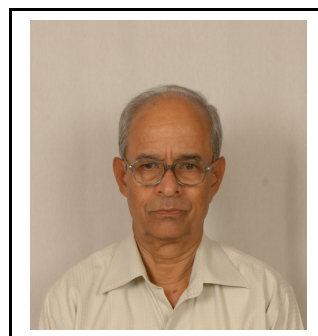


SUCCESS OF FIRST PARTICIPATORY IRRIGATION DEVELOPMENT & MANAGEMENT PROGRAMME & ITS FURTHER EXTENSION.



This Article is based on Souvenir published at the time of
“Experience Sharing”
Seminar held at Pune on MIP-M on 20.01.2011]

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1 SUCCESS OF MINOR IRRIGATION PROGRAMME – MAHARAHSTRA (MIP-M).

1.1 Programme :

With the financial assistance from the German Government/Development Bank (KfW); the Rural Development & Water Conservation Department (RD&WCD); Govt. of Maharashtra(GoM), has undertaken a programme called Minor Irrigation Programme-Maharashtra (MIP-M). Under this, 28 Minor Irrigation Schemes(MIS)² have been completed under Local Sector Wing of RD&WCD. Programme originally started in March 2001 and ended on 30 June 2011.

These schemes were to be completed by following a Participatory Irrigation Development & Management (PIDM) approach. Under this approach, farmers were involved from the beginning. They are also to contribute for Water Distribution System. This is perhaps the first experiment of this kind, in Maharashtra.

MIP-M was designed in two phases; a Pilot Phase and Main Phase with extended Phase called Consolidation Phase finally ending on 30th June 2011.

The 28 schemes stand included in MIP-M, consist of 16 MI Tanks(MITs), 9 Storage Tanks(STs) and 3 Kolhapur Type Weir (KTWs- weir-cum-bridge). All head-works³ of Schemes have been completed, with Water Users Associations(WUAs) assuming responsibility for Operation and Maintenance(O&M) on 9 schemes with completed irrigation systems. The balance works on the distribution systems and hand-over to WUAs are scheduled for completion before June 2012.

¹ He worked as Sr. Engineer at HO of TAT, in Pune and led the team of local consultants in TAT. He is in the field of irrigation for 45 years, out of which 33 years as a Consultant.

Credit goes to him for (i) compilation of MIP-M CD, (ii) Note on Design of Small lift schemes, and (iii) eight Slide Shows made on the MIP-M. He played a major role in editing the Souvenir. He is also a faculty in no. of Trainings under MIP-M.

² Minor Irrigation Schemes are for Irrigable Command Area(ICA) up to 2,000 ha. Schemes up to 100 ha ICA are handled by ZP. From 101 to 250 ha by Local Sector Wing of the RD&WCD of GoM. Above 250 ha are called State Sector Schemes. Schemes under MIP-M, are the schemes in 101-250 ha range.

³ Head works include dam/weir, waste weir(with approach & tail channel), head regulator, approach road, buildings etc),

1.2 Vision & Achievement :

Although the purpose of MIP-M was to increase irrigated agriculture and farmer incomes through the construction of MIS, more importantly was the need to demonstrate that by following a Participatory Irrigation Development and Management (PIDM) approach, water utilisation is maximised and the ongoing O&M burden on Govt for these schemes is greatly reduced. Following are the major achievements on the programme :

- Head-work construction of 27 schemes is completed.
- Distribution systems completed in 10 schemes and work is in progress in balance schemes.
- Efficiency on Functional MISs was very high (more than 75%.)
- WUAs are registered in all 28 schemes.
- 10 schemes are handed over to WUA.
- Training in PIDM has been imparted to all MI(LS) and NGO staff as well as participating Taluka Agricultural Officers in the MIP-M schemes
- PADP⁴ Programme implemented in 25 schemes.
- Potential irrigated area increased 4,500 hectares.
- Increase in net benefits of ` 26,000/ha.
- Cropping intensity & Crop yields have increased.
- Besides, Water Charges, WUAs also collect funds through fisheries.
- Improved living standard in programme/project areas.

