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Agricultural Knowledge and Innovation Systems (AKIS)

in Kosovo*

National Report and Proposed Draft Action Plan

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September 2022

** This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence*

Abbreviations

AKIS	Agricultural Knowledge & Innovation System
ARDP	Agricultural Rural Development Program
BMZ	German Federal Ministry for Economic Cooperation and Development
CITT	Centre for Innovation Support and Technology Transfer
CTPCIE	Creating Theory to Practice Centres for Innovation and Employment
DHEST	Department of Higher Education, Science and Technology
ERASMUS	European Community Action Scheme for the Mobility of University Students
ERP	Economic Reform Program
EU	European Union
EC	European Commission
HERT	Higher Education, Research and Technology
GIZ	German Society for International Cooperation
H2020	Horizon 2020
ICT	Information and communication technologies
ICK	Innovation Center Kosovo*
IBC-M	International Business College Mitrovica
IPA	The Instrument for Pre-accession Assistance
IPARD	The Instrument for Pre-Accession Assistance in Rural Development
IT	Information technology
MAFRD	Ministry of Agriculture Forestry and Rural Development
MEST	Ministry of Education Science Technology
MIE	Ministry of Innovation and Entrepreneurship
MTI	Ministry of Trade and Industry
NDS	National Development Strategy
NRP	National Research Programme
NRC	National Research Council
NOA	New Opportunities for Agriculture
OECD	The Organisation for Economic Co-operation and Development
R&D	Research and Development
R&I	Research and Innovation
RITT	Research, Innovation and Technology Transfer
RDPU	Rural Development Policy Unit
SME	Small and Medium-Sized Enterprises
SMESA	SME Support Agency of Kosovo*
SITKT	Scientific Innovation and Transfer of Knowledge and Technology
SWOT	Strengths, Weaknesses, Opportunities, and Threats
UBT	University of Business and Technology
USAID	U.S. Agency for International Development
VET	Vocational Education and Training
WB	Western Balkans
WBC	Western Balkans countries/territories

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1. Introduction

Kosovo* is a lower-middle-income country which has experienced solid economic growth. External imbalances are high and economic activities are predominantly concentrated in the services sector, in particular in the retail and wholesale trade. Reliance on remittances and direct or indirect support from donors has declined, but remains significant. Growth is mainly driven by domestic demand, with strong increases in government consumption and investments. Exports of goods and services have also increased, but still cover only about a third of total imports. The production base remains extremely narrow. Agriculture, mostly semi-subsistence, contributes by about 14.1% to the value added in the economy. In the context of economic, social and ecological functions, agriculture plays an important role towards sustainable development and quality life improvement of the people living in rural and mountain areas. The country has favorable climate, soil, relief for the wide variety of crop cultivation. Such factors, including peoples' previous experiences and their willingness to be involved in the agricultural business, promises potential for employment and income generation for most vulnerable part of society. The sector structure is largely based on low-skilled labour, implying potential constraints for businesses trying to develop in sub-sectors with higher value added. Few non-farm income opportunities exist in rural areas. Most farm households are small, generating little income. Only 17% are farmed on a full-time basis. One-third of all farms are operated by part-time farmers having other off-farm sources of income, and almost half (49%) are operated by farmers who characterize themselves as "occasional" farmers.

The actual farm structure in Kosovo* is unfavorable which makes it difficult for advisory services to reach and transfer information and knowledge to farmers.....

2. Mapping of AKIS in Kosovo*

In Kosovo* although there seem to be sufficient number of actors in place e.g. farmers, advisors, researchers, trainers and instructors (see Table 1), involvement of these actors in co-creation and exchange of knowledge is still rather weak. The cooperation and follow-up of new knowledge among universities, research institutions and agricultural associations lacks a long term solutions that stretches beyond the research projects time spans. The existing approach of agriculture knowledge development and transfer is rather linear, meaning that developed solutions to agricultural problems are passed directly to the farmers. Seeing new changes in technology, pressure on the environment and societal expectations, a new model which yields more interaction among farmers, scientists, advisers, enterprises, NGOs, etc. is required. Interactive model is becoming increasingly important in promotion of mutual learning, share and use agriculture knowledge and information.

