

CHAPTER-II

EXPERIMENTS IN FARMERS PARTICIPATION IN IRRIGATION MANAGEMENT IN INDIA - AN OVERVIEW

2.1 Introduction

An attempt was made to provide statewise information on experiments in farmers participation in irrigation management made so far in India. This was in accordance with the first objective of the study. While doing so, it was felt useful to provide the related historical perspective also so as to gain some insight. This chapter provides whatever information could be obtained in this context from secondary sources. For this purpose the Irrigation Departments of all the state governments as well as all the WALMIs were requested repeatedly to provide the latest information. Responses were received from many of them. Personal visits were also made to states where progress made was comparatively better. Besides, nearly all important reports and publications having information on this subject were consulted. These have been mentioned in Para 1.6.1 of Chapter I. It was found that the information obtained was not comprehensive. While some states gave a list of experiments, others mentioned only important steps taken by them presumably because they did not have the list. Moreover, the lists have also been changing with new experiments being made and some old ones disappearing. Here it may be mentioned that the main purpose of the Institute in including this objective in the list of objectives of the study was not so much to compile a complete list as to get an idea of the spread of PIM experiments in the country and to obtain information adequate for selection of a representative sample so that aspects related to functioning and impact of these experiments, interface between farmers' participation and official machinery including Panchayati Raj and factors related to variations in performance of such experiments may be examined in detail and some useful suggestions emerging out of that may be given. The study succeeded in obtaining adequate information for the purpose. The presentation starts with a national scenario followed by statewise pictures.

2.1.2 Farmers participation in irrigation management is not entirely new to India. There is considerable evidence that farmers in pre-independence years had been involved in irrigation management in different parts of the country. The phad system of Nasik and Dhule districts and the Malgujari tanks of Chandrapur and Bhandara districts in Maharashtra, the Ahar-Pyne system of Bihar, the Kuhl system of H.P. and the Kudimaramath of Tamilnadu are some of the important examples of

PIM under traditional irrigation. Vestiges of these practices still survive though these have become quite weak or even extinct with the passage of time. A few formal water users associations were also formed from time to time like the Vadakku Kodai Melazhahian Channel Land Holders Association in Tamilnadu in December 1959, Malinagar Irrigators' Water Cooperative Society in Maharashtra in 1967, Vaishali Area Small Farmers Association in Bihar in 1971, Mohini Water Cooperative Society in Gujarat in 1978. These were, however, isolated examples which could be counted on fingers. Irrigation management from top to bottom remained concentrated in the hands of the government. It may be said that since 1972, after the establishment of CADA, a large number of farmer organisations at the outlet level were formed under the CAD projects. These were variously described as pipe committees, outlet committees and WUAs. These, however, lacked authority and responsibility and, therefore, could not serve any useful purpose. Many of these became non-functional after some time.

2.1.3 Farmers' participation in irrigation management continued to be non-existent or at most nominal in a limited number of projects. Water was and continues to be exploited, harnessed, conveyed, controlled, regulated and distributed by the government agencies. The agencies / departments by whatsoever name they are known in different states not only allocate and distribute water but collect fees and have also a say in crop pattern. In some states, however, the collection of water fees is assigned to a different department, viz., revenue.

2.1.4 A change started taking place in mid eighties when the need for introducing PIM on the lines of similar measures introduced in some foreign countries was increasingly realised by social thinkers and irrigation professionals. It was felt that complex tasks involved in water management could not be performed efficiently with cost effectiveness by a centralized bureaucracy and that it would be better to transfer much of the power and responsibilities to farmers, i.e. actual users of water if the present organisational structure was not to collapse under its own weight. The priority should be to loosen the tight control of bureaucracy and give a dominant say to farmers in water management.

2.1.5 As already stated in the earlier chapter, the idea received support in the sixth five year plan 1980-85 and the National Water Policy announced in 1987 . International donor agencies like the World Bank, the USAID and the Ford Foundation also came forward with funding support to initiate experiments in different parts of the country. The leadership role in this respect was assumed by the CAD wing of the Ministry of Water Resources, Government of India, which

issued guidelines from time to time to state governments on farmers' participation in irrigation management. These guidelines impressed upon the necessity of PIM, laid down the objectives of and methodology for formation of farmers' association and indicated duties and responsibilities of the State Department of Irrigation. In 1985, each CADA was requested to introduce aspects of PIM in at least one small part of each command area as an experiment. CAD wing also offered monetary incentives to farmers for this purpose. This consisted of a management subsidy of Rs. 275/- per hectare to be provided to WUAs during a period of first three years. The CAD wing also organised national conferences on PIM in June 1994, June 1995, January 1997 and January 1999 in which the state governments participated. These were supplemented by a large number of state and regional level conferences on the subject.

2.1.6 During the last ten years, further support for PIM came from several other sources. Some of the donor agencies included formation of WUAs as one of the conditions for giving aid. WUAs started being set up under Water Resources Consolidation Projects implemented in Tamilnadu, Orissa and Haryana with World Bank assistance. At some places as in Parunde in Maharashtra and Lower Bhavani in Tamilnadu, initiative for forming WUA came from some enlightened officials of the Irrigation Department. Some NGOs like the Aga Khan Rural Support Programme, Samaj Parivartan Kendra, PRADAN took initiatives in setting up WUAs. Action Research Programmes taken up by WALMIs in some states, IMTI of Tamilnadu and Water Resources Centre of Anna University of Tamilnadu also helped in the process. As a result, a number of WUAs came to be established and became functional by the time this study was taken up. The state wise progress is given below.

2.2 Andhra Pradesh

2.2.1 In Andhra Pradesh Irrigation and Command Area Development Act came into force in 1984. Under this Act, provision was made for the creation of Command Area Development Authorities and Pipe Committees. These committees were confined to outlet command and were made responsible for distribution of water within the outlet command and maintenance of micro system network.

2.2.2 The Pipe Committees proved to be quite ineffective. Delivery of water at the outlet was quite unreliable leaving no scope to the Pipe Committees to effect any improvement in the distribution of water in the outlet command. They had no role in the maintenance of the main system. They were vested with no rights and their responsibilities were not defined. They could not raise

resources. From the outset these committees were non functional.

2.2.3 In July 1995, Govt. of Andhra Pradesh laid down a policy for participatory Irrigation management.

The broad features of this policy were as under :

- i) Irrigation system upto a minor or group of minors covering a command area of 750 hectares or more (a hydraulic unit) would be placed under the management of a water users association. The farmers in this command would be encouraged to form such associations to operate and manage irrigation systems in their areas. The endeavour would be to have preferably one WUA in a village or a group of adjacent villages.
- ii) Water users associations would be autonomous bodies which would function on democratic lines within purview of AP Irrigation Utilisation and Command Area Development Act. which would be amended suitably so that these associations could function effectively.
- iii) A Memorandum of Understanding (MOU) would be entered into between the WUA and the Irrigation Agency to enable independent functioning of the farmers associations.
- iv) WUA would be fully responsible for the maintenance and operation of irrigation network within the area of their operation.
- v) The endeavour of the irrigation agency would be to give increasing responsibility of managing irrigation to WUAs and for this purpose it would
 - a) make available assured and reliable water at the beginning of formation of WUAs,
 - b) undertake rehabilitation and modernisation of the distribution system wherever WUAs, were formed, and c) facilitate fixation and collection of operation and maintenance charges from water users.
- vi) The water users associations would be at liberty to regulate distribution of water to water users on volumetric or any other basis and to levy and collect penalties, if any, fixed by them for violation of water rules finalised for the system under its management.
- vii) The WUAs would be at liberty to save water by improving efficiency of the irrigation system and make the water so saved available to users on payment.

2.2.4 The Government of Andhra Pradesh also decided to extend the implementation of PIM to all commands. To begin with, seven major command areas of Sriram Sagar Project, Nagarjuna

Sagar Project, Krishna Delta, Penner Delta and Godavari Delta were selected. The action plan for promoting PIM contemplated the following :-

- a) Meet users of water extensively and obtain feedback on formation of users associations and participatory irrigation management.
- b) Develop adequate coordination between the District Collectors and the departmental district administration in ensuring appropriate thrust to the participatory irrigation management in the project.
- c) Assess requirements for promoting WUAs and PIM, which included public awareness, education, extension, training requirements, role of staff and social organisations.
- d) Work on details in each project on various items.
- e) Develop the process for election to be conducted
- f) Assess the technical financial and administrative assistance required.
- g) Formulate the detailed process for prior consultation for rehabilitation and improvement of the system within the hydraulic unit.
- h) Monitoring of the work and the WUA.

