

IMPROVING IRRIGATION EFFICIENCY UNDER SMALL LAND
HOLDING CONDITIONS THROUGH PARTICIPATORY IRRIGATION
MANAGEMENT:
A SUCCESS STORY OF WAGHAD IRRIGATION PROJECT, INDIA

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ABSTRACT

Maharashtra has long tradition of farmer's participation in irrigation management. However, with development of large canal systems and reliance on government controlled systems, traditional systems of participatory approach have taken back stage. In the nineties, Co-operative water users Associations (WUAs) were formed in tail reach of Waghad Irrigation scheme.

Waghad Irrigation scheme is located in tribal area of Nashik district of Maharashtra, India, catering to Irrigation needs of 15926 small farmers having total cultural command area (CCA) of 9642 Ha. The water available for Irrigation use is 45 Mm³, average land holding 0.50 to 1.0 Ha. Earlier to formation of 3 WUAs in tail reach, having CCA of 1151 ha, there were hardly 100 ha of Irrigation and that too seasonal food crops e.g. sorghum were taken.

The active participation of WUAs in irrigation management resulted in assured irrigation in tail reach and irrigated area rose to five times in a span of 3-5 years.

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With initial success of WUAs and that too in tail reach, farmers in other parts of command of the scheme came together to form WUAs and gradually 24 WUAs were formed on entire command area of Waghad scheme. With handing over irrigation management to WUAs, WUAs were responsible for operation and maintenance of Irrigation system, distribution of water to members, collection of water charges to pay to government, etc. The water is supplied volumetrically at the head of WUAs as per water quota allocated and WUAs have crop freedom within their water quota. The WUAs had managed water efficiently and productively through conjunctive use of water, application of drip irrigation method and diversification to high value crops like grapes, vegetable etc.

The WUAs have not stopped here, all WUAs came together to form project level WUAs (PLA) and taken over entire irrigation management of Waghad irrigation scheme in 2003. Now water is supplied in bulk, volumetrically at the canal head and PLA equitably distribute water volumetrically to all WUAs as per their water quota, WUAs then distribute among their members. The water use rights and crop freedom to WUAs have resulted into transforming Waghad irrigation scheme from eight monthly to Perennial scheme and traditional cropping pattern to high value and productive cropping pattern.

The extensive use of drip irrigation method and conjunctive use of water has made it possible to use water quota efficiently and productively. The canal rotations are planned such that water available for irrigation can be used throughout the year.

1.1 PARTICIPATORY IRRIGATION MANAGEMENT (PIM)

Participatory Irrigation Management (PIM) approach was introduced in India in 1990s. The Government of India has been promoting the PIM in many irrigation schemes, especially in major and medium scale, with an objective of improved operation and maintenance of irrigation schemes, reducing fiscal burden on the States, increased cost recovery, and higher crop production through better water management. As a result more than fifty thousand Water User Associations were formed all over the country. However, the contemplated benefits of PIM are yet to

be realized due mostly to institutional weaknesses. PIM is still looked with suspicion by many. Yet there are some examples of successful WUAs who can act as role models for others to follow. Waghad Irrigation Scheme of Maharashtra State is one among those.

2.1 INTRODUCTION TO WAGHAD PROJECT

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* (Center for social transformation) in collaboration with the State Irrigation Department 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 (Figure 1). As a step forward, in the year 2003, all the WUAs joined their forces to takeover the operation and management of the entire irrigation scheme by forming an apex organization called *Waghad Project Level Water Users Association (PLWUA)*.

