REFORMS AND INSTITUTIONAL RESTRUCTURING FOR SUSTAINABLE MANAGEMENT OF WATER RESOURCES SECTOR IN MAHARASHTRA STATE, INDIA.

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ABSTRACT

Maharashtra is the third largest; most industrialized and urbanized State in India. Water sector has received larger investment since independence, which resulted in manifold increase in irrigation potential, drinking and industrial water supply.

The water sector in Maharashtra is faced with critical challenges, i.e. competition among different sectors has increased dramatically giving rise to disputes and conflicts, poor quality irrigation service delivery is undermining the performance of irrigated agriculture, limited cost recovery in the irrigation sector contributed to inefficient on-farm use of irrigation water and added to the fiscal burden of the state, planning and management of water resources in the state are fragmented and un-coordinated and is not being done holistically, treating surface & groundwater as one resource. Also, majority of farmers are small and marginal farmers. The challenges are further aggravated with increasing population and escalating water scarcity.

In above context, to overcome the poor scenario and improve the performance of irrigation project, path breaking reforms were initiated.

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The reforms in irrigation sector have received general acceptance. Its successful implementation has resulted in improvement in performance of irrigation projects. The reforms have also improved financial performance of irrigation project, with O & M expenses being recovered through water charges. With all-round reforms in water resources management and its successful implementation, Maharashtra State has emerged as one of the best performing state in India

1.1 INTRODUCTION

Maharashtra is the third largest state (30.8 million hectares) with the third largest population (97 million) in India. About 58% of the state's population is in rural areas, 80% of whom are dependent on agriculture for their livelihood. The rural poverty rate is about 32% (1999/2000). Poverty rates are very high among cultivators and agricultural labourers (23% and 57% headcount respectively). The availability of water in the state is highly uneven, both spatially and temporally; most of the rainfall occurs in just 40 to 100 days. The ultimate irrigation potential of the state is about 12.6 million hectare (m ha), of which 8.5 m ha is from surface water and 4.1 m ha from ground water sources. As of June 2008, total surface irrigation potential created in the state was 4.3 m ha.

2.1 CHALLENGES IN WATER SECTOR

The water sector in Maharashtra is faced with critical challenges. First, competition among different sectors has increased dramatically, giving rise to disputes and conflicts. Of the total water used in the state, about 80% goes to irrigation, 12% for domestic water supplies, 4% for industrial use, and the remainder for other uses such as livestock, and hydro and thermal power. With an urban population of about 41 million (42%), and rapidly growing urban centers and industries, the long term efficient and equitable intra and inter-sectoral management of the state's scarce water resources will become more critical.

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Second, poor quality irrigation service delivery is undermining the performance of irrigated agriculture.

Third, limited cost recovery in the irrigation sector contributed to inefficient on-farm use of irrigation water and added to the fiscal burden of the state.

Fourth, planning and management of water resources in the state are fragmented and un-coordinated and is not being done holistically, treating surface & groundwater as one resource.

3.1 REFORMS INITIATIVES IN WATER SECTOR UNDERTAKEN BY GOM

In above context, to overcome the poor scenario and improve the performance of irrigation project, following reforms were undertaken.

3.1.1 State Water Policy.

3.1.2 Water Pricing.

3.1.3 Maharashtra Management of Irrigation System by Farmers (MMISF) Act 2005.

3.1.4 Maharashtra Water Resources Regulatory Authority (MWRRA) Act 2005.

3.1.5 Restructuring Of Irrigation Development Corporations (IDCs) Into River Basin Agencies (RBAs)

3.1.6 Benchmarking & Water Auditing of Irrigation Projects.

3.1.1 State Water Policy

The state has prepared state policy encompassing state water scenario, challenges, strategies, approaches etc. The Maharashtra State is among first few states to have its own water policy. The policy has been framed considering diverse needs of different parts of the state, as state rainfall varies from 400 mm to 6000 mm as mentioned earlier. The policy emphasises on Integrated Water Resources Management (IWRM). The need for watershed management, ground water management, aquifer management is also stressed. The policy advocates river basin management. It also duly addresses drought management and measures to mitigate it. The use of new technology is encouraged in water resources management. The policy has innovative features such as water auditing, benchmarking of water resources projects, water entitlements etc. The state water policy is good example of visionary and down to earth approach.

3.1.2 Water pricing

It is necessary for the system to be self-sustainable; the water rates for both irrigation and non-irrigation should be such that annual water charges accrued should meet the yearly O & M expenditure fully. To achieve this objective, the water rates are enhanced in 2001 by about 2 to 2.5 times of earlier water rates, with built-in provision of 15% increase in water rates every year up to the year 2003. To cover O & M expenses, the water rates for non irrigation were further increased in September 2006. Now MWRRA is going to fix water tariff for diverse water use. At present stakeholders consultation is in progress to decide water rates.