2.2.5 In order to give adequate representation to all the areas within the WUA, the command was proposed to be divided into nine territorial segments, called the WUA Constituency. Each constituency would elect one member for the executive committee, which in turn would elect six office bearers. The tenure of the members was proposed to be six years. One third of the members would retire after every two years and replaced by election in that constituency. Government of Andhra Pradesh held a state level conference with farmers participation in October 1995 to discuss issues relating to PIM. During 1996 Government organised several project level conferences for creating awareness at the grassroots level.

Andhra Pradesh Farmers Management of Irrigation System Act, 1997

2.2.6 In April 1997, Andhra Pradesh passed the Andhra Pradesh Farmers Management of Irrigation System Act. This was the first law of its type passed in India because of which WUAs were legally empowered for the first time. During the study period, the Act was still in the initial stage of its implementation. Hence any assessment of it could be worthwhile only after

sometime. But given its potential and intrinsic importance, it is useful to have a brief overview of its salient features and the progress made so far.

- 2.2.7 It may be recalled that Andhra Pradesh was among the first few states in India to establish farmers organisations under CA DAs. Many such organisations had been set up in the Sri Ramasagar Project during 1979-81 as part of the Warabandi programme. By the end of 1981, about 3000 of such organisations known as Pipe Committees had been formed. But with the passage of time, most of them either disintegrated or became non-functional. It was in view of such an experience that the government of Andhra Pradesh decided to take a bold step by making PIM and turnover as the key aspects of irrigation reform.
- 2.2.8 The legislation passed and enforced in 1997 provided for creation of WUAs with functional and administrative autonomy. WUAs were empowered to take decisions which would be implemented by even I.D. Funds were to be placed at their disposal by the government in addition to own funds collected by them from their members. Water charges collected would be given back to WUAs to make them financially viable. WUAs were given freedom as regards crops to be grown. The Act also prescribed procedures and guidelines as regards accounting, water budgeting and elections. The Act provided for a three tier organisational structure for major irrigation projects, two tier structure for medium irrigation projects and single tier structure for minor irrigation projects. The WUAs must hold their managing committee meetings at least once in 15 days and general body meetings at least once in a month. WUAs were empowered to identify and prioritise the works to be taken up as well as to accord administrative approval of the same. The competent authority should, however, prepare the technical estimates and give the technical clearance as per the financial limits set.
- 2.2.9 The Act had already been put into force. A total of 10,292 WUAs had been formed of which 1,673 were in major projects covering ayacut of 34.38 lac hect., 304 in medium projects having ayacut of 1.62 lakh hect. and 8,315 in minor projects having ayacut of 7.83 lakh hect. Since the entire state has been covered on a mandatory basis, there is no point in giving a list of them. Elections to these WUAs were conducted in June 1997 while election to 174 distributary committees were conducted in November 1997. WUAs having unanimous election received a one time grant of Rs. 50,000/- while other WUAs received a similar grant of Rs. 30,000. In addition, WUAs had been given funds for performing specific functions. For example an amount of Rs. 3.87 crores was given to 6 WUAs in Distributary No 37 of SRSP

project for construction of field channels. Similarly a sum of Rs. 25 crores was given to WUAs for improving 1022 minor drains under A.P. Hazard Mitigation Project during 1998-99. An amount of Rs. 250 per hectare was to be given to all WUAs in the state for taking up repairs in major, medium and minor irrigation projects.

2.3 Assam

2.3.1 The Government of Assam set up a high level working group under the chairmanship of Chief Secretary for implementation of PIM. However, no policy decision so far had been taken. Some outlet committees, however had been constituted under Command Area Development Programme in Sukla Irrigation Project.

2.4 Bihar

2.4.1 Bihar occupies an important position in Indian irrigation. The state contributed about 13 percent of irrigation from all sources and 10 percent to canal irrigation. Government of Bihar announced its Irrigation Policy, 1993, on the lines of National Water Policy 1987. The policy stated that farmers organisations would be set up to take over the management of irrigation system. It also mentioned that a part of water charges would be given to the organisations to make them sustainable.

2.4.2 Bihar's experience with farmers involvement in water management in public irrigation system spanned minor irrigation tubewells, CADA and the Action Research Programme (ARP) in major irrigation projects. The experience in four Action Research Programmes of Paliganj, Garachoubey, Jamunia and Asarganj distributaries formed the background for replication of the experiment in other areas. The fragmentary information available in respect of farmers' organisations (FO) in CADA, and decision of the State Minor Irrigation Department to transfer management of state tubewells and lift irrigation schemes to Village Panchayats and / or Farmers Organisations indicated the steps taken by the Government in this regard. An attempt had also been made to assess NGOs work in water development and management that had a bearing on the aspects of this report. All these experiences spanned over almost two decades.

2.4.3 Bihar's claim to fame, however, was the Paliganj Distributary Experiment in Sone Command Area. This was also the largest direct experience on a major flow irrigation system. WALMI, Patna took up an Action Research Programme in this area. The distributary had a command area of about 12000 hectares in 76 villages. It was part of Sone canal system built in 1874. The

second project in the Garachoubey Branch is also part of the same system but in the main Western Sone canal. This was at the tail-end and in an area of rainfall deficiency. This ARP was just about two years old, with episodes of discontinuity. Third ARP was in Jamunia sub-branch canal of the Gandak project a post-independence major system but also a diversion scheme. This was on an international river with water sharing arrangement with Nepal. The last ARP in Asarganj distributary was part of the Badua major irrigation system supported by a reservoir. The supply in this system was more stable and yet the farmers had shown encouraging response to organisation for better management. The Paliganj experiment provided the experience in initiating participatory management towards eventual management transfer. The other three projects had contributed to further understanding regarding replicability.

2.4.4 Paliganj was an unique experiment. Prior to formation of WUA, there was total indiscipline among the farmers. Head end farmers commonly breached the canal and blocked it with stop logs. The canal system was ruined in the absence of any maintenance. Social tensions were accentuated by issues related to caste and land tenure. The officials of Water Resource Department dared not to visit the area because of the fear of the incensed farmers attacking them. It was an unlikely location for a pilot experiment if the selection criterion was to maximise chances of success.

2.4.5 Action Research Team of WALMI visited the area and had a land mark meeting on March 17, 1989, with the representatives of farmers. After a frank exchange of views the farmers agreed to form a distributary level committee which would initially concentrate on distribution of water along the canal. The distributary committee also began the process of organising village level irrigation committees. The initial focus was 20 villages which were most affected by distribution of water. The village committees each having 5 to 9 members had different tenures and caste groups. One person from each village committee was on Paliganj Distributary Farmers Committee which had 56 members (one village had two village committees). It met every fortnight and forged a new communication link between the villages.

2.4.6 During dry kharif season of 1989, the upper end farmers agreed to close breaches and remove stop logs and set up a rotational arrangement along the canal. During the kharif season of 1990 an operational plan was discussed and approved by the distributary committee. A joint inspection was undertaken to identify needs for repairs. A maintenance plan based on priorities decided by the committee was made.