As far as farmers are concerned, the most significant major impact of MIP-M, is the important increase in income and employment even beyond rainy season. The major outcomes/effects of irrigation observed at the MIP-M schemes are listed below :

- Higher income, Greater food security, Better diet from more diverse crop,
- Diverting surplus income to generate more income, Improved farm equipment, Credit availability, Life Insurance, Access to education,
- Access to medical care, Improved Public health, Improved personal Hygiene, More farmers now practice birth control,
- Use of more sustainable and less polluting cooking fuel,
- Support to fishermen and more fish in diet,
- Finding highest paying market and establishing marketing linkages, Farmers become proactive in forming institutional linkage,
- Increase in land value,
- Increased demand for labour, Decrease in rural to urban migration, Minimizing suicide cases, Rise in vices.
- Better control on Floods, Increase in Water table in 3 MISs out of 4 reviewed.

1.3 Main lessons learned and strongly recommended for adoption on similar programme/projects in the future :

The main lessons learned and strongly recommended for adoption on similar programme/projects in the future, are

⁴ Participatory Agriculture Development Programme for effective use of water added to MIP-M. Details of PADP are given in the Section 6, below.

- 1 **MIP-M has shown it is possible to develop MI schemes with the farmers and build the capacity of WUAs to operate and maintain the infrastructure in an efficient and sustainable way by following a PIDM approach.**
- 2 **A 3-4-year implementation time-frame is required for new scheme development (till completion of PADP), for others schemes with headworks already completed. It can be less.**
- 3 **More than one agency is required in the development of a MIS , which should be divided in two parts. The MI(LS)/Govt. Department should be responsible for the head-works and an appropriate Non-Govt Organisations (NGOs) / private agency appointed for all aspects of the distribution system including WUA and agricultural development.**
- 4 **Only competent Contractors should be appointed to the works and proper quality control and contract supervision provided by the Govt supervisors. All works should be accepted by the WUAs before final**

In a State-Level Seminar organised at Pune on 20.01.2011, various aspects were discussed in detail, which followed by articles in News Papers, one article appeared at National level is presented in section of photos of this note.

2.0 MIP-M ORGANISATION

The main stakeholders involved in MIP-M were:

- Beneficiary Farmers with land in the command area as users and managers of the irrigation infrastructure;
- Project Affected Persons/Farmers (PAPs) with land in the submergence;
- MI(LS) as field officers responsible for scheme development using PIDM approach;
- Scheme NGOs to assist farmers during the formation and strengthening of the WUAs; and
- Department of Agriculture (DoA) and AFARM (NGO agency) to assist farmers with development of irrigated agriculture in Participatory Agricultural Development Programme (PADP).

In addition, involved were:

- The Consultants (Technical Assistance Team or TAT) to assist the RD&WCD with the overall implementation of MIP-M,
- A PMU⁵ to provide overall Programme Monitoring and Management under direction of CE MI(LS),
- Various Committees such as Steering Committee(SC) at State level for GoM approvals for MIP-M activities, Regional Level Committee(RLC) at Circle Office

⁵ Project Monitoring Unit (A Division office directly under the Control of Chief Engineer, Minor Irrigation (Local Sector), Pune.

level, MI(LS), and MIP-M District Level Committee(DLC) at Division level, MI(LS).

The following entities also played an essential role during one or more development stages -

- ❑ Cooperatives Department for registration of the WUAs under the Cooperative Societies Act;
- ❑ Revenue Department for the acquisition of land;
- ❑ Resource persons from outside agencies for the provision of training to the WUAs;
- ❑ Maharashtra State Electricity Distribution Company Ltd(MSEDCL) for electrification of the lift irrigation schemes;
- ❑ NABARD(National Bank for Agricultural & Rural Development), commercial banks, credit cooperatives and private sector for the provision of credit to WUAs and individual farmers, and
- ❑ Private sector for the supply of lift irrigation equipment, seeds, fertiliser and agro-chemicals etc.

3.0 CONSULTANTS

For advice, assistance and support to the RD&WCD on the programme; KfW & GoM selected GITEC Consult GmbH, Germany; supported by BECOM, France, and by Kirloskar Consultants Ltd, (KICONS), Pune. The Consultants had established an office called "Technical Assistance Team" (TAT) at Pune in Feb 2001. The office was run by and was well supported by expatriate and local experts in Irrigation, Agriculture, Sociology, etc. The team of local consultants included -

- **Technical Engineers** : Irrigation, Electrical, RCC Design, Environmental, O&M Experts.
- **Social Engineers** : Rural Sociologist, WUA Experts, Training Experts, Law Expert.
- **Agriculture** : Agronomists, Agro-Marketing Experts, Agro Economists.
- **Others Supports** : Administrative Managers, AutoCAD Draftsmen, and Computer Support.