The Agriculture and Rural Development Program (ARDP) 2014-2020 places transfer of knowledge and innovation in agriculture, forestry and rural areas as fourth priority. The budget allocated to this priority was approximately 8%. The general objectives under the priority four are: "1) To develop human capital to increase the ability of the agri-food sector to cope with competitive pressure and market forces as well as to progressively align with EU standards while pursuing economic, social and environmental goals in a balanced territorial

development of rural were; 2) To stimulate knowledge transfer and help promote social and economic inclusion by supporting smaller and medium sized farmers in particular and microenterprises in rural areas.” In the ARDP 2022-2028 the development and transfer of knowledge is set again under fourth strategic objective which is entitled ‘comprehensive institutional and sectorial reforms to create efficient public services’.

Agricultural education, training and advisory service in Kosovo* is public and private organized in three levels: 1) central, 2) regional and 3) local. Based on Law on Agriculture and Rural Development Advisory Services (Law No. 04/L – 074 – 15 February 2012), the Department of Advisory and Technical Services provide trainings on capacity building, advisors certification, consultations and publications for the farmers. The advisory services started in 2004; supported by the CARDS 2003 project ‘Strengthening Advisory and Support Services (SASS) provided to Farmers and Rural Communities at Kosovo*’ followed by the project SASS2 and Rural Advisory Service (RAS). Within the MAFRD the advisory services are organized at Department level with three divisions and 37 Municipal Advisory Information Centers for Agriculture and Rural Development. Each center has one to two advisors which are previously trained to support farmers according to their requirements. In Kosovo* two main channels have been used to provide advisory services for agriculture: 1) advisors from the public sector (MAFRD and municipalities) and 2) NGOs, local and international advisors, cooperatives, suppliers of inputs, farmers associations etc. The MAFRD developed a database which provides data on advisors and the subjects they do cover. Farmers have access via the link for advisory services on the MAFRD website www.mbpzhr-ks.net. With the support of EU, since 2014 the MAFRD has established Kosovo* Advisory Services for Agriculture and Rural Development (KASARD) which is aligned with EU Farm Advisory Service (FAS). The KASARD supports the development and delivery of extension to farmers through the municipal Information and Advisory Centers (AIC). KASARD provides advisory services to farmers that are aligned with EU requirements. It aims at helping farmers to better understand and meet the EU requirements for environment, public and animal health, animal welfare and the good agricultural and environmental practices. KASARD provides professional advisory services to farmers on a public/private partnership basis. Its strategy is to build technical capacity at the farm level, competitive and market oriented sector, sustainable management of agricultural property, including improved use of technology and methods of agricultural production, achievement of food safety and quality standards, animal welfare, environmental protection and development of farmer groups, relationships between producers, traders and input suppliers. Department of Advisory and Technical Services (DATS) in the MAFRD is responsible for setting-up the registration process of all agricultural advisory services providers, including planning, coordinating, and supervising advisory services at national and local level. In 2019 a total of 13 private companies have been licensed for provision of advisory services. The provision of advisory services from private companies is coordinated by the DATS and based on the administrative instruction the licensed companies are obliged to prepare and share the annual plan with DATS including reporting twice a year.

Although the effort has been made to establish pluralistic advisory system where public and private actors deliver agricultural advisory services, the Strategy for Advisory Services needs further review and revision in order to be aligned with EU FAS. Further developments are needed with respect to methods of transfer of advice and as well as training system for advisors and farmers. Some of the main obstacles in the AKIS system are insufficient human capital for information and knowledge transfer, weak infrastructure, insufficient investment in R&D, as well as underdeveloped linkages between education and research institutions.

