

Water Users Association for Sustainable Water Management

Experiences from the Irrigation Sector, Tamil Nadu, INDIA

(Wise practice documents under follow up of
World Conference on Science contribution from
International Hydrological Programme of UNESCO)



New Delhi

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List of Abbreviations

AED	Agricultural Engineering Department
ARP	Action Research Project
CO	Community Organiser
CWR	Centre for Water Resources
EC	Executive Committee
FC	Farmers Council
ICO	Irrigation Community Organiser
IIMA	Indian Institute of Management, Ahmedabad
IIMI	International Irrigation Management Institute
ILO	International Labour Organisation
IMTI	Irrigation Management Training Institute
NGO	Non Governmental Organisation
O & M	Operation and Maintenance
PWD	Public Works Department
RWS	Rotational Water Supply
WRO	Water Resources Organisation (a wing of State Public Works Dept.)
WUA	Water User Association

1. Introduction

Participation is now the buzzword that makes any project successful. Despite huge investments made by successive Governments and a host of other organisations in the water resources sector, the unsatisfactory water distribution and inefficient management of the system, which contributed to the declining economic and social rate of return was largely attributed to the lack of participation of the users in this sector.

Soon after independence when dams and reservoirs were considered the modern temples for development, very little was done to consult and comply with the needs of the user community. It was in 1987 when the National Water Policy advocated "*Participation of users*" as one of the instruments for achieving the goal in water resources sector. Under the World Conference on Science (2001) declaration of the follow-up activities suggested under Section 1.2 of the Science Agenda – Framework for Action indicate "*through participatory mechanisms involving all relevant sectors and stakeholders, governments should identify the needs of the nation and give priority to support for the public research needed to achieve progress in the various fields, ensuring stable funding for the purpose*". Also Section 2.3 highlights "*Research specifically aimed at addressing the basic needs of the population*" to be given a priority.

Even though participation existed in several Natural resources management sector at various levels, the formalisation of the process of participation commenced with the External-funded projects. At present there are several organisations to ensure participation at various forms and levels through-out the country.

While the success of such organisations in implementing a project is highlighted, the present status of such organisations and their future are not known. The Tamil Nadu Farmers Management of Irrigation Act, 2001 though has several reservations on this subject; clearly is a positive step towards involving user participation and recognition of the same by the state.

In this attempt an effort is made to compile the various types of water users association that exist in the state of Tamil Nadu, highlight its strength and weakness and bring about a wise practice document on the subject.

2. Review of participatory approach in water resource sector

2.1 History and decline of participatory approach in water resource sector

It is believed that many developmental efforts, more so in water resource sector had been implemented through participatory approach. In AD 4th Century, *Chanakya* the author of *Arthashastra*, a treatise on political - economy urged the rulers to assist the farmers in the construction of irrigation works and give them various incentives. During 13th and 16th Century in the *Vijayanagar* Empire (Karnataka), the rulers built several diversion weirs and canals with active voluntary participation from farmers. Resolution of conflicts and routine maintenance were achieved through community participation.

In Tamil Nadu, the *Chola* King *Karikalan* built an anicut on the river Cauvery (known as the Grand Anicut), certain parts of the irrigation system were maintained by the Government and were known as '*Sarkari*' and the lower parts maintained by farmers, which were known as '*Kudimarammat*' (people's maintenance by donated labour). Similarly in Minor irrigation systems (Tanks) construction, operation and maintenance of distribution channel system below the head sluice is the sole responsibility of the farmers¹. The farmers provide free labour periodically to maintain the irrigation works. This should have been in vogue as a tradition or custom, at least in the southern part of the country over a long period, perhaps from the times prior to Mughal rule².

¹ Community Based Works, Community Organisation and Popular Participation in the Minor Irrigation Sector in Tamilnadu, KS Sharma and Leila Narayanan (Report), March, 1994. (I.L.O. Funded Study).

² A Manual for Participatory Irrigation Management in Tamilnadu, G.Elumalai, Ministry of Water Resources.

These are few examples of participatory approach. This in fact was part of the order at that time when most of the villages were self-sufficient and State did not intrude much in the life of the people.

With the advent of British rule in India, there was very little incentive for the farmers to manage the natural resources through participatory action. Later during the British regime the Public Works Department (PWD) tried to induce *Kudimarammat* by enacting laws to make it mandatory in then Madras State (Tamil Nadu). Five successive Irrigation Acts were passed to try and force farmers to maintain the irrigation tanks. But the trouble was that the Government kept asserting its own powers and the villagers' obligations, but not their rights³.

Later in 1920, under the Madras Village Panchayat Act, tank irrigation was handed over to Village Panchayats (Local Bodies). The Panchayat had the right to enforce *Kudimarammat*. However, this experiment also did not succeed and with it the pretense of enlisting farmers' participation ended.

2.2 Need for revival of Participatory management in water resource sector

The centralist's concept led by Steward (1949) and Wittfogel (1957) posited that large scale irrigation required centralised coordination and efforts, which in turn led to greater political integration resulted in the following problems to the farming community

1. Water supply to farmers is increasingly unreliable and inequitable
2. Small farmers are at a disadvantage vis-à-vis large farmers
3. Tail end deprivation is almost universal
4. Anarchy syndrome is prevalent in irrigation sector
5. Deferred maintenance is resulting in poor performance in irrigation sector
6. Degradation of land is taking place due to excessive irrigation by some farmers
7. Farmers are not given any relevant information by irrigation agency staff
8. The cropping pattern is not decided on the basis of total water available
9. Water rates are low and recovery is very poor
10. The cognitive distance between the farmers and the irrigation agency staff is very big.