- 2.4.7 The ARP revealed that the physical condition of the canal had improved which increased its conveyance capacity and as a result availability of water to farmers in the lower reaches improved resulting in better crop yields.
- 2.4.8 Action Research on Jamunia branch of Gandak project was also taken up. Three more pilot projects had been initiated in other commands. About 248 small and medium and 677 large tubewells had been handed over to local village authorities for operation and maintenance upto October 1995.
- 2.4.9 Regarding the progress of participatory management, NGOs had been working in management of small irrigation works for about three decades after the severe draught of 1966-67. Vaishali Area Small Farmers Association (VASFA) was an outstanding example of a farmers organisation (FO) sustaining such efforts since 1971. It had promoted more than a dozen similar societies which were functioning. Even though these were not cases of management transfer they indicated the potential of FOs to manage irrigation.
- 2.4.10 An NGO called Professional Assistance for Development Action (PRADAN) implemented 191 farmers managed small scale lift irrigation schemes in Ranchi, Hazaribagh, Lohardaga, Gumla, Godda, Dumkha and Singhbhum. These were small schemes and as a result farmers themselves operated them without any assistance from outside.
- 2.4.11 In January 1996, as a part of campaign to create awareness among officials and farmers about PIM, a regional conference was held at Patna. It was sponsored by the Ministry of Water Resources and organised by Water and Land Management Institute, Patna. The conference made several recommendations on specific issues relating to PIM and one general recommendation was to initiate PIM in Bihar in right earnest and at the earliest.
- 2.4.12 WALMI organised an orientation programme for senior engineers of Department of Irrigation working in the field to introduce them to PIM. These officers were asked to select at least one channel (distributary or minor) in their jurisdiction and also to select suitable engineers at the cutting edge to initiate the activities relating to PIM. In all 15 channels were identified for the purpose.
- 2.4.13 Another important decision taken by Government of Bihar was about handing over of management of deep tubewells and lift irrigation schemes to farmers associations. Modalities had been worked out for handing over State owned tubewells to the beneficiaries.

2.4.14 In the minor irrigation sector, poor performance led the Government to a policy of management transfer in 1991. By a resolution of 27 May, 1991, the decision to transfer lift irrigation projects to local village authorities was issued. The projects were to be transferred on "as is where is" basis, through an agreement on the nominal payment of one rupee per year to government for a period of five years. The panchayats were also allowed a one time grant of Rs. 2,500/- for each Lift irrigation (LI) scheme and services of a pump operator-cum-guard free of charge. By 1996, the panchayats had taken over 248 such projects out of more than 2000.

2.4.15 A list of WUAs on canal commands in Bihar is given in the Annexure to the chapter. As regards tubewells, it was only recently on 14th May 1998 that the state government decided to transfer state tubewells to WUAs. This was yet to become operational during the period of the study.

2.5 Goa

2.5.1 Goa had followed CAD programme to form WUAs. The work of formation of Pipe Committees had been taken up in Salauli and Anjunem Irrigation Projects which were covered under Command Area Development Programme. Six water distribution cooperative societies had been formed. Thirty six water distribution cooperative societies were registered in Salauli and Anjunem Irrigation Projects. The entire command area of 2100 hectares of Anjunem project was covered by network of water distribution cooperative societies.

2.5.2 The Govt. of Goa had provided certain facilities to the water distribution cooperative societies. The facilities would be available to the societies for a maximum period of 3 years. Water distribution was looked after by the societies according to warabandi.

2.6 Gujarat

2.6.1 Gujarat has been one of the leading states in India in PIM. In this state the movement of cooperative, which had taken roots quite early, helped in fostering an atmosphere of cooperation and participation in other fields also, especially in management of irrigation. It may be mentioned that an experiment in PIM in this state was made more than 100 years ago when farmers in Lalpari irrigation project of Saurashtra formed an informal group. The state, however, came into limelight in PIM due of the success to Mohini Cooperative Society which started functioning since 1978-79. Details about this would be given in Chapter IV.

2.6.2 Farmers organisations had been formed in major, medium and minor surface water projects in

different parts of the state viz.

- South Gujarat, on Ukai-Kakrapar and on projects between Tapi and Narmada rivers.
- Central Gujarat, on Mahi-Kadna, Pavan and Fatewadi systems.
- North Gujarat, on Dantiwada and Dharoi projects.
- Saurashtra, on Machu - 1, Uben and Bamanbore projects.

WUAs had been formed for lift irrigation projects also. In Panchmalals district of central Gujarat, Sadguru Water Development Foundation, (SWDF) organised such associations on a large scale on weirs built on streams having post monsoon flows. Lift irrigation associations had also been formed in Kheda, Banaskantha and Mehsana districts largely due to efforts of Gujarat Water Resources Development Corporation (GWRDC).

2.6.3 The Government of Gujarat helped in the process of participatory irrigation management. It had promulgated an ordinance in 1989 modifying the then existing Irrigation Act. The ordinance, however, lapsed. Thereafter, GOG continued its efforts through administrative orders. These included setting up of a working group under chairmanship of the Chief Secretary to take necessary steps. In Sardar Sarovar Project, the government adopted a policy of supplying water in bulk only to groups of farmers and not to individuals. Governmental agencies like CADA, GWRDC and WALMI also played an active role in promoting WUAs. Considerable initiative and support were also provided by NGOs like Sadguru Water Development Foundation (SWFD) and Agha Khan Rural Support Programme (AKRSP). External funding through World Bank had been instrumental in introduction of RWS and three tier users committees.

2.6.4 The Govt. of Gujarat issued a government order in June 1995. The main principles laid down in the state policy were as below :

- i) Government invited farmers associations having at least 50 percent farmers of a particular irrigation project as their members to come forward for taking over the responsibility of management of the whole command area or its manageable part. Government also welcomed competent and active NGOs in irrigation sector and capable of promoting farmers associations and supporting them in participatory irrigation management.
- ii) Government welcomed participation of farmers in planning, design and execution of minor irrigation projects as well as of canal system, provided they got organised. Such associations should be

willing to contribute ten percent of the capital expenditure for rehabilitation and modernisation work of irrigation canal system.

- iii) Farmers associations should be registered under Cooperative Societies Act or Indian Companies Act. However, in the starting phase, a farmers association could be given recognition even as a proposed irrigation society by the Government at the circle level.
- iv) The ownership of original structure and assets of irrigation projects like project headworks, canal systems and other construction would remain vested in the State Government, whereas farmers associations would be responsible for irrigation planning, administration and management as well as operation and maintenance, consistent with the provisions of Memorandum of Understanding (MOU). Government would, however, continue to be responsible for providing technical guidance and financial assistance towards essential construction, additions / alterations and modernisation as well as rehabilitation of works for assured irrigation supply to the farmers.
- v) Government would provide rights as per legal provisions to the registered farmers associations through delegation of power and activities for irrigation management services, consistent with the provisions of Bombay Irrigation Act XIX 1879 including its arrangements from time to time for effective control and management by the farmers association.

2.6.5 The guidelines for the Memorandum of Understanding to be entered into between the Government and the farmers associations had also been finalised and issued by the Government in November 1995. The MOU specified water allocations of WUA in different irrigation seasons and their responsibilities.

2.6.6 After deliberation of a High Level Working Group, it was decided to take up 13 pilot projects which would work as learning laboratories. These had been identified in different parts of the state and in different agro climatic zones. These were :

	Name of the project	Command Area in hect.	District
i)	Pigut	1400	Bharuch
ii)	Baldeva	2200	Bharuch
iii)	Chopadava	1000	Bharuch
iv)	Kakadiamba	800	Bharuch
v)	Lakhigam	400	Surat
vi)	M R B C (Anklav), System of Kosindra	115	Kheda

	Village, near Anand		
vii)	Laximpura on Datiwada Scheme	225	Banaskantha
viii)	Astra minor on Ukai Kakrapar Canal system near Ankleshwar	920	Bharuch
ix)	Chandrawali Minor Irrigation Scheme	440	Junagarh
x)	Thalota village area on Dhroi Canal System near Visnagar	300	Mehsana
xi)	Mobhnesa Irrigation Scheme	580	Amreli
xii)	Demi II Command Area minor M1L & M4L	200	Rajkot
xiii)	Bharapar Irrigation Scheme Taluka Abdasa	172	Kachchh

2.6.7 According to ISPAN Report, there were 464 WUAs in 1994 of which 372 had been organised by governmental agencies and the rest 92 by NGOs. All the experiments, however, were not a success. The mortality rate had been about 25 percent according to the same ISPAN report. According to the same report, the coverage under PIM was less than 1 percent of irrigated command.

2.6.8 A list of WUAs on major, medium and minor projects alongwith their location, year of formation and number of members is given in Annexure to this chapter. It can be seen that bulk of these are in Ukai Kakrapar and Daman Ganga Reservoir Projects. Many of them have been formed very recently. Most of them have small number of members.

2.7 Haryana

2.7.1 Govt. of Haryana had agreed to implement PIM in the Water Resources Consolidation Project which was being implemented with the assistance of World bank. A state level conference on PIM was organised by the State Govt. with enthusiastic participation of farmers. In order to understand how WUAs could be integrated within the prevailing warabandi system, Haryana was planning to carry out about 10 pilot experiments. Meanwhile, the state had decided to provide water course lining only to farmers who formed and registered a WUA below the outlet. In October 1995, Haryana reported the formation of 262 such outlet level WUAs. As regards state tubewells, Haryana tried to transfer them to Panchayats in early 1990s but could not succeed.