No. of Manuals, Notes etc were prepared by the TAT on various technical, sociological issues, etc. The Consultants conducted no. Trainings for Govt officials, Farmers/WUA members, NGO Officials etc.

(i)Design procedure for small lift schemes, Specifications for the erection of the same, (ii)Marathi Manuals on O&M procedure, Construction Methods, and (iii)eight slide shows developed under MIP-M, can be considered first of their kinds, in the state. A comprehensive CD prepared by TAT has been launched on 20th Jun 2011.

4.0 THE PIDM APPROACH

The development and management of a MIS in MIP-M involved a partnership between the concerned farmers organised in the WUA and the RD&WCD. As partners, both parties had certain rights and obligations during the design, construction and the O&M of the irrigation infrastructure.

One very important aspect of the participatory development was that all concerned farmers would be actively involved in all stages and that all decisions require the approval of the WUA on behalf of all water users. Before decisions were taken, all

concerned water users were consulted (including women members) from the villages situated in the command areas of the MISs.

The entire process for designing, constructing and managing a MIS under MIP-M was called the Participatory Irrigation Development and Management (PIDM) approach and divided into 4 phases:

- a. Scheme Assessment, Design and Selection Phase:
- b. Group Formation and Agreement Phase:
- c. Construction and Capacity Building Phase:
- d. Irrigation Management Phase:

5.0 ISSUES ARISING WITH IMPLEMENTATION :

No. of issues cropped up in MIP-M, which constrained the timely implementation of the Programme, They included [i]non-availability of good & attractive sites, [ii]initial delay in establishing the Programme, delay in land Acquisition, [iii]difficulty in accepting new concepts such as the "Scheme Working Team"(SWT), & "social engineering", [iv]administrative problems of regular transfer of staff, failure in creating a "dedicated" Sub-divisional offices, [v]technical problems such as Inadequate geotechnical surveys, capability of contractor and tendency to sub-contract of works, less strict supervision, electricity shortages [vi]reluctance of farmers invest their money, time and effort in the construction of the distribution systems etc.

Efforts were made to reduce the burden of lose to the farmers who suffered as they were the ones who lost their promised income.

6.0 PARTICIPATORY AGRICULTURE DEVELOPMENT PROGRAMME (PADP)

The goal of MIP-M was to improve the income of small farmers through their participation, in the design, construction, operation, management and maintenance of MISs. The **Participatory Agriculture Development Programme (PADP)** was introduced during the Main Phase to achieve this goal by fostering and adopting sustainable irrigated agriculture by recipient farmer communities. Sustainability should be pursued both in terms of the reliable provision of irrigation water and initiation of a process that enables appropriate agricultural technology to progressively develop at each MIS to take full advantage of the available water. In addition, sustainable agricultural practices should be encouraged through the promotion of low external input agriculture that has least environmental and health consequences.

The impact assessments of PADP was done by continuous monitoring since 2004, the specifically covering (i)adoption rates, (ii)cropping intensities, (iii)yield changes and (iv)incomes were undertaken annually in about 60% of the schemes. This data was then used in conjunction with the detailed M&E Impact surveys to assess the overall benefits and outcomes of PADP and total Programme interventions. From the reports the major outcomes/effects of irrigation observed are such as (i)Shift to higher value crops, (ii)improvement in irrigation methods- adoption of labour and water saving technologies, reduction in grazing land, (iii)changes in living standard etc, these are already discussed in Section 1.2.

KfW, New Delhi, finds the impact evaluation of MIP-M is very impressive, and the report short, crisp and effective. KfW has shown keen interest in the methodology, approach and the way M&E has been reported.