Table 1: Main actors within the Kosovo*'s AKIS

Type	Name	Primary role
International governing bodies	EU Office of Kosovo* World Bank US Agency for International Development Food and Agriculture Organization Danish International Development Agency Swiss Interco-operation Austrian Development Agency	Policy and regulation, research and development funds
National Ministries	Ministry of Education Science and Technology Ministry of economy Ministry of Agriculture Forestry and Rural Development Ministry of Environment, Spatial Planning and Infrastructure of Kosovo*	Policy and regulation, research and development funds
Regional and local governments	Directorate for economic, agriculture and rural development Directorate of education Directorate for urbanization and environmental protection	Policy and regulation, research and development funds
Government agencies	Agency for Agricultural Development Food and Veterinary Agency Forest Agency Agency for Environmental Protection Agency of Statistics Cadastral Agency	
Research Institutes	Kosovo* Institute of Agriculture Institute for Vineyards and Vine Forestry Institute Hydrological and Meteorological Institute	Conduct research in the agriculture, environmental, economic social aspects. They officially support Ministries,

		although they usually possess a large degree of independence.
Sciences Academy	Academy of Sciences and Arts of Kosovo*	The academy has 24 regular and 11 associate members working for the promotion, development, and advancement of science and art in Kosovo*, for building a knowledge-based society. Realizes, ideas and organizes scientific and artistic projects of interest for the social, economic and cultural development of Kosovo*, through: publication of research materials in the field of science, art and culture; holding artistic activities and cultural discussions, with the aim of raising critical thinking in Kosovo*; promoting scientific and artistic thought in Kosovo*, and the inclusion of this thought in global level.
Public higher education institutions	University of Prishtina – Faculty of Agriculture and Veterinary Medicine University of Prizren –Faculty of Life and Environmental Sciences University of Peja – Faculty of Agribusiness University of Gjilan – Faculty of Applied Sciences	Education and research in agriculture, economics and environmental sciences
Private higher education institutions	University of Business and Technology International Business College Mitrovica	Higher professional education
Initiative for Agricultural Development	IADK aims to develop farmers' production capacities, increase their competitiveness in the market, disseminate knowledge on best practices of agricultural production and home processing by	Professional education and training

of Kosovo* (IADK)	lobbying for policies and projects that contribute to rural development in Kosovo*	
Farmers associations	<p>Association of milk producers of Kosovo* https://shpqk.org/</p> <p>Organika https://organika-ks.org/</p> <p>National raspberry association 'Mjedra e Kosoves' https://agroportal-ks.com/shoqata-kombetare-e-mjedrave-mjedra-e-kosoves/</p> <p>Agricultural Association 'Red Gold' https://agroportal-ks.com/kooperativa-bujqesore-red-gold/</p> <p>Kosovo* Association of Beekeepers https://agroportal-ks.com/lidhja-e-bletareve-te-kosoves/</p> <p>Association 'Pema' Kovrage https://agroportal-ks.com/shoqata-pema-kovrage/</p> <p>Association 'PePeKo' https://pepeko.org/en_US/</p> <p>Association of wine growers shogatavreshtari@yahoo.com</p> <p>Association 'Ana Morava'</p> <p>Association of the Private Forest Owners</p>	Apart from lobbying and the classic interest protection, associations play an important role organising farmer networks
Agricultural Centres	<p>Kosovo* Innovation Centre</p> <p>Business incubators</p> <p>Municipal advisory information centres (37; 1-2 advisors per centre)</p> <p>Biodiversity centres for flora in Kosovo*</p> <p>Kosovo* Centre for livestock breeding</p>	Development of innovative research and advisory services for farmers
Agricultural secondary schools	Each municipality offers education in agricultural secondary schools	Education and practical trainings
Lead farmers	Each municipality on voluntary bases appoints lead farmers in each sub-sector	Practical trainings, farm demonstration to the following farmers
Agricultural input suppliers	<p>AGROUNION</p> <p>AGRODRINIA</p>	Supply of seeds, fertilizers, semen, feeds, stables and machinery, veterinary products, contractors. Provide specific advice to farmers on their own products; some have established their own research on field experiments.
Businesses	<p>"ABI & ELIF 19" http://www.abiprogres.com/</p> <p>Ananas Impex https://ananasimpex.com/</p> <p>ASK Foods https://www.ask-foods.com/</p> <p>Euro Food http://www.euro-food.org/</p>	Some are members of Advisory Boards at Universities and contribute to

