



PIM/IMT: CONDITIONS OF SUCCESS IN LARGE CANAL SYSTEMS OF INDIA

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ABSTRACT

Large canal systems in India contain nearly 40 percent of country's total irrigation potential of 94 million ha, a substantial part of which, remains unutilised. The main reason behind the lack of utilisation is the ill maintenance of irrigation systems, particularly micro systems at lower levels and those at the farm level. Faced on the one hand, by the near collapse of such irrigation systems and on the other, utter financial crunch, administrators are susceptible to donors like World Bank and Asian Development Bank, who are currently coming forward with funds with the conditionality of PIM. Coupled with this alluring prospect is India's experience of the last three decades with the concept of PIM. The scenario that exists in India provides both an opportunity and challenge. The paper based on the author's experience as a researcher/consultant cutting across country's cultural and geographical boundaries, short lists conditions of success of PIM along with a close scrutiny and analysis of the impediments that impinge on its path. Although the examination takes into consideration all the Indian states where PIM is being implemented, a lot of illustrations have been drawn from the state of Maharashtra mainly because its strategy appears to be the most pragmatic and sustainable. In conclusion, it could be safely said that although the conditions of success and the impediments discussed in this paper are in the context of India, the same are applicable to all countries that are aspiring to achieve success in this respect.

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Abbreviations and Glossary

AP	Andhra Pradesh
CADA	Command Area Development Agency
CCA	Cultural Command Area
Chak	Land Holding
DSC	Development Support Centre
FMIS	Farmers Managed Irrigation Systems
GOI	Government of India
GOM	Government of Maharashtra
IDE	Irrigation Department
IMT	Irrigation Management Transfer
Kharif	Wet season (June – October)
MOU	Memorandum of Understanding
PM	Madhya Pradesh
MOWR	Ministry of Water Resources
NGO	Non Government Organization
Osrabandi	Fixation of Turn
PACT	Project Activity Core Team
PIM	Participatory Irrigation management
Rabi	Dry Season (October-March)
SOPPECOM	Society for Promotion of Participatory Ecosystem Management
Thok	Cluster/Group of Land Holdings
UPID	Uttar Pradesh Irrigation Department
UPWSRP	Uttar Pradesh Water Sector Restructuring Project
USAID	United States Agency for International Development
Zaid	Summer Season (April- June)

INTRODUCTION

The British colonial rulers were not oblivious to the role of local community in the operation of works for irrigation. On the contrary, a long series of 19th century British administrators saw local organisations as central to the success of virtually all irrigation works. But they also saw local community within a distinctive framework, which had critical implications for the future of irrigation (Gilmartin 1999, 238). This is no coincidence that the Northern Canal and Drainage Act, 1873 conferred the rights of distribution of water with beneficiaries who were supposed to fix and apportion their shares of water by mutual agreements. Only in case of disputes were the beneficiaries required to apply to the Executive Engineer for an *Osrabandi*. As far back as the year 1890, cultivators started submitting written mutual agreements to the Executive Engineers. These agreements were for sharing of water, on a day-wise basis, amongst them. Three types of *Osrabandi*, namely, *chak-wise*, *thok-wise* and village-wise could be prepared according to the convenience of cultivators. Even today the *chak-wise osrabandi* is in vogue in the old canals of western parts of Uttar Pradesh (Pant and Verma 1983, 26).

PRESENT SCENARIO

Large canal systems in India contain nearly 40 percent of country's total irrigation potential of 94 million ha. The staggering rise in the cost of creation of irrigation potential can be gauged by the fact that in comparative nominal terms, the public sector outlay has risen from an average of Rs.¹ 900 million per annum during the First Plan to over Rs. 650,000 million in the Eighth Plan (Vaidyanathan, 1999, 56-58). Despite the overwhelming increase in the outlay all these years, the management of canals has remained highly inefficient leading to an ever-increasing gap between the created potential and its utilization. The main reason behind the lack of utilisation of irrigation potential is the ill maintenance of irrigation systems, particularly micro systems at lower levels and those at the farm level (GOI 2003, 676-77). Faced on the one hand, by the near collapse of such irrigation systems and on the other, non-availability of funds leading to a severe financial crunch, the answer is being found in PIM. International donors like the World Bank, Asian Development Bank and other donor agencies are currently coming forward with funds with the conditionality of PIM/IMT. Coupled with this alluring prospect is India's experience of last three decades in respect of PIM/IMT².