7.0 EXTENSION OF MIP-M UNDER A NEW PROGRAMME - RGPIADP :

7.1 Introduction of RGPIADP :

One of the Expectations of MIP-M Programme, was Adoption of PIDM Approach on the regular MILS Schemes. The new Secretary of RD&WCD of GoM, Mr. V. Giriraj took the initiative, he visited the MISs and confirmed the out comes, he was impressed by the outcome of the MIP-M, particularly in (i)Improvement in irrigation efficiency, (ii) Establishment of WUAs with the help of NGOs, (iii)better O&M of the schemes etc. He has, therefore, decided to adopt PIDM approach to the possible extent on other MILS schemes. After (i)no. of deliberations, with MILS staff, expatriate Consultants, who formulated the PIDM Approach, (ii)visits to other states, the GoM decided to extend the MIP-M on large no. of schemes already completed, under a new Programme called **Rajiv Gandhi Participatory Irrigation & Agriculture Development Programme (RGPIADP)**. Order have been issued to take steps in this regards, to initially hand over around 230 (already completed) MILS schemes to WUAs, with proper trainings, involvement of NGOs etc. The PMU which has gained experience in this field through MIP-M, has been renamed as Programme Implementation Cell (PIC), and this cell will coordinate the activity at state level, under the guidance of CE.

7.2 Programme :

It is proposed to implement the new Programme in two phases

- Pilot Phase for 1 year for about 25 MISs which will be short listed from 50 MISs, and
- Main Phase for at least 50 % of balance 205 MISs in next 5 year or so.



Honourable Dr. Nitin Raut, Minister EGS, Govt of Maharashtra delivering his speech, at the Seminar held on MIP-M, at Pune on 20.01.11.



Mr. V Giriraj, Secretary, WC&EGS Dptt, Govt. Of Maharashtra visited three MI Schemes, under the Programme, in Dec. 2010.



Storage Tank at Kasari, Taluka- Lonar, District- Buldhana



WUA Office on the Background of Storage Tank at Gugwad, Dist : Sangli



Left : Excavation of the main canal at Pimpri-Hatgaon MIT in 2003 by the farmers, under the supervision of the field officers.

Right : Completed installation of a LIS in Kasari ST by the farmers.



Handing Over of MIS to WUA at ST at Jamrun Jahagir, Dist : Washim.



Wheat Crop in ICA at Gugwad MIS.



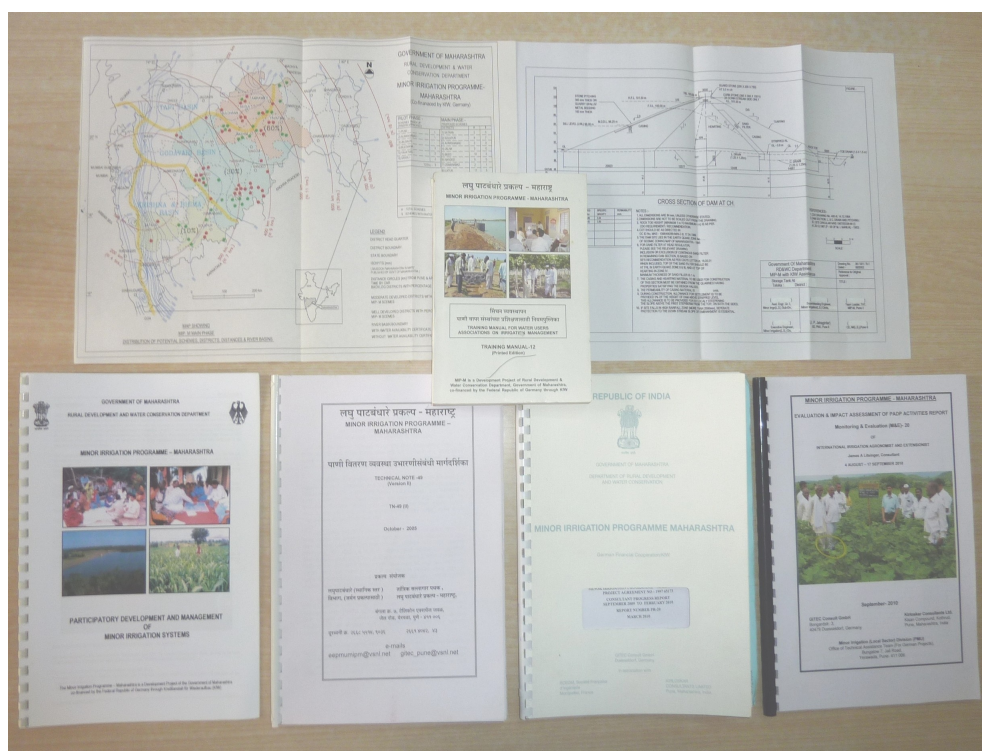
In 2nd or 3rd year, of successful use of Lifts, installed under MIP-M, farmers of Jambharun Jahagir, adopted Sprinklers hooked up to modified lifts.



