Brief Report

on the Second International Conference on Arid Land Studies (ICAL 2)
"Innovations for Sustainability and Food Security in Arid and Semi arid areas"
Main Building of Samarkand State University, Samarkand, 10-13 September 2014.

The Second International Conference on Arid Land Studies (ICAL 2) "Innovations for Sustainability and Food Security in Arid and Semi arid areas" 10-13 September, Samarkand , Uzbekistan focused on dryland salinity, deforestation, decreasing productivity of rangelands, reduction of soil productivity and climate change processes impact to the arid lands. Leading researchers, stakeholders and experts joined the conference to share ideas and discuss challenges in arid lands development.

This Global Forum on desert and semidesert issues was organized by the Ministry of Higher and Secondary Education of Uzbekistan, the Ministry of Agriculture and Water Resources of Uzbekistan, the Ecological Movement of Uzbekistan, the International Centre for Biosaline Agriculture (ICBA) and the CGIAR Program for Sustainable Development of Agriculture in Central Asia and the Caucasus (CGIAR-CAC).

The importance of the dry lands development is especially high in Central Asia with over 70% of the lands in semi-arid and arid regions, considered to be most vulnerable to the climate and anthropogenic change processes. Dryland salinity, deforestation, decreasing productivity of rangelands and reduction of soil productivity are widespread phenomena and primary causes of desertification in the Central Asian region. ICAL 2 was built on the outcomes of the International Forum on Desert Technology X and the 1st International Conference on Arid Land Studies (ICAL 1), conducted by the Japanese Association for Arid Land Studies (JAALS).

The conference was supported by Islamic Development Bank (IDB), FAO Sub-Regional Office for Central Asia, the Eurasian Center for Food Security (ECSF), the Eurasian Soils Partnerships (ESP), several Japanese organizations and Institutions, USAID regional and national representatives, UNESCO`s Tashkent office, as well as chiefs of diplomatic missions, leading experts and scientists from more than 24 countries of the world, such as Japan, UAE, Poland, Germany, China, Russia, India, Jordan, Mauritania, Azerbaijan, representatives of Central Asian countries and others.

This meeting was a logical follow-on to the recent International Conference on **"Vital Reserves in the Realization of Food Program in Uzbekistan"** organized at the initiative of country's President Islam A. Karimov that was held 05-06 June this year in Uzbekistan. The government of Uzbekistan is currently implementing effective measures to step up the production of food, draw foreign investments into the region, introduce cutting edge technologies, and boost export potential. These activities lead to improvement of food security as a component of socio-economic development and create needed conditions for the dynamic development of a domestic agricultural industry complex that has an enormous production potential, and thus facilitate steadfast enhancement of the well-being, stability and prosperity of the country.

The conference examine special characteristics and benefits of desert ecosystems, understanding and managing desertification, and identifying appropriate technologies for developed and developing regions of the world. This conference served as a comprehensive forum for exchange of novel knowledge and experience in combating desertification, including its scientific, political and socioeconomic dimensions. The conference gathered together a host of internationally recognized experts specializing in deserts and semi-desert regions, senior scientists from international research organizations, policymakers and other stakeholders (more than 150 participants from over 30 countries of the world) to share their knowledge and experience on agriculture and food security; address a number of research and development opportunities for marginal water resources and lands to prevent salinization and promote sustainable management of natural resources; offer best practices and technologies on soil improvement and optimization of crop production systems.

Conference presenters addressed a variety of technical topics, including: dryland systems, the role of terrestrial vegetation, achieving sustainable dryland agriculture, managing land degradation, enhancing water and land productivity, evaluating and employing bio-resources, political and economic considerations in pastoral degradation, biomass production for biofuel, developing countermeasures to global warming, invasive and native trees, and propagation of economically important desert plants. The participants discussed a number of research and development opportunities for marginal water resources and lands to prevent salinization and promote sustainable management of natural resources, including conservation of cultural traditions of the desert and semi-desert zones. It is anticipated that the conference will highlight novel tools for evaluation and utilization of phytogenetic resources of saline dryland ecosystems and suggesting biological approaches and strategies for soil/water reclamation and sustainable use for improving food security and livelihood of people in these less favourable areas around the world.