EVOLUTION OF PIM

During the last three decades, the concept of participatory irrigation management (PIM) in India has passed through four distinct phases. Starting from around 1975 and for about a decade until 1985, the emphasis initially was on creating outlet based water user

1- Rs. stands for the Indian currency rupees and one US \$ is equal to about Rs. 45.

2- The man behind the idea of the present-day PIM and irrigation co-operatives in Maharashtra was the legendary civil engineer M. Visvesvaraya, who as early as 1902-03 had advocated establishment of such co-operatives in respect of Khadakwasla canals while working as Assistant Engineer in the then Bombay state. The two earliest water user co-operatives were established in the 1930s. The first one, Saswad Mali Society, was established in 1932 in Pune district. The second, Samvastar Vibhag Water Supply Co-operative Society was established in 1936 in Ahmednagar district.

organisations. Later on researches were conducted leading to support for PIM as a pragmatic solution for equitable distribution of water among the irrigators, maintenance of water conveyance micro structures and resolution of conflicts amongst the water users. During the second phase (1985-90), the emphasis shifted to experimentation with PIM. During this period, MOWR, GOI, World Bank and USAID aided and assisted in the establishments of pilots, while NGO's played a catalytic role in mobilizing farmers and sustaining the pilots. The third phase starting from early 1990s has seen the emergence and propagation of the idea of hand over/turn over of management of irrigation systems/ sub-systems (distributaries/minors) to the irrigating farmers. This was started in Maharashtra in the early 90s (Pant 1999), followed with India's first FMIS Act in AP in 1997. At least six states (AP, MP, Chattisgarh¹, Rajasthan Karnataka and Orissa) have now enacted legislation that makes PIM a statutory requirement to get access to irrigation water. WUAs have grown up in almost all other states and many of the states are in the process of enactment of similar legislation. The fourth phase starting from 1997 marks the emergence of donor funding for restructuring India's irrigation sector with PIM/IMT as a core programme. The scenario that exists in India provides both an opportunity and challenge.

The two PIM models available are Andhra model and Maharashtra model. The former represents a top down approach where an Act was passed in a relatively short time and a large number of WUAs were established swiftly. However, the autonomy and sustainability of WUAs is being questioned both by academics and activists (SOPPECOM, 2004). On the other hand, there is Maharashtra, where establishment of WUAs has been going on for over last 15 years and the Act had not been passed so far because the State Government is closely examining all the pros and cons.

CONDITIONS OF SUCCESS

This paper, based on author's experience of last thirty years as a researcher/consultant in respect of PIM cutting across country's cultural and geographical boundaries, short lists conditions of success of PIM along with a close scrutiny and analysis of the impediments on the path of PIM/IMT. Although the following review takes into consideration all the Indian states where PIM is being implemented, a lot of illustrations have been drawn from the state of Maharashtra on account of two reasons. First, Maharashtra strategy appears to be the most sustainable; and second, the author has studied the Maharashtra experience in far greater detail than any other state (Pant, 2000). The sequencing of conditions of success and later that of impediments have been done in terms of their importance and/or logical occurrence in the process PIM/IMT.

CRITICALNESS OF CANAL WATER

The most important factor inducing farmers to come together and work for the common good has been found to be the critical necessity of canal water for the comfortable living or even survival of the farmers. If farmers believe that by coming together and forming a WUA they would enhance and optimise their water supply, they would go out of their way and work physically by offering volunteer labour, paid labour or by contributing

1- The state has retained the PIM Act that was passed in 1999 when it was part of MP

machinery to do earthen work for improving their water delivery. In a large number of cases, WUAs located towards the tail of the system were hardly getting any water. In such cases, the farmers contributed their voluntary labour to construct several check dams across the streams flowing through the commands of WUAs to improve the ground water level and to apply conjunctive use of ground and surface water. In fact, in some cases, the WUAs had evolved a very appropriate system of charging for the use of well water from their members. In one case, farmers had to launch a movement and subsequently 400-500 farmers gathered together to force the ID to sign the MOU and hand over the management to the WUA. In another case, the WUA dug a large and deep well in the village temple land by voluntary contributions to save *kharif* excess water to utilise during the *rabi* season. All these illustrations reinforce the point that if canal water is critical for the lives of farmers and they do not have any other feasible and economically viable means, they would come forward, form a WUA and then try to sustain it (Pant, 2000).