2.3 The revival of participatory approach in water resource sector

In 1972, the Irrigation Commission expressed concern about less than optimal use of water in irrigation commands and the gap between the potential created and utilised. A Command Area Development Programme was started in 1974 in order to ensure that water below the outlet should reach all the fields in the command area and the management of water should become more efficient. A provision was made in the Programme for giving management subsidy to Farmers' Associations (Water User Association) at the rate of Rs.275 per ha (current prices) to be paid in three years.

Agricultural Engineering Department (AED) of the State Government is implementing Command Area Development Programme. In 1987, Ministry of Water Resources, Government of India issued guidelines for the formation of Water Users' Associations. The AED started its activities for implementation of this programme since then and took up this work in the commands of Lower Bhavani, Sathanur, Cauvery, Parambikulam Aliyar and Periyar Vaigai commands in Tamil Nadu.

An official of AED who had training abroad established close contact with the farmers and motivated them to unite and set up WUA. He assured them that the WUA could enter into a contract to build necessary water distribution infrastructure and that the department would provide technical assistance⁵.

³ Managing Irrigation together: Practice and Policy in India, Clarence Maloney and KV Raju, Sage Publications, 1994 p. 47.

⁴ Water Users' Association in 28 L and 29 R outlets of Mettupalayam Distributory in Lower Bhavani Project: Farmers experience, R. Sureshavaram, IIM Ahmedabad and IIMI, Colombo, December, 1995.

On the basis of the Philippine's experience, the AED hired the services of Irrigation Community Organisers (ICOs) who were recruited to organise the farmers. Young, educated but unemployed persons were recruited by the AED. The ICOs contacted the farmers and convinced them about the benefits of organising themselves. They helped the members of the Associations in electing their office bearers.

The Associations were formed at the sluice level. The sluice generally commands 20-30 ha. Branch Committees were set up for about 300 to 400 ha of command area. The Presidents of the Sluice Association were nominated for the General Council of the Committee.

One person of every 40 ha of command was nominated to the Farmers' Council by the Branch Committee. A 10 member Governing Body was elected for the council. The first Farmers' Council for Lower Bhavani was established in April, 1988. The target was to set up 38 Farmers' Councils. Reportedly 23 Farmers' Councils have been formed in this command in the second stage, each covering 1200 to 1600 ha. At present 45 councils were formed covering the entire ayacut of 82,000ha.

An attempt has been made to form a Federation also. A Federation with 20 Farmers' Councils has been set up initially. At present the LBP farmer's federation covers all the 45 councils.

One of Sluice Committees constructed a 1.6 km long channel to irrigate about 50 ha of land and a percolation pond, which has helped in raising water table. This was done by farmers' contribution alone. The Farmers' Council repaired channels. Farmers reported an increase in the availability of water. The Council is also giving a power tiller to farmers on hire⁶.

Another approach was Irrigation Management and Training Institute's (IMTI) Action Research Programme (ARP) in Cauvery Delta. The pilot work was taken up in Saliperi village. Saliperi was chosen because it is located at the tail end of the big system and it suffers from the usual tail end deprivation, more so during the times of water scarcity. It is only after the Mettur dam is opened that water reaches Saliperi.

The ARP staff of IMTI motivated farmers for group action, especially for channel maintenance. The ARP staff visited the village at least twice a month, contacted villagers and assessed their agriculture needs including irrigation⁷. After an effort of more than a year Mahilancheri Channel Saliperi Village Water Users' Association was formed on 10th June, 1989 under the Societies Registration Act. The Society assumed the work of O&M of channels and distribution of water. Each farmer had to contribute Rs.250 per ha of land owned by him. IMTI made an equal matching contribution.

In Tambraparani system, acquisition of water is the main problem for the system tanks. Few elite farmers viz., Sivakkolundu Mudaliar, Sankara Iyer and Ramasawmy Iyer took initiative to form an Association⁹. Eventually they succeeded in forming the North Kodaimelalagian Land Holders' Association.

Later some WUA in the Cumbum Valley and lower reaches of Vaigai river were also formed / reactivated. These have come up entirely on the initiative of the farmers after their irrigation system

⁵ Water Users' Association in 28 L and 29 R outlets of Mettupalayam Distributory in Lower Bhavani Project: Farmers experience, R. Sureshavaram, IIM Ahmedabad and IIMI, Colombo, December, 1995.

⁶ Water Users' Association in 28 L and 29 R Outlets of Methupalayam Distributory in Lower Bhavani Project: Farmers' Experience, R. Sureshavaram, IIM, Ahmedabad and IIMI, Colombo, December, 1995

⁷ Water Users' Association in A 9 Mahilancheri Channel (Saliperi) Cauvery-Valappar Project: Farmers Experience S. Marimuthu, IIM Ahmedabad and IIMI, Colombo, December, 1995.

⁸ . Water Users' Association in Dusi Mamandur Tank: Farmers' Experience, K. Sivanandham, IIM Ahmedabad and IIMI Colombo, December, 1995.

⁹ Water Users' Association in Vagaikulam Tank, North Kodaimelalagam Channel, Tamiraparani Project, V. Selvam, IIM, Ahmedabad and IIMI, Colombo, December, 1995.

¹⁰ CWR Report, Op cit.

has been modernised. The previously existing and functional WUA have reactivated themselves to meet the new challenges the farmers face due to the modernisation¹².

In Cumbum Valley, Associations exist on all the channels. These Channel Associations have combined to form an Apex Body called Cumbum Valley Farmers Union (CVFU). The Union covers a command of about 3200 ha. It was registered in 1990 under Societies Registration Act.

