IWRM Action Hub

CASE STUDY

India: Capacity building for improved water management in Andhra Pradesh

Summary

India is currently facing huge challenges in water management, including disputes on reservoir releases, over-exploitation of groundwater resources, degradation of wet lands, salt-water intrusion in coastal regions and shortages in drinking water supply. Action was taken to initiate a pilot research project to generate and disseminate knowledge. This case study illustrates that pilot demonstrations and capacity building are a prerequisite for promoting improved water management practices to all stakeholders.

Background

India is the world's major irrigating country with the major share of the water resources being used for irrigation. The demand for water from the non-agricultural sectors is growing rapidly, causing an increased pressure on available water resources. The national and state governments of India currently face huge challenges in water management.

Agricultural production in the southern state of Andhra Pradesh is mainly concentrated in the densely populated catchments of the Krishna and Godavari rivers. In Andhra Pradesh (AP), the introduction of canal irrigation has boosted agricultural productivity and resulted in considerable direct and indirect benefits to the farmers and the society. 60% of AP's agricultural production and over 70% of AP's population relies directly or indirectly on agriculture for their livelihoods. Within the system, tail end farmers are getting water late or not at all. Land uncovered with crops may lead to salinization of the soils. At the state level, there is increasing uncertainty of timing and availability of irrigation supplies due to irrigation developments by upstream states, i.e. Karnataka and Maharashtra. Also it has been observed that in rainfed areas the groundwater levels are declining, while these are raising in canal irrigation commands, leading to waterlogging especially at the tail-end. However, the state is facing water related problems like interstate water disputes on reservoir releases, inequity in canal water distribution in irrigation commands, over-exploitation of groundwater resources in rain-fed agriculture, degradation of wet lands, salt-water intrusion in coastal regions and shortages in drinking water supply for Hyderabad.

Actions taken

The FAO funded joint applied network project of operational research, Andhra Pradesh Water Management Project (APWAM) to provide knowledge and experience in problems like water efficiency, unequal water distribution as well as loss of land and production due to

waterlogging and salinity in farmers´ fields and was facilitate by Alterra – IWRM (the Netherlands) and the State Agricultural University in Hyderabad.

The aim of the study is to generate and disseminate knowledge as well as build research capacity on improved agricultural water productivity of canal and tank irrigation systems. Also, the objective is to strengthen strategic partnerships among research institutions, policy makers, line departments, NGOs and Water User Associations.

To facilitate the exchange of information and to up-scale the results of the research activities to command area scale to enable the line departments to use the project results, three working groups have been established, one on "RS/GIS for Canal Irrigation System Performance Evaluation", a second one on "Hydrological Modelling" and the third one on "Irrigation Modernisation and Management Improvement". Eight pilot areas throughout Andhra Pradesh were selected for the study. Local NGOs together with local project staff living in the villages are facilitating the participatory involvement of the pilot area farmers.

The project included both technical and non-technical measures. In addition, a very important goal is to support the development and design of innovative production systems to make more effective use of natural resources. An integral part of the project is to support institutional capacity of local authorities in implementing these approaches.

Outcomes

Results and products developed so far are:

- improved on-farm crop and water management packages tested in the pilot areas resulting in overall higher water productivity;
- up-scaling of pilot area results through remote sensing: canal water savings up to 40% can be realized in Krishna Western Delta;
- participatory irrigation water management implemented in a canal command: water savings up to 30% realized;
- participatory irrigation water management implemented in a tank command: there are no longer water disputes among farmers;
- tail-enders have sufficient tank water;
- groundwater is now regarded as strategic reserve; increase of cropped area up to 30%;
- introduction of sub-surface drainage systems to combat deltaic environmental degradation and salinisation: increase of water productivity up to 50%.

Lessons Learned

Pilot demonstrations and capacity building are a prerequisite for promoting improved water management practices to all stakeholders and considerable time was required to build mutual trust between stakeholders and project staff.

The project achievements served as a model for tank irrigation improvement, for aspects such as technical, managerial and participatory.

Water Technology Centre was established within the State Agricultural University in

Hyderabad where the expertise obtained from the project has been clustered; one of its activities is conducting annual training courses on improved water productivity technologies.

The state government is now in the process of up-scaling elements of the pilot area results to larger canal commands in Andhra Pradesh.

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