

Participatory Irrigation Management: A Case Study of the Waghad Project, Maharashtra State, India

Ms. Shivani Sangle

Student, Master of Arts (Economics),
Gokhale Institute of Politics and Economics,
Pune- 411004, M.S, India Email: 84shivanisangle@gmail.com

ABSTRACT

In this paper, an attempt has been made to study community participation in irrigation water management for sustainability of the farming business in the state of Maharashtra, India. Waghad irrigation project has been selected for detailed investigation. Waghad irrigation project is located in the tribal area of Nashik district of Maharashtra, India. Waghad irrigation project is a unique case in which complete control of management, operation and maintenance has been transferred to the federation formed by 24 WUAs existing in this project. This federation is the apex organization called Waghad Project Level Water Users' Association (WPLWUA). The study reveals that the cluster of WUAs of Waghad project is supplying equitable, judicious, timely and assured water to farming community which is the result of an innovative and sustainable irrigation management transfer. It builds up a sense of responsibility amongst the farming community. The assured water supply has an in built incentive to promote micro irrigation techniques, which has led to improvement in water use efficiency as well as crop productivity in the command area of the project. Waghad model of community participation in irrigation water management is very successful and have got several state and national level awards for participatory irrigation management, operation and maintenance of irrigation system in India.

Keywords: Participation irrigation management, Water Users' Association, Waghad Irrigation Project

1.0 Introduction

Participatory Irrigation Management (PIM) is a management approach where irrigation users, primarily farmers, actively participate in the management of irrigation systems. This includes the planning, operation, maintenance, and decision-making related to water use. PIM aims to improve irrigation efficiency, equitable water distribution, and water resource preservation through the involvement and ownership of local communities. PIM promotes the sustainable use of water resources and empowers farmers to actively participate in the management of irrigation systems, making them more responsible for water use and system maintenance. The Government of India has been promoting, Participatory Irrigation Management (PIM) by way of formation of Water Users' Associations (WUAs) in many irrigation schemes, with the objectives of achieving improved operation and maintenance of irrigation schemes, improved water use efficiency, improved crop productivity, reduced water conflicts thereby ensuring sustainability in irrigation development and management. Maharashtra State has long experience of community participation in irrigation management in

India. Phad (Block) System and Malgajari Tank System are the best historical examples of the participatory and sustainable irrigation management systems. Since 1985 Ministry of Water Resources has been inspiring farmers to participate in water distribution and management of tertiary system in the projects covered under the centrally sponsored command area development programme. The concept of involvement of farmers in management of the irrigation system has been accepted as a policy of the Government of India and it has been included in the national water policy - 1987. Provisions made in the national water policy of 1987 were as under: "Efforts should be made to involve farmers progressively in various aspects of management of irrigation systems, particularly in water distribution and collection of water rates. Assistance of voluntary agencies should be enlisted in educating the farmers in efficient water-use and water management", (GOI NWP 1987). However, following modifications were made in the national water policy 2002 regarding the participatory approach to water resources management: "Management of the water resources for diverse uses should incorporate participatory approach, by involving not only the various Governmental agencies but also the users' and others stakeholders, in an effective and decisive manner, in various aspects of planning, design, development and management of the water resources schemes. Necessary legal and institutional changes should be made at various levels for the purpose, duly ensuring appropriate role for women. Water Users' Association (WUA) and local bodies e.g., Municipalities and Gram-Panchayats should particularly be involved in the operation, maintenance and management of water infrastructure at appropriate levels progressively, with a view to eventually transfer the management of such facilities to the user groups/local bodies", (GOI NWP 2002).

2.0 Objective and Methodology

The main objective of this paper is to study Participatory Irrigation Management (PIM) in India. A case study approach has been adopted in the present study. In this paper, an attempt has been made to study participation irrigation water management for sustainability of the farming business in the state of Maharashtra, India. Waghad irrigation project has been selected for detailed investigation. Waghad irrigation project is located in the tribal area of Nashik district of Maharashtra, India. Waghad irrigation project is a unique case in which complete control of management, operation and maintenance has been transferred to the federation formed by 24 WUAs existing in this project. This federation is the apex organization called Waghad Project Level Water Users' Association (WPLWUA).

3.0 Water Users Associations (WUAs) In Maharashtra

The Maharashtra State has a long experience of Participatory Irrigation Management (PIM). Phad System, Malgajari Tank System, Khajana well, etc. are the best historical examples of the PIM in the Maharashtra. These community managed irrigation system are functioning since last 300 to 400 years ago (Agarwal and Narain, 1997). After 1985, Government of Maharashtra has taken keen interest in the formation of water users co-operative societies. Water is supplied to these beneficiaries' societies on volumetric basis by the Irrigation Department and Management, operation and maintenances of the distribution system is done by the water user's co-operative societies themselves (Lele and Patil, 1994). WUAs were registered by the groups of

farmers under existing Maharashtra Co-operative Societies Act, 1960 till 2005. After 2005, Maharashtra Government has passed special Act for formation of WUA viz. Maharashtra Management of Irrigation Systems by the Farmers (MMISF) Act, 2005. In 2025, Maharashtra aims to have 9,000 Water User Associations (WUAs), following a mandate from the state government to promote Participatory Irrigation Management (PIM). Currently, Maharashtra has 4,500 WUAs. The goal is to increase this number, reflecting the state's commitment to decentralizing irrigation management.