RIGHT KIND OF MULTIPLE LOCAL LEADERSHIP

One common feature of all the successful WUAs was found to be the right kind of local leadership. By right kind, we do not mean “selfless commitment”. In most of the cases, it was found that the local leadership had a vested interest in the WUAs. It was often found that their average land holdings were higher compared to the average land holdings of the members. By right kind, we mean such rural elites who had local influence, high socio-economic status but who had a propensity to come forward to work for a common good where they could derive advantage for themselves also in some common good. The type of leadership who work in harmony with others without jeopardising the interest of others. These were the local leaders who believed in the maxim, “when I serve others’ interest, I serve my interest also because my interest is a part and parcel of others’ interest.” According to them it is a matter of coincidence that their interest (land holdings) happened to be bigger (Pant, 1986 and 2000).

Local organizations, when they are initiated by committee members or local leaders, have greater chances of sustainability. Further, those WUAs, which depend on multiple local leaders, are likely to have greater sustainability in comparison to organizations, which depend on an individual leader. This is the differentiating feature between institutionalization and non-institutionalization of the leadership and in the latter case the organization collapses with the removal of the leader from the scene (Pant and Pant, 1996).

PROVISION OF INCENTIVES

One conclusion that comes out conclusively from our various studies, whether of Bihar (Pant and Verma, 1983) or of Maharashtra (Pant, 2000), is that incentives must be built around the programme of PIM/IMT if it has to succeed at least in the initial stage. As the organization grows and stabilises, such incentives can be reduced and ultimately withdrawn completely.

The IMT programmes in India involve a number of incentives, which attracts farmers towards establishing WUAs. In case of Maharashtra, for instance, a number of concessions/incentives are available for the IMT programme. First, there is a

management grant @ Rs. 100 per ha for the first and the second years and @ Rs. 75 per ha for the third year. Since the 50% matching grant from GOI under this component is available only for the CADA projects, in case of non-CADA projects the matching portion is also provided by the GOM.¹ Second, GOM provides maintenance grants to WUAs @ of Rs.20 per ha per year. Third, 5% concession is given to WUAs on timely payment of water charges. Fourth, the WUAs are provided water on a volumetric basis, which comes much cheaper than water calculated on area basis. Fifth, the WUAs do not have to face any crop restriction. The WUAs are given an allocated quota of water and within this quota they can grow any crop they like. Sixth, IMT involves rehabilitation of the irrigation sub-system to its designed level or at least to a workable operation level. The rehabilitation work involves repairs of about Rs. 800 to 1000 thousand per WUA, which goes along with IMT. Seventh, non-members can be charged 30% more than members' water charges.

One of the reasons why there is so much enthusiasm among farmers for IMT in Maharashtra is that, against 533 WUAs where IMT has taken place, there are 1939 WUAs in various stages of completion of IMT.

Close Involvement of the ID Officials

Based on past research it has been found that the most successful WUAs were the ones where greater interaction and most frequent contacts between the ID officials and WUAs were obtained. WUAs have succeeded and sustained only in such projects where top irrigation bureaucracy took a keen interest and the field staff genuinely worked in close collaboration with farmers. In the initial stage, WUAs need assistance for registration, accounting system, and development of internal structures that are conducive to high level participation. In cases where this close interaction and collaboration was lacking and the WUA was created to fulfil the target requirement, the association collapsed as soon as management subsidy ended. Interventions by senior bureaucracy of ID in meeting the genuine demands helps in strengthening WUAs. On the contrary, hollow promises reduce the legitimacy of the WUA considerably and the beneficiary farmers tend to lose faith in the existence of WUA. Legitimacy is different from the legality and it need not follow legality. An important element in the acquisition of legitimacy was found to be the extent to which the ID officials met the genuine demands of the farmers. If the repeated complaints of a WUA, say about an inadequate and irregular supply of water do not rectify the position, the water users lose interest and the WUAs tends to become defunct. On the contrary, if the genuine demands of the WUA are met, it grows, stabilises/institutionalises and becomes a role model WUA. (Pant, 1983, 1993, 1995 and 2000).

