



RAICHUR ROUNDTABLE

The Future of Water: Equitable Water-Sharing for Sustainable Transitions in Agriculture

March 2024





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On March 1, 2024, the Water, Environment, Land and Livelihoods (WELL) Labs and the India Climate Collaborative (ICC) convened a roundtable to bring together key stakeholders to discuss the future of water for transformation of agricultural landscapes. We sought to pinpoint institutional, technological, and financial obstacles hindering the shift toward sustainable land use and water-efficient practices in Raichur.

This document summarises our key takeaways and next steps.

Purpose

Water for agriculture remains an indispensable, finite, and stressed resource for a majority of smallholder farmers engaged in agriculture as a primary source of livelihood. India's agricultural production system is determined by the availability and access to water resources. The challenge is that water, unlike land and forests, is a dynamic resource present in various interconnected forms such as groundwater and surface water. When equitable distribution of water—both surface and groundwater—is not institutionalised, it results in inequitable water distribution and low land and water productivity.

While there have been engineering solutions administered to ensure water distribution for agriculture in India, inequalities in accessing water have remained a critical social problem, amplified through class, caste, and gender disparities.

Meeting objective and structure

The objective of the meeting was three-fold:

- To understand best practices in institutional design of protective irrigation.
- To see if best practices from other regions could be brought into Raichur.
- To identify where additional research and innovation is needed.

Addressing complex challenges like water inequity requires collective action from diverse stakeholders including representatives from the government, civil society organisations, philanthropies and Corporate Social Responsibility (CSR) initiatives, market players as well as researchers. The roundtable brought together people from different backgrounds to discuss the issue and find solutions, highlighting the importance of working together to address complex problems.

The list of attendees is in [Annexure 1](#).

Key Discussion Points

Opening Session

The first session focused on learnings and challenges in implementing protective irrigation initiatives to enhance farmer livelihoods across three different contexts across India - canal command with public irrigation, groundwater-dependent and higher-elevation rain-fed areas.

We had presentations of the government's approach to canal automation in the Narayanpur Left Bank Canal (NLBC); Society for Promoting Participative Ecosystem Management's (SOPPECOM) collaboration with the Maharashtra irrigation

department in implementing a lift irrigation scheme in Atpadi; and WASSAN's model of groundwater collectivisation in Telangana. The first two are public schemes while the latter is private.

The canal automation case

The NLBC (draws from the Narayanpur dam and Almatti dam) project first attempted a water productivity assessment to understand how much is produced in tonnes per thousand million cubic feet (tmc) of water supply and understand benefits in the form of nutritional security and jobs. Before automation, the crop map of the NLBC area showed clear disparities between head-end and tail-end farms. Around 40% of the 45 lakh hectare (ha) command area was not getting water.

The Advanced Centre for Integrated Water Resources Management (ACIWRM) drew from the experience of Australia's Murray-Darling and adapted it to the Raichur landscape and identified areas to work on in 2017, 2018 and 2019. They installed 4,568 gates, 60 microclimatic weather systems and other equipment in the major canals. Using cross regulator gates, modern solar-powered automated flume gates and flowmeters in the canals, they were able to largely control the water released, extending the access to irrigation to the mid and even tail-end reaches.

The life irrigation case

The Atpadi case involved a model of equitable, integrated and participatory water management under the Tembhu Lift Irrigation Project. It consisted of a participatory irrigation management scheme through piped irrigation wherein every farmer gets 5,000 m³ per family. This 'entitlement' was arrived at by a calculation estimating the biomass needs of each family.

SOPPECOM collaborated with the state irrigation department in Maharashtra to design the project, and is helping with the formation of the Water Users Associations (WUAs) as part of this scheme. Once the area was delineated, the members became part of it. The member list was first prepared based on land records, which itself is a huge task. Later on, landless farmers were also added.

The groundwater collectivisation case

This model presented by the Watershed Support Services and Activities Network (WASSAN) involved getting borewell owners to share water with rainfed farmers in the village in exchange for an agreement that the latter would not drill borewells for 10 years. The whole village was integrated with a pipe network, and the Borewell User Association (BUA) was registered with an agreement on stamp paper.