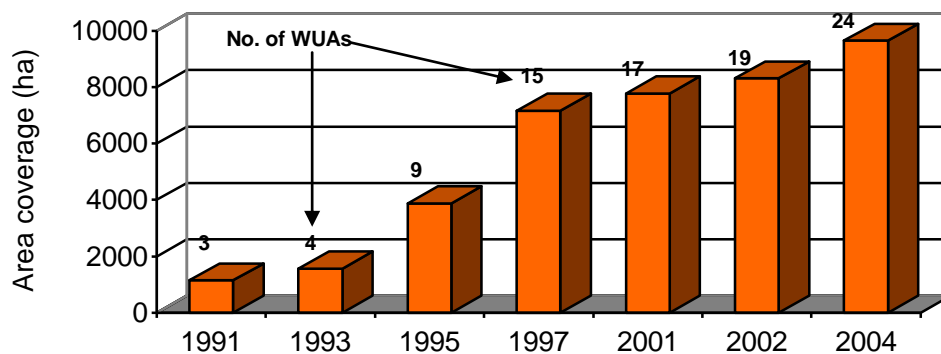


Figure 1: Progress of formation of WUAs in Waghad Irrigation Scheme

3.1 FUNCTIONING OF PLWUA

The PLWUA undertakes the water management with technical guidance and support from Water Resources Department. Water is supplied volumetrically at the head of canal and subsequently the PLWUA distributes the water among 24 WUAs as per their demand and entitlements. WUAs further distribute water among their members. As average land holding of farmers is very small (0.5-1.0 ha), volumetric supply to each farm holding is difficult, so farmers have *devised innovative way to share water on time basis*. The PLWUA collect water charges from its member associations. Management transfer to PLWUA has resulted in to 100 % utilization of irrigation potential, saving in water, crop diversification, and 100 % collection of water charges (Table1).

Table 1: Status of area irrigated, recovery of water charges - before and after the management transfer

Sr. No.	Description	Before formation of PLWUA (1980-90)	After the management transfer (2006-09)
1	Average Area Irrigated	3,212 ha	10,750 ha
2	Mode of Water Supply	Area basis	Volumetric basis
3	Average Water charges Recovery	Rs. 0.3 million	Rs. 2.2 million
4	Recovery of Water Charges	60 %	100 %
5	Crop pattern	Restricted	Cropping freedom
6	Water Entitlement	No entitlement	Transparent and enforceable

The PLWUA is also responsible for holding general body and regular management committee meetings from time to time for planning of rotation and its implementation, encouraging active participation of women in management committee, annual auditing of expenditure, and publication of annual report.

4.1 IMPACT ON EQUITY, PRODUCTIVITY & GROWTH:

- Crop diversification - farmers now can grow high value crops like grapes, vegetables, flowers, etc rather than traditional crops like. Rice, Bajra, Sorghum, Wheat, Gram, etc
- Increase in farmers income - the average income of a farmer in 2003-2004 was Rs. 60,000/- per hectare (about US\$ 1200/ha) which doubled to Rs 1, 20,000/ ha (US\$ 2400/ha) in 2008-09.
- Generation of local employment for the workers which increased from average 2 months per year to 8 months/ year. Thus there is a reduction in the migration of farm laborers from village to cities, as now there is a job availability in their own villages round the year
- Waghad Irrigation project has been receiving *National Productivity Award* of the Govt. of India since last five years
- The construction of water conservation structures like weirs, ponds, etc in command area has resulted in recharging of about 2523 wells. This led to increased availability of water to farmers even in hot weather season. This has resulted in reduction in use of deep bore-wells quite drastically.
- Farmers have invested in drip irrigation systems for grapes, vegetables etc. as there is an assured water supply throughout the crop-period. Today about -4100 ha are brought under drip irrigation system.
- Farmers have become confident and have started new initiatives and ideas, materials and crops. PLWUA has registered **Waghad Agricultural Producer Company (WAPCO)** in September 2009 to market and process agricultural produce of farmers.

5.1 SUMMARY AND CONCLUSION

Participatory irrigation Management by PLWUA in Waghad Project resulted into **saving of 13 million cubic meter of water** in the irrigation year 2008-2009 (as compared to 2003-04) which is almost 1/3 of water diverted for the irrigation. The saving of water has been improved over the years of work of WUAs / PLWUA and it is a major step towards sustainable irrigation management.

The consistent success in saving the water and increasing the productivity in the present success story strongly advocates the formation of federation of water users' associations and handing over the entire irrigation management of project to them.

The role of government in water management is just needed in the form of guidance and help to the farmers. The decentralization of power and freedom of the decisions to the farmers will improve the people's participation in irrigation management which in turn results into innovative and sustainable irrigation management in large irrigation scheme. The Govt. of Maharashtra (GOM) has taken policy decision to supply water for irrigation through WUAs only, based on success of WUAs and PLWUA in Waghad project. GOM has enacted stand alone act for formation of WUAs and its federation.

This model of efficient management by Waghad Project Level Water Users Association (PLWUA) can be very well replicated at different locations in the country as well as in developing countries of the world.