Wherever PIM experiment has succeeded, lot of care has been taken in the placement of staff in critical positions. As a first step, all such officials (most senior to most junior) who have commitment to PIM and hold sympathetic attitude to the beneficiary farmers in general and on the viability of the WUA as an institution in particular, must be

1- As per the financing pattern w.e.f. 01.04.1996 a functional grant in lieu of management subsidy is to be given to the WUAs @ of Rs. 500 per ha. It is to be shared between the GOI, the state Government and the WUAs in the proportion of Rs.225: 225:50 respectively.

identified at various levels of bureaucracy. Once such officials are identified, they can then be short listed and placed in strategic positions (Pant, 2006).

DEMOCRATIC FUNCTIONING

One of the preconditions that need to be set for the registration of WUAs is that 51% of the beneficiaries and beneficiaries with 51% of the land in the CCA must be agreeable to form the WUA. Such a condition may prohibit a few big farmers holding 51% of CCA to form WUAs for their vested interest disregarding the interest of small and marginal farmers.

As regards other components of legitimate democratic functioning, these include periodic elections, defined rights, including safeguards to protect the interests of small farmers and women, a written constitution and bylaws, and regular meetings of the executive and the general body. Of these the foremost is a written constitution with a general body and an executive committee and the regulative mechanism of the same. The important question is to what extent the WUAs observe these requirements in a true spirit. In all cases where the functioning such WUAs were successful and sustainable, it was found that the proceedings were duly recorded, elections took place at regular intervals and, in a large majority of cases, the minutes/decisions of the organs of WUAs were typed/printed and widely circulated. Although elections often extended the continuation in office of the same old guards who formed the WUAs, membership circulated among a variety of individuals. In some cases, a complete overhauling of the executive committee also took place (Pant 2000).

THE MEMORANDUM OF UNDERSTANDING (MOU)

The following two points must be reflected in the MOU. One, that farmers would get rights in water allocation through the agreement and an assurance in getting a predetermined quantity of water at a predetermined time. Two that they would get right of information and thereby hope to get, on demand, the information related to water availability.

In Maharashtra the agreement/MOU between the WUA and the ID is the instrument, which secures provision of water quota to the WUA season-wise. This quota varies from one WUA to another. In some cases the quota is only for *rabi* and *kharif*, while in others it is spread across the three seasons, including the *zaid* weather. However, when the quantity of water in reservoir itself was below the normal, the water quota of the WUA was accordingly reduced. This reduction in abnormal circumstances is provided for in the MOU of all WUAs

The ID provides the agreed amount of water at the minor head, where measuring devices are installed before the MOU. However the WUAs have to often accept the take-over of the systems even though the rehabilitation work is incomplete. In reality, a reasonably sound physical system seems to be acceptable to farmers. This means the system with a measuring device at the off-taking point of the minor, selective lining and even 50 to 60 per cent of designed discharge is considered as a comparatively sound physical system. Majority of the successful WUAs in Maharashtra have this type of physical system (Pant, 2000).

ELIMINATION OF IMPEDIMENTS

Emanating from the Andhra and Maharashtra models are two broad strategies adopted in the implementation of PIM in India. The AP and MP experience concentrates on a rapid and extensive introduction of PIM through legislative measures. In contrast, the Maharashtra and Gujarat experience mainly exemplifies the motivational strategy. The emphasis is on first building up awareness, creating motivation and then introducing PIM. These strategies could also be contrasted as top-down and bottom-up strategies respectively. In either, care needs to be taken to eliminate all such obstacles that jeopardize the successful implementation of the PIM concept.

