Reforms for End-users based Irrigation Management: Insight from Central India

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ABSTRACT

The irrigation sector plays a vital role in food production and rural economy. Realizing this, reforms are undertaken world over to modernize irrigation systems. One of the approaches followed in modernization is decentralization of irrigation management functions. This paper discusses the implementation of Irrigation Management Act in Central India where the responsibility of irrigation management was partially transferred to the end users through formation of farmers' organizations. Emphasis is given to the administrative, governance, institutional and financial reforms carried out as per the act, and the impact these reforms had on irrigation management. The paper shows that the success of such reforms is highly dependent on the effectiveness of program execution and the financial resources available with the government. Such programs will reap intended benefits, if the end users for managing irrigation functions are involved in more effective manner with greater autonomy and delegation of powers. Also in lieu of paucity of government funds to carry out such programs on large-scale, alternative institutional models can be considered to further improve the overall efficiency and management of the irrigation systems.
Key Words: Central India, reforms, decentralization, irrigation management transfer, end users

1. INTRODUCTION

Agriculture and irrigation sectors have always been a prime focus world over for reforms because of their importance in world economy and farmers' livelihoods. The World Bank has lent some 35 billion US dollars for irrigation development or an equivalent seven per cent of all its lending since 1950's (Plusquellec 1999). In spite of such huge investments, irrigation sector continues to be trapped in a vicious circle. It has been observed worldwide that lack of basic infrastructure for irrigation, poor maintenance of existing systems, and reducing government investments on repair and rehabilitation (R&R) of systems have been the major precursors for the irrigation reforms (Vermillion 2001, Gulati et al. 2005, Madhav 2007). Irrigation reforms started as early as 60s in Bangladesh and USA, 70s in Mali, New Zealand and Colombia, and 80s in the Philippines, Tunisia and Dominican Republic. The new century interventions have taken place in Sudan & Pakistan (2000), India (late 1990's), China (2002) and more recently in some of the Central Asian countries. Presently more than 60 countries in the world have

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undergone some type of irrigation sector reforms (Munoz et al. 2007). These countries constitute around 75% of the world population and some 80% of its irrigated area (FAOSTAT 2003).

One of the major irrigation reforms carried was irrigation management transfer (IMT). Under IMT attempt is made to decentralize irrigation management functions, which included active involvement of end users in irrigation management. This is affected through the formation of local level institution formally called as water users association (WUA)[3].

However, experiences with IMT show mixed results. In some countries it resulted in improved system performance and increase in irrigated area, whereas in other countries not much positive outcomes were realized. Lesson learned from the survey on 44 IMT programs worldwide suggested that the future IMT programs should concentrate on the following aspects: a) WUAs & irrigation agencies need substantial capacity development; b) IMT programs need systematic public awareness campaigns, consultations & involvement of all key stakeholders; c) IMT should be tailor made & flexible; and, d) checks & balances should be created to ensure that WUAs act according to the members' interests (Munoz et al. 2007). IMT experiences in the Indus irrigation system of Pakistan has demonstrated that lack of role clarity between different organizations after transfer, insufficient experience and resources for water users mobilization, lack of democratic approach for establishing WUAs, political involvement and fear of loss of authority of government departments have been the major factors responsible for poor progress in implementing participatory irrigation management models (Khan et al. 2007).

Pant (2007) based on the experience from India short listed conditions of success for IMT, which included: a) criticality of water; b) able local leadership; c) provision of incentives; d) democratic functioning of end users institutions and e) close involvement of key stakeholders. Two action research projects in seven irrigation schemes across India, Nepal and Kyrgyzstan demonstrated that to improve irrigation governance and water distribution by end users, provision of appropriate legal, financial and political environment is must (Howarth et al. 2007). Hodgson (2007), while commenting on Government of Iran/World Bank funded Alborz integrated land and water management project also emphasized the need for proper legislation for the sustainability of WUAs.

