GCARD3 process in Central Asia and Southern Caucasus

29 February 2016, Bishkek, Kyrgyzstan

Contents

Foreword

The First Global Conference on Agricultural Research for Development (GCARD1) clearly showed that agricultural research development (AR4D) systems need urgent transformation to better meet the needs of the poor and in particular those of resource-poor farmers and rural communities. GCARD1 participants adopted the concept of a "Road Map" to address these challenges.

The GCARD Roadmap establishes an inclusive, rolling process of reform and capacity development that aims to mobilize the full power of agricultural knowledge and innovation towards meeting agriculture and food-related development needs. It proposes a six-point plan for transforming agricultural research for development around the world, requiring actions from all those involved in the generation, access and use of agricultural knowledge:

1. The need for collective focus on key priorities, as determined and shaped by science and society,
2. The need for true and effective partnership between research and those it serves,
3. Increased investments to meet the huge challenges ahead and ensure the required development returns from AR4D
4. Greater capacities to generate, share and make use of agricultural knowledge for development change among all actors
5. Effective linkages that embed research in the wider development context and actions enabling developmental change
6. Better demonstration and awareness of the development impact and returns from agricultural innovation

The GCARD2 2015-2016 process leading to the global event (5-8 April, 2016) was mainly aimed to identify the practical approach of implementing the Roadmap. Specifically, it focused on disseminating the success experience, lessons in evolving and fortifying collective actions to transform innovation processes in order to reach global development influence.

The GCARD3 process encourages discussions for change in setting a new agenda for agricultural research for development and new pathways for further development. The overall outcome will be the concrete definition of international, regional and national research priorities and achieving future development goals, especially for the resource poor and smallholder farmers.

In order to clearly identify the research priorities on a regional and national levels, GCARD3 process provided with regional-level consultations (events and virtual) for each of the GFAR regional foras.

The Regional Central Asia and the Caucasus (CAC) consultations, as part of the GCARD3 process were embedded into Day 1 (29 February 2016) of the International Conference on Food Security and Nutrition and Soil Partnership co-organized by ECFS, FAO, the World Bank, IFPRI and GFAR in Bishkek, Kyrgyzstan..

The International Conference on Eurasian Food Security and Nutrition Network and Eurasian Soil Partnership was selected as the most relevant regional event which could be used as a contribution to the GCARD3 process (through CACAARI).

The program of the conference was adapted to serve also GCARD 3 objectives and: a) present the opportunity to discuss and analyse current trends in food security management in the Eurasian region; b) generate a debate on good and most effective practices to promote and expand multi- and cross-sectoral

collaboration at country, regional and global levels while also offering a specific stream for debating the future of thee Eurasian Soil Partnership Plenary.

Following the pattern initiated for GCARD1(2010) the consultation for the CACAARI region build on live reporting from a team of young social media who received specialized training ahead of the conference in Bishkek.

Overview of research priorities and challenges related to agricultural development and food security in the CAC region

Dr. Alisher Tashmatov, CACAARI Executive Secretary presented an introductory speech on the transformation of agricultural research and innovations, highlighting the priorities and needs of the national stakeholders of the CAC region. CACAARI periodically conducts broad consultation and review of the challenges and priorities of agri-food systems, as well as agricultural research and innovations.

Inspired by GCARD1 Roadmap, CACAARI in April 2011 initiated country level consultations on National Strategies of transformation of Agricultural Research Systems accompanied by reviewing agricultural research and innovation needs and priorities. The broad multi stakeholder consultations were followed by the cross country synthesis of the agricultural research strategies and research priorities, and in fact created a basis for the Regional Strategy for Transforming and Strengthening of Agricultural Research and Innovation Systems for Development in the Central Asia and Southern Caucasus region.

The synthesis of the national strategies objectives has shown that AR4D system of the CAC should focus on four main goals of agricultural research:

1. Improving the well-being of the rural population, particularly vulnerable groups and those dependent on agriculture;
2. Substantive improvement of the quality and quantity of nutritious food through the intensification and diversification of agriculture;
3. Rational use of natural resources;
4. Mitigating adverse effects of climate change.

Transformation of AR4D in the CAC aligns with the six elements of the GCARD1 Roadmap, and suggests strengthening linkages between constituent elements of the innovations: (i) innovative and participatory research, (ii) demand-driven education and capacity building, (iii) pluralistic extension services; and (iv) increase the impact of ICT on transforming AR4D and agriculture development.

The results of the online survey on challenges, priorities, issues arising in the region and responses to them in CAC region[1] was interpreted by Dr. Botir Dosov, Technical Advisor for CACAARI. This survey was initiated in October, 2015 and was intended to provide inputs in the Regional CAC GCARD3 process.

The current and emerging issues of agriculture and food security and nutrition in the CAC region by stressing the main challenges of agricultural research system (low investment in AR&D, obsolete laboratory and material base, low incentives and motivation) are a significant part of CACAARI strategy towards meeting the Sustainable Development Goals.

National needs and priorities of CAC region: Key messages

Georgia – Acad. Guram Aleksidze, Head of National Agricultural Research System introduced clear and recent data which show the following: the cereal production is limited (lack of arable land, vertical, different environmental conditions, traditions, etc. Georgia requires a minimum of 700 tons wheat. In 2012, the country produced 81 thousands T. for 50 thousands Ha. The estimations show that if the wheat be borrowed 120 thousand. Ha (resources available) using the modern technology, 300 thousand tons of bread will be received by 2017 (with an average yield of 25 quintals), and only 360-380 thousands by 2020 (With an average yield of 30-32 quintals). In the future, with new high-yielding varieties and advanced technologies, it is possible to increase the production of wheat and here Georgia highly depends on internation collaboration with the bulk of its support coming from international centers such as ICARDA and CIMMYT and the CRP Dryland Systems, which are actively helping in the supply of new varieties and adapted technologies.

