology and work plan (including the number of interviews focus group discussions and etc);
➢ A 1-page AKIS diagram visualizing the AKIS system in Georgia;
➢ A report of maximum 40 pages including, among others, the following chapters:
  - Executive summary
  - Main structural characteristics of the Georgian agricultural sector
  - Characteristics of the Georgian AKIS (AKIS description, key actors, policy framework, governance, coordination structures, linkages, AKIS diagram)
  - History of VET and AE system
  - Current VET and AE system
  - Linkages among AKIS actors
  - Main assets and gaps
  - Summary, conclusions and recommendations related to the fine tuning and farther development of the AKIS (including coordination of the system

Appendix 2: Interview guide GEOAKIS

Bern University of Applied Sciences – School of Agricultural, Forest and Food Sciences HAFL

ISET International School of Economics at TSU Policy Institute

GEOAKIS - Interview Guide

This interview takes place in the frame of the analysis of the Georgian Agricultural Knowledge and Innovation System (AKIS). ISET and HAFL are conducting this study on behalf of the UNDP VET project. The interview is split into three parts, namely: Profile of actor; AKIS linkages/coordination; AKIS strengths, weaknesses and trends. The interview will last approximately one hour. Thank you for taking the time and sharing your experience and knowledge with us. The information will be treated confidentially.

1 Profile of the AKIS actor

1.1 Please briefly describe your institution.

First let the respondent speak freely. If information is missing, ask specifically for it.

Type of institution (e.g. university, government, private company…)	
Activities (e.g. research, extension, teaching, sales, policy-making…)	
Topical focus (e.g. agriculture in general, organic, livestock, plants…)	
Number and profile of staff (e.g. 5 agronomists, 80 sales, 10 admin…)	
Geographical scope (international, national, regional, local)	

1.2 Where does your institution's funding come from?

Jointly fill in the table below, if applicable/possible with percentages, and provide details (names of donors, government entities, companies, NGOs etc.) in comments.

Source of funding		**%**	**Comments**
Public funds	Donor funds		
	National funds		
	Regional funds		
Private companies	Member fee		
	Payment for product/service		
Farmers	Member fee		
	Payment for product/service		
Foundation			
NGO			
Other: _____			

1.3 What are your institution's most important sources of *new* information? Please rank the ones that apply in your case.

Rank	Source of information	Specify
	Government	
	Donors/NGOs	
	Universities	
	VET colleges	
	Research centres	
	Private companies	
	Farmers	
	Internet	
	Social media	
	Mobile apps	
	Traditional mass media	
	Other	

1.4 **[ONLY for institutions providing advisory services to farmers]** Which methods do you use for knowledge and information transfer? Please rank the ones that apply in your case.

Rank	Method
	One-to-one on the farm
	One-to-one outside the farm
	Telephone hotline
	Small group advice on the farm
	Small group advice outside the farm
	Website (.....)
	Social media (.....)
	Mobile app (.....)
	Traditional mass media (radio, TV, newspapers)
	Other: _____

2 AKIS linkages / coordination

Show the draft AKIS diagram and explain it (different types of actors, colour code etc.).

2.1 Which actors are missing or redundant in the draft AKIS diagram?
Note down missing actors and cross through redundant actors.

2.2 With whom is your institution mostly in contact?
Draw arrows on diagram (thin = weak contact, thick = strong contact). One-sided, two-sided and also circular (within actor group) arrows are possible.

2.3 What are these contacts/relationships all about?
Next to the arrows, note down what the relationship entails (e.g. donor - APRC: mandate ←→ reporting; ICC – farmers: advice and MEPA campaigning ←→ farm details for MEPA statistics).

2.4 Which coordination mechanisms (e.g. platforms, roundtables, planning workshops or also written exchange) among different AKIS actors are you engaged in (e.g. for the purpose of joint planning, creation of synergies, integrated operations)?

2.5 How do you assess the effectiveness/suitability of these coordination mechanisms?

2.6 Should the coordination among actors be improved? If yes, how?

3 AKIS strengths, weaknesses and trends

3.1 What do you consider strengths of the present-day Georgian AKIS?

3.2 What do you consider weaknesses/gaps?

3.3 How do you assess, at the most general level, the capability of the public advisory services (ICCs) to serve the knowledge needs of farmers in Georgia? Please rate between 0 (= no capability) and 10 (= maximum capability); don't know/no opinion = X. → SCORE: .....