SHG Training at Januna and WUA Training by APEX NGO at Wanewadi MIS.

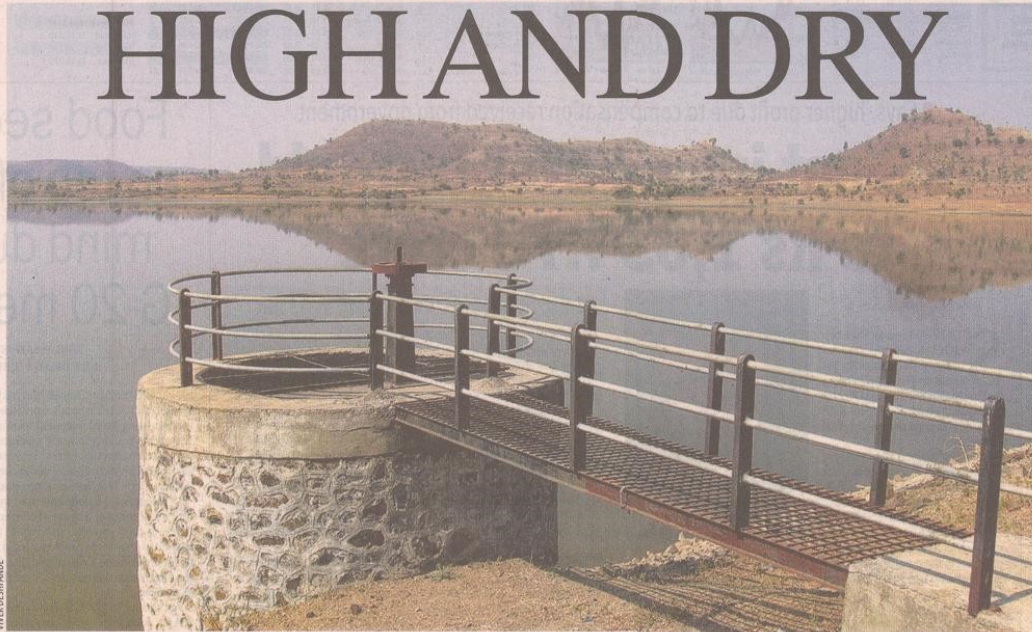


MIP-M CD launched on 20.01.2011



MIP-M Documents (Notes, Manuals, Maps etc prepared by TAT, Pune) 20.01.2011

NO LONGER HIGH AND DRY



A minor irrigation tank at Dhotra, Yavatmal. Below: Sheshrao Sudit at his irrigated wheat farm in Dhotra

Twenty-eight villages in Maharashtra, 21 of them in Vidarbha, have worked their way to build, operate and own minor irrigation projects

VIVEK DESHPANDE

YAVATMAL/WASHIM/ BULDANA (VIDARBHA)

BIBKHED village in Buldana district sparkles brightly against the bleak backdrop of Vidarbha known for its despairing farming community. Till about ten years ago, men here wouldn't get brides to marry. For, women from the village had to trudge more than five km to fetch water. Then, every year, after a miserable kharif season, most farmers of the village would move to Mumbai, Pune and Nasik in search of work.

Now, however, 75 per cent houses in the village are pucca structures, five villagers own cars, three have tractors and almost everyone has a motorcycle.

Jamrun-Jahangir and Shelgaon villages in the neighbouring Washim district were wrecked by repeated crop failures till three years ago. Many would work as farm labourers in other villages and fetched as little as Rs 10-Rs 30 per day. Today, they pay Rs 200 every day to farm hands who come from outside. Most of them have pucca houses and can be seen riding their bikes to their fields. Their next plan: to buy a community wheat harvester worth Rs 12 lakh.

Ditto for Kasari, also in Buldana, and Pimpri-Hatgaon and Dhotra in the most suicide-prone district of Yavatmal in the region, where lush green rabi fields bear testimony to a silent socio-agrarian revolution sweeping rural Maharashtra.

Twenty-eight villages in Maharashtra, 21 of them in the agrarian crisis belt of Vidarbha, have worked their way to build, own and operate minor irrigation projects — to transform their lives forever.