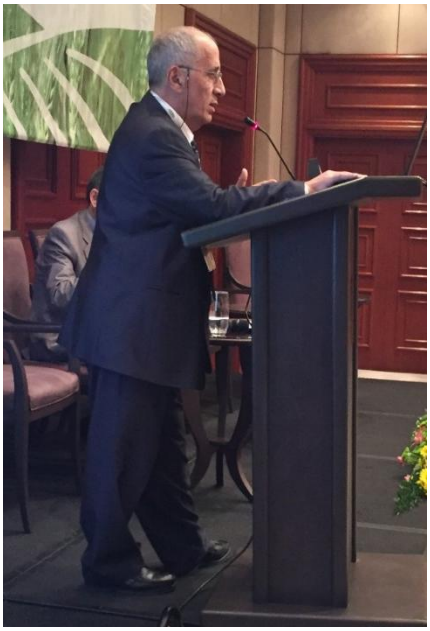
All these figures can significantly improve the overall economic condition of Georgian people and solve the problem of food security in the country. Additionally, ensuring food security and nutrition, ecologic disaster (desertification) and agrobioversity and the protection of genetic resources are key development goals for agricultural science of Georgia.

[1] The online survey is still open to the date at https://ru.surveymonkey.com/r/JD2HG6L in English and https://ru.surveymonkey.com/r/Q86596V in Russian.

Armenia – Dr. Irina Tseretely, Head of National Agricultural Research System

The Armenian government pays high attention to the role of scientific-technical achievements in agrarian sector. Specifically, huge contribution to resolving the issues of food production with the support of agricultural intensification and diversification. There are a number of crucial top priority steps in ensuring the development of agrarian science in Armenia which are:

- Introduction of new horticultural crops;
- Development of effective cultivation technologies, storage and processing of fruit and vegetables;
- Application of biotechnology in plant breeding and breeding of agricultural plants and animals;
- Development and application of technologies for the efficient use of natural resources, conservation and improvement of soil fertility, reclamation of saline soils;
- Preservation of the gene pool in the country bred breeds of farm animals and birds;
- The development and implementation of effective measures aimed at the prevention, diagnosis and treatment of infectious and contagious diseases, as well as food security;
- Mechanization of production processes of agricultural production, agricultural machinery, manufacturing and testing of prototypes, and the development of a comprehensive program for engineering and maintenance;
- Studying the basic economic problems of food security of the country and the introduction of advanced methods of management in the conditions of small farmers;
- Improvement of the forms of state support to agriculture and control system



Azerbaijan – Dr. Yagub Guliyev, on behalf of Prof. Rasul Balaev (Head of National Agricultural Research System) gave an overview of the national needs and priorities of Azerbaijan in terms of agricultural research and innovations. The policy environment in Azerbaijan was noted, emphasizing that the government improved its intervention with more effective development strategies for making the agrarian-industrial complex of the Republic of Azerbaijan, government programmes more responsive to country development needs, and engaging profound changes in the national agricultural research and extension system including:

Some research institutes with similar mandate were merged.

- Research Institute of Agricultural Mechanization was subordinated to National Academy of Sciences
- Number of research institutes under Ministry of Agriculture reduced from 13 down to 8.
- Agrarian Science Center renamed and now it is called Agrarian Science and Information Advisory Center responsible for organization of research and extension activities.

Notwithstanding to this, there are still three (3) crucial agricultural development goals and three (3) objectives requiring stronger engagement, namely:

- Goal 1. Achieving National Food Security
- Goal 2. Improving Rural Livelihoods
- Goal 3. Improving Natural Resource Management

Three objectives:

- Objective No 1. Transferring New Agricultural Technologies to Achieve National Food Security
- Objective No 2. Increasing Farm Income to Improve Rural Livelihoods
- Objective No 3. Training Farmers to Use Sustainable Natural Resource Management Practices

Also , the first initiative to establish Rural Advisory Services in Azerbaijan produced neither satisfactory nor sustainable outcomes. Regional Advisory Centers (RAC) have been established in the framework of Agricultural Development and Credit Project financed by the World Bank. This project commenced in 2000 and completed in 2011. Within this project 10 regional advisory centers have been established in the country. Unfortunately these centers have not been integrated to Ministry of Agriculture and they collapsed after completion of the project in 2011.

In general, there are several constraints in agricultural sector worth mentioning and presented in the following list:

- Low productivity in crop and livestock production;
- Salinization of arable lands;
- Degradation of natural resources;
- Most small-scale farmers would not be competitive in a dynamic agricultural economy;
- Rural–urban migration is becoming a serious problem in the country;
- Lack of organized farmers group (including women farmers, different types of producer groups) that could be supported to have easy access to markets;
- Fragmentation of agricultural lands;
- Soil nutrient depletion is occurring in the country;
- Water scarcity is already becoming more acute in the region;
- There is a need for public extension system in the country to give higher priority and to allocate more resources to educating farmers how to use low-cost, sustainable natural resource management practices.

The strategic orientation of research activities should be focused on:

- Increasing productivity in agriculture;
- Rationally using the natural resources and biodiversity;
- Improving social-economic studies;
- Strengthening national programs.

Kazakhstan – Prof. Gayni Sarbasova provided insights on behalf of Kazakhstan Head of National Agricultural Research System, specifically, emphasizing the agricultural science for providing food security and nutrition of Kazakhstan.

In order to maintain food independence, it is highly desirable to not exceed a 20% ceiling in the share of imports to satisfy domestic consumption . The threshold of food self-sufficiency is currently between 20-30% and raise some issues .

Furthermore, it was highlighted that in the course of agricultural research in general, as part of the 2012-2014 program, the achieved scientific and technical results are as follows:

• variety testing of more than 80 new and highly adapted to different environmental factors of varieties and hybrids of various agricultural and other crops were created and transferred to the state;

• displayed/approbated 10 rock types and lines of agricultural animals, birds, fish, etc.; based on use of priority species. The world genotypes are expected to improve the productive quality of breeding farm animals and increase the number of valuable breeding gene pool of the country;

• created 20 therapeutic drugs and vaccines for livestock;

• developed more than 225 recommendations for technologies in agriculture, plant protection and quarantine, forestry, water, fisheries, livestock, mechanization and electrification of agriculture, processing and storage of agricultural products;

• developed more than 23 crop production technologies;

• 15 technical documentation were developed for new machinery and equipment samples for agricultural sectors;

• received more than 146 titles of protection, including: more than 10 patents for inventions; more than 95 innovative patents and over 40 patents for selection achievements.