3.4 How do you assess, at the most general level, the capability of the private advisory services (companies etc.) to serve the knowledge needs of farmers in Georgia? Please rate between 0 (= no capability) and 10 (= maximum capability); don't know/no opinion = X. → SCORE: .....

3.5 How do you assess the capability of public agricultural VET to serve the knowledge needs of farmers in Georgia? Please rate between 0 (= no capability) and 10 (= maximum capability); don't know/no opinion = X. → SCORE: .....

3.6 How do you assess the capability of private agricultural VET to serve the knowledge needs of farmers in Georgia? Please rate between 0 (= no capability) and 10 (= maximum capability); don't know/no opinion = X. → SCORE: .....

3.7 What (future) trends do you observe within the Georgian AKIS?

3.8 According to you, what will be more needed in the future, "hard skills" (technical, production knowledge) or "soft skills" (e.g. problem-solving abilities, entrepreneurial thinking, participatory learning; more generally "human resources development")? TOR Q13

100/0	80/20	50/50	20/80	0/100
Tech/Prod				**HRD**

3.9 Any final remarks on your part? ("What I still wanted to say...")

4 Interview Identification:

4.1 Name of Institution: .....

4.2 Name respondent: .....

4.3 Position respondent in institution: .....

4.4 Date of interview: .....

4.5 Duration of interview: .....

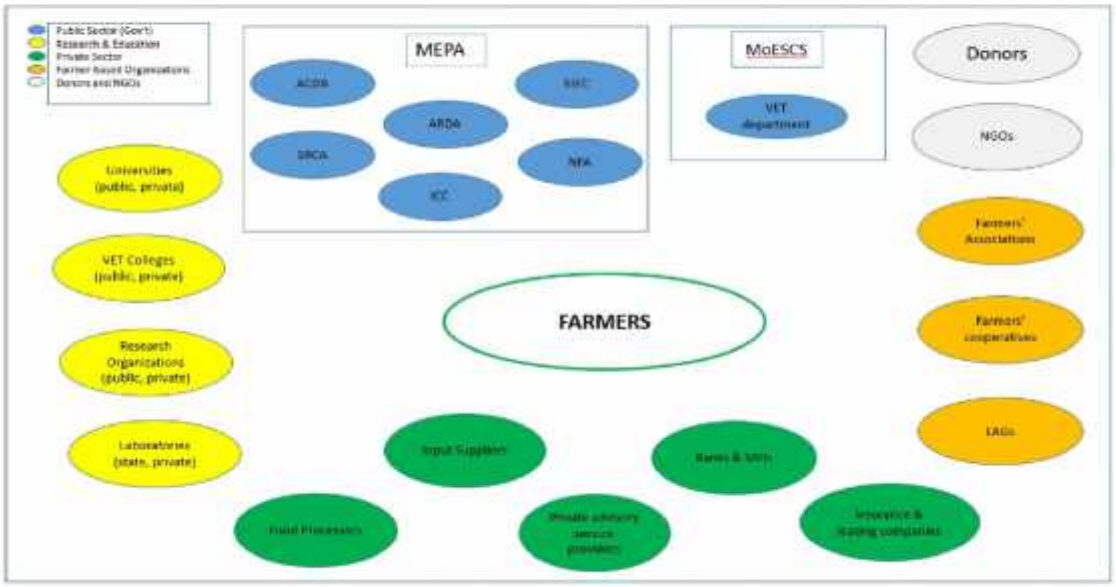
4.6 Name interviewer: .....

4.7 Interview Number (for excel file): .....

Bern/Tbilisi, 12.11.2019

ISET
International School of Economics at TSU
Policy Institute

GEOAKIS: Tentative draft of AKIS diagram (as basis for discussion)