2.8 Himachal Pradesh

2.8.1 Under Hill Area Land & Water Development (HALWD) the Farmers Organisation Development Programme (FODP) was initiated in June 1990. It was meant to improve the utilisation of water by imparting management and communication skills both to farmers and the technical staff of the government. Training and extension programmes geared specifically to irrigated agriculture and water management were developed. Further, a system to bring about joint problem solving involving farmers and government agencies was evolved. Due to its late start, however, FODP activities had to be carried out on irrigation schemes that had already been made operational.

2.8.2 Twenty-four schemes representing different types of irrigation systems were selected as "model" schemes for the programme. Village Extension Officers were trained and posted at each scheme to work as facilitators to foster interaction between farmers and government agencies and to help farmers organise their own associations. However, the FODP unit was disbanded by the end of June 1992, after being in operation for two years.

2.8.3 At the close of HALWD in 1992 farmer organisations, or as they were locally called, Krishak Vikas Sanghs (KVS), meaning "farmer development organisation", were functioning quite well in all 24 pilot schemes. All physical works had been completed and farmers were largely satisfied with the outcome. However, much remained to be done as regards institutionalising the entire process within the government and between the farmers and the government to make the programme sustainable.

2.9 Karnataka

2.9.1 In Karnataka PIM was being implemented in five CADs. the CAD projects were :

- i) Tungbhadra Project, Munirabad
- ii) Cauvery Basin Project, Mysore
- iii) Bhadra Roservior Project, Shimoga
- iv) Malapraha & Ghataprabha Projects, Belgaum
- v) Upper Krishna Project, Bheema Rayanagudi

2.9.2 According to Water and Land Management Institute (WALMI) Dharwad, even though water users cooperative societies had been organised under CAD Projects, so far irrigation management functions had not been turned over from the Irrigation Department to the water users societies.

Therefore, these societies had not become functional.

2.9.3 To look into all aspects of participatory irrigation management and make recommendations, the State Government constituted an Expert Committee headed by the Additional Chief Secretary. The final report was submitted on 31 July 1997. Further progress of PIM required amendment of four Acts and Rules made thereunder by Karnataka government to make the enabling legal provisions for implementation of PIM, as well as formulation of a comprehensive policy on PIM, which should deal inter alia with the questions of incentives to be given to the societies and volumetric water rates. State government was seized of the matter but the progress had been slow.

2.10 Kerala

2.10.1 PIM had been implemented by Kerala in the projects under Command Area Development Programme. Three tier farmers associations at the outlet, canal and project level had been contemplated. Under Kerala Command Area Development Act 1986, there was a provision for formation of Beneficiary Farmers Association (BFA) for one or more outlets. These had been registered under Societies Registration Acts 1860 and 1955. Generally an outlet commands an area of 40 hectares which is the area of BFA. Model byelaws were approved by the Command Area Development Authority.

2.10.2 The Managing Committee of the BFAs was elected by the General Body of members every year. The BFAs had been given the responsibility of distribution of water also below the outlet. All the Beneficiary Farmers Associations in a major branch canal or distributory were grouped together to form canal committee as contemplated in Kerala Command Area Development Act 1986. These committees were constituted by the Command Area Development Authority. Section 9 of Kerala Command Area Development Act, 1986 provided for constitution of project committees. The Executive Engineer incharge of the project was the convenor of the committee. The committee comprised one representative each from canal committee. Representatives of departments of Agriculture and Cooperation, MLAs and MPs representing the area were members of the project committee. The committee met at least one month before the distribution of water started and thereafter every month. The main function of the committee was to ensure that water was distributed equitably in all areas of the project. The time of starting distribution of water, the turn system and the time lag for each turn were decided by the project committee. Many of these committees were on paper only; they were not functioning. As regards canal systems

without CADA, there was no provision for WUA.

2.11 Madhya Pradesh

2.11.1 The Water Resource Department of the State Government had decided to start some pilot projects for formation of WUAs at the minor canal level with a maximum discharge of 15 cusecs and a maximum command of 2000 hectares. In these schemes, operation and maintenance of the system upto minor level, recovery of irrigation dues and conflict resolution would be entrusted to the farmers. A decision had been taken to constitute 73 societies in all the districts of the state. 64 Societies had been registered.

2.12 Maharashtra

2.12.1 The PIM was initiated in Maharashtra in 1986. Three water users associations (WUA) were formed and turnover of the system was effected. The plan gathered momentum after the completion of Action Research Programmes in Mula and Waghad projects. After the issuance of guidelines on PIM, 27 WUAs were registered and turnover was effected upto January 1993. During 1993-96, 56 additional WUAs were initiated, registered and turnover effected. Thus 86 WUAs with CCA of 38401 hectares had taken over operation and maintenance of irrigation system below minors upto the end of March 1996.

2.12.2 The progress of formation of Water Users Associations (WUA) was, however, not very encouraging. Out of total irrigated potential of 30.5 lakh hect. created on major, medium and minor irrigation projects in the state as a whole, 162 WUAs comprising all major, medium and minor projects with irrigable command area (ICA) of 62700 hect. were in operation at the time of the study in April 1998. Thus only 2 percent of the irrigated area was under PIM. Another 25 WUAs having 9174 hect. ICA, had signed memorandum of understanding (MOU) with Irrigation Department but were not in operation. Two hundred and three WUAs with 65007 hect. ICA were registered but joint management survey (walk-through survey by irrigation officials and farmers representatives) to document defects in the minor canal system including field channels had to be carried out, whereas in 192 cases with 68408 hect. ICA no objection certificate (NOC), a requisite for registration of WUA, had not been issued by Irrigation Department .

2.12.3 What are the reasons for the slow progress ? PIM so far was not included by the state government in the state policy. The government was undertaking this activity as a pilot project leaving the implementation to the field officers. The process was not yet institutionalised and depended

entirely on the views of policy makers and top executives.

The participation of users in irrigation management was basically for improving the performance of irrigation and as such the entire programme needed to be taken up by the Irrigation Department as its own normal activity. The improvement in irrigation utilisation, increase in water use efficiency, economy of water and equitable and timely supply would increase the production and productivity of crops thus bringing credit to the Irrigation Department of the state. This realisation was still not imbibed in the ID personnel.

2.12.4 The existing irrigation systems below the minors were in many cases unserviceable due to paucity of funds. It was, however, decided by the government that these systems would be rehabilitated to ensure water reaches as per design upto the tail end farms. The rehabilitation works were further delayed by the contract agencies which were in many cases cooperative labour societies. Many of these agencies had no capacity to carry out such works expeditiously and the quality of the work done was very poor.

2.12.5 WALMI Aurangabad provided training to the office bearers of the WUAs and conducted shibirs in the command of WUAs. There was greater need to train the ID staff including high level officers so as to give intensive training in PIM, particularly about their role and obligation / responsibilities / duties / providing funds, monitoring of the working of WUAs, etc.

2.12.6 A list of WUAs supplied by the state government / WALMI Aurangabad is given in Annexure.

2.13 Orissa

2.13.1 The Government of Orissa initiated outlet level associations in Mahanadi Project. An Action Research Programme was initiated in Mahanadi Delta Irrigation Project, Atala and Delang Minors and Kuamria Medium Irrigation Project.

2.13.2 A high level working group under the chairmanship of Chief Secretary was set up to consider and formulate policy options for implementation of PIM. The WUAs would be formed in a minor of a small distributary level commanding an area of 300-600 hectares. Here it may be noted that some major and medium irrigation projects in Orissa are being rehabilitated under W.R.C.P. funded by World Bank. As per norms of the World Bank these projects could ultimately be handed over to WUAs. This process might take about 5 years. Meanwhile in a few projects WUAs were proposed to be established before the rehabilitation work began so that farmers could participate in it and feel committed to the maintenance of system thereafter. By 1997, 50 WUAs were

established in the four major and minor irrigation projects as per details provided in the Annexure to this chapter. Farmers were motivated by WALMI and a few NGOs to form WUA.