Kyrgyzstan – Prof. Rysbek Nurgaziev provided with insights as a Head of National Agricultural Research System and on behalf of Agrarian Universities on the issues of food security and nutrition. The main and key national resources for agriculture development this regard are:

• Land, water and other natural resources

• Natural and climatic conditions

• Material and technical base

• The use of innovative technologies

• Production and processing of agricultural products

• Import and export of food

• Human resources and others.

Through joint work, the CAC countries could achieve better results in addressing food security, nutrition and soil fertility.

Capacity building

Kyrgyz National Agrarian University (KNAU) adopted a strategy of research and educational priorities in the context of the agribusiness development. The aim of the strategy is to generate high-quality research and education system that meets the needs of the agro-industrial complex, which is due to the rise of agricultural science and education, accelerate the introduction of innovative agricultural technologies which will assist in ensuring food security and sustainable development of the country.

Supporting Agricultural Research

The strategy is to preserve and develop the positive dynamics of the development of agricultural science, because the economy cannot develop in isolation from science.

Kyrgyzstan is an agricultural country and the role of agricultural science in the development of the agricultural sector should be among the country priorities. However, due to economic difficulties in the country for agricultural science, it only consists of 0.1% GDP, and agricultural science is allocated only about 460.0 thousand. With such meager funding, it is difficult to say how Kyrgyzstan will be integrated with countries on issues of scientific support for agro-industrial complex.

Knowledge dissemination to farmers

Unfortunately, there is no close contact between agricultural research, design institutes, design bureaus, consulting services and advertising companies not only in international interventions , but also at national level. In the republic there is no single body that coordinates their activities. At this time, consulting services should become a link between agricultural science and industry. In Kyrgyzstan, the attention is paid to training of counselors for the dissemination of innovative technologies, including the development of local scientists. To do this, KNAU in 2014, under license from the Ministry of Education and Science, founded the Center of Innovative Agricultural Technologies (CIAT) which operates rather successful.

The purpose of CIAT is the dissemination of innovative technologies to farmers through training, provision of equipment and service.

The voice of stakeholder groups

Dr. Azizbek Sharipov (**Tajikistan**) as a representative of farmers' organizations for CAC region, expressed the voice of farmers' in AR&D. Mainly, the low effectiveness of dekhkan (individual) farms and up to now, issues that need to be addressed:

• A large number of irrigated land is administered by the dekhkan (individual) farms, which have a low genetic resources and technical innovation base, lack of knowledge and rural residents on best practices, market economy and technological progress;

• Lack of necessary genetic materials, loan funds and resources to enhance productivity;

• Lack of information - advisory centers;

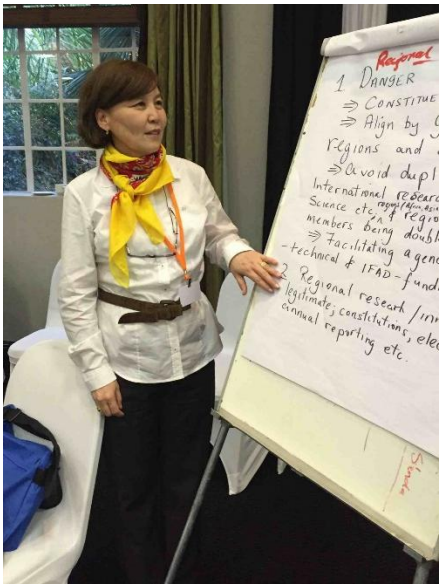
• Poor communication, access of farmers and other market participants to the science, knowledge, information and technology research to farmers in order to implement their own technical, organizational and managerial skills in practice;

• The system of agriculture innovation is not organized , network and communications between the RAS service providers and the other actors in academia, educational institutions, processors, suppliers, financial intermediaries are weak and sometimes even inexistent ;

• Poor communication with regional and international agricultural knowledge and advisory organizations.

All providers of advisory services do not cover even 10% of people needing the services of more than 175 thousand dekhkan (farmer) households and more than 1.2 million households. Farmers are not covered by the knowledge or information, as, in practice, do not have a network consulting services.

Mr. Shaibek Karasartov (**Kyrgyzstan**) performed on behalf of NGOs in stressing the importance of promoting agricultural innovations and food security. It is recommended to promote and advocate agricultural innovations through knowledge exchange between farmers, trainings and consultations, conferences and seminars, establishment of demo and experimental sites and of course with the help of social media.



Ms. Manshuk Jeksembekova (**Kazakhstan**), the representative of private sector in the CAC region said that for each CAC country, there is a concept of the food basket as a unit calculated in reference to the minimum subsistence level; this concept should include nutrition while promoting agricultural innovations. A separate issue is the internalization of the conclusion of a recent study on GMOs and the consequence of their utilization for food security. Additionally, it is necessary to consider the issue of cross-border rivers in water management.

Dr. Gayane Sargsyan (**Armenia**), the representative of women in agricultural research for development in CAC region stressed that in recent years, gender equality and strengthening women's empowerment became central issues reflecting the new international consideration of these issues as key for the attainment of national development. Since agriculture is a key sector of the world economy, contributing to global food security and

serving the main source of income for many rural people all over the world, the importance of enhancing the role of women in this sector is a major factor for achieving sustainable development. Especially important is the role of women in the implementation of innovations, which are the means of increasing production efficiency in agriculture, as well as enterprises adapt the means to changes in the social, economic and ecological environment.

Issues and the needs of women in agricultural innovation development in CAC region:

• **Unequal access to physical assets, and / or technical resources.** While several studies have found that women in agriculture need assistance in accessing new technologies, due to financial constraints and limited access to information, women - entrepreneurs are often unable to take advantage of new equipment or materials.

• **Women - entrepreneurs in agriculture have limited access to commercial credit.** Access to finance is a decisive factor, the problem is particularly compounded for women with low start-up capital and the lack of collateral for loans.