In recent times there has been growing voice in favor of involving private service providers in irrigation management. A few countries namely, Niger and Senegal in West Africa (Hermiteau et al. 2001), and some parts of Chile and Mexico (Turral 1995) have even gone ahead with public-private (involving service provider) partnership model in irrigation management. But it was just not possible to replicate this arrangement in many other places mainly because of the political economy associated with irrigation and agriculture. It still remains to be seen,

[3] WUAs are farmers organizations (FOs) involved in management of irrigation system.

whether transfer of irrigation systems to the end users is the only solution or whether involvement of private agencies or a combination of both can also work.

2. REFORMS IN INDIA'S IRRIGATION SECTOR

In India, various policy reforms have been carried out over the past decade in water sector including irrigation. This is primarily because: a) water is becoming increasingly scarce in many regions, & requires judicious management; and, b) country's surface irrigation systems are deteriorating. As per estimates, of all the uses of water in India, irrigation is a major consumer. Figures indicate that annual requirement of water for irrigation alone in India will go up from 541 Billion Cubic Meter (85% of the total annual water requirement) from the 2000 levels to 910 Billion Cubic Meter by 2025 at the current levels of efficiency (20-50%) (Source: Indiastat). Major problems facing Indian irrigation sector include: a) declining investment on maintenance; b) low levels of system efficiency; c) poor financial working; and, d) low quality, reliability, & system-wide equity. Further, there is a competing demand for water from other sectors. Therefore our ability to address future water scarcity problems and conflicts over the use of water would depend heavily on how we manage irrigation sector (Kumar 2007).

It was thought that to improve the overall situation in irrigation management, important is to involve groups of end users or farmers in the operation and maintenance of the conveyance system, which can improve irrigation efficiency, generate a sense of ownership among farmers towards canal system and improve the irrigation charge recovery rate. This laid the foundation for irrigation management transfer (IMT) in India. IMT started mainly as a Participatory Irrigation Management (PIM) movement[4]. As a result, various state governments enacted PIM legislations. These states include: Andhra Pradesh, Chattisgarh, Gujarat, Madhya Pradesh, Maharashtra, Orissa, and Tamil Nadu. However, mere enactment of legislation does not assure solutions to the problems circumscribing the country's irrigation sector. Even after the completion of the eighth and ninth five year plans, there was no pronounced effect in the net irrigated area through canals. Similar trends were noticeable for quality of maintenance of conveyance systems, timeliness and equity in water distribution (DSC 2003), and efficiency in fee collection. This was the situation despite emphasis for both government investments in irrigation and involvement of end users in irrigation management.

Research studies have shown that even after the enactment of IMT act in various states, performance of transferred systems has improved only marginally (Parthasarathy 2000, van Koppen et al. 2002). Some of the reasons for this are: a) haste in creating farmers' organizations without any capacity building of

[4] Participatory Irrigation Management (PIM) refers to the involvement of irrigation users in all aspects and all levels of irrigation management. "All aspects" includes the initial planning and design of new irrigation projects or improvements, as well as the construction, supervision, and financing, decision rules, operation, maintenance, monitoring, and evaluation of the system (Source: World Bank).

farmers as found in Andhra Pradesh; b) transfer of systems without necessary repair and rehabilitation (R&R) work as found in Gujarat and Maharashtra; and, c) lack of appropriate legal back up for end user organizations as found in Punjab and West Bengal. In the past, researchers have focused on the performance of farmers' organizations but not much on the act or policy, which shaped the organizations. In order to understand the factors that lead to success or failure, it is critical to look into formulation and implementation of PIM acts.

Thus role of legislation and people who implement those laws becomes important. Act and policies will always be effective if they are formulated and implemented as per the local needs and priorities. Therefore it is important to keep in mind the following: For what purpose the act is being designed? Who will be the stakeholders? Who will implement it? What will be the role of policy makers in its implementation? Often the act formulation and implementation are considered as unrelated activity. But this notion does not hold true in practicality. This dichotomy can actually impact the policy outcome in significant way. May be the policy gets implemented in a way which was not thought of originally. With this view, this research paper highlights the PIM policy process followed in central India.

