

WATER USERS ASSOCIATIONS IN MAHARASHTRA, INDIA – LEARNING, CHALLENGES AND WAY AHEAD

ASSOCIATIONS DES USAGERS DE L'EAU DANS L'ETAT DE MAHARASHTRA – LECONS, DEFIS ET AVENIR

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ABSTRACT

Maharashtra state of India has long tradition of farmers' participation in irrigation management in the form of Phad systems and Malgujari tanks. In the nineteen nineties, the first Co-operative Water Users Association (WUA) was established in the Mula Irrigation Project. With its success, Government of Maharashtra (GoM) has been promoting Participatory Irrigation Management (PIM) in the State.

Water Users' Associations (WUAs) are responsible for the operation, maintenance and management of the area under their jurisdiction and receive the prescribed water quota in the form of bulk volumetric supply with the freedom to grow crops of their choice. Over the last 10-15 years, there has been appreciable growth in WUAs. There are number of success stories, underlining the importance of WUAs. On the other hand, there are also some instances of little or no appreciable improvement in performance of irrigation projects with WUAs.

To evaluate the actual performance of WUAs a study was conducted in 2004, which covered WUAs from various parts of the State. The paper discusses the outcome of this study, reasons for good or poor performance, difficulties in functioning, area which needs attention, challenges in up-scaling etc., and the steps taken by GoM to solve the difficulties in progress of PIM. The paper also discusses future course of action to strengthen PIM initiatives in the State.

Key words: *Participatory Irrigation Management, Water Users' Associations, challenges, Maharashtra state, India.*

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RESUME

L'Etat du Maharashtra en Inde détient une longue tradition de participation des agriculteurs dans la gestion d'irrigation dans le cadre des systèmes Phad et des réservoirs Malgujari. Dans les années 1990, la première Association des usagers d'eau (WUA) a été établie pour le projet d'irrigation de Mula. Après la réussite de l'association, le gouvernement du Maharashtra (GoM) a commencé à promouvoir la gestion participatoire de l'irrigation (PIM) dans l'État.

Les Associations des usagers d'eau (AUE) sont chargées de l'exploitation, de la maintenance et de la gestion de la zone de leur juridiction, et reçoivent la partie d'eau prescrite sous forme de fourniture volumétrique en gros avec la liberté de cultiver les plantes de leur choix. Au cours de 10-15 dernières années, on a constaté une croissance appréciable dans la création des AUE. Il existe nombreux exemples de réussite qui soulignent l'importance de l'AUE. D'autre part, il existe aussi quelques cas où l'on a constaté aucune ou faible amélioration dans la performance des projets d'irrigation soutenus par les AUE.

Une étude a été menée en 2004 pour étudier la performance des AUE qui existent dans diverses parties de l'Etat. Le document examine les résultats de cette étude, les raisons de la bonne ou mauvaise performance, les difficultés de fonctionnement, le domaine exigeant l'attention, les défis etc., et les mesures prises par le GoM pour résoudre les difficultés en cours de PIM. Le document examine aussi les activités futures pour renforcer les initiatives PIM dans l'État.

Mots clés : *Gestion participatoire d'irrigation, associations des usagers d'eau, défis, État de Maharashtra, Inde.*

1. INTRODUCTION

Maharashtra State is situated in the southwest of India. It is the third largest State (30.8 Mha) with the second largest population (97 million) in the country. Agriculture has been the prominent occupation to provide food and fiber to the growing population of the State. The State economy is dependent upon agricultural production. Irrigation facility is regarded as the key element of irrigated agriculture.

2. CLIMATE AND RAINFALL

The State has a tropical climate. The annual rainfall varies from 400 mm to 6000 mm, with a state average of 1300 mm of which, 88% falls during June to September and remaining between October to December. It has a great impact on State's water resources planning.