• **Unequal access to collateral.** Men and women have equal rights to a loan secured by real estate, as well as the use of other forms of fund-raising. In practice, women are disadvantaged in terms of access to the initial capital and the lack of collateral for loans, because they are not the owners of income-generating resources.

• **Interest rates and repayment terms.** Since women tend to be small-scale in businesses operating in the informal sector, and may take the form of home-based or non-regular (seasonal) work for them especially burdensome high interest rates and the repayment of the loan.

• **Limited information and knowledge.** In general, women engaged in agriculture, do not have enough information about new technologies, banking services, etc.

Increasing women's access to land, livestock, education, financial services, information services, innovative technologies in the rural areas would improve their performance and provide additional benefits in terms of agricultural production, food security, economic growth and social welfare.

Mr. Rustam Ibragimov (**Uzbekistan**), Assistant of CACAARI Executive Secretary and an active member of Young Professionals in Agricultural Research for Development (YPARD-Uzbekistan).

Involving young people in the agricultural sector is a catalyst for positive changes in the future of agriculture. Their high receptivity to transformational processes make it possible to promptly adapt to modern technology and to generate new ideas, innovations in agricultural research.

Regarding the CAC region, it is worth noting that each country has its own national representatives of youth movements which serve for the benefit of agricultural science.

Unfortunately, the current situation in the region is not satisfactory in regards to the operational involvement of young scientists and farmers. The recently established YPARD regional network for CAC has not reached its full potential . It is expected to contribute more actively to strengthen linkages with other national stakeholders involving a great number of young specialists within the different countries with the consistent support of 8 country representatives

to which CACAARI would provide catalytic support within its responsibility of CAC regional forum operating under the GFAR umbrella.

Firstly, appealing and encouraging YPARD-CAC country representatives for the contribution and advocacy to their more active work with CACAARI. The potential mechanism should include 8 national YPARD representatives, CACAARI as a regional coordinator of this unit while being the regional fora of GFAR and the young professionals. The choice of a single platform means that all parties of the CAC agricultural innovation systems would actively cooperate and provide mutual support.

Secondly, it is required to organize an assessment of the current state of youth in the Agricultural Research for Development in CAC - determine the balance of scientific achievements with problems and challenges with which young professionals are facing quite frequently.

Thirdly, a regional strategy for the development of the contribution and role of the youth in AR&D should be established and recognized.

It is important at this stage to focus on bringing the perspective of involving the young in the AR&D to the decision making level: policy makers, governments who, in turn, can significantly change and promote the future of agricultural science on a new level. That is, mainly what will be the key objective of the YPARD Regional Platform of the CAC region.

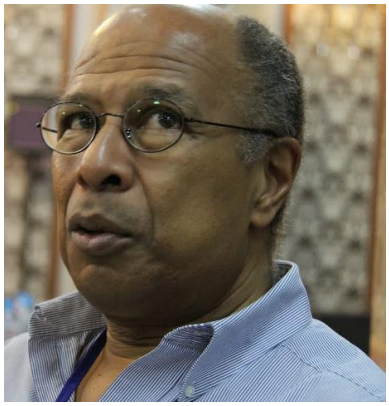
Key messages from International Partner Organizations

Dr. Kamel Shideed, Assistant Director General, International Center for Agricultural Research in the Dry Areas (ICARDA)

"It is important to establish and maintain the strong partnership with the countries of CAC region, coordinate them with the sustainable development program and regional agenda for transformative agriculture for CAC region as ICARDA focuses the region as a priority area for development.

The Eurasian Center for Food Security and Nutrition makes a lot efforts to increase the sufficiency of Food Security in CAC"

Dr. Harry Palmier, Senior Partnership Expert, Global Forum of Agricultural Research (GFAR)



"In the context of preparation to GCARD3 Global event, it is crucial to capture priorities of the CAC region. What links to GCARD3 is a clear message of inclusiveness and hearing the voices of stakeholders.

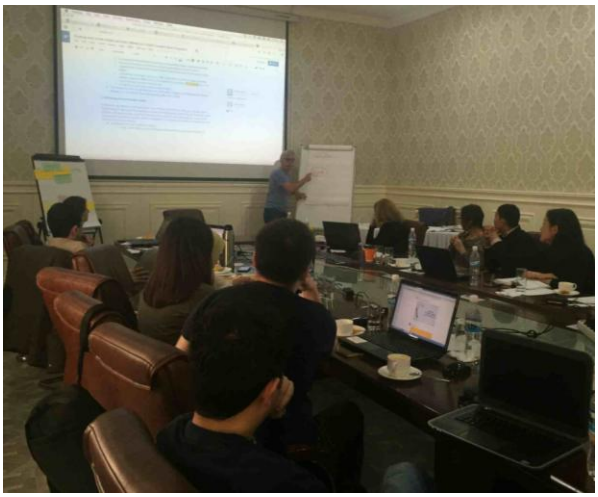
Regarding GFAR work on increasing the investment capacity of agricultural research at national level, it should be highlighted that the future is not primarily about external funding coming from the international organizations/donors, but the internal funding provided by the governmental organizations."

Dr. Shenggen Fan, Director General, International Food Policy Research Institute

"All of us need to contribute to informing high level senior officials, as they are the one who make decisions. Obviously, policy makers are surely committed to support national initiatives on food security. But it is relevant that stakeholders also reach consensus on food security and nutrition objectives.

Currently, designing new policies and approaches towards Food Security are in the process of being established and applied. Here, we are emphasizing the primary role of agricultural research."

Organizing a side event during the GCARD3 regional consultations: Social media training



Social media training was organized in conjunction with GFAR and CACAARI and was held on 27-28 February 2016 in Bishkek, Kyrgyzstan as a side event in order to introduce the social media in the consultations. GFAR jointly with CACAARI invited more than 20 participants with different backgrounds: NGOs, agricultural researchers, journalists, etc. focusing on the sustainable development.

Basically, the training was aimed to encourage participants in live broadcasting of the event by using social media tools: twitter and writing blogs.