3. OBJECTIVES AND METHODOLOGY

The objectives of the research are as follows: 1] Identify the driving forces and original idea behind policy formulation for IMT; 2] Analyze the process of implementation of IMT policies; and 3] Assess the reforms carried out during the implementation. As regards implementation, major emphasis was given on the administrative, governance, institutional and financial reforms carried out under the act.

The state of Madhya Pradesh (MP) in central India was selected for the study. MP was chosen as it is the only state in central region having made major progress on IMT front. Purposive sampling was followed for the selection of respondents, which included government officials, academicians, NGO's personnel and farmer's representatives from the WUAs. Two different kinds of schedules were developed. One was used for interviewing the selected government officials (irrigation department officials)/academicians/NGO representatives involved with PIM process and other for the selected farmers from WUAs. Focus group discussions were carried out with selected WUA representatives to have their views on the PIM act formulation and implementation in the state. Government records, research papers, working papers and articles were used for reference and secondary data.

4. IRRIGATION MANAGEMENT TRANSFER IN MADHYA PRADESH

Madhya Pradesh has a total irrigation potential of 6.72 million hectares (m. ha). Of this, the potential already created is 2.45 m. ha. However, the potential utilized is only 38%, i.e., 0.94 m. ha (as per 2006-07 figures). The main reasons for such heavy underutilization were system deficiencies, deferred system maintenance, lack of funds to meet O& M cost and non-involvement of farmers in irrigation management (Agrawal 2005, Pandey 2006). To resurrect the overall situation, policy reforms were conceived and PIM act was enacted in 1999. The dual purpose was to improve system condition and involve end users in irrigation management. However, even after nearly 10 years of its existence, hardly any literature is available on the progress and achievements of IMT in the state, except for the case studies on Samarat Ashok Sagar Project, district Vidisha, MP (Pangare et al. 2003, Pandey 2006). The present study attempts to bring out some unstated and interesting facts. They are discussed in the subsequent sections.

4.1. Reforms in the past

Before formulation of PIM act, MP government took several other initiatives to have farmers' involvement in irrigation management. They established the Irrigation *Panchayats* (IPs) in early 1984-85 under MP Irrigation Act, 1931. The functions of these IPs, their rights and duties were not clearly defined under the then existing MP Irrigation Rules, 1974. Consequently these IP's became defunct.

Subsequently in 1994-95, Farmers Management Committees (FMCs) were formed on pilot basis. Their design principles were very much similar to the farmers' cooperatives in the state of Gujarat and Maharashtra. These FMCs were registered under the Cooperative Society Act of the MP state. But these FMC's were not able to deliver goods as expected of them, and they did little to involve farmers in irrigation management. The success of farmer's irrigation management committees in Gujarat and Maharshtra was because of history of strong cooperative movement in these two states. But in MP there was no such initiative in past and consequently these FMC's became obsolete.

4.2. Formulation of MP PIM Act, 1999 and its implementation

Drawing on the experiences from two earlier attempts of involving farmers in irrigation management, it was considered important to create an enabling legal framework before going ahead with IMT. IMT legislation also received major thrust because of the then Chief Minster's inclination towards participatory approach for natural resource management. For accomplishing the formulation of the irrigation management act, necessary environment was created in the state by discussions and interactions between beneficiaries' farmers and public representatives. This formed the foundation for PIM act formulation. There was

no involvement of civil society organizations in these initial stages of policy formulation. The irrigation department (now water resources department) had the responsibility to provide suggestions for the formulation of PIM act by looking at the procedure followed worldwide and within the country. The experiences with farmer- managed irrigation systems in Mexico, Philippines, and India (Andhra Pradesh, Gujarat and Maharashtra) were studied. Finally, the government decided to formulate an act similar to Andhra Pradesh PIM act with modifications as per the regional settings in the state.

