TOWARDS IMPROVED WATER USE EFFICIENCY AND PRODUCTIVITY IN COMMAND AREAS THROUGH PUBLIC PRIVATE PARTNERSHIPS – CASE OF MAHARASHTRA, INDIA

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ABSTRACT

Maharashtra has about 22.5 million hectares of cultivable area. Out of this, about 22% (5 million hectares) is irrigated through surface water, tapped and distributed through 3,700 major, medium and minor irrigation projects across the state. The average landholding of farmers in Maharashtra is approximately 1.4 hectares, with varying degrees of use efficiency and productivity.

The Water Resources Department (WRD) is responsible for developing irrigation projects and supplying bulk water up to a common point for each cluster of farms, called Chaks, covering roughly 20 to 50 hectares. In order to promote efficient water management on the farms, the Government of Maharashtra (GoM) enacted the Maharashtra Management of Irrigation Systems by Farmers Act (MMISF) in 2005. The MMISF empowers farmers within an area to form Water User Association (WUA) and manage the distribution of water in an equitable and efficient manner in their areas and also fix and collect water user tariffs. Each WUA covers an area of about 400 hectares. Earlier to adoption of MMISF, WUAs were promoted under Maharashtra Cooperative Society Act, 1960. As of date, about 5221 WUAs have been established, under both the Acts, and are functioning with varying degrees of effectiveness. Several initiatives like affordable tariffs, capacity building support, performance incentives have been designed and executed to strengthen Participatory Irrigation Management, through WUAS.

2030 Water Resources Group (2030 WRG), a technical assistance unit hosted by the World Bank, has collaborated with GoM to facilitate multi stakeholder participation in ensuring water security in the state, through Maharashtra Water Multi Stakeholder Platform (MSP). On-farm and off-farm water use efficiency and productivity, capacity of WUAs and market linkages for their produce have been identified as key areas of concern with respect to the irrigation sector. Initial efforts of the MSP started yielding results and led to participation of private sector organizations and also not-for -profit philanthropy organizations in piloting innovative models to address above issues in a few command areas. This process of attracting private sector participation in strengthening of WUAs is narrated in this paper.

Keywords: Water use efficiency, Water user associations, private sector participation, multi stakeholder platform, Maharashtra

1. INTRODUCTION

Maharashtra has a varied water ecology, with some regions facing severe water shortages impacting livelihoods and overall quality of life. Maharashtra has a total cultivable land of about 22.5 million hectares, out of which about 30% area is irrigated

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by water supplied through 3,770 major, medium and minor irrigation projects across the state. The average landholding of farmers in Maharashtra is approximately 1.4 hectares, with varying degrees of water use efficiency and productivity. The uptake of micro irrigation in the state is low at 10% of cultivable land.

As about 80% of the total water resources are consumed by agriculture sector, it is important to adopt appropriate micro irrigation systems for improving water use efficiency and enhance productivity. Given the severe water shortages and effects of climate change, experienced more in recent times, there is a need to enhance on-farm water use efficiency, productivity and improve access to markets to address water- and livelihoods security.

The Water Resources Department (WRD) is responsible for developing irrigation projects and supplying bulk water up to a common point for each cluster of farms, called Chaks, covering roughly 20 to 50 hectares. In order to promote Participatory Irrigation Management (PIM) the GoM enacted the Maharashtra Management of Irrigation by Farmers Act (MMISF) in 2005. The main objective of this Act is to enable groups of farmers to organize themselves into Water User Associations (WUAs) and take over the responsibility of water use management within their areas. The salient features of MMISF are as follows:

- Water supply to WUA will be on volumetric basis.
- WUAs will have freedom for cropping pattern.
- Adequate representation to tail enders & women members is provided in the management committee of WUAs.
- Simple procedure for formation of WUAs, now WUAs will be registered with the WRD.
- Time bound programme of completion of rehabilitation work before transfer to WUAs.
- All land holders or lease holders will be member of WUAs.