And supporting them is the German government, through KFW (Kreditanstalt für Wiederaufbau, meaning Reconstruction Credit Institute), a German bank. The country has given India a soft loan (on one per

cent interest rate), which the Govt passed on to Rajasthan, Andhra Pradesh and Maharashtra.

KFW consultant Kevin Smith says the Maharashtra villages have performed best in what is known as Participatory Irrigation Development and Management (PIDM).

The scheme, conceived during an inter-governmental discussion in the mid-90s, could take off only in 2001 after suffering systemic inertia for about five years.

The idea was to not only involve people, but also make them pay. While KFW offered to bear the entire cost of building the dam and 32.5 per cent of the main canal work, farmers were supposed to contribute the remaining 62.5 per cent of cost — either by cash or through labour — of the main canal and sub-canals passing through their fields.

INITIAL HICCUPS

Convincing people was a big challenge for which NGOs were involved as agents of "social engineering".

"We had to conduct many meetings to convince people to partly pay for the work. They initially shrugged it off, saying building dams is government's job. But our persuasion paid" says Manohar Khadse of Dharamitra, Wardha, the first NGO to get take up the challenge.

Bibkhed, Kasari and Pimpri-Hatgaon took the lead. Water user associations (WUAs) were formed. Dams were built and, unthinkable as it may seem, farmers sold off their gold and other valuables and some even took loans to raise funds. Many contributed through labour. NGOs later replicated this at many other villages. The state irrigation department chipped in with technical support.

"We insisted that people must pay for the project. NGOs did the job well," says Smith.

Smith lists land acquisition as another major challenge. "It took a long



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time and maintaining the interest of the farmers was difficult. Moreover, the government staff were used to dealing with this kind of project. The work of many contractors building the dam was not up to the mark. Also, quick compensation was a new thing," he says.

Other hurdles meant KFW spend only 17 million Euros of the 25 million Euros it had envisaged for the project that is set to end in June 2011. "Yet, the Maharashtra experience remains the best," Smith says.

Problems, however, subsided with time. Says Madhavrao Vaidya, president, Pimpri-Hatgaon WUA: "People initially didn't believe it to be a genuine project. We had to generate trust. We feel this situation of 'we, being the owners and maintainers of the

dam', is much better than being dependent on the government."

There were exceptions like Bibkhed. "We were so desperate to have water that we instantly agreed to pay," says WUA secretary Narayan Rathod.

RICH HARVEST

Sheshrao Sudit of Dhotra says: "I have only four acres of land. The irrigation scheme has helped me grow two crops a year. I am now regularly taking rabi crop. This year, for example, I am hoping to grow 50 quintals of wheat, which would fetch me at least Rs 60,000 against my expenditure of Rs 20,000." Sheshrao, who took kharif cotton worth Rs 1,22,000 against an expenditure of Rs 60,000, has been able to pay off the Rs 40,000 loan he took to dig a well.

Shriram Gajalwar from Pimpri-Hatgaon, also in Yavatmal, reaped a good 13 quintals of Bt cotton from 1.5 acres, averaging almost 9 quintals per acre. And he hasn't removed the fully harvested crop yet — he has water available to rejuvenate it for a fresh flowering and is hoping to garner another five quintals over the next two months.

Today, the WUAs have their office buildings in each of the villages, office-bearers are elected by consensus and politicians and politics are kept at bay. They collect water cess ranging from Rs 400 to Rs 1,500 per hectare. Many have up to Rs 2 lakh in their bank accounts.

The project affected persons (PAPs), whose land were used for the dam, are given priority in fishing business. "They were given fishing contracts after paying Rs 2.80 lakh (to WUA) for the past five years. They are earning Rs 2 lakh per year," said WUA secretary Rathod.

PIDM has come as a revelation for the Irrigation Department too. Most of its minor irrigation (MI) projects lie defunct with just 25 per cent of the irrigation capacity being achieved till date. "PIDM villages are now feeling empowered as they own a dam. So, they are sure to run it successfully and responsibly," says S E Morwal, Deputy Engineer, Buldana MI division.

Today, 3,620 beneficiary farmers are enjoying the fruits of PIDM on 4,320 hectares in 28 villages of the state. Of them, 2,728 acres are in Vidarbha, with hectareage of 3,427. The maximum number of projects — 10 — are in Yavatmal district.

CURRENT CHALLENGES

Not everything is rosy. A few PAPs are a dissatisfied lot. "They got very low compensation as per the government rates. So, many have moved court," says WUA chiefs Vaidya and Rathod.