Detailed institutional processes were initiated leading up to the initial draft of MP PIM act. A core committee consisting: a) officials from water resources department (WRD); b) officials from all line departments such as water and land management institute (WALMI), agriculture department, rural department; and, c) academicians was made. This committee was empowered with providing inputs and suggestions at the various stages of act formulation. Several meetings and discussions were held with the progressive farmers about the need and importance of PIM act for the state. Some farmers supported the idea whereas majority of them expressed concerned about their capacity to manage irrigation systems, which WRD has not been able to manage for last 50 years.

Finally in 1999 MP PIM act called as "Madhya Pradesh *Sinchai Prabandhan Mein Krishkonka Bhagidhari Adhiniyam* 1999" was brought into force for the entire state. The rules for act implementation were passed in the same year (Madhya Pradesh Farmers Organization Rules, 1999). The Act provides for three-tier farmers' organizations (FO's) for irrigation management. The lowest tier in the institutional hierarchy is water users' association (WUA) at minor canal level of the irrigation system, secondary unit is distributory committee (DC) at distributory canal of the irrigation system and tertiary unit is project committee (PC) at the whole irrigation project level. By default, all farmers having irrigable land in the jurisdiction of the WUA has to be its member. Structurally every FO was supposed to have a management committee and a general body of all the members. The term of office of the chairperson, president and members of management committee was five years. By the year 2000-01, management committees of 1470 WUAs, 90 DCs and 57 PCs were formed through the election process. Elections for the second term of WUA management committee were held in 2006. However, election for the second tenure for the management committees of DCs and PCs were still to be held.

4.3. Financial support for the PIM implementation

During the initial stages of PIM implementation, all the financial support was provided by the MP government. After the first FO's election in 2000, an operation and maintenance grant (O&M) @ INR 40/ha was provided to each WUA to make them functional. From 2004-05 this grant was doubled. At present INR 90/ha O&M grant is given to the WUAs at major and medium irrigation projects and INR 80/ha is given to the WUAs at minor irrigation project. In

addition to this, a sum of INR 5000/annum is being provided to the WUAs for their administrative expenses. A daily wage staff @ 1 person per 200 hectares is also provided to WUAs to assist them in repair and maintenance of minor canal.

In 2002, MP government received financial support from the Indo-Canada Environment Facility (ICEF) to speed up the process of implementation of PIM in the state. This support was for the duration of four and half years to assist in the physical work on the transferred irrigation systems and capacity building of both WRD officials and farmers. Under the project, 1 major (*Samrat Ashok Sagar*), 3 medium (*Koncha, Chappi & Satak*) and 3 minor irrigation schemes (*Gora, Birsagar & Segwal*) were selected. Noticeable clause in the project was related to the total expenditure on the execution. Under the clause, 50% of the total expenditure was contributed by ICEF, 20% by state government and 30% by the farmers. However, because of farmers' inability to contribute the 30%, the proportion was later changed to the ratio of 50:30:20 and again to 60:30:10. In total of about INR 111.3 million was spent over four and half year of ICEF project execution.

After the completion of ICEF project, state government has now received a World Bank support under the MP Water Sector Restructuring Project. This project has a financial support of INR 19.19 billion and will cover the five river basins in the northern part of the state. This project is for period of seven years (2005-2011) and has a major focus on modernization of irrigation system and effective implementation of PIM act in the state.

5. REFORMS CARRIED OUT FOR THE ACT IMPLEMENTATION

For effective implementation of the act, various administrative, governance, institutional, and financial reforms were carried out by the state government. In addition, necessary amendments were made to the act. They are discussed in the subsequent section of the paper.

