IMPROVING WATER PRODUCTIVITY THROUGH PARTICIPATORY IRRIGATION MANAGEMENT: A SUCCESS STORY OF WAGHAD IRRIGATION PROJECT, INDIA

AMELIORATION DE LA PRODUCTIVITÉ D'EAU PAR LA GESTION PARTICIPATIVE DE L'IRRIGATION : UNE RÉUSSITE DU PROJET D'IRRIGATION A WAGHAD, INDE

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ABSTRACT

The Maharashtra state in India has a long tradition of farmers' participation in irrigation management. However, with the development of large canal systems and reliance on government controlled systems, the traditional participatory approach had taken back stage.

In the nineteen nineties, Co-operative water users Associations (WUAs) were formed in the tail reach of Waghad Irrigation scheme. 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, they became 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 went ahead and formed project level WUAs (PLA) and took over the 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 to all the WUAs as per

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their water quota. The WUAs then distribute water 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.

Key words: *Participatory water management, Maharashtra (India), Drip irrigation, Canal rotation.*

RESUME

L'état de Maharashtra en Inde a une longue tradition de participation des agriculteurs dans la gestion de l'irrigation. Cependant, avec le développement de systèmes de grands canaux et le recours aux systèmes contrôlés par le gouvernement, l'approche traditionnelle participative a été mise au fond de la scène.

Dans les années mille neuf cent quatre-vingt dix-neuf, les Associations Coopératives des utilisateurs d'eau (WUA) ont été formées à la partie « queue [5]» de système d'irrigation Waghad. Avec le succès initial des WUAs et cela dans la partie « queue », les agriculteurs dans d'autres parties de commandement du programme se sont réunis pour former progressivement les WUAs. Progressivement, sur la zone de commande entière du Waghad, 24 WUAs ont été formés. Une fois la gestion de l'irrigation remise aux WUA, ils sont devenus responsables de l'exploitation et de la maintenance du système d'irrigation, de distribution d'eau aux membres, de la collection des redevances d'eau à payer au gouvernement, etc. L'eau est fournie selon le volume aux WUAs selon les quotas d'eau et WUAs ont la liberté de culture au sein de leur quota d'eau. L'WUA a géré l'eau de façon efficace et productive grâce à l'utilisation conjointe des eaux, l'application de la méthode d'irrigation goutte à goutte et la diversification à des cultures à haute valeur comme les raisins, les légumes, etc.

L'WUA a progressivement formé WUA au niveau du projet (PLA) et a repris la gestion de l'irrigation entière du système d'irrigation de Waghad en 2003. Actuellement, l'eau est fournie en vrac, selon le volume à la tête du canal et le PLA distribue équitablement l'eau à tous les WUAs selon leur quota d'eau. Les WUAs ensuite distribuent l'eau parmi leurs membres. Les droits d'utilisation de l'eau et la liberté des cultures aux WUAs ont abouti en transformant le système d'irrigation de Waghad de huit assolements mensuels au régime de vivaces, des modèles traditionnels aux modèles de haute valeur et des assolements productifs.

L'utilisation intensive de la méthode d'irrigation goutte à goutte et l'utilisation conjointe des eaux a rendu possible l'utilisation de quotas d'eau de façon efficace et productive. Les rotations des canaux sont prévues de sorte que l'eau disponible pour l'irrigation soit utilisée toute l'année.

5 Selon ce système d'irrigation, le terrain agricole à irriguer a été divisé en 3 catégories selon la distance du réservoir d'eau. La catégorie des terres les plus loin a été désignée « tail » ou « la queue » et l'on a fait de sorte que cette partie de la terre soit la première à recevoir l'eau d'irrigation.