With the formation of WUAs and transfer of irrigation management to users, the job of water resources department would remain as facilitator. This is a major break-through in water resources management where users are adequately empowered and are center of reforms. The MMISF recognizes WUAs as body corporates and empowers them to undertake the following functions;

- Manage internal water distribution in an equitable manner, based on annual crop plans,
- Fix and collect user charges
- Grievance redressal
- Federate either at canal level or project level and take over the entire water management, and
- Access finance/ other inputs for the group.

A typical WUA represents 150 to 300 farmers, with a coverage of 300 to 500 hectares and members represent the head, middle and tail portions, including women and marginal farmers. Before the MMISF came into existence, the farmers were able to form WUAs by getting them registered under the Maharashtra Cooperatives Act, 1960. The MMISF makes the formation of WUAs a lot easier and also provides them powers for holistic water management. The MMISF also provides for federation of WUAs at canal level and project levels.

As of date, there are about 5200 WUAs in the state with varying degrees of capacity and performance and managing water in about 2 million hectares of area and an area

of about 1.2 million hectares has been handed over to the WUAs. Out of the total WUAs, about 2000 WUAs were formed under the earlier Cooperatives Act and are progressively being converted to WUAs under the MMISF for enhanced powers and uniformity of institutional framework.

The WRD typically hires services of a Non-Government Organization (NGO) to carry out necessary social mobilization, communications and capacity building to bring all the farmers within a designated WUA area and form the WUAs as per the MMISF.

2. EFFORTS TO STRENGTHEN WUAs

GoM has anticipated the need to strengthen effective functioning of WUAs, after their creation, for sustained water use management and realizing overall economic gains to the farmers. The following mechanisms have been designed and implemented for financial sustainability of WUAs, which is crucial for overall institutional sustainability of WUAs and irrigation sector.

WRD adopted a policy of providing water on volumetric basis, since 1990. WRD will continue to charge on flat tariff basis, till all supplies are metered.

Affordable water tariffs by Maharashtra Water Resources Regulatory Authority (MWRRA) are fixed. The current tariffs, applicable from January 2018 are given below in Table-1. In order to keep the water tariffs affordable for farmers in the state, MWRRA decided to cross subsidized the irrigation water tariffs with tariffs for domestic sector and industrial sectors. As per the policy, the entire operations and maintenance cost of irrigation systems should be met through water tariffs and the ratio of costs to be borne by different sectors is; 22% though domestic sector, 59% through industrial sector and remaining 19% through agriculture sector

Table 1: Volumetric Rates for Flow Irrigation

Sr. No	Season	For Registered WUAs (Paise per CuM)	For Individual Users (Paise per CuM)
1	Kharif	3.38	4.50
2	Rabi	6.75	9.00
3	Hot weather	10.13	13.50

The tariff order provides further incentives to both individual farmers and WUAs to encourage metering and adoption of micro irrigation, as given below;

- No water cess during the first year (trial period) of commencing an irrigation project
- 10% rebate on applicable rates if the farmer/ WUAs pays in advance, at the beginning of the season
- 25% rebate if a farmer/ WUA takes metered water supply for micro irrigation

The tariff order also stipulated penalties for late payments and/or misuse of water supplied to WUAS/ farmers, as given below;

- A penalty of 10% for all delayed payments, beyond stipulated time limits, and
- Farmers/ WUAs have to pay double the tariff rate in case the water supplied for irrigation is used for industrial uses.

Further, the WRD has earmarked budgets for continuous capacity building of WUAs under their Command Area Development Programs. Established training institutions

like Water and Land Management Institute (WALMI), Mumbai University, Tata Institute of Social Sciences (TIIS) etc are roped in to develop and conduct required trainings and also evaluate the effectiveness of the same with an aim to improve the content and processes.

The WRD assesses the performance of WUAs in the state and awards cash prizes up to $10000 to the best performing WUAs by the hands of the Hon. Chief Minister.