In certain areas enlightened leaders of farmers took the initiative to motivate the farmers and form WUAs. Mamandur Tank located in Dusi and Mamandur villages (the second largest tank) in Tamil Nadu, irrigating lands in 18 villages. The inflow in the tank was inadequate and could hardly ever reach its capacity. The Government paid no heed to farmers' problems. This made the farmers consider organising themselves into a group in order to bring water to the tank and distribute it equitably among themselves. Kandappa Mudaliar and Vedantham played a key role in uniting the farmers to form a Water Users' Association. They met farmers in each village and explained the advantages of co-operative action. After two years of strenuous efforts, the Dusi Mamandur Tank Water Users' Association was finally formed in 1980¹³.

The pioneering role of the Centre for Water Resources (CWR), Anna University in studying the problems of tank irrigation in Tamil Nadu and recommending user participation in management is worth mentioning. In 1981 Ford Foundation funded a research project as a pilot study to modernise Padianallur Tank near Chennai (Madras). The study was discussed in an International Workshop on Modernisation of Tank Irrigation System in 1982. The recommendations of Workshop gave the central place to the role of Farmers' Associations in the rehabilitation and management of tanks.

The subsequent European Union (EEC) assisted tank modernisation project in Tamil Nadu incorporated formation of WUA and their training as its important components.

An experiment to explore appropriate ways of enlisting farmers' participation not only in the rehabilitation process but also in the subsequent maintenance of the tank systems was conducted by the CWR through the assistance from the Ford Foundation.

CWR facilitated formation of Associations in Kattiamandal (Chenglapattu District), Kedar (Villupuram District) Sowdarpatty (Madurai District) and Kannangudy (Pudukottai District) tanks. The Associations, success can be gauged from the fact that Government provided loans of Rs. 50,000 to 80,000 to them for rehabilitation of tanks and for certain improvements. The members of the Associations also raised substantial contributions for the works.

The Association employed a *Neerkatti* for distribution of water. Each farmer pays him a certain percentage of produce. CWR also adopted the Philippines approach of fielding the Community Organisers to motivate and organise the farmers. The Community Organisers were intensively trained by the CWR. Potential leaders among the farmers were identified. Committees were formed after long consultations with farmers. The Committees were constituted keeping specific requirements of the village or group of villages in view. Resources were mobilised within the community.

CWR's approach of patient dialogue also yielded dividend when conflicting caste groups eventually agreed to come together to form the Associations. This also helped in eliminating the *Karai* system of irrigation in which farmers of a dominant caste got preference in distribution of water over another caste. This was a cause of great resentment and conflicts. This was replaced by a fair and equitable

¹¹ . Water Users' Association in Vaigaikulam Tank, North Kodaimelalagian Channel, Tamiraparani Project: Farmers' Experience, V. Selvam, IIMI Colombo and IIM Ahmedabad, December, 1995.

¹² CWR Report, Anna University, April 1994 p.18.

¹³ . Water Users' Association in Dusi Mamandur Tank: Farmers' Experience, K. Sivanandham, IIM Ahmedabad and IIMI Colombo, December, 1995.

system. A penal provision for imposing fines on those who violated this system was introduced and successfully implemented.

The Tamil Nadu Water Resources Consolidation Project (WRCP), (1995-96 to 2001-02) also provides for farmers' participation as an essential component. The farmers will be consulted about the improvements and their Associations would be required to take over the operation and maintenance of the system.

A three-tier system for Farmers' Associations is proposed in WRCP. The first level being the sluice (outlet) level Water User Organisations (WUA). Each WUA covers an area of approximately 40 ha. Several WUA federate into Farmers' Council (FC) at the distributary level (500-700 ha). These would then federate into Apex Committees at the scheme level.

The WUAs would be registered under Societies Act. Each member would pay a membership fee of Rs.250 per ha, which would be deposited in a bank and its interest used for Council's expenditure on maintenance below the minor. Farmers will be trained to manage and maintain their system. There will be a phase of joint management before the turnover.

3. Need for this project:

It could be seen that the revival of participatory approach is sought out to be the major solution in the operation and maintenance of water resource systems. Several agencies have followed various methods to unite farmers to enable them to participate at various levels in their projects and programmes. It is evident that the goal in enabling farmers to participate can be easily achieved if the problems faced by one agency is known to the other, or the success stories of one organisation is made known to the other. This saves a lot of time, effort, and investment in such participatory projects. The point of departure of this study from the other works is that it will engage in such a comparative analysis across regions, size and type of organisation. If experiences are studied and shared, a lot of time and money could be saved in evolving fool proof, cost and time effective programs. Also the documentations of these experiences saves it from the danger of being lost otherwise.

4. Project objectives

- a) To consolidate the experiences of the Water Users Associations in Tamil Nadu.
- b) To compare the sustainability of WUAs built on the premises of Participatory Irrigation Management using varied strategies for example motivation through NGOs, through Community Organisers, working under the government departments etc.
- c) To study the problems faced by associations and identifying the solutions for the problems, if any, in the Tamil Nadu context.
- d) To identify the gender sensitivity in the water user association structure and functioning and
- e) To present the findings through publications and disseminate the findings of the study for better understanding of the scenario, interventions to be made for the present and future planning.

5. Methodology

5.1 Universe of the Study

¹⁴ Water Users' Association in 28 L and 29 R Outlets of Methupalayam Distributary in Lower Bhavani Project: Farmers' Experience, R. Sureshvaram, IIM, Ahmedabad and IIMI, Colombo, December, 1995

¹⁵ An ILO Study on Community Based Works, Community Organisations and Popular Participation in the Minor Irrigation Sector in Tamil Nadu, K.S. Sharma, Leila Narayan, March, 1994.