Inaugural session of the Conference was held at the main building of the Samarkand State University and it was chaired by Rector, Prof Ulugbek Tashkenbaev.

In addressing a general assembly of conference attendees, Dr. Shoaib Ismail, indicated that productive and fertile soils are becoming scarce in arid and hyper-arid desert environments globally. These areas usually suffer from fresh water resources, which threaten the region food and water securities. Such complex situations necessitates to understand the ecosystem of arid and semi arid lands and to look at both mitigation and adaptation processes carefully, both from environmental and economical perspectives. The International Center for Biosaline Agriculture (ICBA) being an active international R&D organization is honored to be the co-organizer of this conference, which is built on the outcomes of the research achievements, meetings, workshops and other conferences held in the region in partnership with many national and international organizations, including, USAID, FAO, UNESCO, UNDP, ICARDA and others.

Agricultural productivity in the drylands of the developing world is low because of drought, floods, extreme temperatures, land degradation and other biophysical stresses, said Dr. Dilorom Fayzieva in her welcome address to conference attendees. On behalf of environmentalists of Uzbekistan, she wish the participants to enjoy the success of the conference work which will undoubtedly render a powerful impetus to further development of the international cooperation of researchers and experts, to strengthen their interaction with the international organizations and foreign research centers, with a view of joint advancement of innovative technologies in agriculture meeting the principles of environment protection and rational use of natural resources.

In opening the plenary session and keynote address, Drs Shoaib Ismail (International Center for Biosaline Agriculture), Pavel Krasilnikov (Eurasian Center for Food Security, Moscow, Russia), Josef Turok, Regional Coordinator , ICARDA, Tashkent sub-office and Professor Hiroko Isoda, Tsukuba University, Japan, stressed the importance of integrated multi-disciplinary approach in development and conservation of desertifying environments.

Papers delivered at the Conference covered a tremendous variety of topics and were presented in the following six technical sessions were held during the conference:

Session I: Arid land ecosystems: climate, biodiversity, desertification and land degradation, ecosystem services

Session II: Economic benefits of arid lands use; biological resources assessment and trade-off analysis; supporting of social initiatives

Session III: Dryland agriculture; biosaline agriculture; Desert livestock-pastoral systems

Session IV: Innovations for food security; Agroforestry; Conservation agriculture; Climate Change; Alternative energy in desert areas

Session V: Water resources management in arid and semi arid areas

The conference program included also a session, leaded by Mrs. Krista Pikkat, UNESCO`s Tashkent office and dedicated to the preservation of cultural and natural heritage. Tangible and intangible heritage reflects millennia of slow adaptation and interaction between humans and their environment. In arid and semi-arid zones, this adaptation has resulted in a variety of structures, ranging from irrigation systems like the qanats, the wind towers or iwans that cool down the temperature of houses in the summer, here in Central Asia.

In addition to their intrinsic cultural and economic values, as was mentioned in her open ceremony speech, cultural heritage and the traditional knowledge associated to land uses have acquired a renewed importance as possible alternative strategies for a more sustainable paradigm of development. The lessons learnt through centuries of trial and error, combined with the best of innovation and science, can perhaps lead us on the virtuous path that is required to face the combined challenges of climate change and the progressive depletion of environmental resources. In this perspective, the conservation of cultural and natural heritage in arid and semiarid areas is important not only because of its aesthetic, historic and scientific values, but also to secure the continuity of the goods and services that heritage delivers, including the provision of shelter, access to water, food and other sources of livelihoods as well as strengthening resilience.