ABSENCE OF A CLEAR-CUT POLICY AND VISION STATEMENT

Even states that have enacted legislation have not come out with a clear-cut policy statement that governments have decided to hand over the management of irrigation systems at the minor/distributory level to the WUAs in a phased manner and within a fixed time frame. Consequently, the government officials do not attach required importance to the work concerning forming and sustaining WUAs. The irrigation bureaucracy, meanwhile, works with a rigid mindset. The officials think that it is not their work and that an extra and unnecessary task has been imposed on them. They take up the work under the compulsion of targets. Further, the commitment and priority of higher ups for this kind of work goes on changing and consequently, adhocism is the reigning principle.

Building of WUAs is a long drawn social process and cannot be done by issuing orders. Experience shows that after the system is turned over, the officials of ID feel that their role is over. Ideally, with the completion of the turnover, the role of the ID changes from administrative authorities to friends/guide providing assistance and support to WUAs. The associations can sustain only if they receive continued technical assistance and co-operation from ID officials until they are self-sufficient. It is therefore necessary that each state government should come out with a clear-cut vision statement along with a clear mandate and milestones for making WUAs autonomous. This would require changes both at the project and WUA levels (DSC, 2006, 20).

DELAYS IN COMPLETING IMT REQUIREMENTS

The stage of IMT comes after a number of preliminary requirements are fulfilled. These include registration of WUA, joint inspection of the system to identify the operational deficiencies in the system, signing of MOU, and hydraulic testing of the system. Once registration has been completed, the joint inspection is not carried in time and it gets delayed unnecessarily. Even when it takes place, the presence of the representatives of WUAs in this joint inspection is notional. They are not allowed to make their views incorporated in the joint inspection report. Their views are disregarded on grounds that the same are non-technical. Even when the estimates of rehabilitation works are prepared, the same are not shown to the WUA representatives. Again estimates are not prepared in time. The general tendency in preparing the estimates is to put lot of lining work, which is unnecessary and is incorporated mainly to get the work cost inflated.

Once the execution of rehabilitation work starts, it is not done properly, particularly in the work relating to embankments and masonry structures. Finally, the hydraulic testing of the system is not done before handing over the system to the WUA. As per agreement, this is required to be done before the hand over. In the absence of testing, WUA does not know the water conveyance losses and water conveyance efficiencies. It is therefore necessary that that time bound work plans are prepared, discussed and sanctioned and the concerned officers should be held responsible and punished if time schedule is not observed.

DELAY IN REHABILITATION WORKS

The main obstacle in effecting IMT is the rehabilitation of the minor/distributory. This is the main delay between the registration and IMT and this delay was found to be varying between 15 and 27 months. This was because of delay in carrying out rehabilitation of minors in terms of deficiencies found at the time of the joint inspection. In Maharashtra, up to March 2004, there were 533 functioning WUAs encompassing 158 thousand ha of CCA. As against this, there were 1939 societies containing a CCA of about 639 thousand ha waiting for IMT (Soppecom, 2004). The most damaging impact of this delay is that farmers lose all their enthusiasm and things are again back to square one.

It is therefore suggested that state governments should open a new 'budget head' in the annual budget and allot grants specifically for the rehabilitation works proposed under each irrigation project and the same should be clearly shown, as such, in the annual budget separately for each project officer. The project officer will then be responsible for demanding and spending of these sanctioned grants specifically for the purpose.

LACK OF TRANSPARENCY

One of the biggest impediments in the successful execution of IMT programme is the lack of openness in preparation of estimates and the execution of work. Therefore, a copy of the rehabilitation estimates prepared by the ID must be given to the WUAs for their comments. It is further suggested that the quality of repair work done by the contractors appointed by the ID must be supervised and certified as satisfactory by the representatives of the WUAs and only after this is done payment be made to contractors.

TARGET VERSUS SUSTAINABILITY

Mere targets are not enough; field staff's passion, commitment, devotion and faith in the IMT programme are necessary. Creating collective organisations for common good is a formidable task. It requires a great deal of patience to persuade, encourage and guide the farmers in the process of formation of WUAs. A few meetings with farmers are not enough. Initially 2-3 days duration day and night camps followed by a series of meetings are necessary. (Pant, 2006).

