

This briefing note synthesizes the presentations made by the AgWater Solutions Project team and discussions that followed with the workshop participants.



Irrigation infrastructure in West Bengal

WEST BENGAL STATE CONSULTATION

area under canal irrigation has declined from 886,000 ha to 560,000 ha, while groundwater irrigation has increased over the past 50 years. This rapid adoption of shallow tube wells paved the way for agricultural growth in the 1980s and 1990s. Around 10% of these shallow tube wells are powered by electricity and the rest by diesel. The reason for the preference for diesel is the government of West Bengal's electricity policy.

Introduction

The AgWater Solutions Project is helping to unlock the potential of smallholder farming through agricultural water management (AWM) solutions. This includes technologies and approaches, such as soil moisture management, drip irrigation and water harvesting techniques, as well as the supporting policies, institutions and business models. Partnerships are key to the success of the project. As such, the project promotes collaboration at all levels with, and between, a range of stakeholder groups including researchers, policymakers, investors, farmers and implementers.

The National Consultation Workshop was an opportunity for such engagement and for participants to share their opinions on AWM solutions that would be appropriate for West Bengal and could be out-scaled. This briefing note provides a short summary of the discussions held during the Workshop and the AWM solutions that were prioritized. For more information on the AWM solutions currently being used in West Bengal the reader is referred to the Situation Analysis Briefing Note, which is also available on the website.

The consultation workshop was attended by 34 participants representing government organizations, research and academic institutes, non-governmental organizations (NGOs) and civil society bodies, farmers and farmer organizations.

West Bengal Situation Analysis

In West Bengal 78% of all farmers are smallholders with less than 2 ha of land each. Irrigation is very important but the

In India as a whole there are concerns about overexploitation of groundwater and this appears to be driving water policies. In West Bengal, the high rainfall and the alluvial aquifer make it less likely that overexploitation will occur. However, the government policies of groundwater certification and rural electrification make it difficult for farmers to get connected to the grid, leading to economic scarcity of groundwater. The groundwater potential and policies will be researched further by the AgWater Solutions Project.

The type of AWM strategies being utilized in the State varies by agroecological zone, and this should be taken into account when developing AWM solutions. In North 24 Parganas, shallow tube wells with diesel pumps are the main source of irrigation; in Hugli, deep tube wells with submersible pumps are most prevalent; in Uttar Dinajpur, diesel-operated shallow tube wells and occasional treadle pumps are found to operate; and in the drier district of Purulia, tanks and ponds are the most important sources of water for agriculture.

Identifying and Improving AWM Solutions

The participants were asked to share their opinions on AWM in West Bengal and to provide suggestions for refining the research and selecting case studies for in-depth analysis. It was suggested that the project take a holistic view of AWM solutions, rather than focusing on specific aspects such as groundwater and electrification. The research should also take into account the agroecological zones and the existing conditions. For example, in drier and highland parts of West Bengal, such as Purulia, Medinipur, Bankura and Birbhum,

there could be investment in rainwater harvesting and storage in small ponds dug on individual plots of land. Coupling this with low lift pumps could further increase access to water. In the southern parts of West Bengal, groundwater is a good option and could be utilized through shallow tube wells. Drip irrigation rather than flood irrigation could be implemented where possible to preserve water resources. In Cooch Bihar, International Development Enterprises (IDE) has had some success with treadle pumps and System of Rice Intensification (SRI). Critically, the project team must ensure that all recommendations are supported by sound evidence that does not lead to the overexploitation of water resources.

The participants also felt that improvements in AWM could be achieved through better training and ensuring that AWM was an integral part of the micro-planning process adopted by the Panchayati Raj Institutions (PRIs).

Suggested Desirable AWM Investments

Specifically, the participants were asked to put forward their ideas for desirable agricultural AWM investments in West Bengal. These suggestions are provided here:

- Training and dissemination of various AWM options will be essential if they are to reach smallholder farmers. Manuals on the various AWM solutions and an inventory of best practices from other locations should be developed. These should be part of the standard kit for all extension workers and they can be disseminated by extension workers, NGOs and farmers' organizations. This would strengthen the extension service, which could be supported by grassroots organizations, especially if a consortium of NGOs, national agricultural universities and government departments are formed to address AWM.
- Make it easier to obtain electricity connections, provide a one-time capital cost subsidy and remove compulsory State Water Investigation Directorate (SWID) certification.
- Renovate surface tanks and ponds and use them for multiple purposes, especially aquaculture. This could also lead to groundwater recharge.
- Invest in extension services and demonstrate optimal AWM to farmers, especially for crops with low water requirements.
- Invest in water harvesting structures and groundwater recharge to avoid over-dependence on groundwater. Use the Mahatma Gandhi National Rural Employment

Guarantee Act (MGNREGA) funds to build or rehabilitate storage and irrigation infrastructure.

- Introduce and test "smart voucher" diesel-based subsidy for diesel-pump owners.
- Collaborate with national partners and local agricultural universities on technological innovations. Then provide funds and support for dissemination and uptake.
- Strengthen agricultural output markets, especially in areas that grow nontraditional market-oriented crops.
- Support livelihoods diversification, especially in drier parts of West Bengal through watershed development, soil moisture conservation and rainwater harvesting. Improving forward market linkages for niche crops such as spices would be beneficial, as would investing in off-farm job creation to ease pressure on land and water.

Next Steps

The suggestions raised in the workshop are being taken forward in the choice and design of the in-depth case studies and in the ongoing stakeholder dialogue process.

Contributors:

Dr. Charlotte de Fraiture and Dr. Aditi Mukherji, International Water Management Institute (IWMI), Mr. Partha Sarathi Banerjee, Consultant

Comments received from:

D. Dutta, Indian Space Research Organization (ISRO); M.S. Kundu; Manas Satpathy, PRADAN; Sukanta Das, Agri-Irrigation Department; Anniruddha Brahmachari, IDE India; P.S. Rao, the Food and Agriculture Organization of the United Nations (FAO); Sujata Das Chowdhury, independent agricultural economist; Debangshu Majumdar, Vishwa Bharati University; Gopal Biswas and Daud Gazi, All India Krishak O Khet Mazdoor Sangathan; A. Zaman, Bidhan Chandra Krishi Vishwavidyalaya; Rajeswar Mishra, Central University; Ratan Kumar Das, Purba Bamunia Janamongol Society; S.M. Sarkar, Irrigation and Water Development Department, Government of West Bengal; Ashis Chatterjee and Sipra Bandopadhyay, Central Groundwater Board; Saswati Bandhophadhay, State Water Investigation Directorate (SWID); Sarvansakia Roy, ITC Limited; and Chittaranjan Adhikary, Ashesh Sahoo, Birendranath Sadhukhan, Biswajit Roy, Pintu Basak, Paban Sarkar and S. Rahaman, farmers.

Stay informed. Join the mailing list to receive briefs and other project outputs by writing to us at AWMSolutions@cgiar.org.
Find out more on the AgWater Solutions website <http://awm-solutions.iwmi.org>