2.14 Punjab

2.14.1 Punjab had a strong tradition of waranbandi (rotational water supply). This is known for providing assured supply of water for irrigation as per an agreed schedule. Some participation of farmers in finalisation of chakes and distribution of water takes place. The operation and maintenance of water courses was also managed by farmers themselves. Because of these factors, there had been no efforts to introduce farmers participation in management of irrigation in the state.

2.15 Rajasthan

2.15.1 A national conference on PIM organised during 19-23 June, 1995 gave a fresh impetus to PIM efforts in Rajasthan. At the conference, Rajasthan was placed under category B which indicated that no progress had been made at PIM; yet the state was considered promising with scope for early action and related success. CAD and WU department had been nodal department for PIM even for non-CAD areas.

2.15.2 A number of persons had been sent for training on PIM, especially to ASCI Hyderabad and group of officers and farmers had visited PIM sites in Maharashtra and Gujarat. The state Govt. had organised a number of PIM training programmes in Kota in the state. Kota area in Rajasthan had become a place where WAPCO brought farmers from outside the state.

2.15.3 In May 1996, CAD project issued guidelines about how irrigation water management cooperatives could be formed and got registered. These guidelines were based on a number of consultations with farmers and members of water users associations. Funds for PIM training became available from Ministry of Water Resources through WAPCO or Rajasthan Land Development Corporation (RLDC) or in the CAD Chambal Kota Project area through CIDA a Canadian agency. As a result even ordinary members of the WUA got an opportunity to take part in PIM Workshops. In addition, selected RAJAD (Rajasthan Agricultural Drainage Research Project) farmers and officers were sent out for field visits cum training in Gujarat and Haryana. However, very little progress had been made in forming WUAs. By the end of 1997, there was a proposal to handover 10 minors of 6 projects to WUAs. Their list is given in Annexure I to this chapter.

2.16 Tamilnadu

- 2.16.1 Tamilnadu is one of the states in India that has harnessed its surface water resources to the fullest extent. Irrigation management, however, was undertaken by different departments resulting in problems of coordination between them. In Tamilnadu, unlike other states, irrigation fell under the Public Works Department (PWD). In addition, PWD was also incharge of public buildings, fishing harbours and minor ports. The PWD was incharge of tanks with command area exceeding 40 hectares, while Rural Development Department was incharge of the smaller tanks. The Revenue Department which maintained land records collected irrigation charges as part of land revenue. The Agricultural Engineering Department (AED) was responsible for soil conservation, minor irrigation and land reclamation. It is also responsible for on farm development and Command Area Development Programme (CADP) which started in 1974 in this state. This department was formed out of a special wing of the Agriculture Department which was earlier looking after CAD since its inception in 1974. CAD concept laid emphasis on taking water to 8 hectare command at government cost and introduction of Warabandi, a rotational water supply system. It was observed that in the absence of farmers' involvement, this system frequently broke down. Several experts and WUAs felt the need for a single agency in the state so that WUAs could approach only one agency for all of their works.
- 2.16.2 Some policy level changes had recently been brought about in the organisation of PWD. Taking off from the suggestions of a World Bank mission in connection with the proposed Water Resources Consolidation Project (WRCP), the Government of Tamilnadu, (i) bifurcated the PWD into Water Resources Organisation and Building Organisation, (ii) created a water resources organisation along river basin lines and functional specialization, (iii) established the Water Resources Control and Review Council under the chairmanship of the Chief Minister, and (iv) adopted a state water policy.
- 2.16.3 According to state water policy, the government was committed to farmers' participation and eventual system turnover. Some suggestions were still under consideration, the most important of which related to a commitment by the state to

contribute Rs. 265 per hectare on an average for maintenance and the transfer of O & M responsibilities to farmers at the distributary level.

2.16.4 Tamilnadu was also one of the states in India where experiments in farmers participation in irrigation management had been made. This was done without bringing about any change in the legal setup in the state. In fact, there was no comprehensive legislation even relating to irrigation as such. Presumably, enactment was not thought necessary since the systems were managed satisfactorily by the village communities. Water was supplied to an outlet and then shared by farmers with their own system of control and rotation. In the absence of a comprehensive Irrigation Act, the Board of Revenue's standing orders and certain provisions of the Indian Penal Code were still invoked to deal with irrigation offences. A compendium of rules and regulations of all reservoirs and irrigation system in the state were the guiding rules for the operation of these systems. These rules, however, were too general and left much to the discretion of the government officials.

2.16.5 In Tamilnadu, Agricultural Engineering Department (AED) propagated the following models of PIM was one of the pioneers in

- i) 'Thindal Model' developed by Agricultural Engineering Department was prevalent in the Lower Bhavani Project.
- ii) 'Saliperi Model' developed by Irrigation Management Training Institute (IMTI), Tiruchy which had formed 50 channel level associations and 36 tank level associations some of which were funded by the government and some by the USAID.
- iii) Anna University Model in selected four tanks i.e. Kattiamandal Tank in Chengleput district, Kedar Tank in South Arcot district, Sow Darpatty Tank in Madurai district and Kannangudy Tank in Pudukottai district. Besides, the recently constituted Water Resources Organisation of the state government also initiated formation of WUAs at distributary level rather than sluice level covering an area of about 500-700 hectares.

2.16.6 It may also be noted that Tamilnadu had an ancient tradition of some degree of farmers participation in irrigation management known as Kudimaramath under which farmer

groups used to provide free labour for undertaking repair, maintenance including removal of weeds etc. as well as minor new construction activities related to irrigation. In most of the basins of Tamilnadu, building up temporary barriers called "korambu" across the flow to raise the water level and divert to the supply channel had been in vogue. These 'korambus' used to get washed out during the floods but were redone thereafter through each family contributing labour for such works. This tradition became somewhat weak after independence with increasing reliance on government funding, but was still lingering on. This had the effect of facilitating formation of WUAs in the state.

2.16.7 In the year 1994-95, Water Resources Consolidation Project (WRCP) was launched in the state with financial assistance from the World Bank. System Improvement and Farmers Turnover (SIFT) was one of the major components of the project with an investment of more than 50% of the project outlay. Under this programme it was proposed to cover an area of about 5.3 lakh hectare during the project period ending the year 2001 - 2002.

2.16.8 Since the SIFT programme was massive in nature and required highly intensive and coordinated efforts on a very large scale, action was initiated in three selected pilot commands, which constituted representative samples of the type of irrigation systems existing in the state. The pilot commands selected and their characteristics are furnished as under :

i) Marudhanadhi Reservoir System; A small reservoir system with command area of 2665 hectare only, comprising 1000 hectares of old command under six anicuts and supply channels with direct command and tanks and 1665 hectares of new command under right and left bank canals.

Six farmer councils were identified and jurisdiction delineated after consultation with the farmers. Three associations were already registered as societies and further process was in progress.

ii) Cumbum valley system; This was a diversion system and functioning for more than 100 years. Seventeen anicuts and twenty two supply channels covered about 6500 hectares of old command and 1600 hectares of new command. The farmers were very progressive and readily responded to the invitation to participate in irrigation management. Out of 12 farmers councils identified and delineated, seven had already been registered as societies and the process in the respect of others was in

progress.

- iii) Sathnur Reservoir System; This was a major system having a command area of about 18200 hectares distributed between the left bank canal (LBC-9700) and right bank canal (RBC - 8500 ha). This was one of the selected systems where in CADA programme was implemented by AED during 1987 to 1995 and a number of farmers councils were established and registered. As on date, none of the farmer councils was alive due to lack of follow up action and non-rendering of annual accounts and reports as per the Act.

2.16.9 The farmers in the initial stages were not very responsive for the invitation to participate in irrigation management through the process of taking over certain operation and maintenance system responsibilities. After an intensive and effective interaction with them both by the experts and O & M officials, the concept of turnover had been generally accepted and the process of turnover was to commence.

2.16.10 Already 39 farmers councils had been identified and delineated (18 in LBC and 21 in RBC). So far only one association had been established in RBC and registeed. The process had already been initiated in respect of other councils. A list of WUAs supplied by the state authorities is given in Annexure to this chapter.