5.1. Administrative reforms

Major reforms were carried out at the administrative level. For efficient monitoring and evaluation of PIM activities, a separate PIM directorate was formed within the WRD in the year 2000. In addition to this, one superintending engineer from the office of chief engineer and one assistant engineer from the office of executive engineer (EE) were nominated as nodal officers of PIM. The main responsibility of the nodal officers is to collect information regarding various WUA activities and compiling a progress report. District collector was made responsible to oversee the monthly progress of each WUA. For each district, one EE was made the nodal officer to assist district collector for review meetings.

In accordance with the PIM act, competent authorities were deputed to different farmers' organizations. The main responsibility of the competent authorities is to

act as a coordinator between the government departments and the farmer's organizations. Sub engineers were also responsible to assist WUA in preparation of detailed list of work to be undertaken by them and in preparation of estimates for the same. However powers of giving technical clearance for the works to be undertaken by the WUAs dependent on higher authorities, and was based upon the scale of work identified by WUAs.

5.2. Governance reforms

Complete authority for monitoring all the PIM activities in the state was given to PIM directorate. The directorate was also made the nodal agency for carrying out various trainings to FOs members and WRD functionaries' involved in PIM implementation. These trainings were aimed at equipping the key stakeholders to perform their roles effectively under the new regime of irrigation management. District collector was empowered to delineate the command area under each of the irrigation system in the district to be transferred to the WUAs. This delineation was done on hydraulic system considerations. Similarly delineation of command areas for DCs and PCs was done by the state government in consultation with district collector. District collector was also made responsible for the election of management committee members of FOs.

A sub engineer was appointed as a competent authority for each WUA and as an ex-officio member of the WUA. In addition to the sub-engineer, one WRD staff from administrative cadre and one staff from agriculture department was also made ex-officio member of the WUA. For the collection of water charges, a staff from WRD called as *Amin* (a lower level official who collects water revenue in villages) was made responsible. Thus, control over collection of irrigation charges from farmers still remained in the hands of WRD.

5.3. Institutional reforms

The major institutional reform was the formation of farmers' organizations itself. A three tier structure of WUA formation was followed. The details about their institutional structure are already presented in section 4.2. Major responsibilities given to farmers organization included: a) preparation and implementation of *warabandi*[5] schedule for each irrigation season; b) preparation of plan and carrying out maintenance of irrigation system in the area of its operation; c) monitoring flow of water for irrigation; d) resolving disputes arising in between the members and the water users in its area of operation; e) maintaining accounts; f) assisting in the conduct of elections; and, g) conducting various meetings at appropriate time intervals. At present *warabandi* system is not followed in any of WUAs but as per WRD officials it will soon be implemented.

[5] *Warabandi* is a system of rotational turns through which each shareholder in a watercourse obtains his or her water supply.

Capacity building of the WRD officials in various ranks and WUAs representatives was also carried out during the act implementation. In the first phase (March 2000), training of 120 assistant engineers was conducted by WALMI. The main purpose was to enable them to educate lower functionaries of WRD and office bearers of WUAs about the objectives and provisions of MP PIM Act and rules. In the next phase (May 2000), WALMI conducted capacity building programs for the WUA presidents/members and lower functionaries of WRD to educate these people regarding the implementation of the PIM act. In addition, regular workshops/exposure visits were organized for WUAs presidents/members and the competent authorities. The main agenda of the workshops was to discuss and solve problems that arise while implementing the PIM program.

5.4. Financial reforms

The details of financial assistance provided to the WUAs were discussed in section 4.3. In addition, irrigation rates were revised after the PIM act came into effect. First revision was done in the year 1999, followed by one in 2002 and another in 2005. Revisions in 1999 and 2002 resulted in substantial increase in irrigation charge (water rates) for different crops. For some of the crops irrigation charge increased by as high as 850% (for paddy crop grown in *Rabi*[6] season in 2002 as compared to that in 1992). In 2005, state government decided to keep irrigation charges as per number of waterings given to different crops. Before that, the charges were based on irrigated area, and were irrespective of number of waterings. Thus financial reforms of 2005 increased pressure on farmers. Although state government is continuously making changes in the irrigation rates, it does not support revenue recovery. At the beginning of the financial year 2006-07, arrears for the recovery amounted to INR 4,200 million.