3.1.3 Maharashtra Management of Irrigation System by Farmers (MMISF) Act 2005

Maharashtra has an age old tradition of participation of farmers in irrigation development, for example malgujari tank in eastern Vidharbha and phad system in Northern Maharashtra. In recent times also, the Maharashtra state is pioneer in Participatory Irrigation Management (PIM). There are successful examples of Water User Associations (WUA) in various parts of the state. With this background, Maharashtra Government has made it mandatory to the irrigation beneficiaries to form WUA. So far 4160 WUAs are registered on 1587856 ha. While 3422 WUAs covering 1160188 ha are under various stages of formation.

To empower the users and provide justice to tail-enders and weaker section of society, GoM had enacted the MMISF Act 2005.

3.1.3.1 Salient features of MMISF are as follows.

1) Water for irrigation will be supplied to WUAs only.
2) Water supply to WUA will be on volumetric basis.
3) WUAs will have freedom for cropping pattern.
4) Adequate representation to tail enders & women members is provided in the management committee of WUAs.
5) Simple procedure for formation of WUAs, now WUAs will be registered with the Water Resources Department.
6) Time bound programme of completion of rehabilitation work before transfer to WUAs.

7) All land holders or lease holders will be member of WUAs.

With the formation of WUAs and transfer of irrigation management to users, the job of water resources 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.

3.1.4 Maharashtra Water Resources Regulatory Authority (MWRRA) Act 2005

With growing population and water scarcity, there is growing competition among various sectors of water users. This leads to conflict among them. To overcome it, state had enacted Maharashtra Water Resources Regulatory Authority (MWRRA) Act 2005 & established a regulatory authority in August 2005. Mandate of MWRRA is to monitor & regulate water resources within the state, which will facilitate & ensure judicious, equitable & sustainable management allocation & utilisation of water resources. MWRRA is also responsible for deciding water rates through public hearing for diverse water users viz. agriculture, industrial, drinking & other purposes. It will also lay down criteria for trading of water so as to maximise the efficiency of water use. This regulatory authority consists of a panel of experts from water resources management, economist, and river basin representative and is headed by retired Chief Secretary. The regulatory authority has started their full fledged functioning with their own office in Mumbai. It is first such attempt in the country. All these reforms are progressive & will set a benchmark in management of water resources.

3.1.5 Restructuring of Irrigation Development Corporations (IDCs) Into River Basin Agencies (RBAs)

One of the key institutional reform initiatives of the state supported under the project is restructuring of the existing IDCs into RBAs with a view to strengthen the State's capacity in multi-sector planning and management of water resources at a river basin level. At present, there are five IDCs in the state (Maharashtra Krishna Valley Development Corporation (MKVDC), Vidarbha IDC, Tapi IDC, Godavari IDC, Marathawada IDC and Konkan IDC. These IDCs have Geographical jurisdiction based on river basin boundaries, and are mainly responsible for planning and development of new Surface water schemes for

irrigation/multi purpose use, construction of ongoing project and also management of existing schemes.

These corporations initially manned by the staff transferred from the ID and are used as vehicles to raise money from the market by issuing public bonds guaranteed by the State for the completion of on going new schemes. They are for all practical purposes under the administrative control of the ID.

In the context of the institutional reforms, these ID will be restructured into multi-disciplinary RBAs for the planning and development of the water resources in a given river basin including preparation /periodic revision of the river basin plans and intra sectoral allocation of water within their jurisdiction, management and operation of multi purpose water storage and ensuring water entitlements in given multipurpose schemes to various water using utilities/organisations.

In the beginning MKVDC will be restructured into an RBA called the Maharashtra Krishna Valley Water Resources Corporation (MKVWRC). Based on the experiences and lessons of the restructuring process of the MKVDC, restructuring of the other IDCs will be implemented by GoM.

3.1.6 Benchmarking & Water Auditing of Irrigation Projects.

3.1.6.1 Benchmarking of Irrigation Projects.

The state has been publishing status report of irrigation projects (schemes) annually. In search of State-of-art-technology, for performance improvement of irrigation projects, the state has been actively working on benchmarking of irrigation projects. The state has publishing report on benchmarking of irrigation projects since last five years. Maharashtra is the first state after Australia who is publishing report on benchmarking regularly.

Benchmarking exercise has provided insight into project performance, which has enabled to strive for best performing practice to improve the performance of the project. It has highlighted important area of improvement and has resulted into healthy competition among project authorities.

3.1.5.2 Water auditing of Irrigation Projects.

A comprehensive water accounting method is devised, with water accounting at project level as well as at last manageable unit i.e. section office level. The water account provides complete account of water covering every minute detail. After each season, the season-wise water use is compiled, then

at the end; annual water account is prepared. The water use efficiency arrived, is compared with the targeted one. The water account is first checked at Circle level and then it is submitted to independent organization named as Maharashtra Water Resources Department Center (MWRDC) set up within the department. The MWRDC scrutinizes the water account of each project and find out discrepancies as well as questions the projects authority for poor performance. MWRDC carry out water auditing of each irrigation management division annually as well as mid term, if needed.