"From our side, we have tried our best that the compensation for land is

given before dams are constructed. Fishing was offered as an alternative. We also offered land exposed after water recession in summer to them for farming. But we knew there would be winner and losers. The issues must be settled quickly," says Smith.

At Maregaon, matters had come to a head after reduction in command area threw the earlier president of WUA out of the project. Local politics vitiated the atmosphere with two presidents refusing to step down. The government is now intervening to pave the way for the new incumbent.

"We have tried our best to ensure that politics doesn't enter here. Our repeated meetings ensured that politicians realise they have nothing to gain here," says Shankar Amikantthar, a ground-level NGO counsellor from Dharamitra.

Then at Pimpri-Hatgaon, six potential beneficiaries have refused to pay money, demanding water first. The WUA, for its part, has refused to budge.

Another problem is of indiscipline crop pattern. "Farmers are not supposed to sow water-guzzling wheat on their land. But they do exactly that. Sometimes they run out of water, which creates a problem. It also requires many pumps to operate in lift schemes, bringing load on a single transformer that gets tripped, forcing unnecessary maintenance expenses," says Morwal, adding, "but they will learn by mistakes."

IN THE OFFING

The small beginning may become a trend-setter with the Maharashtra government mulling handing over of 230 of its existing minor irrigation (MI) projects (below 250 ha capacity) across the state to respective villages.

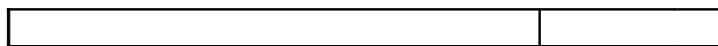
"We are mulling handing over our other projects to villages. The government policy allows us to do so," says V Giriraj, Secretary, Water Conservation Department of Maharashtra.

M I Tank at Varve, Taluka: Bhor, District: Pune

- A Minor Irrigation Tank, originally taken up under GoM Funds, but completed under MIP-M.
- Originally planned with flow irrigation under canal, but converted into a Pipe Distribution System, which came up from the farmers, in discussions.
- This can be considered as **first ever irrigation scheme** in Maharashtra State **with Pipe Distribution System.**

item	Particulars	item	Particulars
Villages Served (no.)	1	Beneficiaries Farmers (no.)	116 \$
Project Affected Persons (PAPs)	16	Small Farmers (< 2ha) (%)	78 \$
		Small Farmers Land-holding(%)	37

Catchment Data		Type of irrigation : Gravity irrigation with Pipe Distribution instead of canal.	
Catchment Area (sqkm)	2.07		
Type of Catchment Area	Good	Proposed Irrigated Crop Pattern %	
50% dependable rainfall (mm)	1,210	Two Seasonal	0
Yield from Catchment (Tcum)	1,153.9	Kharif	30
Reservoir / Weir Storage (Tcum)	735.3 \$	Rabi	82
		Total Irrigated %	112
Live Storage (Tcum)	658.3 \$	Water Requirement (cum per ha)	
Irrigable Volume (Tcum)	597.6 \$	Kharif	265
Percentage Irrigable Volume	81	Rabi	5,687
Command Areas		H W Ssonal.	0
Gross Command Area (ha)	N A	Average water use	
Culturable Command Area (ha)	133 \$	4,235	
Irrigable Command Area (ha)	126 \$		
Dam / Reservoir Details	(ha)	Head Regulator	
Submergence Area	12.7	Well Type, in UCR Type Masonry, 0.9 X 0.9 m gate, 900 mm dia RCC Conduit.	
Area for Canal, Minor etc		Discharging Capacity (l/s) 120	
Area for other items	4.17	Distribution System :	
Total Area for land Acquisition	16.87	Open Canal (300 m), then Sump, PVC Pipe Distribution System (5,390 m), with around 30 outlets, working in two rounds (15 X 8 l/s = 120 l/s)	
Head Works : Earthen Dam	291 m		
Max. Hght. above Stripped L(m)	20.87		
Waste Weir : Open Channel Type	21 m		
Designed Discharge (cum/s)	20.9		
Max. Flood Height (m)	1.50	\$ Yield & Storage etc were corrected at the stage of Handing over.	





Varve M I Tank



Varve Tank : Lined Canal (120 l/s) with catch water drain.



Sump Well



Junction Point.



Distribution Out let .



Command Area Before Irrigation System.



Command Area After Irrigation.

Command Map ;