6. DISCUSSION

Quite often policies are made to improve the situation or in response to the problems faced by the communities at large. In the context of the paper, we are looking at the IMT policy adopted by the state to put the poorly performing irrigation schemes on track. In this section, we use literature from a variety of sources to discuss the IMT policy process followed in the state of MP.

6.1. Outcomes of PIM existence in MP

Out of the total created irrigation potential of 2.45 million hectare (2006-07) only 1.69 million hectares have been transferred to farmers' organization. These are the figures when government claims to have implemented PIM in the entire state. Further, the net irrigated area by canals in the state remains only at 1090.9 thousand hectares (2006-07) (Source: Directorate of Economics & Statistics, MP). So, there is an obvious gap between the potential utilization even after the

[6] *Rabi* refers to winter and *kharif* refers to monsoon sowing season.

large scale reforms in the state. Strong correlation was observed between the irrigation and water revenue collected. In 2003-04 and 2004-05 when there was improvement in the net canal irrigated area, irrigation revenue collected was higher compared to previous years. But, overall irrigation revenue recovery remains low, averaging only 56% from 1998-99 to 2008-09.

In terms of number of farmers' organizations formed and irrigable command area (ICA) transferred to them, no significant increase was observed between the two election terms (2000-01 and 2006). Number of farmers' organization increased only by 13% and ICA under FOs' only by 12.5% during this period. This was quite expected, as focus of PIM during this phase was only on the improvement on the seven irrigation schemes selected under the ICEF supported project.

6.2. Model for policy formulation

Discussions with the key respondents involved in PIM process on the manner in which act was formulated, it seems incrementalist model of policy formulation was followed in the state. Incremental model simply refers to change "by small steps". Under the approach, small number of alternatives are looked into for dealing with the problem and finally an option is selected which differs only marginally from the existing policy (Lindblom 1980, Sutton 1999). Development of PIM act in MP followed the same route. In response to the problem of poor irrigation system performance, the state decided to go for some policy reforms. In the event, IMT as made operational worldwide and in Indian states of Gujarat, Maharashtra and Andhra Pradesh were also looked into. Finally MP PIM act was drafted in close line with AP PIM act with some modifications as per the state socio-political environment, nature of hydraulic systems, investment need and agriculture pattern. This kind of policy making phenomenon is generally "less rational" with actors (refer to policy makers) taking into consideration only limited analysis and factors. Lindblom (1980) bring forth this type of policy making process but often the approach is criticized because of its focus on the short-run period and pessimistic decision-making not bold enough to look at long term.

6.3. The policy community

The policy community is a group of technical experts who have access to privileged information and ideas. These individuals can be from research communities, NGO's etc. These communities have powerful influence on policy making process. In the course of PIM act formulation in MP, senior experts from WRD played the most important role of epistemic community. These senior experts were those, who actually looked into the IMT process worldwide and finally guided the PIM policy drafting for the state. They also enjoyed full support of the then Chief Minister who had an interest in participatory and decentralized resource management. This created a favorable environment in the state for the sound relationship between the WRD experts and bureaucrats in coming up with the PIM act. Some meetings were held with the selected farmers before the

finalization of the act mainly to understand how they would take up the new change. These meetings were a few and only done with selected individuals. It can be inferred that the policy formulation process did not pay attention to the perception of majority of stakeholders. Views of NGOs and any other civil society organizations were not taken into account during this stage. NGOs were only involved in later stages (ICEF funded project) and that too as a necessity under the funded project.

6.4. Execution of change

One of the most important aspects after policy formulation is how the change will be implemented. The change has to go through various stakeholders i.e., WRD officials and farmers in this particular case. As per the force field analysis theory[7], for any change to be brought in there has to be driving forces, which push for change and resistance forces that act against change. For any change to be successful, either, driving forces need to be increased or resistance forces need to be decreased. In the case of PIM act implementation in MP, we tried to identify the nature of both these forces.