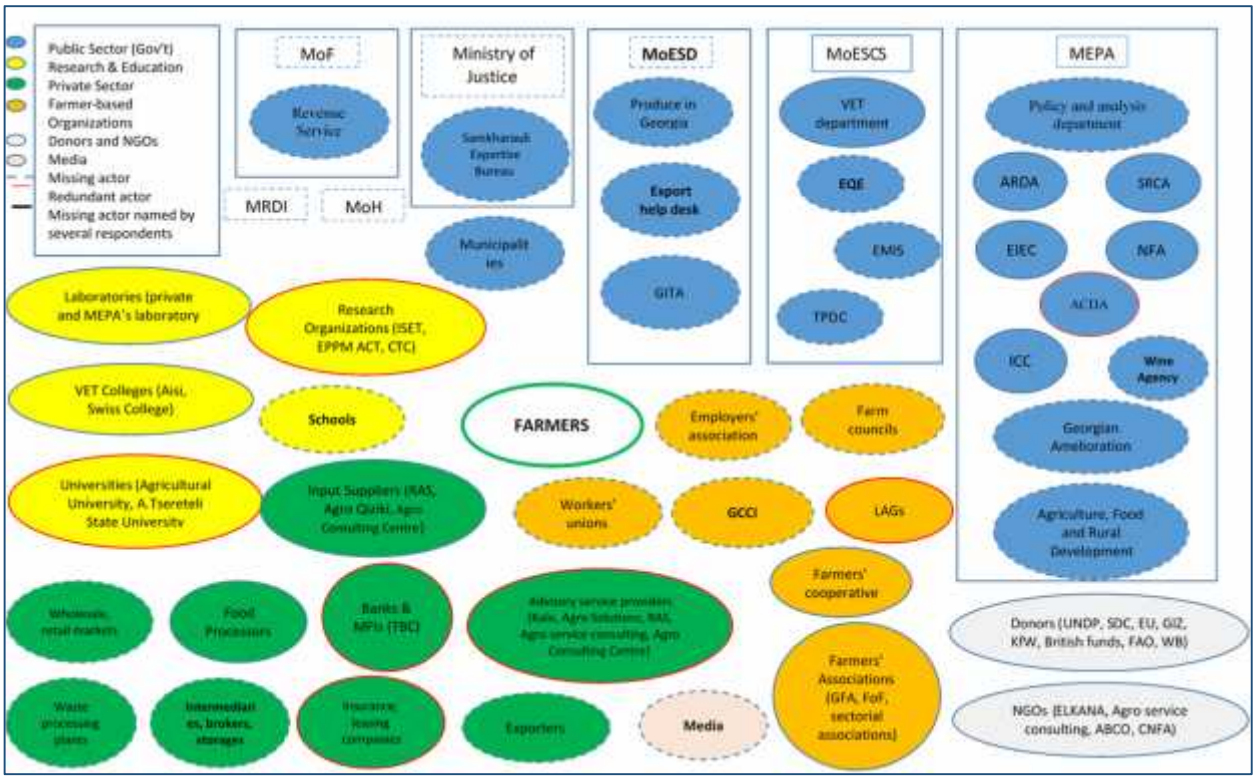


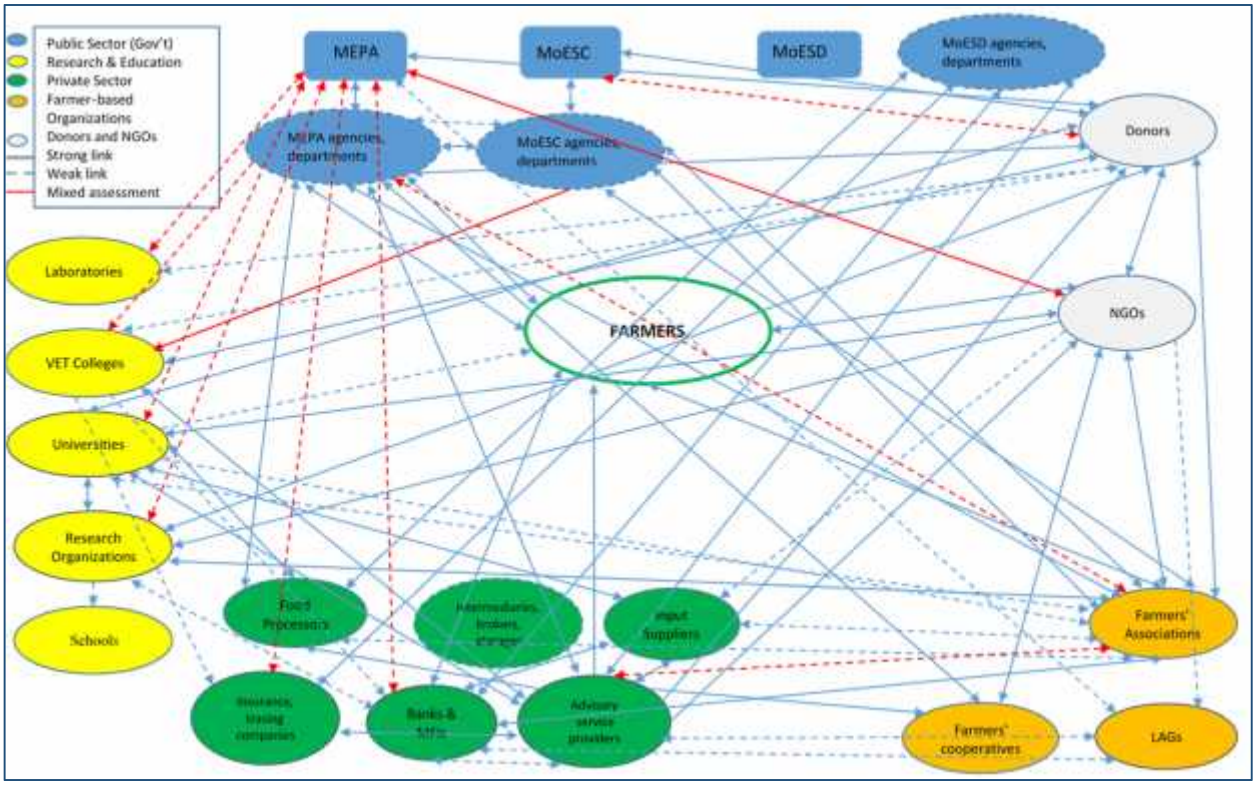
5

Appendix 3: List of interviewees

Type of organization	Name, Surname	Organization
Public sector	Tamar Samkharadze	Ministry of Education, Science, Culture, and Sport of Georgia (MoESCS)
Public sector	Nino Gvirjishvili	MoESCS
Public sector	Gela Khanishvili	MEPA
Public sector	Tengiz Kalandadze	MEPA
Public sector	Marika Gelashvili	MEPA
Public sector	Ekaterine Zviadadze	MEPA
Public sector	Zurab Liparteliani	National Food Agency (NFA)
Public sector	Seva Machaidze	Agricultural and Rural Development Agency (ARDA)
Public sector	Tamar Aladashvili;	Environmental Information and Education Center (EIEC)
Public sector	Lasha Lobjanidze	EIEC
Research and Education	Elene Maghlakelidze	Georgian Academy of Agricultural Sciences
Farmer-based organization	Nino Zambakhidze	Georgian Farmers Association (GFA)
Farmer-based organization	Nikoloz Meskhishvili	Georgian Farmers Association (GFA)