3. SURFACE WATER RESOURCES

The geographical area of the State is divided into basins drained by the rivers Krishna, Godavari, Tapi, Narmada and narrow basins of west flowing rivers of Konkan. The average annual availability in above basins is 163.82 billion cubic meters (BCM), out of which permissible use as per interstate tribunal award is 125.94 BCM.

3.1 Irrigation potential created

Hardly 0.274 million hectares (Mha) irrigation potential was created in the State during pre-plan period i.e. prior to 1950. As agriculture is the prominent occupation, the State has concentrated upon construction of irrigation projects. There was manifold increase in irrigation potential creation. By 2010, the State has created 4.6 Mha irrigation potential using surface water resources. The State has constructed almost 2700 major, medium and minor irrigation projects, and has around 40% of the country's total number of dams. The ultimate irrigation potential, through both surface water and ground water resources, has been estimated as 12.6 Mha.

4. HISTORICAL DEVELOPMENT OF PIM

Maharashtra has a long tradition of participatory irrigation management. Phad systems in Northern Maharashtra and Ex-Malgujari tanks in Eastern Vidarbha are living examples of it.

4.1 Phad System

The Phad system on canals has been implemented since the medieval period on Panzara, Girna, Mosam & Burai rivers, which flow through Nasik & Dhule districts. Water is diverted by constructing *bandharas* across these rivers. Several beneficiaries belong to a single Phad. A sole crop is used to be grown in a Phad: perennial crop in the first Phad, two seasonals in the second, seasonals in the third whereas a crop would be grown in the fourth in case water is available. The crops are rotated in different phads in a 4-year cycle.

4.2 Malgujari Tanks

The tenure of Gond kings saw the creation of series of tanks in Vidarbha. It is given to understand that nearly 10,000 tanks had been constructed nearly 300 to 350 years back in the districts of Chandrapur, Gadchiroli, Bhandara & Nagpur in Wainaganga Basin through the entirely private enterprise of the Kohali community i.e. by deploying their own money and efforts.

4.2.1 Development in post-independence period

To encourage participation in irrigation management by farmers, the then Bombay Province in 1947 had created canal advisory committee, block level water committee and corporate body of landowners. The experiences of various trials and pilot studies are briefly summarised below.

In 1976, Maharashtra Irrigation Act-1976 has come into force. The chapter III, section 60, of the act provides for modalities in which water committees are proposed to be formed and to whom water is to be supplied on volumetric basis.

Considering National Water Policy-1987 and Maharashtra Irrigation Act-1976, the Government of Maharashtra initiated pilot project of establishing water users' associations. In 1989, on Mula project Shri. Datta Sahakari Pani Wapar Sanstha, has been established in Nevasa Taluka of Ahmednagar District. The same year 3 WUAs were established in Waghad project of Nashik District.

5. STATUS OF PIM IN MAHARASHTRA

The State has broadly divided into six regions viz. Konkan, Western Maharashtra, North Maharashtra, Marathwada, Nagpur and Amravati. These regions have different geographical, social, agro-climatic scenario, which certainly has had an impact on PIM development in the State. The progress of development of WUAs in the State is given below (Table 1).

Table 1. Status of formation of Water User's Association under MMISF ACT, 2005, as on December 2010

Project	WUA which have Started Functioning		WUA whose Agreement is done		Registered WUA, Agreement is yet to be done		WUA under Proposal		Total number of WUA	
	No.	CCA (ha.)	No.	CCA (ha.)	No.	CCA (ha.)	No.	CCA (ha.)	No.	CCA (ha.)
Under MMISF Act, 2005(new act)										
Major & Medium Irrigation Projects (A)										
Within CAD Projects	885	366528	-	-	-	-	-	-	885	366528
Outside CAD Projects	402	193804	-	-	-	-	-	-	402	193804
Total	1287	560332	-	-	-	-	-	-	1287	560332
Minor Irrigation Projects (B)										
	258	109187	-	-	-	-	-	-	258	109187
Total : (A) + (B)										
Total	1545	669519	-	-	-	-	-	-	1545	669519