All water users association formed in the state of Tamil Nadu form the Universe of the study. It is also envisaged that the size of irrigation system could influence the functioning of the water users association significantly and accordingly the sampling framework has been arrived.

5.2 Sampling

Ten samples each; from major, medium and minor irrigation systems were selected for the study. In all 30 water users associations distributed across the irrigation systems in the state of Tamil Nadu was covered in the study (Figure 1.). A detailed list of samples is enclosed in Annexure 1.

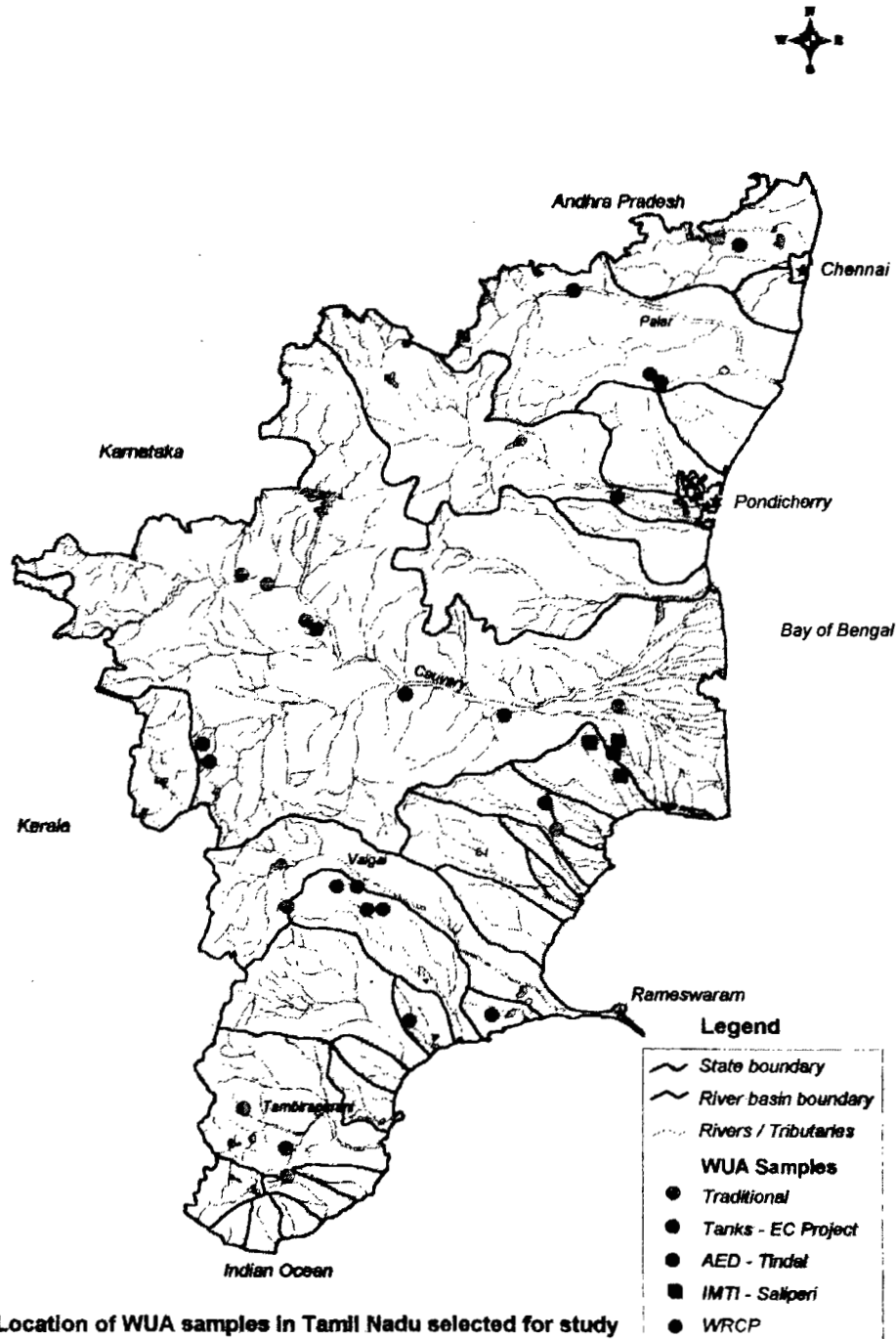


Fig. 1 Location of WUA samples in Tamil Nadu selected for study

5.3 Data

Both secondary and primary data were collected to assess the variations based on sizes of irrigation systems on the sustainability of WUA and variables related with level of participation. Secondary data was collected through feedbacks from officials, records and organisations including NGOs. Primary data was collected by interviewing farmers with the help of a pre tested interview schedule. A cross section of farmers was interviewed, apart from a few focus group discussion meetings.

5.3.1 Interview schedule preparation and data collection

WUA performance interview schedule and data collection formats were designed. The same were used to pre test the interview schedule during piloting. The pilot study and pre testing was done during the month of December 2001 and accordingly the interview schedule was revised. The revised interview schedule used in the study is enclosed in Annexure 2. There are two sets of interview schedule and one questionnaire designed for a) Water user association, b) Members of the association and c) questionnaire for the enumerators. Data collection was carried out during January and February 2002. The following were carried out in the field (with farmers) as well from the Government departments and the irrigation experts in the selected state level organisations and institutions.

Selection of WUA performance indicators: The pilot investigation was carried out in few systems along with discussions with tank irrigation experts for finalisation of WUA performance indicators and methodology to carry out the survey. The procedures adopted and experiences gained from the Monitoring and Evaluation study of European Commission assisted Tamil Nadu tank irrigation systems project was considered as base to start with. The enumerators collected literatures from various institutions to have the complete information on WUAs.

