Innovative Water Management Award

Summary of Messrs Shahaji Manikrao Somawanshi, Bharat Kawale and Sanjay Madhukar
Belsare's work

“Transformation of irrigation through management transfer”

(continued on next page)
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.

INTRODUCTION
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)*.
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

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

**WATER SAVING AND OTHER IMPACTS DUE TO PIM**

**a) Water Saving**

The key feature of PLWUA in Waghad Irrigation Scheme is the bulk volumetric supply of water to WUAs as per their water quota entitlements based on cultural command area. The WRD and WUA staff jointly measure canal flows twice a day to ensure that the WUAs receive their assured entitlement. Table 2 shows the progressive improvement in the water use by farmers in Waghad irrigation scheme. This led to overall increase in irrigation efficiency and water productivity.

Table 2: Water use in Waghad Irrigation Scheme

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Year</th>
<th>Area Irrigated on canal and wells (Ha)</th>
<th>Water supplied at the canal head (Million Cubic Meter)</th>
<th>Water use (Ha/million cubic meter)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2003 - 2004</td>
<td>7,377</td>
<td>33.81</td>
<td>218.18</td>
</tr>
<tr>
<td>2</td>
<td>2004 - 2005</td>
<td>8,393</td>
<td>37.72</td>
<td>222.50</td>
</tr>
<tr>
<td>3</td>
<td>2005 - 2006</td>
<td>9,253</td>
<td>37.75</td>
<td>245.11</td>
</tr>
<tr>
<td>4</td>
<td>2006 - 2007</td>
<td>10,900</td>
<td>39.78</td>
<td>274.00</td>
</tr>
<tr>
<td>5</td>
<td>2007 - 2008</td>
<td>10,950</td>
<td>36.92</td>
<td>296.58</td>
</tr>
<tr>
<td>6</td>
<td>2008 - 2009</td>
<td>10400</td>
<td>34.69</td>
<td>299.77</td>
</tr>
</tbody>
</table>

**b) Other Impacts**

- 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/- (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 are now trying new initiatives and ideas, materials and crops. PLWUA has recently registered a Waghad Agricultural Producer Company (WAPCO) to market and process agricultural produce of farmers.

**SCOPE FOR UP-SCALING/ REPLICATION OF THE INNOVATION**

Innovative Water Management by PLWUA in Waghad Project resulted into saving of 13 million cubic meter of water in the irrigation year 2008-2009 which is almost 1/3 of water diverted for the irrigation. Saved water can be used either for bringing additional area under irrigation or for other non-irrigation water uses. Based on success of participatory irrigation management in Waghad project, the Govt. of Maharashtra (GOM) has taken a policy decision to supply water to all irrigation schemes by forming WUAs only. 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.
ROLE OF THE INDIVIDUAL NOMINEES

Nominee 1: Shahaji Manikrao Somwanshi

Shahaji Somwanshi is the President of Waghad Project Level Water Users Association (PLWUA). PLWUA is successfully functioning under his dynamic leadership with active participation & support of all WUAs. He is responsible for planning of rotations, distribution of water as per entitlement to WUAs, collection of water charges from WUAs and coordination of WUAs.

Nominee 2: Bharat Kawale

Bharat Kawale is the Working President of Samaj Parivartan Kendra (SPK), (Center for Social Transformation), Ozhar. SPK is a voluntary organisation working for participatory irrigation management since last 20 years. Bharat Kawale was instrumental in formation of first WUA in Waghad Project in 1990 & also in formation of Waghad Project Level Water Users Association. He is a respected personality among farmers & WUAs. He played an important role in bringing all WUAs to form PLWUA. He is a motivator, dispute resolver & also liaises with the Water Resources Department. Bharat Kawale is also on State Level Co-ordination Committee for PIM under Chairmanship of Minister, Water Resources Department.

Nominee 3: Dr. Sanjay Belsare

Dr. Sanjay Belsare is the Executive Engineer, Palkhed Irrigation Division, Nashik. He is Engineer-in-charge of Waghad Project. He is responsible for technical support to PLWUA in operation & management of canal system. As Executive Engineer, he is responsible for providing all policy support for smooth functioning of PLWUA, solving their difficulties & promoting spirit of participation.

Dr. Sanjay Belsare is a recipient of ICID Watsave Young Professionals Award 2001. He has done his doctoral research work on Water User Associations.
ANNEXURES

ANNEXURE 1: PHOTO GALLERY

PLWUA members with Constance Barnard, Director, Sustainable Development, World Bank, at PLWUA Office, Mohadi.

Standing Wave Flume at Canal head to measure water supplied to PLWUA

Cut Throat Flume for water measurement of water supplied to WUA
Water Conservation Works in command

Artificial Farm Ponds in Command

Well

Weir

Extensive use of drip irrigation for Grapes

Harvesting & Packaging of Grapes
Waghad Dam

WUAs Members with Mr. John Briscoe, Country Director, Brazil, World Bank, at WUAs Office, Ozar.
WUA Office Building at Walkhed

Delegation from Egypt, Sudan & Ethiopia during a site visit at a minor of Waghad Right Bank Canal
Annexure 2: Index Plan of Waghad Project