The first day of the training included general introduction into the world of social media (what tools exist, their roles and efficiency, etc.). Furthermore, Mr. Peter Casier provided with the strategy of using social media tools – step-by-step guidance on using the techniques in order to reach the audience in a creative way. The last day of the event was attended by Dr. Harry Palmier, GFAR Senior Partnership Adviser who provided with general insights on the objectives of GCARD3 global event, the importance of the national and regional consultations in letting the voice of stakeholders be heard.

The successful usage of social media tools ensures high frequency of information dissemination and consequently achieving one of the main outcomes of GCARD: involving various stakeholders in the consultative process, share opinions and establishing networking opportunities.

Overall, during the event, there were 118 people involved in live tweeting and 575 number of tweets were produced using the hashtag #GCARD3. Additionally, 20 blog posts were created and can be found in the following link.

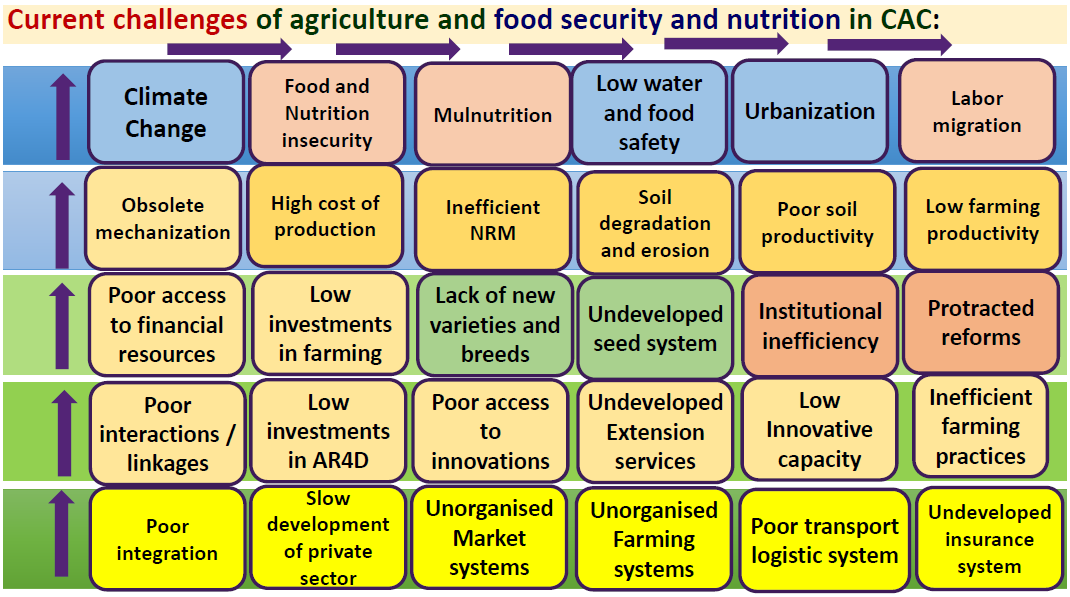
The CACAARI impact pathway strategy for the CAC region: Targeting Challenges, Setting Priorities

The five already identified major strategic areas of concentration for CACAARI mid-term work-plan were confirmed:

1. Current and emerging challenges for agri-food system of CAC region;
2. Challenges and priorities of agricultural research in CAC
3. Challenges for rural advisory services (RAS) in CAC
4. What are the priorities of agricultural innovations in CAC?
5. CAC foresight platform to support forward thinking in agricultural research and innovations

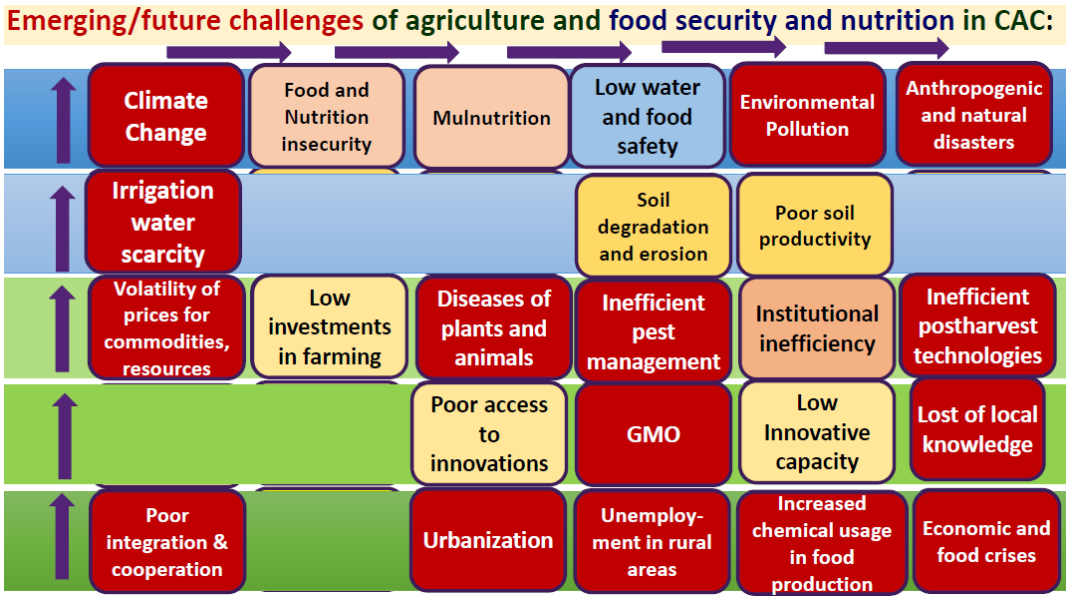
Challenges for agri-food system of CAC region

The overarching challenge of agri-food systems is directly related to Climate change and its implications for those whose lives and incomes depend on agriculture. Despite, the fact that in limited cases climate change could have a positive implication on agro-pastoral and mountainous systems, in the vast majority of cases it is impacting adversely to agricultural systems in CAC region.



Agricultural and food system is still experiencing the transformation towards shaping market economic relations, while suffering from underinvestment. As result of these context, inadequate market, farming, logistics and insurance systems and related infrastructure drug back the agricultural development. Low private and public investments, in terms of institutional and capital inputs, is not conducive for modernization of obsolete irrigation-drainage, logistic, input and service provision infrastructure, machinery, equipment and resources. These, combined with inefficient farming practices, low innovative capacity of farmers, undeveloped seed systems and lack of new verities and breeds, are increasing the cost of production, continues soil degradation and thus, low farming productivity and incomes. However, these tendencies are causing further labor, mostly men and young working forces, migration to cities and other countries. Eventually, these are created the reasons for feminizations and aging of working forces in rural areas.