Water resource systems in Tamil Nadu fulfilled the functional needs which Talcott parsons – an eminent sociologist says any system has to meet the following functional requirements if it is to survive

1. *Pattern maintenance:* The particular pattern of rules and interaction of roles have to be maintained. To put it simply – the system has a normative side, a value orientation which steered the behaviour patterns. Thus in Tamil Nadu the roles of leaders and function areas were clearly defined, there was a concept of what was right and the pattern was maintained.
2. *Goal attainment:* The system must be goal oriented – in this context it was use of water for irrigation and the functionaries saw to it that the objective was realised.
3. *Adaptation:* The system must adapt itself to the environment or context. In the traditional system the leaders took the initiative in settling any changes in the situation relationship with other tanks or with villagers who were not ayacutdhars.
4. *Integration:* The parts of a system must be integrated (i.e. the parts must work together).

Attributes of the Traditional system

Yogendra Singh a well-known Indian sociologist writes that three qualities found in most traditional socio-cultural systems are *Hierarchy*, *Holism* and *Continuity*. These irrigation systems also had these attributes

Leadership or Hierarchy

The traditional systems functioned smoothly because there was an accepted leadership. There were definitely persons who were accepted as leaders. This is seen in the institution of *Nattanmai* or *Kavimanyam*.

Peikulam tank in Tirunelveli district of Tamil Nadu is an example. This tank was constructed in 1872 and the farmers registered this society in 1949. The success of this association

through time lies in the faith of the farmers in the leadership. In fact, even today if we ask the ayacutdars of this and similar tanks “Who is or are the leaders?” farmers would in most cases point to one or two persons. Contrast to this is the situation in Kerala where the question would get a different reply, in most cases they would say “we are all leaders”!

In Tamil Nadu roles were well defined. *Neerkatti* or *Vettiyan* who looked after water distribution had his responsibilities and privileges and worked under the accepted leadership.

Holism follows from the principle of leadership and implies that it is not the individual but the collectivity that is important. When water is common property then holism is the only principle on which the system could be sustained.

Continuity or the linkages between the past, present and future is a basic quality of Indian culture even the present life is considered as a link connecting the past and future. In the past, continuity is seen in the institutions of leader and functionaries. These functions were vested in families and continued through generations.

6. Consolidation of experiences of the water users associations in Tamil Nadu

The diverse irrigation systems of Tamil Nadu have been grouped into four types based on the approach of catalyst/motivator working for their formation. As different types of WUAs have developed over time, it has become clear that the differences among them can be largely attributed to the approaches of the catalysts concerned. Within the following four categories, distinctions are made according to river fed systems that are large and tank systems that are generally farmer-managed:

- Traditional WUAs formed on irrigations systems, probably in response to recurring water scarcities
- WUAs organised through non-governmental efforts
- Government-initiated WUAs in which the line agencies acted as organiser
- Donor-Sponsored WUAs wherein the usually international donor imposed funding pre-conditions

6.1 Traditional Water Users Associations

6.1.1. Peikulam Farmers Association of Tambraparani system

Although prevalent in all parts of the state of Tamil Nadu, the tank WUAs are best documented in the southern parts of the state (IIMI-India Collaborative Research, 1992). Tambraparani system may have the largest number of WUAs in Tamil Nadu: 132 in 250 villages. Of these, 34 are registered, but some of the unregistered WUAs function more effectively than those registered.

Peikulam, one of the tanks fed by the North main channel, takes off from the Sri Vaikundam anicut across the Tambraparani river. The tank has a capacity of 2.36 million m³ (88.25 mcf) and an ayacut of 1000 ha.

Peikulam WUA was established in 1872. The rules and regulations of the WUA were first drafted and approved in June 1913. They have under gone many revisions over the succeeding years, the latest in 1975. Peikulam has continuously renewed its registration by submitting audited accounts.

Peikulam WUA's functions include water acquisition, distribution, and sub-system maintenance. *Kudimaramathu* and *Warabandi* (A system of rotational water supply following a time schedule according to the availability/discharge and the area to be irrigated) are also its responsibilities; it has its own staff for area policing (*Pathiakaval* in Tambraparani). There are irrigators (*Neerpaichis*

Neerkattis) and toll collectors. It appears to have consistently provided its members with services that are timely and appreciated by all water users in a tail end water scarce tank. The Peikulam association has both political clout and power, which it uses to get water to their fields.

Peikulam WUA mobilises financial resources in a variety of ways. Annual subscription is Rs.125 per ha. for banana, which is collected in cash. In addition, 62.5 kg. of paddy per ha are collected in kind and sold by the WUA, as provided in the rules. Banana and paddy are the two major crops in the command, although diversification efforts are being made.

The executive committee (EC) of the Peikulam WUA has 64 members and is responsible for the administration of the WUA. Of the 64 EC members, 40 are from the main village of Sebathiapuram. The WUA has a convention that the president is never selected from the main village. The WUA is multi-caste, and the *Nadars* dominate the caste structure of the villages.

Peikulam WUA is multipurpose organisation. In addition to conveying water, it promotes increased production and facilitates marketing of the produce at a profitable price. In return, the WUA receives a commission on sales besides a subscription from members. Another important function of Peikulam is conflict analysis and resolution. This is performed as a routine matter, calling for a panchayat-like meeting in which the parties in conflict are given a hearing. Offenses such as water theft are punished with acts of penance and fine.

Despite political interferences and caste conflicts, peikulam WUA has remained strong because of its financial strength and self-renewing leadership. In contrast, many traditional WUAs have failed because of internal weaknesses. Pathinettupatti is an example of such a failure.