	<p>Jege Foods www.//jegefoods.com/ Krusha www.//kbkrusha.com/ Frutomania www.//frutomaniaks.com/ R- Company www.//rcompany-ks.com/ Mix Product www.//mix-product.com/ AgroProduct https://www.agroproductshpk.com Hit Flores hit_flores@hotmail.com Fungo LCC http://fungo-shpk.com/ Euro Fruti http://eurofruti.com/index.php/contact/ Grasep http://grasep.org/ Dairy Vita http://www.qumeshtorjavita.com/ Dairy Drena http://www.qumeshtorjadrena.com/ Dairy Eurolona http://www.eurolona.com/ Dairy Sharri http://www.sharrimilk.com/ Dairy Kabi http://www.kabi-ks.com/</p>	<p>curriculum development. In addition they do offer students internships for research on product innovation and strategies, consumers, marketing, etc.</p>
Chamber of commerce	<p>Kosovo* Chamber of Commerce (KCC) is a professional organization founded in 1962 by the Assembly of Kosovo*.</p>	<p>The Kosovo* Chamber of Commerce analyzes the economic situation in Kosovo* and actively proposes new and advanced forms of local business and stimulates the internationalization of Kosovo* entrepreneurship. Kosovo* Chamber of Commerce contributes to the development of enterprises and with its professionalism and determination assists the Kosovo* business and society of Kosovo* to internalize European values.</p>
Famers cooperatives	<p>Agrocelina</p>	<p>Develop a shared vision, finance research and transfer knowledge to their members</p>
Independent accountants and consultants	<p>Licensed independent accountants/consultants have organized themselves in the Associated Business Consultants</p>	<p>Provide information on commercial basis to farmers on specific topics: fiscal and legal issues, accountancy, agricultural production, investment projects, and environmental aspects.</p>
NGOs	<p>Association of Ecologists of Kosovo* Representatives of Local Action Groups at municipal level</p>	<p>Represent of interests from stakeholders, lobbying, trainings</p>

	Association of Kosovo* Municipalities Consumer Association Association of Women "Shera" (equal opportunities and minorities) Federal Association of Water Users	
Mass media	Newspaper 'BUJKU' https://gazetabujku.com/ Agroportal KEP https://keptrust.org/en/kep-creates-the-agro-portal-in-support-of-Kosovo*-farmers-community/ TV show 'BUJKU'; one of the TV-shows https://www.youtube.com/watch?v=wdAa8MQUVmc TV show 'Agro emission i bujqesise' https://www.youtube.com/watch?v=C-1KeiNUcUU	Transmitting the agricultural information/innovation to the farmers