The Agriculture department offers financial subsidies for procuring micro irrigation systems to encourage on-farm water use efficiency and crop productivity, through various schemes. Eligible farmers within the WUAs also avail such subsidies. However, there are no group subsidies for WUAs. The total adoption of micro irrigation in the state is low and there is scope for overall improvement. Data for micro irrigation by farmers within the 5200 WUAs is not currently available.

3. STRENGTHS AND WEAKNESSES OF WUAs IN MAHARASHTRA

The following is an analysis of the situation with respect to WUAs in the state:

Recognizing the need for participatory irrigation management, in command areas, efforts have been made to establish and institutionalize functioning of the WUAs. While earlier WUAs were established under the cooperatives Act, the new MMISF, 2005 enables easier establishment of WUAs and also empowers them to take over management of irrigation systems, starting from small areas to canal level to entire projects.

About 5200 WUAs and federations have been established, with varying degrees of success. Success story of Waghad Project Level; Water Users Association is presented below:

3.1 Case Study

Waghad Project Level Water Users Association (PLWUA)

Waghad Irrigation Scheme located in Nashik district of Maharashtra State was commissioned in 1981. The scheme's cultivable command area is 9642 ha but only one-third of it (3212 ha) was irrigated as farmers in tail reaches were deprived of the irrigation water. In 1990, a local civil society called Samaj Parivartan Kendra (Centre for social transformation) in collaboration with the WRD motivated farmers to come forward in taking over the operation and management of the scheme. At the outset only 3 Water User Associations were formed at the tail area of the canal command, where barely some 100 ha out of 1150 ha were irrigated. Initially, these WUAs had to struggle to get their share of irrigation. But with transfer of management to WUAs, farmers in tail area received their quota of irrigation water and thus could irrigate more area. Enthused with the success of the 3 WUAs, farmers from the entire command gradually formed 24 WUAs. As a step forward, in the year 2003, all the WUAs joined their forces to take over the operation and management of the entire irrigation scheme by forming an apex organization called Waghad Project Level Water Users Association (PLWUA) and since then handling water management in the entire project area, successfully. The key benefits of these efforts are; (i) increase in irrigated area from about 1/3rd covered area to 100% covered area (ii) equitable distribution of water on volumetric basis (iii) doubling of incomes, associated with crop diversification and (iv) 100% recovery of water tariffs. PLWUA also established a Waghad Agricultural Producer Company (WAPCO) in 2009 to market and process agricultural produce of farmers.

Similarly, Katepurna Project, (Akola), Manar Project, (Nanded), Kukadi Project, (Pune) and Bagh-Itiadoh Project, (Gondia) have shown remarkable improvement in project performance with PIM. The Pimpalnare Project (Nashik), Tekepar LIS, (Bhandara) and Pentakli Project (Buldhana), Benikre (Kolhapur) are successful examples, exhibiting improvement in utilization and diversification as a result of practicing PIM.

The WUAs have been provided initial capacity building through identified NGOs and have also been given subsidized tariffs and further performance incentives. Financial penalties are also levied to deter WUAs from late payments and/or misuse of water. Financial subsides are provided to individual farmers for adopting appropriate micro irrigation systems by Agriculture department.

Despite these efforts and a few good cases, the average performance of WUAs is weak due to the following reasons; (i) lack of continuous handholding support till they become mature, (ii) lack of appropriate technical support and financing for modernizing agriculture practices, as a group, and (iii) poor returns on investments, mainly due to poor market linkages.

To address these weaknesses, WRD collaborated with 2030 Water Resources Group (2030 WRG), a global multi stakeholder organization with a vision to promote global water security through Public Private Partnerships (PPPs) and other innovations in water management in the state. The 2030 WRG is currently hosted by the World Bank. The experience in promoting multi stakeholder collaboration and early results are shared further.