6.1.2 Pathinettupatti of Thanjavur District

Pathinettupatti WUA was originally organised as a three-tier hierarchical system of 18 Village Councils, three *Nadu* (Middle level) Councils and one Confederacy Council. The village council was at the lowest level, and confederacy council was the apex body. It has existed for centuries in Pathinettupatti performing several functions, which have included managing its 25 tanks, resolving conflicts, and organising village religious festivals. The WUA functioned well until two events occurred after independence.

One was the building of the Kattalai Canal popularly known as the New Kattalai High Level Canal (NKHLC) from the Cauvery in the late 1960s. With the canal, expectation of the people of Pathinettupatti rose since they thought it would change the tanks into system tanks. Farmers in the area thought that the expected increase in water would make the WUA unnecessary, this produced strains in the working of the organisation.

The second centered on Panchayat raj elections in the later 1960s when the WUA divided along political party lines. It brought a split between the old and the young and according to caste identity. In response, the organising of the religious festivals by the WUA was severely undermined. Collection for the ceremonial fund ceased. *Kudimaramathu* fell into disuse, and festivals in connection with the village deity, which brought rains and prosperity, was given up. Since then, there has been a revival of religious practices, but water management activities remain neglected.

6.2 Non-government Promoted Farmer Organisations

6.2.1 Salipperi Approach to Farmer Organisations

The Action Research Programme (ARP) of IMTI, Trichy carried out research in a command of 2000 ha, in Cauvery Delta. Farmers were approached and brought for training, which stressed the importance of maintenance of the irrigation system and channels. Salipperi is a tail end village in the Cauvery Delta, Nagapattinam (formerly Thanjavur) District. It is a small village of 122 farmers, 3

minor channels with a command of 121 ha. A Youth association with proven record in repair of temples, cleaning roads and holding cultural events functioned effectively in the village.

A 'Save the Channel' campaign was conducted under which farmers were asked to clean up channels in their village, reviving the traditional practice of *kudimaramathu*. As a result, there were no obstructions in the flow of water in the channels in the following season. Although farmers took part, their thought remained in disrepair for long. A method of ongoing maintenance was needed, backed by sufficient funds and farmer commitment. To address this problem, IMTI conceived the idea of a maintenance trust fund.

Role for youth: Salipperi was selected for an experiment because the youth there showed merit. Farmers organised an informal meeting in the village, attended by faculty members of the ARP. The IMTI's ideas of a fund and the need for a WUA were discussed. The farmers agreed to form a WUA, and the youth agreed to serve as motivators and create a fund under IMTI guidance. Training programmes was also held periodically, and the youth were given special training in organising WUAs. The IMTI deliberately remained in the background.

Resource Mobilisation. In Salipperi, the maintenance trust fund for each channel has been the primary resource mobilisation strategy. It was proposed that the water users of an irrigation channel make a one-time payment of Rs.250 per ha to this fund, which when collected from all users would be matched by the government. The fund would then be deposited in a bank so that the interests accruing from it, year after year, could be used for the annual maintenance of the channel.

Further discussions between the IMTI and farmers began in March 1989, at which time the farmers themselves suggested the following:

- A special cess of Rs.8 per ha per year should be collected from the farmers, This would go to make a corpus fund, which in turn would as a special case (like Kisan Vikas Patras), fetch a higher annual interest of 20 percent.
- Alternatively, Rs.1.0 for each bag of paddy (65kg) could be collected for funding maintenance grant from the paddy sold to the government (Levy).

In the end, the farmers chose the IMTI approach, and the fund now is in operation.

In six months, with the youth of the village acting as catalysts, the Salipperi farmers collected Rs.30,000, to which the IMTI contributed an equal matching grant. The total sum of Rs. 60,000 formed the corpus fund, of which Rs. 45,000 was put in a fixed deposit and the balance of Rs.15, 000 in another account. The interest of second would be added to the capital of the first account, presumably to neutralise cost escalation.

With the creation of the corpus fund, the problem of mobilising fund for maintenance year after year was resolved. Water being of equal interest to all, factors such as political influence and caste dominance has not so far distorted the operation of the maintenance activity. Ever since the WUA came into being, the going has been smooth.

The Structure and Functions of the WUA. With the creation of the fund, bye-laws of the Valappar-Salipperi village Water Users Association were formulated and approved by the General Body (GB) of the farmers. Every month on the new moon day, the members assemble, discuss matters and take decisions. The WUA was registered as society under the Societies Registration Act (1975) at end of June 1989. The deposits were made in the State Bank of India in August 1989. The corpus fund now carries the name Valappar-Salipperi Channel maintenance permanent trust fund.

The GB takes all policy decisions, and the Executive Committee (EC) puts the decisions into action. The GB appoints sub committees to look into various functions, such as, auditing of the accounts, auctioning of usufructs of the trees that belong to the society, and the collection of revenues. With

these sub committees, the management of the affairs of the society became easier with IMTI faculty. The EC appoints a manager for bookkeeping and a common irrigator to look after the distribution of water.

The WUA maintains the channels in good condition. *Kudimaramathu* is practiced with careful use of the income from the interest accrued. The WUA also ensures proper distribution of water. It has responsibility for informing the line agency about the conditions of the structures, sluices and channels, resolves conflicts among farmers and protect crops against damage by cattle. Members are advised against encroaching channels, and those who do are evicted by the WUA.

The WUA has the village as its boundary. The minor channels fall within the village boundary. The present WUA constitutes the base of a three-tier organisation. A federation of the village-based association which gets water from the same distributary is the next tier called the channel committee. Each village association, it is proposed, nominated two representatives to the channel committee. At the apex is the River committee. One of the two members nominated to the channel committee represents each WUA on the River committee. The committees discuss and coordinate channel and river activities.