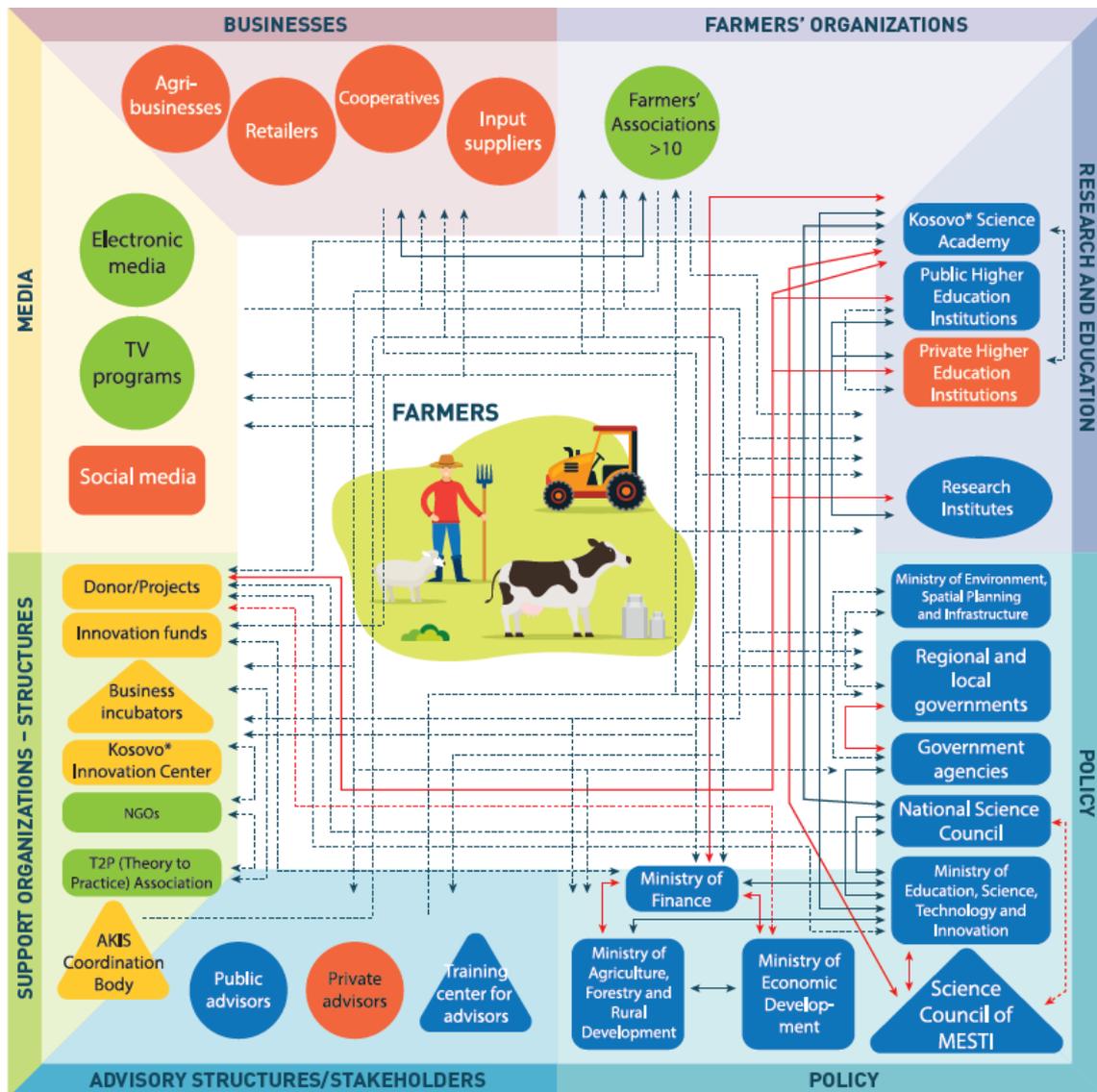


Figure 1: AKIS map in Kosovo*

3. SWOT analyses of the AKIS in Kosovo*

Strengths:

- All necessary AKIS actors in place with some experience in collaboration;
- Agriculture research is one of the key research priorities in Kosovo*;
- Established international scientific collaboration;
- Existing legal base for Agriculture and Rural Development Advisory Services;
- Established Kosovo* Advisory Services for Agriculture and Rural Development (KASARD) which is aligned with EU Farm Advisory Service (FAS);
- The existing of 37 Municipal Advisory Information Centers for Agriculture and Rural Development cover the whole territory;
- The development and transfer of knowledge is one of the main strategic objectives within the ARDP 2022-2028;
- Existing research capacity in agri-food sector;
-

Weaknesses:

- The actual AKIS system is not at the optimal shape to easily allow information flow among the actors involved in the system;
- Limited budget for education and research, general expenditure for R&D amounted to only 0.1% of GDP;
- Lack of coordination body of AKIS actors;
- Out-dated research infrastructure (buildings/equipment);
- Weak linkages to ensure synergy and complementarity among the AKIS stakeholders through networks, partnerships and other activities;
- Weak institutional capacities to absorb international research projects funds;
- Low level of joint research projects with international partners from EU;
- Lack of focus on research that is more responsive to farmers' needs and context;
- Public advisors are distracted by other tasks, have only general agricultural education, and are able to achieve only a low number of field visits, partly due to staff shortages;
- Weak interaction between research and practice;
- No rewards for researchers who engage more with farmers;
- Weak coverage of agricultural issues and lack of agri-innovation in the spotlight by mass media;
- Lack of multi-actors knowledge networks for farmers;
- Awareness raising of importance for change and improvements by AKIS actors;