2.17 Uttar Pradesh

2.17.1 In Uttar Pradesh public tubewells were constructed as way back as in 1980. The State government decided in 1992 to transfer 100 such tubewells to cooperative societies (Nal Koop Panchayat Samiti) on 5 years lease for operation and maintenance. Only those tubewells were selected for transfer in which distribution system was fully constructed and discharge was at 25000 gallons per hour.

2.17.2 The Government decided to give a grant of Rs. 2000/- for minor repairs of a tubewell. The societies were required to bear the cost of electricity charges. However, it was also decided that the previous dues to the Electricity Board would be cleared by the State Government. The society was authorised to appoint a tubewell operator and pay his salary. Not much

noteworthy work however had been done in Uttar Pradesh.

2.18 West Bengal

2.18.1 West Bengal had successfully introduced PIM in tubewell irrigation schemes. Because of numerous problems in the functioning of irrigation system, it was decided to hand over the installations to Panchayats and use them as management agents for the effective operation and maintenance of these installations. The Panchayats organised beneficiaries committees and gave them the responsibility for operation and maintenance of the system in 1991. Later on in March 1993 high capacity tubewells were also placed under the Panchayat Samities. The system was operating successfully in West Bengal.

2.19 Overview

2.19.1 What emerged from the above survey was that the growth of PIM in India had been uneven and slow. There were states like Punjab where PIM was nowhere in sight. But there were also states like Gujarat and Maharashtra which had an experience of PIM for more than a decade. And Andhra Pradesh had taken the initiative to enact a comprehensive law for the purpose and start implementing the same. The impact of this novel experiment would be known in future. During the study period, the states of Maharashtra, Gujarat, Tamilnadu and Bihar had more experience in PIM and that was a reason why these states were selected for a detailed study. But the progress was slow even in these states. The coverage under PIM was reported to be less than one percent of irrigated command in Gujarat. This figure was about two percent in Maharashtra.

Annexure
List of Water Users Associations in India
BIHAR

S.No.	Name of Irrigation Scheme	Name of Irrigation Division & Address	Name of the Distributary where experiment is going on from
1	2	3	4
I	Sone Project (Major)	Sone Canal Modernisation Division Bikram. Sone canal division Khagul Irrigation Division Dehri, Rohtas	(i) Paliganj Distributary (88-89) i) manjhauli Disty (96-97) ii) Murka Disty. (97-98) iii) R.P. Channels (96-97) iv) Kurkuri Disty (97-98) v) Khajuri Disty. (97-98) i) Gara Choubey Branch Canal (Reach I-VIII) (96-97) ii) Goghara Disty. (97-98) iii) Loknathpur Disty. (97-98) iv) Raghunathpur Disty. (97-98) v) Kathrain Disty. (97-98) vi) Dangari Disty. (90-91) vii) Barhu-par Disty (90-91) viii) Gorsara Disty. (96-97) ix) Panjraon Disty (96-97) x) Harinagara Disty (97-98)
	Gandak Project (major)	Saran Canal division Siwan. Tirhut Canal Division No. 2, Betitian/west chaurhparan Tirput Canal Division Motihari Tirhut Canal Div. no. 1 Muzaffarpur Tirhut Canal Div. Saraiya, muzaffarpur	i) Narayanpur Sub-Disty. (96-97) ii) Naraharpur Minor (97-98) I) Sone Saraiya Disty. (96-97) I) Dawahi Sub. disty. (90-91) I) Ram Dayalu Nagar Sub. Disty (96-97) Barkagaon Sub. Disty (96-97) III) Marwan Minor - (97-98) 1) Habibpur Sub Disty. (97-98)

3.	Kosi Project Major	Western Kosi Canal Division phulparas Irrigation Canal Div. Banmankhi Purnia Canal Division Kosi project Triveniganj Supaul	Baruar Sub. Disty. (97-98) Banmankhi Disty. (96-97) Durgapur Disty. (97-98)
4.	Kiul Badua Irrigation Div. Chandan Project (Medium)	Tarapur Irrigation Division Bijikhorwa Irrigation Division Bausi	Asarganj Disty. (90-91) Pathalkudri Disty. (96-97) i) Chinar Disty (96-97) ii) Sri Pathar Disty (96-97)
5.	Bilasi Project (Medium)	C.E., Bhagalpur	Bilasi (left) (97-98)
6.	Jinjoi Project (Medium)	Waterways Division Daltanganj (Palamu)	Jinjoi Disty. (96-97)
7.	Malay Project (Medium)	C.E., Ranchi	Malay (97-98)
8.	Lalratu Project (Medium)	Distributary Div. Damsite, Dhurwa, Ranchi	Lalratu (96-97)

GUJARAT

S.No.	Name of Irrigation Scheme	Name & Location of MandAali Association	No. of water users in the mandali	Year of formation.
1	2	3	4	5
I	Daman Ganga reserrior Project District Valsad (Major Project)	1. Asma Rabdi Nimkhal Piyat Sahkari Mandali Pardi	117	1996
		2. Katchwal Advisai Piyat Sahkari Mandali, Pardi	200	1996
		3. Mota Pondha Piyat Sahkari Mandali, No. 1 Dharmapur	121	1997
		4. Sakesh Borlai Piyat Sehkari Mandali, Pardi	400	1997
		5. Pariya - Tukawada Sarodhi Barwadi Group of Piyat Mandali	150	1997
		6. Mota Pondha Piyad Sahkari Mandali No. 2 Dharampur	111	1997
		7. Zaroli Vibhag Piyati Sahkari Mandali No. 2 Umbargaon	166	1997
		8. Moti Tambadi Piyat Sahkari Mandali Pandi	183	1997
		9. Katchigam Piyat Sahkari Mandali Umbergaon	192	1997
		10. Delhi Piyat Sahkari Mandali Umbargaon	355	1997
		11. Kalgam Piyat Sahkari Mandoli, Umbergaon	351	1997

1	2	3	4	5
2.	Ver II Irrigation scheme District surat (Medium Project) A distribution of River Tapi	1. Amlī Piyat Mandali Mandvi 2. Karavali Piyat Mandali Mandali 3. Paradi Sahkari Piyat Mandoli, Mandvi 4. Areth Minor Piyat Sahkari Mandli Areth Mandvi	45 80 45 98	1995 1997 1997 1997
3.	Jhuj Irrigation Scheme District Navsari on river Kaveri & distributory of river Ambica (Medium Project)	Manpur Vibhag Sahkari Mandali Vansda	15	1997
4.	Kakdiamba Irrigation Scheme on river Waghata a tributary of river Tapi District Bharuch (Minor)	Jagruta Piyat Mandli Nana Doramba Sagbara	325	1996
5.	Chopadavav Irrigation scheme River Doman a tributary of River Tapi Sagpara (Minor)	Sanjivani Piyat Sahkari Mandli Segbara	625	1994
6.	Lakhigam Irrigation scheme River Dhak a tributary of river Tapi Lakhigam Mandvi (Minor)	1. Lakhigam Daba Kantha Piyat Sahkari Mandli, Mandvi 2. Lakhigam Jamnakantha Piyat Sahkari Mandli Mandvi	283 380	1994 1997

1	2	3	4	5
7.	Ukai Kakrapur Project (Major)	1. Mohini Water Cooperative society Mohini Chorasi	225	1978
		2. Bhartana Group Water Cooperative Society Chorasi	242	1992
		3. Umrakh Water Cooperative Society, Bardoli	213	1989
		4. Gangpur Water Cooperative Society, Bardoli	342	1986
		5. Mata Water Cooperative Society Bardoli	115	1997
		6. Dihen Water Cooperative Society, Olpand	588	1990
		7. Nesh Kantha Vistar Khali Udvaham Cooperative Society Olpad.	226	1990
		8. Achhanan Water Cooperative Society, Olpad	112	1996
		9. Karmala Water Cooperative Society, Olpad	181	1996
		10 . Kimamali Water Cooperative Society, Olpad	64	1996
		11. Vachharwad Water Cooperative Society, Navsari	807	1996
		12. Sabj Water Cooperative Society, Ganderi, Navsari	197	1985
		13. Sardar Kalveh Water Cooperative Society	227	1982
		14. Kambad - Pawdi Atgam Water Cooperative Society, Gandevi	190	1986