WUA operation: The WUA has been functioning smoothly ever since its formation in 1989. The deposits have generated adequate funds for *kudimaramathu* and other activities. Caste politics and political parties have deliberately been kept out.

The idea of giving a matching grant was put forth by IMTI and the IMTI had sufficient funds to provide this grant in the study area only. Hence, IMTI suggested to the government that it make an allocation in the budget for this purpose. The government agreed in principle, and this policy was announced that about one percent of O & M expenses for the Cauvery delta system (about Rs. 3.0 million) be placed at the disposal of IMTI for this purpose. IMTI was able to form 28 associations and released Rs.1.0 million as matching grants. The CE (MI) now CE (DRCS) had also obtained the matching grant to tank command organisations through IMTI.

The IMTI has now formed around 30 village-based organisations. The higher-level bodies have not yet been formed. In their absence, informal agreements are reached among the villages on water sharing. Either the irrigation department ensures equity or the faculties of IMTI intervene and help the villagers. However, as all these organisations are formed either in the Cauvery Delta or under minor irrigation tank commands, conflicts regarding water distribution are not severe and rotation is followed by custom. The sustainability of village level WUAs in the absence of other tiers will have to be watched in future.

6.2.2 North Kodaimel Azhagian channel Farmer Organisation

North Kodaimel Azhagian (NK) channel takes off from the first anicut, in the Tambraparani system. The channel is 18.5 km long with 66 sluices and 20 small tanks that irrigate roughly 1000 ha. There are 10 villages and about 2,800 farmers in this command. The NK channel Association covers the entire channel.

The NK channel farmers association was organised by a team from the Center for Water Resources (CWR) assisted by the ISPAN project. The team consists of 10 Research Assistants (RAs), 8 of whom were trained in sociology and two in engineering. Four RAs were women to help in organising women participation, which was a priority.

Registration of the WUAs gave them a legal existence and to make them functionally effective. The traditional WUAs enjoy social legitimacy even if they are not registered. The NK channel farmer organisation has now been registered to give it leverage in respect of negotiations with the line agencies of the Government for irrigation management transfer.

The Strategy. The strategy for organising farmers was drawn from the experience gained by CWR in organising WUAs in four tanks under a project assisted by the Ford Foundation, India. The approach gave importance to working directly with farmers and gave priority to their concerns rather than implementing a preconceived action plan. Farmers were asked to identify their own priorities and concerns, which were an integral part of the implementation process.

After about two months of intensive village contacts, the first farmers' meeting was organised. Fifty-seven farmers attended the meeting as representatives of the ten villages. The farmers resolved to form a WUA for the entire command and to accept turnover as the ultimate aim of the association. As a first major step towards the formation of the NK channel WUA, an advisory committee was to be constituted with at least two (not more than four members) from each of the ten villages. Thereafter farmers in each village met to select their representatives and the advisory committee was formed.

The committee divided itself into several adhoc committees for such purposes as mobilising resources, organising farmers support, and women's participation. Farmers were involved in motivating others to join the WUA through regular visits and meetings in every village and hamlet.

The advisory committee was treated as a general body in order to select the office bearers of the EC of the WUA. The office bearers consist of a president, two vice presidents, a secretary, two joint secretaries, and a treasurer. Additionally, the general body unanimously selected twelve EC members. Women have 30 percent representation in the EC.

The channel level WUA helped organise village level or branch WUAs. They are called the Branch WUAs on the channel. The latter ensure full participation from each village. They help in the collection of subscriptions, development of leadership and quick administrative response. Apart from these, women farmers formed a separate WUA. The entire branch WUAs, as well as women WUAs, are affiliated with NK Channel WUA.

One advantage of the NK Channel command is the existence of a strong tail-end WUA, the Vagaikulam Land Holder Association, which has been functioning since 1945. Being among the most deprived, the tail-end farmers of Vagaikulam as elsewhere are keen to get water. The Vagaikulam WUA developed the capability to work collectively to ensure the availability of water. It supported any organisation that could bring order to the entire system and become the approach as well as the principal motivator for the creation of a functional WUA for the NK Channel as a whole.

Women in WUAs. A notable feature of the NK Channel experiment is the importance given to the role of women in agriculture and irrigation. Women play a vital role in all phases of irrigated farming, as marginal and small farmers constitute the majority of the farming community. The initial impetus for women's participation came from the Vagaikulam Farmers Association, which had women members in the WUA. In order to motivate women, weekly meetings were organised using women leaders and women's groups. Even male farmers, particularly key farmers, were persuaded to commit themselves to including women in the WUAs. A committee of four women and one man was specifically constituted for women development and for integrating women into the turnover process.

Resources Mobilisation: Resource mobilisation is in two forms: an entry fee of Rs.2 each to become the members of the WUA and subscription of one measure of paddy for every eight cents of land owned by the farmer members. This amounts to about Rs. 125,000 a season for the area within the WUA's jurisdiction.

Long-term Operation: The Tamil Nadu experience suggests that the factors that make WUAs sustainable in the long run are financial autonomy, multipurpose activities, and strong leadership. The sustainability of the NK Channel WUA, depends on the ability of the farmers to rehabilitate the system with whatever assistance is available from the government. They had capability to execute works. They have already begun to intervene in disputes and solved some. They have also shown interest in learning about better farming technology and the prospects of marketing.

6.3 Government Promoted Farmers Organisations

6.3.1 Thindal Distributory of the Lower Bhavani Project

Thindal Distributory of the Lower Bhavani project is the outcome of the pioneering work of the Agricultural Engineering Department. This story is one of involving farmers on a sustained basis for taking up the full responsibility of managing the water distribution below the distributory level. It is reported that more than 85 percent of the 2,900 WUAs established at the sluice level continue to function.