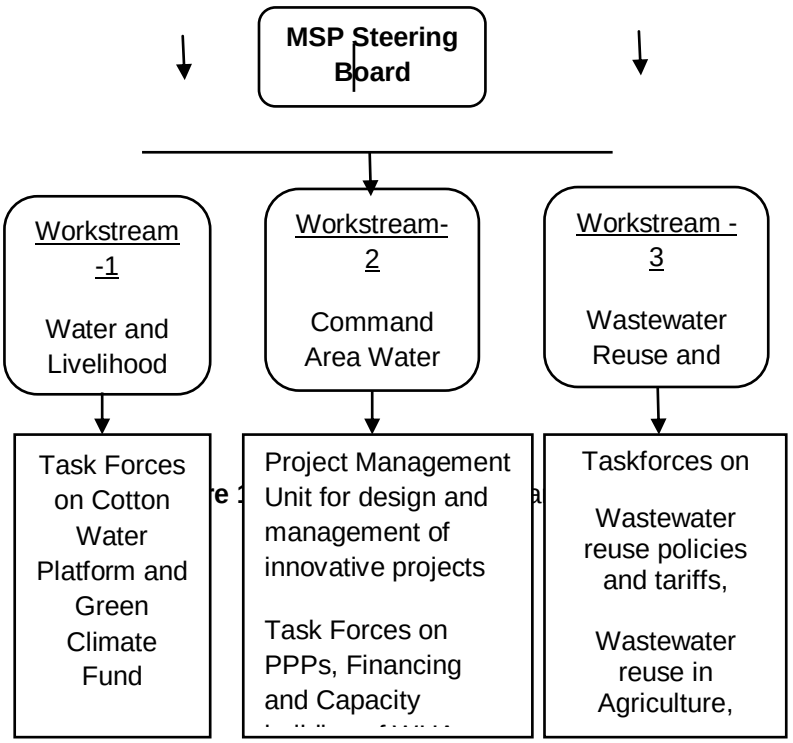
4. TOWARDS PPP IN WATER MANAGEMENT IN MAHARASHTRA

4.1 About 2030 WRG

The 2030 Water Resources Group (2030WRG) is a unique public-private-civil society collaboration established in the year 2009 to facilitate open, trust-based dialogue processes to drive action on water resources reform in water stressed countries in developing economies, and is currently hosted by the World Bank. 2030 WRG works in about 13 countries/ states across the world and started working with GoM in the year 2016.

4.2 Maharashtra Water Multi Stakeholder Platform (Msp)

The Maharashtra Water Multi Stakeholder Platform (MSP) was established in Maharashtra, through a Government Order, in May 2017, to facilitate optimal, sustainable and efficient approaches and solutions in water management in the State of Maharashtra. The MSP, chaired by the Chief Secretary to GoM, brings together key public, private, and civil society stakeholders to assess priorities and develop concrete proposals that can help improve the management of water resources in the State. In its first meeting, held in August 2017, the MSP Steering Board approved formation of three workstreams viz (i) water and livelihood security in rainfed agricultural areas, (ii) command area water productivity, and (iii) wastewater reuse and management. Each workstream is free to set up task forces to study relevant issues and come up with recommendations. 2030 WRG acts as the secretariat for the MSP and the workstreams. The overall MSP structure is depicted in figure, below.



The work done by the Command Area Water Productivity (CAWP) workstream is relevant to this paper and is detailed below.

4.3 COMMAND AREA WATER PRODUCTIVITY WORK STREAM

The Command Area Water Productivity Work stream (CAWP) was established under the leadership of Principal Secretary, WRD and has members from public sector, private sector, civil society and academic organizations. Sugarcane crop in the state consumes about 80% of total water resources, used in the agriculture sector in Maharashtra, and the adoption of micro irrigation systems in sugarcane cultivation is low. Hence, CAWP workstream was asked to find innovative solutions, including public-private participation. Accordingly, the work stream commissioned two studies to understand the extent of adoption of micro irrigation systems in command areas within the state and preliminary assessment of readiness of markets to engage with agriculture sector. The two studies threw light on the issues that are deterring adoption of micro irrigation by farmers within command areas and also the perceptions and recommendations of private sector players for their effective participation in the farming sector.