Key Learnings

Paddy cultivation is a learned skill. There is a timeframe to leapfrog to a diversified cropping system

Dryland farmers may not know how to grow paddy. When new systems such as canal irrigation are introduced, those unfamiliar with them can be at a disadvantage. There is a reported trend of dryland farmers being trained by those who migrate to these regions from Andhra Pradesh. Many end up becoming labourers on their own land.

However, this also presents an opportunity for those who are willing to learn and adapt. In the context of the discussion at the roundtable, this could apply to the introduction of new irrigation methods or agricultural technologies.

Government needs civil society to create the spaces and facilitate WUCs

The NLBC project has 3,800 Water User Cooperative societies (WUCs). Many of these are only on paper and need facilitation to become more proactive. We know from past experiences that the civil society can play a critical role to support government institutions with social mobilisation and community engagement, especially when the state is constrained by the current constellation of players and their dynamics.

Water sharing institutions can only be developed by working at the speed of trust.

The hardest element in creating WUCs is that it is fundamentally difficult to get people to agree to water sharing – because there will be winners and losers. Multiple rounds of talks and negotiations need to take place to enable options such as participatory pooling and collectivising for shared borewells and ponds, that can help both ensure a more equitable distribution and avoid over-extraction. When successfully negotiated, there are cases where farmers have invested money to help create this shared resource.

There is a need to innovate and lower costs - current canal automation systems are too expensive.

There is huge scope to invest and research in bringing down the cost. At current costs, full-scale automation is too expensive; partial automation will also work. There is a business opportunity if the cost of this technology can be brought down, which would also make scaling possible and feasible.

There are nuances in WUCs in terms of design features.

Across the three cases, a set of common design principles have already begun to emerge:

- **Rotating leadership** – giving equal weight to head, middle and tail-end farmers to formulate the rules.
- **Inclusion of landless** – ensuring that the share of water is not based only on land, but biomass needs of families, thus giving landless families a “stake in the resource”.
- **Matching the infrastructure to the institutions** – ensuring that mechanisms for storage (ponds/ tanks) and pump energisation or piped distribution are included in the design to reduce losses and distribute water more evenly.
- **Rules for wet and dry years** – sharing arrangements often break down in drought years. These need to be negotiated and explicated.
- **Order of priority (tail-end to head-end)** – to ensure that tail reach farmers are not disadvantaged.
- **Allocation based on land versus family members** – to ensure equity.
- **Periodic updation of demand** – recognising that demand is not static and evolves over time with changing land use, demographics and aspirations and therefore setting a period for revisiting the rules.

The water sharing institutions are constrained by current laws.

In all the shared cases, it was clear that compromises needed to be made to ensure compliance with current laws and regulations. While CSOs may lobby for long-term changes in policy, in the short-term, the only option is to adapt and work creatively within the constraints.

We need to invest in drainage to prevent water-logging.

In many canal command areas, drains that take excess water back to the stream are not constructed; this results in water-logging and eventually soil salinisation. The solution of installing drains is a well-established one but has been abandoned in recent projects.

Farmers are willing to pay for water if they receive water of reasonable quantity in a reliable and timely manner.

Across the case studies, it was clear that farmers are willing to pay for irrigation if they know they can rely on it. The cost of using a diesel pump or worse, not having access to water is very high. In fact, the single biggest return on investment is giving rainfed farmers access to a small quantum of water when they need it.

We need to collectively invest in donor education to fund facilitation

While funding is crucial, effective solutions require facilitation, which involves education, capacity building, and stakeholder engagement. The discussions at the Raichur Roundtable emphasised that simply throwing money at a problem won't solve it. Instead, there needs to be a focus on helping people understand and implement solutions.

The government has been able to argue for empowering WUCs with direct transfer of funds by showing the high level of vacancies in irrigation departments.

Afternoon session

We organised two panels in the second half of the convening, one focused on financing and the other on technology.