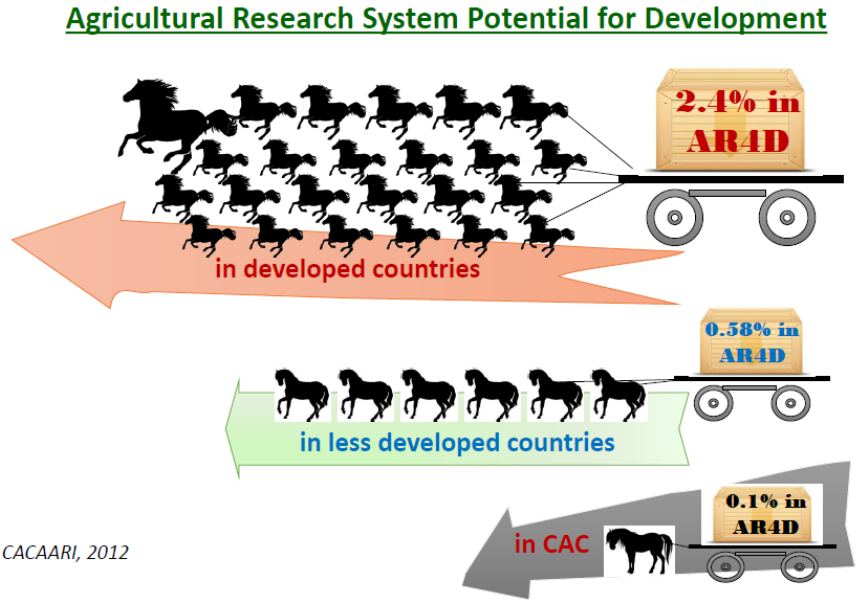
In light of these negative trends the issues of Food Security and Nutrition (FSN), low water and food safety, environmental pollution, anthropogenic and natural disasters are foreseen as future, though not far, challenges for agricultural and food systems.



Among other future challenges, respondents highlighted further soil degradation and erosion, malnutrition mainly affecting women and breast feeding children, irrigation water scarcity that can cause trans-boundary and sub-regional unrest, further abandonment of rural places. Despite the technological improvement and innovative introduction, food losses will widely occur due to raising of diseases of plants and animals, inefficient pest management and inadequate postharvest handlings. Economic factors will have serious impact on agriculture and food systems, such as volatility of prices for commodities and resources, consequences of global economic and food crises. Poor integration between sectors and countries will also continue hindering the growth and resolving regional and trans boundary issues.

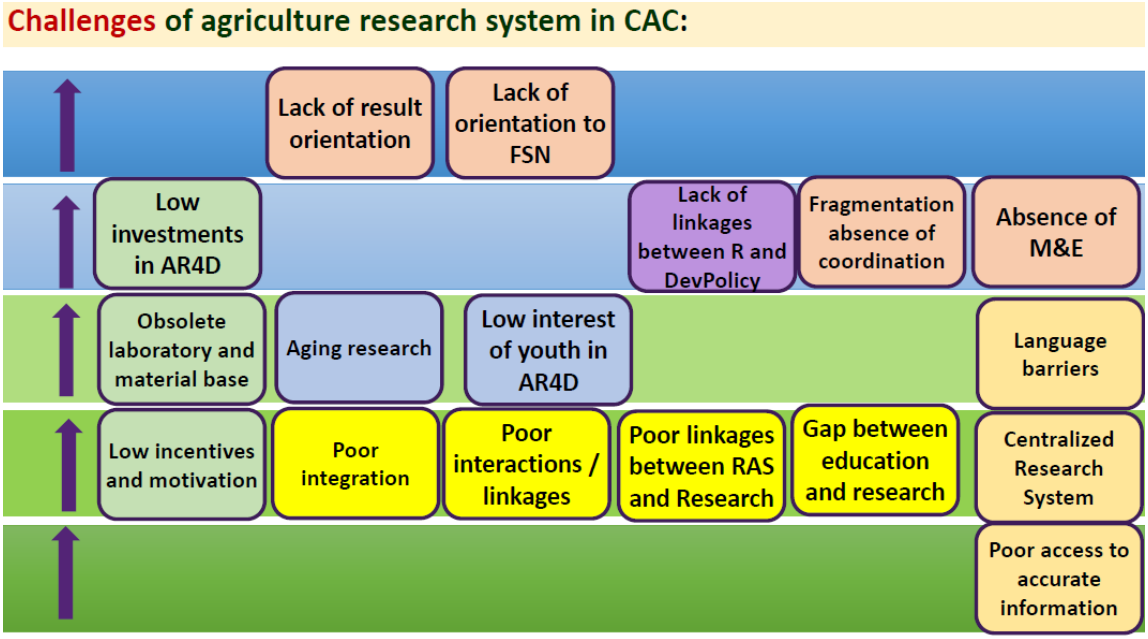
Challenges for Agricultural Research System

It was stressed that investment in CAC countries agricultural research systems remain critically low. According to the CACAARI and Agricultural Science and Technology Indicators (ASTI) Program of International Food Policy Research Program (IFRPI) the average share of investments in agricultural research GDP is 0.1%. While average agricultural research investments as a percentage of agricultural GDP in developing countries are 0.58%, compared with 2.4% in developed economies.