In situations where a host country or a state of that country where a donor assisted project is being implemented is not committed to the concept of PIM then donor assistance becomes more a curse than an opportunity. A case in point is the World Bank funded UPWSRP in UP. In this Project the implementing agency did not do anything for over three years for the establishment of WUAs and then within a span of couple of months registration and handing over/agreements (MOU) for maintenance to WUAs was done for 416 WUAs envisaged to be established. Side by side, against all norms and democratic procedures and autonomy, the Junior Engineer of ID was made the Secretary of the WUA and a signatory of its bank account. Further, the Chairman of the PACT had claimed after one day's field visit, "that the state is undergoing a silent revolution paving the way to farmers for equitable distribution of irrigation water through minors managed by Water Users Associations (WUAs)". This was done as the apparent focus of program was to attain targets of rapid establishment of WUAs in the project commands without adequate preparation and was bound to turn out to be counter-productive. The model of WUA, which such provisions create, may not be in line with the sustainability and in fact, the institution could be manipulated to remain a creature of UPID and thus quickly fail as a sustainable institution. While there is an overt state policy on participatory irrigation management, it seems that this policy has not been covertly accepted and internalised and therefore does not coincide with agreed objectives and obligations under the World Bank funded UPWSRP. Another problem was found to be rampant corruption in execution of the PIM programme and the nexus between the NGOs, consultants and the implementing agency had become so institutionalised that it could not be broken (Pant, 2006).

LACK OF APPROPRIATE TRAINING

In order to increase the pace of implementation of PIM and attain sustainability of WUAs, it is very necessary to change the mindsets of government officials and to enthuse them with a sense of devotion and commitment to PIM/IMT program. One of the most important factors responsible for the failure of the government-initiated WUAs is the attitude of the implementing staff, towards the members of new organizations. It has often been found to be a relationship of unequals and the attitude of the staff is frequently one of superiority towards these members.

In case of farmers, it would require orienting them to irrigation in a collective way through group action and joint management with ID ultimately developing management capability both in terms of sub-system management and organizational management of WUAs. In respect of WUAs, it is found that they are not fully aware about their rights and responsibilities. Further, they lack guidance about their powers to fix water rates, recovery of management costs, running rates and for enforcing discipline in taking water.

LACK OF PROPER MONITORING AND EVALUATION

Although issues for evaluation are often spelled out, no specific parameters for evaluation are identified. Where parameters are mentioned, no precise measurements are

formulated and thus no scoreboards are prepared for monitoring the performance of WUAs. Where detailed manuals are prepared for this purpose, the check list is so detailed that it is not feasible to use such check lists for a quick and quantifiable assessment by teams of officials, consultants, researchers etc. who make short field visits to assess the functioning of WUAs. Keeping all these in mind, an attempt has been made to prepare a simple and easily workable format for assessing the performance of WUAs in a comparative and quantifiable manner (annexure 1). The format may be further improved after field visit experiences.

In conclusion, it could be safely said that although the discussion in this paper relates to the conditions of success and the impediments to PIM/IMT in the context of India, there are lessons for all countries striving to ensure collective governance of the irrigation systems by the users themselves.

Annexure 1

Format For Assessing WUA Performance

Particulars	Level of Performance				
	Excellent (5)	Good (4)	Average (3)	Poor (2)	V Poor (1)
Weightage points					
Activities					
A. Level of Participation					
Leadership capability					
Members awareness about WUA status					
Productive meetings					
Voluntary physical/labour contribution					
Voluntary financial contribution					
Social Audit/ Transparency					
B. Operation and Management					
Removal of silt and weeds					
Repairs/maintenance of structure					
Protection of structure					
Dispute management					
C. Water Management					
Adequate and timely water supply					
Information about water distribution					
Efforts to save water					
D. Financial Management					
Fund generation					
Utilisation of maintenance and operation fund					
Recovery of irrigation fees (when applicable)					
Financial audit					
E. Organizational Linkage					
Horizontal linkages with other WUAs					
Vertical linkages					
Information and communication					
Discussion with competent authority					

Notes: For the purposes of quantifying WUA's, Level of performance following weightage points would be used = 5 (excellent), 4 (good), 3 (average), 2 (poor) and 1(very poor). Since 21 parameters have in used in the socio-metric scale, the performance will be measured between Most Excellent (105 points) and Extremely poor (21 points).

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