Mots clés : *Gestion participative des eaux, Maharashtra (Inde), irrigation goutte à goutte, rotation du Canal.*

1. PARTICIPATORY IRRIGATION MANAGEMENT (PIM)

Participatory Irrigation Management (PIM) approach was introduced in India in the 1990s. The Government of India has been promoting the PIM in many irrigation schemes, especially in major and medium scale, with an objective of improving 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. THE WAGHAD PROJECT

The Waghad Irrigation Scheme located in Nashik district of Maharashtra State in India was commissioned in 1981. The scheme's cultivable command area is 9642 ha belonging to 15926 small farmers. The water available for irrigation is 45 Mm^3 and the average land holding is 0.6 ha. It was observed that only one-third (3212 ha) of the cultivable command area 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 mtotivated 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 take over the operation and management of the entire irrigation scheme by forming an apex organization called Waghad Project Level Water Users Association (PLWUA).

3. FUNCTIONING OF PLWUA

The PLWUA undertakes the water management with technical guidance and support from Water Resources Department of the state. 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, 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).

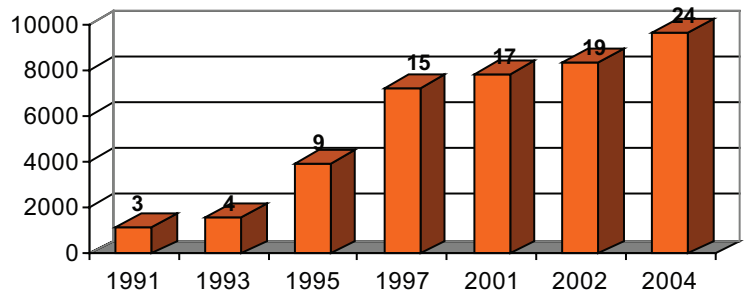

Fig. 1: Progress of formation of WUAs in Waghad Irrigation Scheme

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 (2006-10)
1	Average Area Irrigated	3,212 ha	10,500 ha
2	No of Rotations	4	6
3	Mode of Water Supply	Area basis	Volumetric basis
4	Average Water charges Recovery	Rs. 0.3 million	Rs. 2.5 million
5	Recovery of Water Charges	60 %	100 %
6	Crop pattern	Restricted	Cropping freedom
7	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 rotational water supply and its implementation, encouraging active participation of women in management committee, annual auditing of expenditure, and publication of annual report.

4. IMPACT ON EQUITY, PRODUCTIVITY AND GROWTH

- Crop diversification - farmers now can grow high value crops like grapes, vegetables, flowers, etc rather than traditional crops like Rice, Bajra (Pearl millet), Sorghum, Wheat, Gram, etc.
- 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 due to job availability in their own villages round the year.
- Farmers are exporting the grapes to European & Middle East countries.
- Farmers have also invested in high tech farming techniques, they are growing flowers & exotic vegetables in Polyhouse.

- Increase in farmers income - the average income of a farmer in 2003-2004 was Rs. 60,000/- per hectare (about US$ 1250/ha) which doubled to Rs 1, 20,000/ ha (US$ 2500/ha) in 2009-10.
- 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 the command area has resulted in recharging of about 2523 wells. This led to increased availability of water to farmers even in hot weather cultivation season.
- Farmers have invested in drip irrigation systems for grapes, vegetables etc., as there is an assured water supply throughout the crop-period. Today about 4300 hectares are irrigated by drip 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. SUMMARY AND CONCLUSIONS

Participatory irrigation Management by PLWUA in Waghad Project has resulted into saving of water and bringing additional area under irrigation and also increasing intensity of irrigation.

The saving of water and increase in the productivity of water in Waghad project underlines the importance of the formation of federation of water users' associations and handing over irrigation management of the entire project to them.

After transfer of management, the role of government in water management will be that of facilitator. The decentralization of power and freedom of the decisions to the farmers will improve the peoples' participation in irrigation management.

The consistent improvement in performance of Waghad irrigation project since transfer of management to PLWUA, is a major step towards sustainable irrigation management. This model of efficient management by Waghad Project Level Water Users Association can be very well replicated at different locations in the country as well as in the other developing countries of the world.

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