CACAARI, 2012

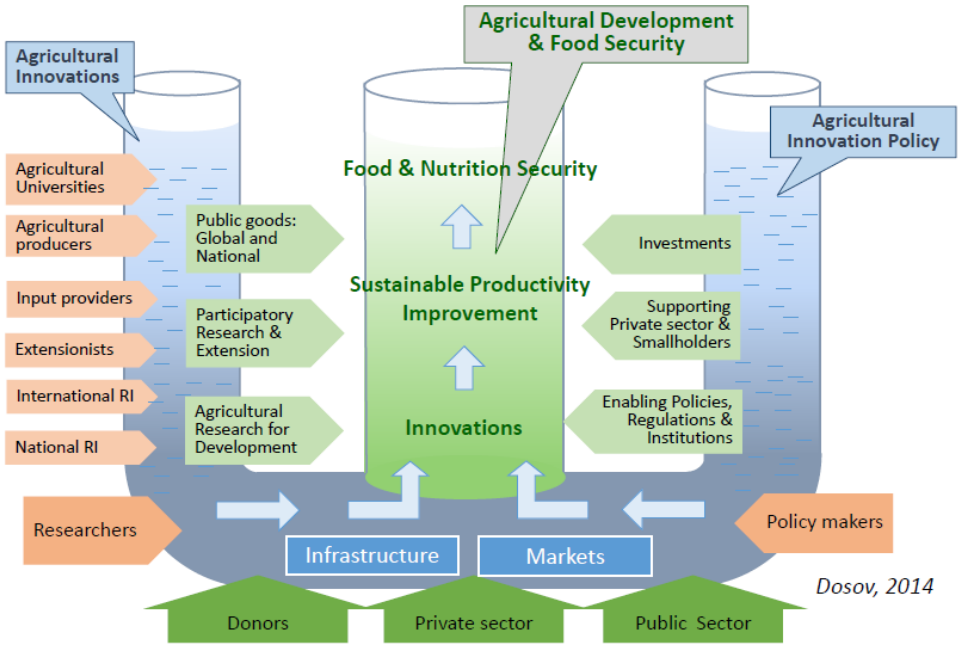
Thus, present agricultural research system gets stuck in a vicious circle: its under-funding does not allow demonstrating of noticeable outcome and hence improving its investment attractiveness, which in turn requires adequate investments. To solve this problem government support is certainly required. Increasing public spending on agricultural research at the initial stage will catalyze transformation of agricultural research and innovation system towards result-oriented system and probably increase private sector interest in investing in agricultural innovations.



The issue of critically low investments in agricultural research for development (AR4D), together with obsolete laboratory and logistics are one of the main challenges of the research system. It was consulted that lack of or poor linkages between research and other sectors, such as extension systems, public sectors, farmers, educations, development partners etc. are main barriers for knowledge management and sharing. The evidences to that are seen in the poor planning, poor resource and labour distribution, defragmentation, and duplication of interventions in the agricultural sector.

The insufficient linkages that constrain the application of innovation approaches for improvement of food security and well-being of population. Functional linkages among agricultural education, research and rural advisory services, and other sectors also remain weak. The establishing of Innovation Platforms would meet the needs for sensitization of interactions and collaborative innovations. (*What is an Innovation Platform*?)

Regarding the strong linkages between agricultural research and innovations with agri-food system development policies, the 'communicating vessels principle: Connecting Agricultural Research and Innovation Policy' was introduced.



Specifically, this principle relies on three major vessels, which are agricultural innovations on one side and agricultural innovation policy on the other side. Naturally, these two sides work collaboratively for the third vessel – agricultural development and food security which in turn synchronizes and serves as a background for establishing infrastructure and markets in order to donors, researchers, policy makers private, public sector and other stakeholders to be involved in this process. In all of this, the role of CACAARI is and should be immense for the CAC region.

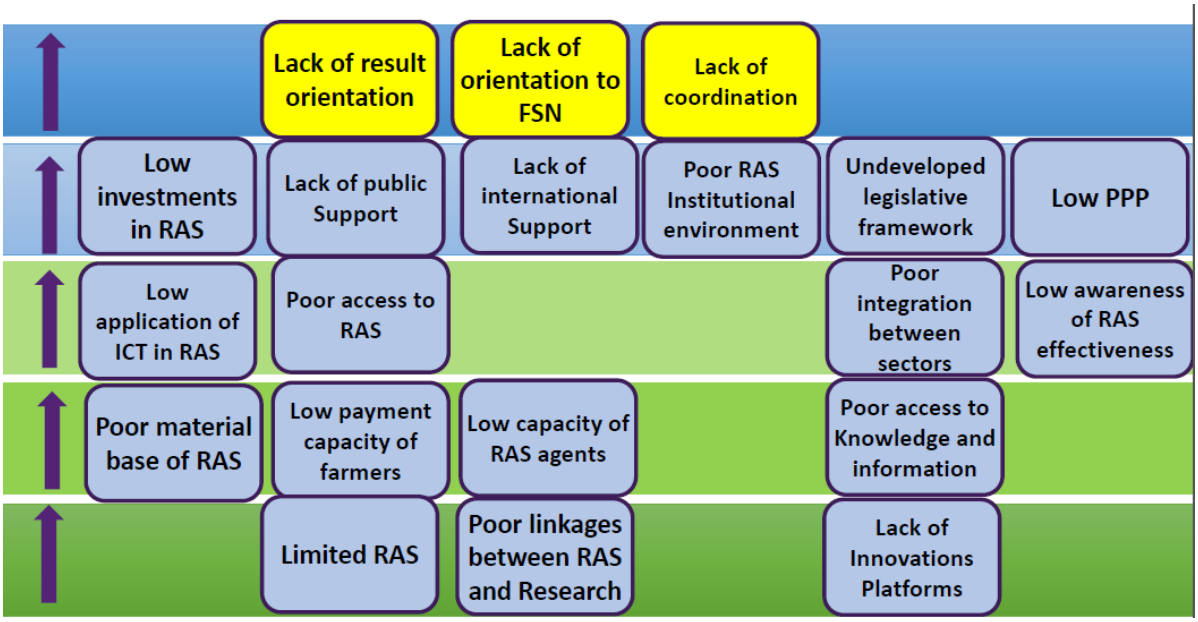
Given the context of these current challenges, urgent changes are required in Agricultural Research for Development (AR4D) in the CAC region to address regional goals of enhancing Food Security and Nutrition (FSN), improving livelihoods, creating opportunity for income growth while ensuring environmental sustainability and particularly meeting the needs of smallholders and consumers.