Farmer-based organization	Rusudan Gigashvili	Farmers of the Future
NGO	Konstantine Kobakhidze	UNDP
NGO	Tamar Sanikidze	UNDP
NGO	Tea Gulua	UNDP
Private sector	Marc Bloch	Consultant
NGO	Beka Tagauri	SDC
NGO	Nino Edilashvili	SDC
Private sector	Guram Jinchveladze	Rural Advisory Services (RAS)
Private sector	Inga Lagoshvili	Union "Agroservice"
Public sector	Teona Babunashvili	MoESD - Produce in Georgia
Research and Education	Malkhaz Aslamazashvili	College Aisi
Research and Education	Tamar Sanikidze	International Institute for Education Policy Planning and Management (EPPM)
Research and Education	Besarion Sulaberidze	CTC
Research and Education	Irina Khantadze	CTC
NGO	Tamaz Dundua	Elkana
Private sector	Shota Gongladze	TBC Bank
NGO	Jumber Maruashvili	FAO Georgia
NGO	Konstantine Zhgenti	ABCO
NGO	Nodar Kereselidze	UNDP
Research and Education	Tea Urushadze	Agrarian University
Private sector	Rati Shavgulidze	Consultant
Private sector	Mikho Svimonishvili	Food processor
Private sector	Natalia Oqroshiashvili	kalo