1	2	3	4	5
		15. Sadlav Munsad Water Cooperative Society, Navsari	97	1996
		16. Ugat Water Cooperative Society, Navsari	123	1996
		17. Chandra Vasan Water Cooperative Society, Gandevi	61	—
		18. Chitali Saraiya Daxin Vibhag Water Cooperative Society, Gandevi	290	1983
		19. Wanskari Water Cooperative Society Bardoli	290	1996
		20. Vedchhi Water Cooperative Society, Valod	101	1996
		21. Bhairvi Ven Falu Water Cooperative Society Chikhli	145	1997
		22. Kanbhai Chhatedia Water Cooperative Songadh	71	1997
		23. Goda Vardha Water Cooperation Society Songadh	117	1996
		24. Digas Group Water Cooperative Society Hansot.	350	1990 1995
		25. Badodra Water Cooperative Society, Harsot	215	1994
		26. Saras Water Cooperative Society, Olpad	261	1986
		27. Gedat Water Cooperative	610	1955

1	2	3	4	5
		Society, Gavdevi		
		28. Hathuka Water Cooperative Society Valod	152	1983
		29. Rajma Water Cooperative Society, Harsot	179	1982
		30. Rajama Water Cooperative Society, Pardi, Idms Hans of	184	1982
		31. Shera Water Cooperative Society Hansot.	189	1988
8.	Shetrunji Irrigation Scheme on river Shetranji near village Rajasthali of Palitana Taluka of Bhavnagar District (Major)	1. Ghogha Kuda Piyat Sahkari Manali Taj Ghogha	244	1982
		2. Medha Juth Piyat Sahkari Mandali Palitana	158	1981
9.	Sabarmati Reservoir Project (RBMC) D2T of Branch 2 of Sabarmati. Right Bank main canal (major)	Thelota Piyat, Mandali Mehsana	180	1995
10.	Sabarmati Reservoir Project (RBMC) MSL of Branch 3 of Sabarmati. Right Bank main canal (major)	Rangpur Piyat Sahkari Mandali Vis Nagar.	179	1996
11.	Sasoi Irrigation Scheme (Medium)	Sasoi Irrigation Water Supply agriculture Cooperative, Mandali	1089	1997
12.	Panam Irrigation Scheme District Panchmahals (Major)	Morra Piyat Vistar Pani in wehchni Matini Sahkari Mandali	130	1997

MAHARASHTRA

Sr. No.	Name of Project	Type of Project	Location Dist.	No. of functioning WUAs
1.	Lower Wunna	Major	Nagpur	1
2.	Pench	Major	Nagpur	4
3.	Nalganga	Major	Buldhana	1
4.	Dyanganga	Major	Buldhana	1
5.	Upper Godavari Waghad	Major	Nashik	8
6.	Upper Godavari Palkhed	Major	Nashik	18
7.	Upper Godavari Ozerkhed	Major	Nashik	4
8.	Girna	Major	Jalgon	1
9.	Mula	Major	Ahmednager	14
10.	Dharna	Major	Nashik	2
11.	Khadakwasla	Major	Pune	2
12.	Bhima (Ujani)	Major	Solapur	18
13.	Krishna	Major	Satara	8
14.	Kukadi	Major	Pune	19
15.	Jayakwadi	Major	Aurangabad	16
16.	Majalgaon	Major	Beed	4

17.	Purna	Major	Parbhani	7
18.	Manjara	Major	Latur	2
19.	Upper Penganga	Major	Nandhed	2
20.	Girja	Medium	Aurangabad	1
21.	Kurnoor	Medium	Osmanabad	1
22.	Dattapur	Minor	Yeotmal	1
23.	Rajur	Minor	Yeotmal	1
24.	Waghi	Minor	Akola	1
25.	Goulane	Minor	Nashik	1
26.	Parunde	Minor	Pune	1
27.	Hadashi	Minor	Pune	1
28.	Loni	Minor	Aurangabad	1
			Total	141

Orissa

Project	No. of villages	No. of WUAs	CCA covered (ha)
i) Ghodahad Project	81	20	7203
ii) Rushikulya (Distributory No. (11)	43	13	12,618
iii) Derjang Project	51	13	5,970
iv) Auili Project	8	4	1,798

RAJASTHAN**(Proposed WUAs)**

Name of Minor to be handedover to WUA.	Name of Project	District	Name of Association taking over the Minor
Luharia Minor	Luharia	Chittorgarh	Kisan Shramik Seva Samit Luharia
Rail Magra &	Nand Samand	Raj Samand	Kisan Shramik Seva Samiti Rajiwas
Baneria Minor	Nand Samand	Raj samand	Kisan Shramik Seva Samiti Rajiwas
Kishangarh Minor	Kishangarh	Bhilwara	Kisan Sinchai Jal Upbhokta Samiti,Kishangarh
"B" Minor	Gang Canal System	Sriganganagar	MOU not signed
Nagrana Minor	Bhakra Canal system	Hanumangarh	MOU not signed
Minor No.1 of LMC	Gudha Irrigation Project	Bundi	Mangli matah ji Sinchai Jal prabandh Samiti Ltd. manglikala
Alod Minor of RMC	Gudha Irrigation	Bundi	Bichhri Sinchai Jal
Minor No.2 of LMC	Gudha Irrigation Project	Bundi	Mangli Khurd Sinchai Jal Prabandh Simiti Mangli,Khurd
Minor No. 3 of RMC	Gudha Irrigation	Bundi	Sathur Mataji Sinchai Jal prabandh Simiti,Sathur

**TAMILNADU
CANAL COMMAND, GOVERNMENT FUNDED**

Name of the Association	Name of the channel	District	Date of Registration	Number of Farmers Members
Mallgalmedu vaikkal Pasanatharar Sangam	Pamanaru	Thiruvarur	2.12.92	105
Sembaral girama keel Panguni Sembaral Volkka Pasanathar sangam	Keelpangunj	Trichy	7.3.94	101
Odampokkiar Tirukkannamangal volkkal Etialur girama pasanathar Sangam	Odampokki	hiruvarur	1994	251
Kallani Kalval Kalayana oda No. 1 volkkal kattur girama Pasanarthar sangam	Kallanai kalv	Tanjavur	1994	157
Vennar Aravur voikkal palthanseri girama pasanathar sangam paithanseri	Vennar	Thiruvarur	10.3.94	72
Odampokki thirukannamangal poduvikkal vedagandam	Odampokki	Thiruvarur	04.04.94	43
Koralyar munnal Eranuvanthinar Colony vikkal	Korairaru	Thiruvarur	09.01.94	183
Kallanal Kalval Kalakka Mangalam Eri kalakka Mangalam girma pasanathar sangam	Kallanal kalv	Padukkoital	02.05.94	157
Pullambadi Piradha kalvai Oneram en kllal voikkal pasanathar sangam	Pullambadi p kalval	Trichy	1994	895
Pathalapettal melakulam Koolakulam KLLLvalkkai Pasanadhargal sangam	Melakulam Keelakulam Kilavolkkal	Trichy	Jul-94	151
Palam pandiyaru ammaur Vadakku pasana volkkal Ammaur girama pasanatharar sangam	Palampanndly	thiruvarur	Jul-94	112

Puthlya kattalal Meddu Volkhal Elaeri-Peduthan Erigal pasanatharagal sangam Manayeripatti	Yela Aru Pad Tanjavur		07.07.94	92
Ayyan Senkkarayur volkkal pasanatharar sangam Ariyur	Alyan sengar Trichy		04.04.94	232
Pandavayaru chithannakudi Village water user's Association	Pandavayaru	Thiruvarur	2.8.94	92
Pullambadi Paradhana Kalvain 6,4,5 on kllal volkkal Pasanatharargal sangam Alampakkam	Pullambadi Pradhanakalval	Trichy	09.12.94	601
Vellaiyar Ohal Peralyur volkkal ohal Peraiyur girama pasanatharar sangam	Vellayaru	Thiruvarur	01.06.94	168
Pullambadi Piradhana Kalveyin Pathinonramken Kalin kilal voikkam pasanatharakal sangam	Pullambadi	Trichy	Apr-95	65
Veera cholanaru Kandlyamadi volkkal Manganallur girama pasana sangam	Veerasolanar	Nagapattinam1994		200
Koralyaru Thukannan Kuruvl Pirivu Udayamarthandapuram Volkkal Udayamarthandapuram girama pasanatharar sangam	Koralyar	Thiruvarur	24.7.95	220
Govindan Enkindra Siruthaial Eri Ayakattuthargal Sangam	Siruthalal	Thanjavur	11.1.93	162
Pudhiyakattalal Mettu volkka kotra eri kotra vayal girama pasanatharar sangam	Pudhiya katta volkkal	Thanjavur	31.1.96	21
Mudikondan Pinvu Achuthamangalam volkkal, Achthamangalam gramma Pasanathararar Sangam	Mudikondan	Thiruvarur	1996	201
Harichandranadhl Komal Volkkal Privu Andankari Girama pasanatharagal sangam	Harichandran	Thiruvarur	12.04.97	225