This also call for sensitization of the inclusive process of reform and enhancing innovative capacity of that aims to mobilize the full power of agricultural science and innovation towards meeting agriculture and food-related development needs.

The transforming and strengthening of Agricultural Research for Development (AR4D) requires participatory coordination and awareness by research institutions and organizations of the on-going AR4D activities and creating enabling environment for continuous improvement of scientific and professional capacity, material and technical resources for development and promotion of demand-driven innovations in agriculture with associated areas of science and economy.

Challenges for RAS System

The poor linkages between researchers, extension agents, farmers, especially women farmers, and policy makers are common issue to many countries in the region. The low interaction as well as undeveloped advisory and delivery services undermines the effectiveness of technology transfer to farmers, which thus deprives the innovations oriented to improve productivity of farmers and smallholders.



Most of the CAC countries do not pay adequate attention to aspects of technology transfer and hardly supports extension system, through which technology could serve the needs of farmers. In most cases, this is due to the low profitability of organizations providing services or lack of public and private funding.

Development agencies and donors in CAC implement RAS enhancing programs and projects, or others including the extension components. However, they cannot meet the demand for RAS at national level. The programs keep their sustainability unless they are funded and/or coordination. The role of Extension services for rural development cannot be underestimated. According to Food and Agricultural Organization of United Nations (FAO), extension system is one of the key component of the Agricultural Knowledge and Information System (AKIS). In other words, Research, Education and Extension compose the "Knowledge triangle".

Nowadays, the agricultural Research System is well-established in CAC, known as National Agricultural Research System (NARS) and Agricultural Education System. The strengthening linkages between agricultural research and education systems can be observed, as national research institutions moves step-by-step under umbrella of leading national agricultural universities.

In light of this change, extension services systems seems undeveloped. Despite the absence of extension services system, the services are provided in this or that way, even being fragmented. In municipalities (rayons) some consultations are provided to farmers, some information and advisory services and their coordination are effected by respective units and structures of the ministries of agriculture. Non-government organizations operating in the agrarian sector also provide certain services to farmers. Private companies working with farmers also hold thematic consultation activities with their clients to promote their goods. There are a lot of projects (with participation of donors) with components for implementation of land management practices.

Among particular extension needs across Central Asia countries there are common ones, which could be interpreted as:

- Low/undeveloped institutional mechanism for implementing agricultural extension
- Insufficient financial, institutional and policy support for sustaining extension system to promote innovations in agriculture

- Absence and/or undeveloped capacity building mechanisms to support extension agents and service delivery organizations
- Absence or low regulative incentives for extension sector

By addressing those needs, the extension evolving process should be combined with mobilization of human, material and financial resources, the focusing of the main efforts in key areas where research, education and service delivery are indispensable. Here, the main purpose of the reinforced extension system should be promoting transformation and strengthening the agricultural sector through the creation of an integrated system of transferring knowledge to agricultural producers and increasing their capacity.

The main objectives should be:

- Improve of the research and technical support of the agricultural sector in order to combine basic and applied research with the dissemination of knowledge and improve capacity of innovation users;
- Up-grade of the agricultural education system across agricultural production systems to support extension and rural advisory services;
- Establish and operationalize Agricultural Information Services for agricultural producers.

To achieve these objectives following interventions should be carried out:

- design and implementation of research funding mechanisms focused on the needs of farmers , including public and private funding and commercialization of extension services;
- setting up and implementation of a mechanism of bringing the latest achievements of agricultural science directly to agricultural producers, as well as providing consulting and information services;
- development and conducting capacity development programs for managers, professionals, consultants and trainers in the agricultural sector on the main prospective directions in agricultural universities and centers of excellence;
- review and up-date regulatory frameworks enabling extension to be more efficient.

To equip stakeholders of the CACAARI forum with an inclusive mechanism for more robust research in development prioritization participants in the Regional consultation agreed on the value of sound priority setting to maintain the recently initiated CAC foresight platform in agricultural research and innovations, with technical support from GFAR Secretariat

CAC foresight platform to support forward thinking in agricultural research and innovations

The CAC region, as many other regions in the world is facing global transformations, including globalization and localization processes, the development of ICT, changing consumption patterns, ecological decline and resource scarcity, population dynamics, urbanization, technology development.

Exploring and anticipating changes do not only require mastering specific tools, it also requires a new and different mindset. For this purpose, foresight capacities and foresight oriented mindsets are required. Foresight is a systematic, participatory and multi-disciplinary approach to explore mid- to long-term futures and drivers of change. However, this capacity and mindset to explore the future of agriculture and food security is not yet developed in the CAC region. There is, therefore, a need to improve the capability of CAC organizations, to enable them to be more pro-active in setting the research and innovation agenda for food, agriculture and rural development and positioning research and innovation in the broader context of development.

Global Foresight Hub established to support forward thinking in agricultural research for development is supported by CACAARI that is taking the lead in the region to engage its constituencies in using the future to help making decision and priorities for the present.

In November 2014, CACAARI with support of GFAR organized the workshop on introduction to Foresight concept and building a critical mass in foresight in the CAC region, during the CAC Regional Conference on RAS in Bishkek, Kyrgyzstan. The objectives of the workshop was to engage participants in a foresight exercise about the futures of food, agriculture and rural development in the CAC region, and Initiating a process for building foresight capacity in the region.

As result of the foresight workshop participants acknowledged the value of engaging in foresight/forward thinking in the CAC region on the future of food, agriculture and rural development, and that they would form a critical mass with which CACAARI can work in order to promote and implement the concept of the foresight academy.

Crucial steps

CACAARI constituency have endorsed that:

- CACAARI has to **promote forward-looking, anticipatory research** and analysis needs to integrate a range of perspectives on key issues in agricultural innovations.
- Setting-up and operationalization of the CAC foresight platform as a Regional chapter of GFAR Foresight Hub **should be one of the key priorities of CACAARI**.
- CACAARI has to **form a critical mass** and initiate the process for building foresight capacity in terms of futures of food, agriculture and rural development, and promote and implement the concept of the foresight academy in the CAC region.
- CACAARI has to be proactive in **mobilizing the capacity and resources** to set-up and operationalize the CAC foresight platform/chapter.