Appendix 4: Draft AKIS diagrams





Appendix 5. Summary of AKIS linkages

	Public sector	**Private sector**	**Farmer based organizations**	**Research & Education**	**Donors & NGOs**
Public sector	- Sharing experience and expertise within and between ministries; - Partnerships in projects; - Joint development of programs and projects.	- Consultations in program development and implementation (e.g. banks consult with staff of SRCA and ICC); - Information exchange; - Participation of private actors in state projects (e.g. preferential agro credit, plant the future).	- Partnership in projects (e.g. GFA involved in WBL); - Participation in roundtables and board meetings at Ministries; - Involvement in the design of study materials (e.g. GFA involved in design of exams, guidelines for WBL programs, etc.); - Information exchange and consultations.	- Requesting data and information from public sector, information exchange; - Collaboration with public sector in terms of employment (e.g. some MEPA employees are lecturers at AUG); - Service provision by research organizations to public sector (e.g. ARDA cooperates with soil laboratory at AUG);	- Information exchange through roundtables, board meetings, presentations; - Joint projects.
Private sector	- Partnerships in projects (e.g. state program "Produce in Georgia" collaborates with banks through grant components). - Information exchange (e.g. public sector provides information on government projects and activities to banks, MFOs, and insurance companies, whereas private actors provide info on their challenges); - Public sector hires private consulting companies to provide goods and services (e.g. trainings to beneficiaries and potential beneficiaries of grants; private laboratories conduct analysis for public actors).	- Cooperation of banks with input suppliers (banks conducting trainings, organizing agro forums, etc.); - Joint development of products (e.g. kalo participates in defining terms of input supply, agri loan, agri insurance package); - Private actors performing the role of intermediary in transactions with other private actors (e.g. kalo bringing private consulting companies to conduct trainings for farmers)		- Provision of labor force to private actors (e.g. food producers and input suppliers are main employers of AUG graduates). - Organization of job forums (e.g. AUG organizes job forums twice a year and invites agro-food companies and input suppliers).	
	Public sector	**Private sector**	**Farmer based organizations**	**Research & Education**	**Donors & NGOs**
	- Exchange of information (public sector provides extension services and farmers provide data and information on their needs); - Trainings on financial management, marketing, technical knowledge about best production practices for farmers.	- Information exchange through consultations; - Inputs; - Provision of loans and technical advice.	- Trainings; - Consultations in preparing grant applications or business plans; - Financial support to farmers; - Farmers sharing knowledge and information about their challenges;	- Consultations and information exchange.	- Information exchange (e.g. exchange through Farmer Councils)

Farmer			- Consultations regarding input supply.		
Farmer-based organizations	- Partnerships in projects; - State provides farmers, farmer's associations and cooperatives with trainings and consultations. Farmers provide the state with information on their farms, regions, etc.	- Information exchange through consultations and trainings; - Banks conduct trainings for farmers, organizing agro forums, etc.; - Research activities (e.g. kalo doing research for GFA); - Financial support to associations (e.g. kalo has provided grants to associations)	- Awareness raising activities on new technologies and educational opportunities; - Partnership in projects (e.g. Elkana working with LAGs).	- Consultations and information exchange.	- Information exchange through roundtables, board meetings, presentations; - Partnerships in the projects.
	Public sector	**Private sector**	**Farmer based organizations**	**Research & Education**	**Donors & NGOs**
Research & Education	- Exchange of information; - Collaboration on projects; - Internships for students (under the memorandum, VETs sent their students to MEPA's scientific research center for internship); - Joint research (e.g. NFA and scientific research center on environmental impact of pesticides)	- Joint projects (e.g. RAS's joint project with college "Opizari", kalo and Agricultural University's joint video clips); - Memorandum about employment; - Trainings and seminars at universities conducted by private companies.	- Joint research on employability of VET alumni; - Joint implementation of projects (e.g. GFA and Agricultural University in WBL project).	- Partnership in research projects;	- Information exchange through roundtables, board meetings, presentations; - Financial support.
Donors & NGOs	-Financial and technical support; -Information exchange (public sector provides information to donors and NGOs on farmer's needs and information on current situation of target municipalities, whereas donors provide the information on project proposals); - Public sector performs the role of intermediary between donor and farmers; - Donors provide technical equipment and project mandate to public sector; - Public sector provides expertise and experience to donors, and	-Involved as consultants in projects; - Partners in projects; - Information exchange.	- Implementation of donor-financed projects by associations; - Collaboration with NGOs and other associations in policy discussions.	- Financial support; - Information exchange.	- Exchange of information about ongoing projects and partnership opportunities; - Financial support; - Partnerships in projects;

	serves as an implementer of donor projects.				