Table 2. Status of formation of Water User's Association under Co-operative Act, 1960 in the State

Project	WUA which have Started Functioning		WUA whose Agreement is done		Registered WUA, Agreement is yet to be done		WUA under Proposal		Total number of WUA	
	No.	CCA (ha.)	No.	CCA (ha.)	No.	CCA (ha.)	No.	CCA (ha.)	No.	CCA (ha.)
Major & Medium Irrigation Projects (A)										
Within CAD Projects	682	240455	121	48228	312	134115	499	338578	1614	761376
Outside CAD Projects	348	117587	95	26097	589	217944	2220	698455	3252	1060083
Total	1030	358042	216	74325	901	352059	2719	1037033	4866	1821459
Minor Irrigation Projects (B)										
	345	113818	84	32680	432	143878	979	318911	1840	609287
Total : (A) + (B)										
Total	1375	471860	300	107005	1333	495937	3698	1355944	6706	2430746
State level Under New Act (MMISF Act 2005 & Co-operative Act (1+2))	2920	1141379	300	107005	1333	495937	3698	1355944	8251	3100265

5.1 Success stories of PIM

There are many success stories of PIM. Waghad Project, Nashik is a medium project having CCA 9642 ha. As stated earlier, PIM started with 3 WUAs in tail end, now WUAs are formed all over the command area. The WUAs have formed project level federation, which is successfully managing irrigation of the entire project. Similarly, Katepurna Project, (Akola), Manar Project, (Nanded), Kukadi Project, (Pune) and Choolband Project, (Gondia) have shown remarkable improvement in project performance with PIM. The Pimpalnare Project, (Nashik), Tekepar LIS, (Bhandara) and Bramhanwada Project, (Buldhana), Benikre (Kolhapur) are successful examples, exhibiting improvement in utilisation and diversification as a result of practicing PIM.

5.2 Evaluation of Working of WUAs functioning in the State

Directorate of Irrigation Research and Development (DIRD), Pune is established in 1969. It is a state-level organisation dealing with research in irrigation management and drainage works. DIRD has field offices throughout the State. This organisation is also entrusted with work of monitoring and evaluation of WUAs in the State.

In order to know the working of WUAs in the State, GoM has carried out evaluation of functioning WUAs in the State. Total 439 WUAs throughout the State have been taken up for the study. The regional breakup of these WUAs is as follows 8 from Konkan, 64 from Marathwada, 139 from Western Maharashtra, 150 from North Maharashtra, 8 from Nagpur, 70 from Amravati. For this purpose information was collected through specially designed questionnaires. The DIRD has compiled all the information and analysed it. The analysis came out with the following findings.

5.3 General findings

The general findings of the evaluation study are summarised below. Konkan region is coastal region having plentiful rainfall. However, it is backward in irrigation and PIM development is negligible. The Western Maharashtra's north part is drought prone and is irrigationally developed. It shows significant development in PIM. It is also worth to take note of Amravati region where PIM movement is gathering momentum in recent time due to appreciation of benefits of PIM, by the farmers.

There are WUAs having:

- | | |
|--------------------------------------------------|------|
| • CCA between 100 to 250 ha | 42 % |
| • Chairman aged above 40 years | 77 % |
| • Chairman working for more than 2 years | 79 % |
| • Irrigation throughout the stretch of the canal | 69 % |
| • Users numbering between 100 to 200 | 51 % |

Evaluation of WUAs brought forth following facts:

After transfer of management to WUAs, it has shown that there is :

- Improvement in irrigation efficiency in 66 % WUAs.
- 34% WUAs have diversified their cropping pattern by growing sugarcane, wheat, sunflower, cornflower, soybean, banana, gram, orchards and flowers.
- Watercess recovery in 34 % WUAs has increased due to establishment of WUAs.
- The management grants and O & M grants are partially disbursed to 48 % of WUAs.
- As much as 31% of WUAs have balance amount at their disposal and accounts of 40% WUAs have been audited.

