

Transformation in Maharashtra State India towards high water use efficiency

Pradeep S Bhalage

*Water And Land Management Institute, Aurangabad, Maharashtra, India
pradeepbhalage@yahoo.co.in*

Charu Bhavsar

Indian Institute of Water And Culture, Aurangabad, Maharashtra, India

KEYWORDS

Participatory irrigation management, bench marking, water Auditing, water use entitlement

ABSTRACT

Since independence large investment has been made in the water sector for the development of water storage. However, Increasing conflicts among the competing users, such as Irrigation, urban water supplies and industries etc; and poor operation and maintenance of the created facilities in the water sector has resulted in low water use efficiency, poor service delivery and large gap in the irrigation potential created and utilized. Irrigation sector is the biggest consumer of water, but has low water use efficiency. To face these challenges Government of Maharashtra state, India, adopted transformation in water sector. In this paper few of them like farmer's participation in irrigation management, Water use entitlements, performance evaluation of the irrigation system with the help of effective tool known as Bench Marking and Water Auditing are disused.

INTRODUCTION

The geographical area of Maharashtra State is 30.8 Million hectare **Mha**, as per Census 2011; Maharashtra has population of 112.3 Million, an increase from figure of 96.9 Million in 2001 census. With the increase in population and development in industrial sector conflicts among the competing users, such as Irrigation, urban water supplies and industries have been increased. Irrigation sector is the biggest consumer of water, but has low water use efficiency. The cultivable area of the state is about 22.5 Mha. Surface irrigation facility is regarded as the key element of irrigated agriculture. The state has a tropical climate. It receives monsoon rain fall. The annual rainfall varies from 400 mm to 6000 mm. The average rainfall of state is around 1300 mm of which 88% occurs during June to September and remaining between Octobers to December. The monsoon rains are erratic in nature and has uneven distribution. The ultimate irrigation potential, through both surface water and ground water resources, has been estimated as 12.6 Mha. Irrigation potential to the tune of 4.634 Mha is created by the end of June 2009 through 79 major, 249 medium & 3004 State sector minor irrigation projects.

Irrigation Before 2000

The irrigation management was done wholly by Irrigation Department. Therefore there was very little participation of farmers in irrigation management. Collection of water demand, distribution of water and collection of water charges was responsibility of Irrigation Department. Over the years, the funds available for maintenance of irrigation work have also been less than requirement. This led to poor maintenance and consequent deterioration of irrigation system. In spite of manifold increase in potential creation, the utilization of irrigation potential remains low.

Irrigation after 2000

The Government of Maharashtra **GOM** has taken innovative steps to improve the water productivity. Steps are taken to increase farmer's involvement in irrigation water management. Renovation and

rehabilitation of old water distribution network is taken in hand in stages and the renovated command is being hand over to Water User Associations **WUA**; for water management.

Farmers Participation in Irrigation Management

The Maharashtra state is pioneer in Participatory Irrigation Management (PIM). There are successful examples of WUA in various parts of the state. With this background, Maharashtra Government has made it mandatory to the irrigation beneficiaries to form WUA. The state has given legal support and empowers WUA by enacting the Act Maharashtra Management of irrigation system by farmers, Act 2005 and Rules 2006.

MMISF Act 2005

The main features of MMISF Act are listed below

- Water will be supplied only to WUAs'.
- Water supply to WUA will be only on volumetric basis
- WUAs' will have freedom for cropping pattern
- Tail-enders is assured about supply of water.
- Women's representation is made obligatory in WUA.

With the formation of WUA and transfer of irrigation management to users, the job of irrigation department would remain as facilitator. This is a major break-through in water resources management where users are adequately empowered and are center of reforms.

Water use entitlements

Maharashtra Water Resources Regulatory Authority Act 2005 has been enacted and Water Regulatory Authority has been established in 2005. to regulate, allocate, plan for sustainable development and management of water resources for various category of uses in a judicious and equitable manner. It will regulate mainly

- i) Sectoral allocation i.e. deciding entitlements for various categories of uses
- ii) Bulk water rates for various category of the use
- iii) Monitoring of the State Water Plan

Performance Evaluation of Irrigation system

Increase in demand of domestic and industrial use due to growth of urbanisation and industrialisation has resulted into lesser availability of water for irrigation. As irrigation use entails about 80 to 85 percent of the quantity, a marginal improvement in the efficiency of water use in irrigation will result in saving substantial quantity of water. It will also enhance food / fiber production. Increasing Water use Efficiency **WUE** and reducing the losses, is the need of the hour. This is the ultimate goal, which is being achieved in a phased manner through water auditing coupled with Benchmarking of Irrigation Projects.