It was observed that government was able to implement the act because of driving forces created through the political will of the then Chief Minister, backing of senior WRD officials mainly to improve the irrigation system and bureaucratic backing because of political support. These "driving forces" outweighed the "resistance force" in the form of opposition from majority farmers' to take up the system management because of its poor infrastructure and unreliable irrigation water supply. These driving forces also outweighed the resistance from within the lower level staff of WRD, which was mainly on account of their fear of losing power and control over the system once act is implemented.

Opposition to any change may be because of a variety of reasons. Majority of farmers opposed implementation of PIM Act because of their lack of trust in WRD works and the lack of confidence in their own ability to manage a system which WRD has failed to do in past 50 years. Lack of understanding and information about the benefit of PIM among farmers initially was also a major constraint. Whereas fear of lower level staff of WRD was more because of threat to their status i.e. what will be there role once the system would be handed over. But, since the act implementation was done more in top down approach, government was able to overcome this resistance. However, it took nearly 5-6 years to make farmers fully understand about their role in the irrigation management. This became possible more because of external funding provided by ICEF for capacity building during 2002 to 2007. After the second election in 2006, new WUA management committee again looked confused about their role, and their capacity building has becomes necessary. How WRD will address these issues in future, needs to be seen. The best thing observed in the PIM act

[7] Force field analysis is a systematic method of understanding competing forces that increase or decrease the likelihood of successfully implementing change.

implementation was that the experts or the officials who were involved in the act formulation made sure that its implementation is also done under their guidance.

6.5. Are reforms which were undertaken rational?

Various administrative and governance reforms carried out under the Act, suggested significant involvement of WRD officials within the WUA working, be it *Amin* collecting water tax from the irrigators, WRD canal operator regulating water use, ex-officio members from WRD and agriculture department in the managing committee of WUAs and other higher ranks WRD officials in charge of granting technical sanctions to the WUAs, WRD has a big presence in WUA functioning. As per the World Bank definition, "PIM refers to the involvement of irrigation users in all aspects and all levels of irrigation management. 'All aspects' includes the initial planning and design of new irrigation projects or improvements, as well as the construction, supervision, and financing, decision rules, operation, maintenance, monitoring, and evaluation of the system". But looking at the way MP state has gone about implementing PIM, most of these functions still remain with WRD. WUA's role is only limited to maintaining the irrigation system and motivating farmers to pay irrigation tax.

But, the WUAs' role in functions such as operation of the existing irrigation systems, making of irrigation schedules for the different crops, and collection of water tax remains open to question. At present, these functions are not transferred to them. Discussions with WRD officials suggest that they want to gradually transfer all irrigation management functions to the WUAs'. However, now that PIM act has been in existence for a good 10 years in the state and the situation remains more or less same. Can we call it a PIM? If yes, then is MP government pursuing IMT just to recover the irrigation charges and with a larger objective of reducing their costs on system maintenance.

Financial reforms (mainly relating to irrigation fee) in 2005 hint at government initiative to restrict excess use of water for irrigation. These reforms were also a step towards charging farmers on the volumetric basis and making them realize the importance of judicial use of water. But, the irrigation charge recovery rate in the state does not show encouraging results. Therefore, the success of such kind of financial reforms is highly questionable. One can infer from the above discussion, that although the administrative and governance reforms were carried out to affect changes in bureaucracy, institutional reforms were not complete for WUAs to have autonomy, greater responsibility and incentive for irrigation management.