Conference Highlights

The International Center for Biosaline Agriculture (ICBA) has organized a round table meeting at ICAL2 on 12 September with various distinguished agriculture and research organizations from the Central Asia region. Dr.Shoaib Ismail, Acting Director, Research & Innovation
Senior Scientist – Halophyte Agronomy at ICBA, chaired the meeting, where each participant presented his institution, highlighted the current problems, and identified potential projects for cooperation and collaboration over the short and medium run.
There were delegations from different countries partners, such as Uzbekistan, Kazakhstan, Turkmenistan, Azerbaijan, Kyrgyzstan and Tajikistan. There were representatives of regional organizations and donors as Islamic Development Bank (IDB), FAO Sub-Regional Office for Central Asia, regional representatives of USAID , USDA; UNESCO Tashkent office; UNDP , CACILM, IWMI, Swiss Cooperation Office in Uzbekistan, government representatives from Uzbekistan.

In addition, present from Russia was the representative of the Eurasian Center for Food Security of Lomonosov Moscow State University, scientists from the Academy of Agricultural Sciences of Russian Federation.
Following the presentation of ICBA activities in Central Asian and Caucasus countries and discussion among key donors' delegations, it was clear that many issues were common to the Central Asia region such as dependence on water supplies, irrigation, salinity, low soil fertility, water scarcity and contamination, groundwater, decreasing land productivity, importance of technical capacity development.

A number of promising solutions and innovations were identified such as biotechnology, availability of data, mechanization, seed multiplication and other technologies like greenhouses, appropriate salt, drought and frost tolerant crops, and management. However, it is critical that policy and legislation play an instrumental role in supporting appropriate management and research. Moving forward it is important to establish more dialogue and knowledge sharing opportunities, up to date curricula for advanced education,
more sharing of genetic resources and expertise, and establish collaborative projects and approaches to donors, especially to IDB, emphasizing regional approach that contributes to national and local challenges.

The various parties in the meeting agreed on the necessity to step up the level of coordination and collaboration for upscaling and mainstreaming best practices and systems, especially with FAO initiatives on 'Scaling up integrated landscape management in salt affected agricultural production systems in support of food security and livelihoods' in the framework of the Eurasia Sub-Regional Soil Partnership. Other potential areas for collaboration include enhancing quantity and quality of data on the severity, extend and trends of salinization of irrigated land and supporting Members Countries to adopt a pro-

active drought risk management.. In addition, technical solutions are required but not enough; land and water management and planning is required including socio economic and rural development components. However further capacity development across the three dimensions (enabling environment, institutions and individuals) in all research and technical aspects is a critical component of the solution.

The Conference activities also included the first Plenary Meeting and Steering Committee meeting of the Eurasian Soil Partnership (EASP)http://www.fao.org/globalsoilpartnership/regional-partnerships/europe/en/ held in conjunction with the International Conference on Arid Land Studies (ICAL2). It took place on 10-11 September 2014 at the Samarkand State University, Uzbekistan. The expected outputs were the establishment of the Steering Committee, the review of the draft Implementation Plan and an agreement on the process for finalizing its formulation and starting its implementation. The Eurasian Center for Food Security, serving as the Secretariat of EASP, was responsible for the program of the Plenary Meeting.

About 90 posters on crops, flora wildlife and animals in arid zones, as well as on soil, water, energy and other relevant topics, were also displayed and discussed. Relevant manuscripts (as more than 60) were selected to be published in 2015 at Journal of Arid Land Studies under leadership of the Japanese Association for Arid Lands Studies (Professor Toshinori Kojima, Seikei University; Professor Hiromichi Toyoda, Tokyo University of Agriculture and Professor Takahiro Morio, University of Tsukuba.

The main topics that should addressed further:

- Public Awareness and Curriculum
- Environmental Impact Assessment (EIA)
- Soil Health and Desertification
- Legislation and Environmental Laws
- Regional and International Cooperation

Links

1. ICAL2 Program
2. ICAL2 List of participants
3. ICAL2 Conference flyer
4. ICAL2 Abstracts Book

Participants of the Second International Conference of Arid Lands Studies (ICAL2) on ***"Innovations for Sustainability and Food Security in Arid and Semi arid areas"*** 10-13 September, Samarkand , Uzbekistan