Koralyaru Dhukkangangh kuruvi privu, Udayamardhandapuram Privu sirupannayur volkkal Sirupannayur girama pasandharagal sangam	Koralyaru	Thiruvarur	29.04.97	184
Koralyaru Natchi kulam priv chettiya kuruchi girama pasanadharagal Sangam	Koralyaru	Thiruvarur	07.05.97	54
Pudupandiyaru harichandra nadhi matrum Ovarur pudhu Volkkal pasanadharagal Sangam	Pudupandiya	Thiruvarur	05.03.97	408
Vennar Thiruthangoov Vadaku Volkkal Thiruthangoor girama pasana sangam	Vannar	Thiruvarur	06.04.97	149
Vennar Iluppur volkkal (Thiruthangoor vattam) Tittachery pasana sangam Thiruthangoor	Vennar	Thiruvarur	06.08.97	37
Koralyaru privu, Tholi (Thiruthangoor vattam) Tittachery pasana sangam Thiruthangoor	Koralyaru	Thiruvarur	06.08.97	73
Mullalyaru privu pon volkkal privu thoothadi Moolal girama pasanadharar sangam	Mullalyaru	Thiruvarur	11.8.97	71
Mudikondan aru, Alangudi volkkal Alangudi girama pasanadharar sangam	Mudikondan	Thiruvarur	11.8.97	154
Pudhu pandiyaru kallikundi karuppancheri volkkal pasanadharagal sangam	Pudhupandly	Thiruvarur	20.10.97	240
Koralyar Thukkanangurly Pirvu Sanganthi Gramma Analthu vivasalgai Pasanatharat Sangam	Koralyar	Thiruvarur	23.06.97	301
Putharu Panakudi Volkkal Matrum Mudikondan Aru Kavali Volkkal, Panankudi Gramma pasanatharagal Sangam	Putharu Matr	Malladudural	19.02.98	452
Sitharu Pirivu, Kadugurutti aru Pirivu, Thiruthangoor Melavolkkal Thiruthangoor Kirama pasanatharar Sangam	Sitharu Pirivu Kadugurutti	Thiruvarur	16.03.98	118
Vennar Marangudi Voikkal Marangudi Gramma Pasanadharar Sangam	Vennar	Thiruvarur	13.07.98	76
Vennar Kottalyur Voikkal Kottalyur Girama Pasana Sangam	Vennar	Thiruvarur	13.08.98	207
Vennar privu Iluppur Voikkal Iluppur Girama Pasandharagal Sangam	Vennar	Thiruvarur	13.08.98	52

(ii)

Name of the Association	Name of the channel	District	Date of Registration	Number of Farmers Members
Sallperi Grama pasanadhar Sangam	Valppar	Thiruvarur	10.06.89	122
Mahilancheri village water User's Association	Valappar	Thiruvarur	14.12.89	120
Pathiniapuram Village water User's Association	Valappar	Thiruvarur	07.11.90	164
Anaikupam village water user's Association	Puthar	Thiruvarur	1991	82
Rajakllrruppu village water user's association	Puthar	Thiruvarur	1991	82
Thattathimoolal villager water User's Association	Valappar	Thiruvarur	23.12.91	116
Jambavannodal South Village water user's association	Korairaru	Thiruvarur	09.12.91	240
Kulakudi villager water user's Association	Mudikondan	Thiruvarur	335	159
Veerakkan village water User's Association	Puthar	Thiruvarur	1993	65
Keelapalayur village water user's Association	Pandavalyam	Thiruvarur	03.06.63	181

(iii) Tanks, Government Funded

Name of the Association	District	Date of Registration of the Association	Number of families Benefited
Nandiyalam Eri pasana Vivasayigal Sangam Nandiyalam	Vellore	15.07.93	139
Kottamarudur Eri neerpasana vivisayigal sangam, Kottamardur	Viluppuram	24.11.93	255
Authur pattatharer sangam for pagadalkulam Eri Athur	Dindugal	26.12.93	265
Karuppur Kanmal pasana Vivasayigal sangam karruppur	Thuthukudi	23.02.94	205
Arallkottal grama Arall Kanmal passanadhar sangam	Sivagangal	20.09.93	70
Sowdarpatti Karisalkulam Pasana vivasayigal sangam	Madurai	19.11.90	435
Valvandankulani Vivasayigal sangam Sethurrajapalya	Virudhunagar	31.12.92	288

Chetitkuruchi kanmal Near Pasana Vivasayigal Sangam	Virudhunagar	06.04.94	278
Thambipati Kanmal Pasan Vivasaylgal sangam Thambipatti	Virudhunagar	30.03.94	94
Valanadu periyakulam Ayacttudherar sangam	Trichy	07.05.91	400
Ayyanpappakudi Ayavattenthal (Ayavattan) Kanmal Neerpasana Vivasaylgal Sangam	Madurai	21.06.92	329
Vembanoor Periyakulam Thaldodai Pidarikulam Neerpasana Ayacutdharargal sangam	Trichy	12.03.93	181
Thiruppuvanavasal Periyakanmal Neerpasanaavlsayigal Abiviruthi sangam	Pudukkottal	15.04.94	256
Nerunjikudi Kanmal Ayacut vivasayigal sangam	Trichy	21.11.95	121
Sannanerikulam pasana vivasayigal sangam	Thirunelvell	13.01.94	315
Melkanmai Pudhukanmai Pasana vivasayigal sangam	Pudukkottal	02.05.96	150
Suriyur Grama Periyakulam pasanathar sangam Periya Suriyur	Trichy	24.06.96	205
Rettavalam kanmal Kannankudi Periyakanmal	Pudukkottal	08.12.92	332
Neerpasana Vivasayigal sangam	Pudukkottal	09.09.91	182
Vaalakkurichi Periyakanmai Ayacutdharargal sangam	Pudukkottal	01.08.94	145
Manamakki kanmal pasana vivasayigal sangam	Virudhnagar	28.01.97	200
Punjanthi Kanmal Neer Pasana Vivasayaigal sangam	Pudukkottal	03.03.97	315
Kudiseri Kanmalyenal sertha vivasayigal (Neelam Udiyoor) nala sangam	Madurai	01.12.95	430
Kullapuram Periya Kanmai Pasana nansal Pattadhargal Sangam	Theni	15.04.97	244

Periya Poolankulam Kanmaiyl sertha pasana Vivasayigal (Nelam udaiyoor) Sangam	Madurai	21.03.96	520
Marankulam Pappankulam Mudhukulam pathal Girama Ayam Nela Swan dharagal Sangam	Thirunevell	20.02.96	415
Visavanoor Erigal Naveena Putudhum Vivasayigal nala Sangam	Sivagangal	17.02.97	424
Eluvankottal Eri Pasana Vivasayigal Sangma	PMRD	23.03.97	202
Alapappalachry Periya Kanmol Neer pasana Vivasayigal Sangam	Madurai	23.01.96	461
Alundur Gramam Periya kullam eripasana Aycuttudharagal Sangam	Trichy	03.04.96	208
Periya Kanmal Vivasayigal Near Pasana Sangam, Thirukallambur	Pudukkottal	02.08.96	420
Tanks, USAID Funded			
Parambikulom Neerpasana committee Parambur	Pudukkottal	27.05.82	190
Veelur, Thathhaperumal Koll Kanmal Pasana vivasayigal Sangam Vellur	Virudhunagar	15.02.93	82
Perlakulam vivasayigal sangam vadamalal Samudrram Nanguneri Taiuk	Tirunelvell	02.03.92	210
Tirunelvell kattaomman Kedar Eri neerpasana vivasayigal abivrudhi Sangam	Viluppuram	04.04.98	238