Water auditing and Benchmarking of irrigation projects are inter-related. In order to have better understanding and monitoring of performance of irrigation projects, benchmarking and water auditing of irrigation projects is done by MWRDC. The adequate staff and infrastructure is provided to MWRDC. MWRDC directly reports to Govt. from time to time. MWRDC publishes annual report of benchmarking and water auditing regularly.

Benchmarking and water auditing of irrigation projects resulted in transparency, accountability among the management Staff and improvement in performance of irrigation projects.

4.1 IMPROVEMENT IN PERFORMANCE OF IRRIGATION PROJECTS:

The reforms initiated as discussed above have resulted in improvements in performance of irrigation projects. This can be manifested from facts and figures given below.

4.1.1 Improvement in Water Use Efficiency

Water use efficiency is area irrigated in unit Mm3, which is crucial in performance evaluation of irrigation projects. As the irrigation sector consumes 80% of water resources, an increase in water use efficiency will bring more area under irrigation or make water available for other sectors. Table-1 show details of irrigated area, water use and water use efficiency.

Table 1 - Status of water availability, actual irrigation and water use efficiency

Sr. No	Year	Designed water storage Mm3	Water availability on 15 Oct. Mm3	% available storage with designed	Water used for irrigation Mm3	Irrigated area on canal MHa	Irrigated area on (Canal & Wells) MHa	Water use efficiency (canal) Ha/Mm3
1	2001-02	28062	17817	63	12346	12.50	17.08	101
2	2002-03	28715	18936	66	12965	13.18	18.42	102
3	2003-04	28840	16941	59	10569	12.44	16.85	118
4	2004-05	28889	18298	63	10603	12.59	16.99	119
5	2005-06	29110	24860	85	13689	16.17	22.14	118
6	2006-07	29531	27309	92	20192	18.35	26.81	110

In year 2006-07 it can be seen that there is record irrigation on canal as well as well, with improved water use efficiency.

4.1.2 Improvement in financial performance

With the increase in water rates, simultaneous efforts were made for effective assessment and recovery of water charges. Table-2 below shows status of O&M assessment and recovery of water charges.

Table-2 Present status of irrigation assessment, O&M cost and recovery

Rs. in Billion

Sr.No.	Year	Total Irrigation Assessment	O&M Cost (Establishment + M&R)	Total Recovery	% of Recovery with O&M Cost
1	2001-02	4.54	4.5	2.52	56
2	2002-03	4.44	3.7	3.78	102
3	2003-04	4.53	3.33	3.79	114
4	2004-05	4.97	3.76	4.48	119
5	2005-06	4.18	4.53	4.13	91
6	2006-07	4.99	4.16	4.95	118
7	2007-08	6.74	4.66	6.27	134

It can be seen from the table 2 that, O&M cost including establishment cost is fully recovered through recovery of water charges, which is a step in the direction of sustainable development. Perhaps it could be first such example in the country to meet O&M cost through water charges recovery.

5.1 CONCLUSION

Irrigation is a key element for agricultural sector. The state has achieved a landmark in irrigation potential creation, but performance is utilisation of potential remains comparatively low. It was high time to work upon minimising gap between the two, and conserve irrigation water to make best use of available water resources.

The reforms in irrigation sector have received general acceptance. The State has adopted State Water Policy in 2003 the policy emphasizes on integrated Water Resources Management (IWRM) principle.

The State enacted Maharashtra Management of Irrigation System by Farmers (MMISF) Act in 2005 to empower Water Users Associations (WUAs) to operate and manage irrigation and drainage systems. The water use entitlements are provided to WUAs to ensure equitable distribution of water

resources. The supply of water is on volumetric basis, which will ensure efficient and economical use of water.

The State has enacted Maharashtra Water Resources Regulatory Authority (MWRRA) Act 2005. State has established regulatory authority in August 2005. It is first such regulatory authority in water sector in the country. MWRRA will monitor and regulate water resources within the State, which will facilitate and ensure judicious, equitable and sustainable management, allocation and utilization of water resources. MWRRA will decide water rates through public hearing for diverse water uses viz. agriculture, industrial, drinking and other purposes. The State has also initiated and institutionalized important reform like benchmarking and water auditing of irrigation projects.

One of the key institutional reform initiatives of the state supported under the project is restructuring of the existing IDCs into RBAs with a view to strengthen the State's capacity in multi-sector planning and management of water resources at a river basin level.

The state has been publishing status report of irrigation projects (schemes) annually. The state has publishing report on benchmarking of irrigation projects since last five years. Maharashtra is the first state after Australia who is publishing report on benchmarking regularly.

A comprehensive water accounting method is devised, with water accounting at project level as well as at last manageable unit i.e. section office level.

Its successful implementation has resulted in improvement in performance of irrigation projects. The reforms have also improved financial performance of irrigation project, with O & M expenses being recovered through water charges. With all-round reforms in water resources management and its successful implementation, Maharashtra State has emerged as one of the best performing state in India.

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