5.4 Learning

Some important lessons learnt are as follows:

- WUAs are generally formed in tail areas. For success of PIM, it is necessary that WUAs are to be formed throughout command area.
- WUAs are still reliant on the Government, for want of management and maintenance subsidy.

- It has been seen that there is no sufficient increase in membership after formation of WUAs.
- In many cases, canal systems are transferred without rehabilitation of the system. Also there is no fixed time schedule for completion, which is generally subject to availability of funds. The condition of canal many times restricts sustainable development of WUAs.
- The WUAs are registered under the Co-operative Act. As Co-operation Department is loaded with their own work, least attention is being paid on sustainable development of WUAs.
- WUAs have apprehension about securing due water quota provided in the agreements.

5.5 Reasons behind slow progress of WUAs

Some of the basic reasons for slow progress are given below:

- Canal system needs to be rehabilitated before transfer to a WUA. However, deferred maintenance due to inadequate O&M funds deteriorated the canal system, prolonging its transfer to WUAs.
- Farmers had a feeling that Government is completely responsible for supply of water to them and thus forgo any help in maintaining it.
- Lack of funds caused untimely or sometimes no disbursement of grants to WUAs slowed down the growth of WUAs.

Inadequate training and capacity building of members of WUAs and lack of understanding and enthusiastic support from the Department officials causing meager progress in the objective of spreading the WUAs across the State.

5.6 Challenges

Government of Maharashtra (GoM) has now made mandatory to supply water for irrigation through WUAs only. So far 2920 WUAs are functioning on 1141 thousand ha, while 5331 WUAs covering 1959 Thousand ha are under various stages of formation. The real challenge however lies in making WUAs self-sustainable.

It is observed that the impact of PIM is restricted to few success stories. It is our objective to upscale it without losing its quality and impact. There are challenges in upscaling, some of which are as below.

5.6.1 Challenges in up scaling of PIM

- Simple procedure for formation of WUAs
- Time bound rehabilitation of canal system before transfer to WUAs
- Huge requirement of funds for rehabilitation
- Training and capacity building of members of WUAs as well as field officers
- Re-engineering of lower level management staff

- Political will and commitment of the Department
- Self-sustainable design of WUAs
- Conflict management among WUAs and with canal officers
- Monitoring and evaluation

6. REFORMS INITIATED BY THE GoM

The GoM has been pioneer in implementation of PIM. There are number of successful examples of PIM. The approach of Maharashtra has been gradual but convincing. During last few years, GoM has initiated a number of reform measures supporting PIM.

In July 2001, GoM has taken policy decision to supply water for irrigation through WUAs only (with a timeframe). The supply of water will be on bulk volumetric basis. The volumetric measurement of water for irrigation is in vogue in Maharashtra since 10-15 years. The farmers are well aware about volumetric measurement. Farmers have freedom to grow any crop within the water quota given to WUA.

The charges of water are also increased in 2001 and 2003 to meet O & M of the canal system. To clear arrears from farmers, innovative scheme has been launched. The participation of farmers is not only sought for management but farmers are involved in planning, construction of minors also. It has been made mandatory to form WUAs before construction of minors.

The GOM has also decided to set up the Maharashtra Water Resources Regulatory Authority (MWRRA) to regulate water resources within the State. It will facilitate and ensure judicious, equitable and sustainable management of water resources of the State.

6.1 Maharashtra Management of Irrigation System by Farmers Act

To overcome difficulties as mentioned above and to empower WUAs, the GoM has enacted the Maharashtra Management of Irrigation Systems by Farmers (MMISF) Act 2005.

6.1.1 Salient Features of MMISF Act 2005

MMISF has various innovative provisions to strengthen the PIM initiative. The MMISF enactment laid down simple easy procedure for formation of WUAs. The registration of society will be done by the Water Resources Department itself.