On the basis of National Water Policy 2002, the state government has formed the State Water Policy in 2003. It clearly states that the service providers shall be accountable for giving the account of water use in various sectors. Accordingly, Water Auditing has been made mandatory for all the major, medium and minor projects in the State. To monitor whether the irrigation management is being followed as per the norms prescribed by the Government, to enhance WUE and government revenue, assessment of various losses and gaps in management measures for improvement by implementing the action plan in future, the task, Water auditing and Benchmarking of all the Major, Medium and Minor Projects in the State is allotted to Maharashtra water Resources Development Centre **MWRDC**, Aurangabad, India. Every year this office compiles the data and publishes the reports on Bench Marking and Water Audits of Irrigation Project in Maharashtra. To maintain the transparency, these reports are also made available on the website of MWRDC and GOM.

Water Auditing

Water auditing is a systematic and scientific examination of water accounts of the projects. Annual water account of all major, medium and minor projects is maintained. The concerned Superintending Engineers are required to submit annual water accounts of all categories of the projects in their jurisdiction, to MWRDC within 45 days (before 14th August) after every irrigation year. The water accounts of major, medium & minor projects are checked in MWRDC Office for following items.

- Availability of water in the reservoirs.
- Season wise water use for irrigation (flow as well as lift) against projected use.
- Water use for non-irrigation purpose against projected.
- Evaporation from reservoir.
- Water loss through leakages.
- Season wise area irrigated and water use efficiency (ha/Mcum).
- Area irrigated in influence area of project.

After scrutiny of the water account data, the draft report is prepared and submitted to the Government for approval. The draft report will be discussed and finalised by Irrigation Department. Thereafter, it is published.

Benchmarking

The PWD Hand book Chapter 25 on Irrigation & Irrigation Management gives comprehensive procedures for data collection, analysis, evaluation and monitoring the performance of Irrigation Projects. Evaluation of performance is being done using benchmarking as a management tool for the last few years. The projects selected for Benchmarking are of major, medium and minor category and from various regions of the State, representing various agro-climatic zones. For better monitoring and looking to the number of projects, the analysis is carried out considering irrigation circle as a unit and projects therein with similar plans groups of sub-basins. The draft report of benchmarking, which includes indicator wise performance, was prepared on the basis of data collected in spread sheet and analyzed in MWRDC Office before publish. It can very well be said that benchmarking exercise has provided a systematic approach for understanding how the projects from similar sub-basins are performing relative to others. The best performing practices are identified and reasons for lower performance are found out. The remedial measures are planned and implemented accordingly.

Training & Capacity Building

Training courses / workshops are conducted regularly by Water & Land Management Institute, Aurangabad for senior and middle level officers and staff working in irrigation management; on Water Auditing and Benchmarking; with a view to have all out discussions with the field officers on various aspects of irrigation management. The draft audit report and benchmarking report is presented in this report and due cognisance of important observations and suggestions are taken in finalised version of the reports. Training and capacity building of officers and staff involved in the process has helped in consolidating the water auditing and benchmarking process. Benchmarking coupled with water auditing has helped in validation of data and improving the quality of the data base.

Conclusion

To improve water use and overall performance, transformation is initiated in Maharashtra State, India. PIM, legal backing to the implementing agency, timely monitoring and evaluation of the irrigation performance has resulted in improvement in water sector. WUAs are playing an important role in development of water and Agriculture sector. Performance evaluation and improvement will help to remarkable improvement in water use efficiency.

REFERENCES

- Chitale M A Commission(1999), Maharashtra water and Irrigation Commission Report, Maharashtra state, India.
MWRDC, on line at <http://www.mwrdc.org/aboutus.htm>
- Patil E B , Belsare Sanjai (2012), Reforms In Water Resources sector In Maharashtra State, India Water Week 2012 – Water, Energy and Food Security : Call for Solutions, 10-14 April 2012, New Delhi, India.
- Sodal S.V.(2007): Reforms Initiatives in Water Resources Sector in Maharashtra State, India, The International Environmental Law Research Centre (IELRC), workshop on Legal Aspects of Water Sector Reforms , 20-21 April 2007, Geneva.
- Water Resources Department, Government of Maharashtra, on line at <http://www.mahawrd.org/default.htm>