One covered the issue of financing protective irrigation; we explored how we can work together using blended finance (a mix of government, private and philanthropic funds) and drive public-private partnerships to scale up protective irrigation with equitable water sharing.

The second panel addressed research gaps. We sought to explore questions such as, can technology and evidence-based decision making facilitate multi-stakeholder collaborations related to protective irrigation and enhancing farmer livelihoods?

Blended financing

First, there is a huge learning gap in the sector. There are excellent examples on the ground that do not 'trickle up' to where decisions are being made. We need to make playbooks that glean the wisdom from what is working and communicate it simply and effectively; for example, this playbook designed to support organisations conduct [social impact measurements](#) for their projects and a [community playbook](#) to redesign public spaces in the neighbourhood.

Second, we need innovative forms of blended financing. For instance, a lot of procurement of new technologies in the water sector involves government orders that have large cycles of payments, which is hard for the enterprise at the early commercialisation stage. Small- and Medium-Sized Enterprises (SME) loans from the Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE) are one possibility, but 70% of SMEs don't get CGTMSE. It is necessary to get philanthropy to put in guarantee money for these loans to happen when early stage start-ups don't have assets or collaterals.

Policy-relevant research

There is a need for research to go hand-in-hand with such large-scale efforts. We identified a few key areas of research that need to be focused on:

- Quantification of water use by farmers and the role of storage and conjunctive use.
- Identifying indicators of water productivity when cropping is diversified (for example, do we need biomass-based approaches when there is intercropping?)
- Experimental approaches to design and incentivisation of WUCs to understand what works.
- Understanding heterogeneity within villages and cross-scale effects.

At the moment, research and policy making are proceeding on parallel tracks. On one hand, existing research does not actually get translated and summarised for policy makers; on the other hand, a lot of researchers do not address questions policymakers are asking.

'Demand-based research', i.e. speaking to policymakers and understanding what information and answers they need to be able to push for change is an important way to ensure policy uptake of research.

Possible Next Steps

Pilot on diversified cropping system through the formation of WUCs

In light of the recent drought in the state, irrigation projects are a top priority for the Government of Karnataka. As the government prepares to expand existing irrigation programmes in partnership with bilateral funding agencies and other stakeholders, there is a window of opportunity for us to pilot a landscape approach in the region to shift to a diversified cropping system instead of a water-intensive paddy monoculture.

Create playbooks

Playbooks are a set of documented principles, processes or methods that, when followed, can help fulfil a certain outcome successfully. At the heart of it, it's carefully-curated knowledge that allows a successful idea to scale from a single pilot.

Learnings from successful cases will be shared as playbooks co-designed with grassroots CSOs to support amateur institutions and adopters in other landscapes.

Launch an innovation challenge

Identifying innovations in technology which help reduce costs or make partial automation cost-effective will be critical to scale up pilots. This requires data and technology start-ups to collaborate with government and CSOs. A well curated innovation challenge could help identify disruptive technologies for such a purpose.

Pilot innovative financing models

Irrigation projects are long-term gestation programmes involving a combination of stakeholders and institutions such as local farmer groups, the government, WUCs, CSOs, research institutions and multilateral and bilateral funding agencies. For the system to meet its objectives on improving land and water productivity and ensuring equitable sharing of resources, innovations in financing models will have to be explored. How to leverage CSR funding effectively in particular needs to be explored.

Annexure I:

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Anuja Malhotra	ATREE
Arushi	Nudge Foundation
Bakka Reddy	WASSAN
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Neha B	SOPPECOM
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Omprakash P	Reliance Foundation
P S Rao	ACIWRM
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Pooja P	IIT Delhi
Pragya M	IIT Delhi
Rangu Rao	Safe Harvest
Ravi	Udaanta/Kandu
Ravindra	WASSAN
S.S Ghanti	Prarambha
Saravanan S	Prarambha
Sashikumar N	ACIWRM
Shankar S	Prarambha
Siddharth B	ICC

Sonya F	Ashraya Trust
Sravya	Nudge Foundation
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