Salient features of the Act are as follows:

- Water for irrigation shall be supplied to WUAs only
- All landholders or leaseholders must be member of WUAs (unlike earlier 51% of landholders or 51% users).
- Water will be supplied on volumetric basis
- WUAs have freedom of cropping pattern

- Adequate representation to tail enders and women members is provided in the management committee of WUA
- Time bound programme of completion of rehabilitation works before transfer to WUAs

6.2 Steps taken by GoM to strengthen PIM

Maharashtra has a long tradition of co-operative movement in the State. The co-operative movement has been very successful in finance sector (e.g. banking) as well as industrial sector (sugar factories). The co-operative movement is a way of life for everybody in Maharashtra.

In irrigation management, farmers have already welcomed PIM approach but it has not so far been adopted on big scale due to limitations discussed earlier. But with assured flow of funds for rehabilitation, an exclusive enactment for PIM on scene, there will be no difficulty in mass implementation of PIM. There are number of good examples of WUAs promoted and supported by field officers. Top level as well as middle level officers are convinced about PIM and there will be positive support from the Department's side.

GoM has taken a number of initiatives to facilitate effective and speedy implementation of PIM. Some important initiatives are as follows:

6.2.1 WUA model

As described earlier, MMISF act has taken utmost care to provide WUAs model, which will be self-sustainable and also have adequate authority to discharge functions smoothly. There will be a legal agreement between WUAs and competent authority, safeguarding due interest of WUAs with commitment to provide bulk water use entitlement. The appropriate powers of canal officers (Section Officers, Deputy Engineers and Executive Engineers) are delegated to WUAs as per provision of the act. WUAs will now have to deal with only WRD for day to day functioning as well as, registration, auditing etc. WRD will provide full technical support in initial years to facilitate working of WUAs.

The adequate representation is being provided in managing committees of WUAs to members from tail, middle and head alongwith due representation to women. The WUAs will be given back certain portion (75% to 93%) of water charges for management, operation & maintenance of the canal system. The act provides clear and fair arrangement for conflict resolution among members of WUAs and canal officers too. Due opportunity is given to aggrieved party to place their grievances before an impartial forum.

6.2.2 Effective Communication with WUAs

An utmost care is taken in developing effective communication with WUAs. The dialogue between WUA and Department as well as with other WUAs is vital for success of PIM. Therefore it is planned to have workshop twice a year, wherein difficulties and possible solutions are discussed vis-a-vis WUAs, field officers and policy makers. The recommendations of the workshop are discussed and followed up in State level coordination committee. This mechanism is used for under taking suitable corrective measures in implementation of PIM.

It is also attempted to publish newsletters related to PIM to appraise the developments taking place in PIM in different parts of the State. It is helpful in exchanging information as well as sharing experience in order to take this movement ahead.

6.2.3 Training and Capacity Building

Training and Capacity Building plays crucial role in taking ahead the PIM movement. Water And Land Management Institute (WALMI) is acting as nodal institute in training which is imparting training to officers, member of WUAs, Training of Trainers (TOT) and is also play role of mother NGO. As WALMI infrastructure may not be sufficient to conduct training of field officers as well as members simultaneously. It is carried out through TOT consisting of experts from irrigation, agriculture and social sciences. These trainers' team is trained at WALMI, which in turn trains functionaries and field officers at field level. The training activity is designed as continuous wherein training will be provided as per needs and with the development of PIM. It has also been attempted to take help of NGOs to nurture the WUAs and facilitate WUAs in discharging their functions.

6.2.4 State level Awards for WUAs

GoM has instituted awards for best performing WUAs at State level and Regional level from 2010. Every year State level campaigns and competitions are undertaken to encourage participation of WUAs in competition and evaluation of WUAs by multi-disciplinary committee. Evaluation is made on basis of water use, utilization, agricultural and social parameters. The award constitutes certificate and handsome amount (\$2000 to \$12000). The award has resulted in appreciating WUAs efforts and motivating others to work better.