6.6. Role of external aid?

External aid driven projects are often found to have limited success. It is mainly because at one stage, the aid will stop and the process will get back to zero. At that stage, either community has to take the responsibility or people should look

for more funding or rely on government funds or just move as per the original pace of things. Although we are not critical of external aid, the community being driven into the implementation of welfare programs, there should be some crafted rules and procedures, which keep the established systems in working condition even after the aid stops. Looking at the progress in PIM implementation in MP, apart from creation of farmers' organization at three levels, nothing substantial came out in the first 3-4 years of implementation. Only with the ICEF funding and involvement of NGOs alongside WRD, we saw some positive results. But, that is also restricted to just seven projects. Now again we presume that with the World Bank funding for MP State Water Restructuring project, some break through will be achieved. This fund is also restricted for the projects located in the northern river basins of the state. The question is for how long we will continue to depend on external support. If state government is not able to generate funds within the system, and continues to depend on external aids, will the system survive? Do we have to find some other way of proceeding with IMT, may be by involving some private operators. The alternative institutional models like public-private partnership mode in irrigation management as experimented in some parts of China, Senegal, Egypt and Saudi Arabia (World Bank 2007) need to be explored by the policy makers.

Discussions in above sub-sections (6.1-6.6) clearly highlights that success of PIM in MP is still very far. Although state government is busy with implementing various PIM schemes, farmers are not satisfied with the current format. They want to have greater role in decision making and maintenance of canal system. Farmers believe that unless there is complete involvement, they won't be able to improve the system performance or for that matter ensure equity in access to water across the command area. WRD on the other hand feels that if farmers are given all the responsibilities, things will become more messy and complicated. For them it is necessary to have WRD involvement in the functioning of WUAs if positive results are to be seen. WRD also fears that if complete transfer is done including the irrigation revenue collection power to WUAs, they may start behaving like a political entity (like *Panchayat*) and then it will become much difficult to monitor and supervise their work.

7. CONCLUSION

Policy implementation is an evolving process and requires consensus building, participation of key stakeholders, contingency planning, resource mobilization and adaptation. All these need to be managed properly. Newly formulated laws, acts or policies often bring about changes in roles, structures and incentives of implementers, direct beneficiaries and other stakeholders. Thus, any policy implementation should proceed in a very careful way. Looking at the MP PIM act formulation and implementation, we see that more of a "top down approach" was followed, especially during the initial years (1999-2003). This approach created number of resistance forces both within and outside the policy process system and resulted in little success in terms of benefits to community. Although the

model adopted for policy formulation, the “incrementalist model”, was not rational but surely one, which was politically feasible under the system.

It appears from the foregoing analysis that the administrative, governance and institutional reforms for promoting effective farmer involvement in irrigation management were not adequate. Partial delegation of power and responsibilities to the WUAs resulted in limited success from the PIM. From the discussions with the farmers, it was quite clear that the limited role offered to them and greater involvement of WRD officials in their functioning are becoming stumbling blocks to generating greater impact in terms of improvement in the overall irrigation system performance. Further, the success of PIM seems to be heavily dependent on external aid. If there is financial support, stakeholders are sure of positive results but without it, no one seems to be confident. Even the financial reforms carried out as per the act look out of place and irrelevant.

Effective management of irrigation system requires going beyond the single policy solution to a more refined approach that takes into account the local physical, social and economic conditions (Meinzen-Dick 2007). Thus, the present MP PIM act needs to incorporate a few changes, which are more suitable for the end users. Other ways for promoting farmer management can also be considered. At present private sector involvement in irrigation management is being given due consideration in many parts of the world. In India too, corporate involvement in telecommunications, retail segment, electricity, agro-forestry etc. have produced positive results both in terms of quantum and quality of services provided. It may be appropriate to think of private sector involvement in main system management, to start with. But, this will only happen if there is favorable policy environment, and there are no political bottlenecks. In privately managed irrigation systems, farmers would eventually pay more for the services offered. But, the increased burden caused by the higher irrigation cost can be made up from the increase in the net farm returns on account of improved quality in delivery of irrigation water. This can be one of the ways of doing IMT differently. Some thoughts can be given to improvements in current reforms and policies to make them more effective and acceptable to the beneficiaries.

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