Based on these assessments, the workstream decided to demonstrate innovative approaches to demonstrate off-farm and on-farm water use efficiency and productivity improvements in an integrated manner and also establish appropriate market linkages, within a few command areas, that include effective PPP models. The workstream recommended to WRD to set up a Project Management Unit (PIU) with multi-department participation and also necessary skills that are required to actively design and facilitate implementation of the above mentioned PPP pilots. The WRD established such a PIU, through a Government Order, in October 2018. The PIU currently has deputed senior officers from WRD, Agriculture department and Water Conservation department. In addition, full time coordinator and subject specialists are also deputed by 2030 WRG and Tata Trusts, a philanthropic charity organization in

India. The workstream reached out to more members to depute necessary skills within the PIU for its effective functioning and got positive response. Participation of multiple stakeholders in setting up and running the PIU is a novel innovative concept, not tried by many before. The philosophy behind this is approach is two-fold. First, the chances of hiring PIU officers is very low as there is a freeze on hiring by government departments. Second, the multi stakeholder organizations not only depute persons, but will also bring the vast knowledge and expertise associated with their organizations and help the workstream in the overall process.

In parallel, the workstream also started work on attracting private sector participation, through two different pathways. In the first route, workstream members reached out to a few interested private sector organizations working in agriculture sector through the Corporate Social Responsibility (CSR) route. As per the Companies Act, 2013, in India, corporations above with financial turnover and/or profits above specified limits are mandated to invest 2% of their annual profits in social development activities. Water management, agriculture, capacity building of community institutions are some of the eligible activities under this rule. Some of the companies and philanthropic organizations have come forward to undertake appropriate activities in sections of a few command areas to work towards improving water use efficiency and productivity enhancements through capacity building of WUAs and establishing appropriate market linkages and value chains.

The WRD, these corporations and charitable organizations have entered into a legally non-binding Memorandum of Understanding (MoU) specifying the roles and responsibility of both parties and also the specific geographic locations for these activities. Finances from the WRD, other government department and companies/ charitable organizations will be deployed in the selected pilot areas, through their own systems, leading to an integrated development model. This is also a different PPP model. In the initial stages, this PPP approach is expected to cover an area of about 50,000 hectares across five different command areas and the partners are in the process of deploying their experts and field staff and also carrying out baseline assessments and action plans.

In the second route, assisted by the study on preliminary assessment of market readiness, the PIU is in the process of drafting an Expression of Interest (EoI) to rope in interested private sector organizations, either independently or as a consortium, to pitch for investing in improving water use efficiency, productivity and also establish market linkages. The interested private sector organizations can participate through appropriate contracting instruments such as Swiss Challenge Method, Hybird Annuity contract and others. The EOI, after due consultations, will be announced and WRD hopes to get good response from private sector.

5. CONCLUSION

Government of Maharashtra undertook several initiatives to enhance the role and performance of WUAs in effective water management and also improving output productivity. These initiatives were in the form of Acts, fixing affordable tariffs, providing incentives and also stipulating punitive measures for some undesirable actions. All these measures helped in establishing about 5200 WUAs. While a few WUAs have performed well, others do not have the capacity to take undertake the role and responsibility expected of them.

GoM adopted the Multi Stakeholder Platform model, in collaboration with 2030 Water Resources Group, to design and apply innovative solutions that address water security and created three workstreams. Representatives from public sector, private

sector, civil society and academia are part of the MSP, headed by Chief Secretary to GoM.

The efforts of the Command Area Water Productivity workstream started yielding initial results by attracting private sector participation, through the Corporate Social Responsibility route. Three corporate led philanthropy organizations entered into agreement with WRD to implement key activities related to improving water use efficiency and productivity and also establish market linkages, in select command areas. This initiative is expected to support WUAs in these selected areas, measuring about 50,000 hectares. The workstream is also working on appropriate methods to attract more private sector participation in similar works through Swiss Challenge method and/or other suitable methods.

This initial success proves the effectiveness of forging multi stakeholder platforms, a philosophy advocated and supported by 2030 WRG, in attracting inputs and support from private and civil society organizations to strengthen the capacity of WUAs and also the entire sector.

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