6.2.4 Maharashtra Water Sector Improvement Project

To carry out rehabilitation of canal system in time bound manners, the GOM has taken up Maharashtra Water Sector Improvement Project (MWSIP) with financial assistance of World Bank. The MWSIP envisages transfer of management to WUAs after adequate rehabilitation. To inculcate ownership among farmers, farmers have contributed Rs500/Ha in rehabilitation of the canal system. The system rehabilitation is in progress to carry the designed discharge, through the canal and disnet.

6.2.5 Monitoring and evaluation of WUAs

Last but not of the least important is, monitoring and evaluation of WUAs in the State. It is very important in case of any developmental activity, particularly in social development, wherein timely monitoring evaluation and undertaking corrective action is necessary. If right action is not taken at right time, there will be a lot of damage to the development accomplished and sometimes it would be difficult to move ahead. Therefore, there is system of monitoring and evaluation through third party directly reporting to decision making level. The consultant collects information through well-designed questionnaire and through Management Information System. The corrective action is taken based on timely feedback. A co-ordination committee is established under Chairmanship of Secretary (CAD) and members are from WUAs , NGOs, policy makers and few field officers, to facilitate working of WUAs. The coordination committee meets at least twice in year.

7. WAY AHEAD

The GoM has also enacted Maharashtra Water Resources Regulatory Authority Act 2005 to regulate water resources within the State. It facilitates and ensures judicious, equitable and sustainable management of water resources of the State. It provides water use entitlement to WUAs and then to individual farmers. MWRRA has allocated water use entitlement to WUAs in few projects under MWSIP. MWRRA ensures the enforcement of water entitlement. There is also a provision of transfer of water use entitlements for maximizing irrigation use efficiency. Enforcement of water use entitlements to WUAs will result in increasing efficiency in irrigation sector. MWRRA is also responsible for fixing water tariff criteria. Therefore, MMISF Act coupled with MWRRA Act will consolidate PIM and will ensure the sustainable development and management of water resources in the State.

8. CONCLUSIONS

Maharashtra has long tradition of Participatory Irrigation Management. In nineties, Water Users Associations (WUAs) are formed in irrigation projects on pilot basis, but as of now WUAs are formed in length and breadth of the State. A study was conducted in 2004 to evaluate performance of WUAs functioning in the State. The aim of the study was to find out improvement in performance before and after transfer of irrigation management to WUAs. The study has provided insight into hindrances in functioning of WUAs and measures to improve its effectiveness, which in turns improves the performance of irrigation projects. It reveals the reasons behind the slow progress and also highlights important learning and challenges to upscale PIM in the State. GoM has initiated series of reforms to strengthen PIM. A stand-alone act (MMISF Act - 2005) has been enacted to provide legal backing to WUAs. The water for irrigation will be supplied volumetrically through WUAs only and there will be legal agreement between WUA and competent authority. The act adequately empowers WUAs to discharge their functions with delegating appropriate powers of canal officers to WUAs. The State has gone further in providing water use entitlement to individual farmers and establishment of independent water resources regulatory authority to ensure judicious, equitable and sustainable management of water resources of the State.

It is observed that Irrigation management transfer improves the service delivery as well as financial performance of the Project. It is not time to discuss whether to go in for PIM or not, but to up-scale it without losing its quality and impact. There is need to have committed support from WRD and timely efforts to build WUAs to shoulder the responsibility. It is also essential to strike harmony between goal and efforts of Govt., NGO and Community.

The Maharashtra case study could provide insight into important aspects of PIM and possible measures to strengthen WUAs movement Though Maharashtra approach to PIM is gradual, but with reforms in place and changed mindset of officers of WRD and farmers, PIM could lead to sustainable irrigation management.

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