4.0 Waghad Model of Participatory Irrigation Management

Waghad Irrigation project is located in tribal area of Nashik district of Maharashtra, India. The Project was completed in 1981. The Waghad Dam is under Upper Godavari Project in Dindori tehsil across the river Kolwan, which is a tributary of river Kadwa. Tail ender farmers are not getting water so to overcome this problem, three WUAs were formed at the tail end in 1990 in response to the wishes of a local civil society called *Samaj Parivartan Kendra* (Center for social transformation) in collaboration with the State Irrigation Department. Irrigation management was transferred to these WUAs. They were receiving their quota of water, discipline was established among the beneficiaries, and water use efficiency was improved and thus started to irrigate more and more area. 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. Enthused with the success of these 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). This is unique case in which complete control of the project has been handed over to the federation formed by the 24 WUAs in 2005 and set up a mile stone. The mean annual rain fall in the project area is 750 mm and live storage of the Waghad Dam is 72.20 Mm³. The cultivable command area is 9642 ha, but only one- third of it (3212 ha) could be irrigated before formation of WUAs. The tail-end farmers were deprived of the irrigation water. Out of the 1150 ha command at the tail reach of the canal, hardly 100 ha was getting irrigation benefits.

5.0 Achievements of Waghad Project

5.1 Volumetric Water Supply and Equitable Water Distribution

WUAs are getting water on volumetric basis. Each WUA is then distributing the water among their members. The water use rights and cropping 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.

5.2 Crop Productivity and Farm Income

Predetermined and assured water supply enhances crop diversification and enables them to grow high value crops like grapes, vegetables and flowers. Thus the farmer's income has been substantially increased. There is increase in crop productivity along with per ha income in Waghad irrigation project. It has brought agricultural sustainability in this region.

5.3 Employment Generation

Previously job in agricultural field for local labour was available for average 2 months in a year. Now, due to irrigation facility and crop diversification, jobs to the local agricultural workers are available for round the year.

5.4 Women's Participation

The Waghad project has 24 WUAs with 16,958 members. There are 234 Directors for these WUAs who run the system. Out of these 234 Directors, 72 are women.

5.5 Water Conservation and Conjunctive Use

Construction of water conservation structures such as weirs, ponds, etc. in the command area has been recharging of about 2523 wells. This led to increased availability of water to farmers even in hot weather season. Farmers are practicing conjunctive use of surface and subsurface water.

5.6 Micro (Drip and Sprinkler) Irrigation

The assured and timely availability of water has worked as an incentive to enhance use of water saving techniques like drip and sprinkler. Nearly 4100 ha (50% of the planed command) is brought under drip irrigation system. Farmers have invested in drip irrigation systems for grapes, vegetables etc. WPLWUA is planning to replace open canal system by closed pipe line distribution network. This will reduce seepage and percolation water losses as well as evaporation losses and enhance micro irrigation. This will also increase water use efficiency and area under irrigation.

5.7 Innovative ideas

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. It helps for supply chain and value addition in agricultural produce.

5.8 Agri-Business

Now, WPLWUA entered in the field of Agri-Business and Agro-based industries, such as, Tomato Ketchup (2), Onion Powder (2), Poultry Farm (7), Dry Grapes Units (25), Cold Storages (16), Silk Industry (1), Small Scale Industries (25), etc. It leads to enhance diversification in agri-business activities, apart from employment generation, value addition, sustainable returns and prosperity in this region.

5.9 Farmers Facility Centre

Recently well-equipped Farmers Facility Centre has been developed with financial support from Government, WRD, Social Transformation Center, Ozar and WPLWUA. Very soon, this Centre will be open for various activities and conducting farmers training programs.

5.10 Awards

Waghad irrigation project level Water Users Association and its member got various National, State and Regional level awards and prizes. It is center of excellence in PIM and in implant training center for WUAs.

6.0 Conclusions

The Cluster of 24 Water Users Associations of Waghad project are supplying equitable, judicious, timely and assured water to farming community that results into innovative and sustainable irrigation management transfer. The project level associations of Waghad saved about one-third water supplied for irrigation apart from increasing productivity. This water has been used for additional area under irrigation. The collective efforts of 16,958 members of various WUAs formed in collaboration with Waghad project have not only effectively saved water but also increased yield. It has also upgraded the lifestyle of the members of these WUAs. Waghad project has developed good rapport and coordination between various institutions involving in irrigation management. PLWUA has also entered in the field of marketing and processing of agricultural produce and established Waghad Agricultural Producer Company (WAPCO). It leads to enhance diversification in agri-business activities, employment generation, supply chain, value addition, sustainable returns and prosperity in this region. This innovative Waghad model of community participation in irrigation water management can be replicated in different part of the country and also in the world.

8.0 REFERENCES

- Agarwal Anil and Narain Sunita 1997, "Dying Wasdom; Rise, fall and potential of India's traditional Water harvesting System" Published by Center for Science and Environment, New Delhi
- Dr. Shivaji Sangle, Dr. Sanjay Belsare and Er Balasaheb Chivate (2022), Waghad Model of Community Participation in Irrigation Water Management and Sustainable Returns, 24th International Congress on Irrigation and Drainage, Adelaide, South Australia, 03 - 10 October 2022.
- GOM, MMISF Act, 2005 Maharashtra Management of Irrigation System by Farmers Act, 2005 (MMISF Act, 2005)
- GOI NWP - National Water policy (1987, 2002 and 2012), Ministry of water Resource (Jal Shakti), Government of India, New Delhi, India
- Lele S.N. and Patil R.K.1994, "Farmers participation in Irrigation Management in Maharashtra" Horizon India Books Publication
- Shivaji Sangle, 2016, Role of Water Users Association in Management, Operation and Maintenance of Irrigation Systems in India, 2nd World Irrigation Forum (WIF2), 6-8 November 2016, Chiang Mai, Thailand
- WPLWUA 2020-21, 2023-24 - Annual Reports, Waghad Project Level Water Users Association, Nashik (M.S.), India
- WALMI 1999 - Report on Performance Evaluation of Water Users Co-operative Societies, Water and Land Management Institute, Aurangabad (M.S.), India