Opportunities:

- Political will to support and promote the transfer of knowledge and new technologies in order to develop natural, human and financial resources in Kosovo*;

- Establish interactive innovation model of AKIS that co-creates and transfer new knowledge to all AKIS actors;
- Invest in public advisory services which encourage trust to farmers;
- Invest in infrastructure that promotes knowledge exchange among researchers, advisors and farmers;
- Presence of international funds and donations (USAID, Caritas, UN Agencies like FAO, GIZ) that support knowledge transfer;
- Develop support schemes to recruit young scientists from diaspora, as well as regional exchange programmes for existing research staff and on-the-job training for field and laboratory technicians;
- Established cooperation agreement with international EU universities/institutions may yield new initiatives on HORIZON and IPA funds;
- Create win-win partnerships among AKIS actors;
- Make accessible for lifelong learning to all farmers;
- Tailor working plans for advisory services according to farmers' changing needs;
- Develop national programs that stimulate peer-to-peer learning among farmers;
- Foster digital transformation in agriculture that makes agricultural work easier and less physically demanding;
- Strengthen the role of lead farmers in the agricultural advisory services;
- Ensure better coverage of mass media on agricultural issues;
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Threats:

- Lack of willingness for cooperation with coordination body of AKIS actors;
- The interest of young generation to take over and develop education/research in agriculture is decreasing;
- Low levels of education among farmers might decrease the level of understanding of useful research findings;
- Migration of people from rural areas;
- Brain-drain of researchers abroad due to economic, health system, and political environment;
- The extremely high number of smallholder farms is difficult to reach; unclear if farmers are willing to take part/pay for improved services and trainings;
- Trust in the competence of advisors and therefore not seeking advice;
- Adoption of technological change due to pressure on the environment, climate change;
- Unpredictable crises e.g. pandemics and war;

4. AKIS Road map

Objective	Milestones	Deliverables	Resources needed	Timeline
AKIS formalization	Decision by government on formalisation of AKIS	Law or other legal documents for the AKIS formalization	Political and legal support	Short-term
	Articulate the AKIS legal positions within the National Plan for Agriculture and Rural Development	AKIS legislation framework	Political and legal support	Mid-term
	Development of AKIS strategy (mission, vision, core values, SWOT, objectives, measurement and funding streams).	Strategic documents	Professional support and different level of involvement from all AKIS actors	Mid-term
	AKIS structure	Established coordination body	Political, legal and experts support	Mid-term
Establish efficient way of communication and knowledge transfer among AKIS actors	Better dissemination of information and knowledge among the AKIS actors	Tailored information/advice according to changing needs	Experts and political support	Mid-term
	Stronger links among AKIS actors and higher interaction between research and practice	Established working/operational groups	Experts and political support	Mid-term
	Understanding the needs of different AKIS actors in terms of tools, equipment, etc.	Efficient use of scarce resources/budgets	Political and expert support	Short term
	Multi-actor knowledge networks	Established platforms that allow exchange new knowledge and innovations for practical uptake and further adaptation	Experts and political support	Mid-term
Capacity building for all AKIS actors	Increase funding for research and development (R&D)	Improved intensity (ratio of R&D to GDP, actual 0.1%).	Political and financial support	Short term
	New establishments and functionalization of current	Better linkage of research projects with the end users	Legal, financial and expertise support	Mid-term

	agricultural research institute			
	Intensify international cooperation	Organized events matching, workshops, seminars and networking sessions with AKIS actors	Political, professional and financial support	Long-term
	Awards and public recognition for high performance of extension agents	Based on improved productivity of client farmers/processors provide awards to outstanding extension agents	Political and financial support	Long-Term
	Joint research projects with national, regional and international partners	Scientific reports and publications	Professional and financial support	Long-Term
Digital transition in agriculture	Develop and maintain ICT agricultural services along the value chain	Digital tools in place	Political and financial support	Mid-term
	Up-dated knowledge of advisors for new digital technologies	Improved digital skills of advisors; Well-equipped conference/training rooms	Professional and financial support	Mid-term