2) SLM and flood/disaster mitigation and prevention (Tajikistan)

Manzura Nazaramonova, SDC Tajikistan (2_SLM_flood-disaster_Manzura.pdf)

Tajikistan is a disaster prone country. Sustainable development was hampered by a number of devastating events. The potential for large-scale disasters is present in the region and small to mid-scale disasters are omnipresent, especially in rural areas.

SDC has a Disaster Risk Reduction approach to manage risks and disasters. The programme follows an integrated approach on disaster cycle, multi-stakeholder approach, multi-risk approach, sustainable use, risk-oriented focus, policy dialogue and mitigation measures.

The SDC Regional DRR Programme is present in Central Asia (CA) since 2003. The overall goal of the DRR Strategy for CA is to ensure safe life and sustainable livelihood. Lines of intervention are awareness raising, capacity building, particular risk reduction and DRR policy development.

Some examples of the DRR Programme are i) the CAMP project having workshops in villages and awareness raising and planning activities, ii) the Remote Geohazard Capacity project on GLOF’s and Flash Floods, iii) Natural Risk Management on disaster risk plan development, better soil stability etc. and CoES IMAC building up and Info and Management Centre, GIS and information on hazard and disaster (spatial data / maps).

Problems and lessons learned are that the government recognises the importance of DRR. However, the respective government institutions still lack funding for improving their capacity to analyze and manage the risks and the collaboration between CoES, Hydrometeological and Geological Departments is still weak. Furthermore the focus should be on the local level to reconnect the Civil Society and local Government. Prevention on national level is difficult, mitigation and preparedness on local level is not enough. Prevention of disasters should be done by reducing the underlying risk factors.

SDC developed a new cooperation strategy 2012 – 2015 including a Water Basin Approach addressing up- and downstream by combining SDC DRR and Irrigation Programmes. Details can be seen in the power presentation in the annex. Furthermore SDC has an Integrated Watershed Management Initiative/Approach scaling up grassroots level DRR/IWSM projects, strengthen civil society, tighten its inter-linkages to the local authorities, consolidate and spread the achievements. SDC wants to contribute to a coordinated DRR/IWM sector in Tajikistan to ensure the coherence of approaches, to ensure evidence-based decision making. Possible synergies in the knowledge management sectors by using WOCAT to access lessons learnt from farmers which later on get prepared for policy makers.

3) SLM and water (watershed management, water use efficiency)

a) Sustainable Land Management and Water Scarcity in Central Asia (ICARDA)

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The Regional Programme for Sustainable Agricultural Development in Central Asia and the Caucasus, supported by the Consultative Group for International Agricultural Research, assists the countries in achieving sustainable increases in the productivity of crop and livestock systems through development, adoption and transfer of production technologies, natural resource management and conservation strategies, by strengthening agricultural research and fostering cooperation among the countries and international agricultural research centers. Eleven centers currently participate in the Programme, among them ICARDA as the lead center, ICBA, and IWMI, the International Water Management Institute. The Programme works in close collaboration with national partners - research organizations, governments, policy makers, farmers' associations, universities and other stakeholders.

Central Asia is characterized by land degradation processes on a large scale, associated with soil salinity, low soil fertility and soil erosion. These processes are further exacerbated by demonstrated above-average influences of climate change in the Region. Competition for water resources between different sectors and user groups has dramatically increased since the 1990s. Moreover, use of water per unit area of agricultural production is very high, owing to old and inefficient irrigation infrastructures, among other factors.

Tackling the challenge of water in Central Asia requires that water productivity in agriculture is increased, besides rational distribution of water among countries and efficient management of water resources in general. The research contributions to increasing water productivity in agriculture are threefold:

- Promoting water-use efficient techniques (efficient irrigation systems, water harvesting, etc.)
- Developing more efficient crop varieties
• Selecting proper soil and crop management practices, including efficient on-farm water management.

This presentation introduces the concept and research approaches to Sustainable Land Management (SLM), and gives selected examples from collaborative research on developing crop varieties and selecting soil and crop management practices. Promoting water-use efficient techniques is addressed in a separate presentation by IWMI, in this volume.

New improved germplasm for major food and feed crops has been introduced from the international centers and rigorously evaluated under agro-ecological conditions in the Region. This resulted in the release of 42 improved cultivars, tolerant to biotic and abiotic stresses, in different crops. In particular, high yielding, high quality, yellow rust resistant and heat tolerant facultative and winter wheat lines have been tested in Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan, Azerbaijan and Kazakhstan. The ‘Dustlik’ wheat variety, released in Uzbekistan in 2005 and tolerant to medium salinity is now popular among farmers. Seed production systems have been promoted to ensure that good quality seed become available to the farmers. At the same time, germplasm conservation activities in the Region have made significant progress as new gene banks were established in most of the countries.

Pearl millet and sorghum are more water-use efficient than many local crops, highly tolerant to salt and drought and do not require preparatory soil leaching. Their evaluation in the local crop-livestock farming production systems resulted in a number of varieties recommended for the conditions in Central Asia. Pearl millet and sorghum also offer an economically interesting alternative for reclamation of unused marginal drylands.

Research on soil and crop management has resulted in the development of more efficient technologies. Several SLM practices were examined in 12 benchmark sites located in various agro-ecological zones of the Region. Laser leveling, for instance, resulted in 25-35% water saving (50-60 mm per irrigation). Raised-bed seeding has a demonstrated impact on water-use efficiency. In the experimental sites, yield increases were in the range between 7-22% because of enhanced germination rates while irrigation savings were 15-20%. Other tested practices included mulching, residue retention and various on-farm irrigation techniques. Crop-livestock integration and range management contributed towards improving livestock productivity and reducing the pressure on grazing lands. As a result of collaborative research, zero-till and other conservation agriculture practices are being increasingly adopted by Central Asian farmers. Capacity building, including participation of more than 11 thousand farmers in farmers’ field days, farmers’ fairs, traveling workshops, farmers’ schools and demonstration activities has been another major component of the Regional Programme during the past years.

The research questions are highly inter-related and the development of solutions requires an approach that integrates crops, livestock, natural resource management research and the necessary policies to support improvements. In fact, taking a more integrated approach in public research is at the core of current reform in the Consultative Group for International Agricultural Research. The existing CGIAR partnership in Central Asia and the Caucasus will continue promoting the uptake of collaborative research knowledge and innovation into better policies and development of practices for the benefit of the farmers in the Region.

Keynote presentations delivered by Oyture Anarbekov and Manzura Nazaramonova (Photos: HP. Liniger)