The Lower Bhavani Experiment. For convenience of management, the command has been divided into three zones of Upper (ten irrigation divisions or *Pasanakottam*) Middle (13 *Pasanakottam*) and Lower reaches (15 Councils/Divisions or *Pasanakottam*). The upper reach has no water problem, but the middle has pronounced water problems during period of scarcity in over 25 percent of the area and the lower reach has severe water problems in over 50 percent of the area in irrigated dry crop season.

The Pilot Project: Thindal Distributory with a command of 1,615 ha forms one of the 38 irrigation divisions (Now the entire ayacut of the system is reorganised in to 45 councils) known as the M6 (to mean the sixth of the middle reach irrigation divisions). The objective of the experimental programme was to devise a strategy to form farmers into organisations.

The distributory has four branch channels and 33 direct sluices. In consultation with the leading farmers, it decided to treat branch channels as sub-systems. There were 44 sluice commands in which to organise WUAs. Vallipurathan branch channel with an ayacut of 399 ha, the biggest single sub-system, was chosen for the pilot study. To start the process of organising WUA 3L (meaning the 3rd sluice of the left of the distributory) sluice of the sub-system with 68 ha command operated by 69 farmers was selected.

Origin of the Approach: The Thindal effort was inspired by a visit to the Philippines of the then Chief engineer of AED in 1987. The structuring of the WUAs was conceived at three levels: Farmers Association (FA or WUA) at the sluice level, Farmers Council (FC) at the level of distributory with an area of command of 2,000 ha and Apex Council (AC or Federation) for the command area as a whole. The apex council has been formed with 45 councils and has drafted its own bye-laws.

The Strategy: In the process of forming WUAs, the farmers were consulted several times in advance by the specially appointed Irrigation Community Organisers (ICOs) who were posted in villages to work with the farmers. The ICOs were carefully chosen, trained and asked not to talk about irrigation until rapport had been established with farmers. The ICOs met the farmers as many times as they could, and in many cases become part of their everyday life. They began by sorting out personal differences among farmers by meeting them regularly. After two weeks, as the ICOs became confident, they were asked to identify potential leaders and talk to them about irrigation water management.

At this stage, the farmers came out with many complaints, especially of the AED's work in on-farm development, the quality of work executed by contractors, inadequacy of lined channels, improper planning, undependable water supply and their extreme dependence on the subordinate staff of the line agency for water. This prompted the AED to look for solutions. In the meantime, farmers were told that they could take up on-farm development works as a WUA and that estimates could be prepared after approval of plans on the village map. This had salutary effect; Farmers met and discussed the planning and execution of OFD. This initial show of involvement made it easy for the ICOs to formally begin motivating farmers towards forming WUAs.

In four weeks after initiation, a farmers association was formed and a general body meeting consisting of all farmers was held to elect the office bearers of the first Water Users Association in the Lower Bhavani Project. It was registered in 1988. Leaders were identified and groomed by the ICOs and the electoral process was democratic.

Replication Efforts. With the forming of WUA, there were many other hurdles such as, inexperience in the execution of OFD, financial crunch and official resistance in giving up rights and powers. It took another month to resolve these difficulties. With the success of these efforts, efforts were initiated more rigorously in another 22 sluice commands.

Fourteen WUAs were quickly formed, and efforts of the AED and the ICOs succeeded in forming WUAs in all the sluice commands of the M6 Irrigation Division/Council and Farmers Councils for four branch channels. On an average, a council is composed of ten to 20 sluices and three to five branch organisation. Fifty ICOs were appointed on daily wages officially called NMR (Nominal Muster Roll) to catalyse WUAs.

Functions: The WUAs are structured to perform two main functions viz., irrigation water management at the farm below the sluice outlet and the procurement, allocation, and distribution of water at the distributory and sluice levels. Irrigation water management at the farm level is for optimising the use of water and increasing productivity. It is at the farm level that the farmers take full responsibility for sharing water equitably among members (a 100 percent membership in the WUA is a requirement) through collective action. Rotational water sharing has already been worked out. At the distributory and sluice levels, however, the concept of optimal flow (1 cusec for paddy in 40ha) is practiced. The distributory command receives its due share according to this formula.

Conflict resolution, time scheduling for water deliveries, crop discipline, maintenance of infrastructure, developing alternate crop strategies in consultation with the farmers council, enforcing regulatory procedures and punishment are the main duties and responsibilities of the farmer organisations.

The farmer council (called Irrigation Council), on the other hand, is vested with the powers for demanding the water allocated for distribution and the responsibility of ensuring the allocated flow of water at each sluice outlet negotiating with the irrigation and revenue authorities to ensure design flow at the head of the distribution and branches all the way to direct sluices, prevention of water thefts, maintenance of the division system, resolution of conflicts that cannot be resolved by the farmers association (WUA), and recommending reallocation of water are among the responsibilities of the council.

Resource Mobilisation: A management subsidy is available to support the WUAs at the council level for three years under CAD Programme of the Government of India at Rs.100 per ha for the first two years and Rs.75 per ha for the third year. The farmers are expected to match the government subsidy as their share in a trust fund. The individual contribution to the matching fund has been fixed at Rs.40 per ha for a period of three years. The Management council has contributed Rs.50,000 to the matching fund, which is about a third of its total requirement. By march 1994, only five farmer councils had received the management subsidy.

Present Status. The WUAs have begun the task of operation and maintenance as practiced under *kudimaramathu* and *warabandi*. The experience so far suggests that WUAs are sustainable, though guidance and follow-up will be needed for a few years. Establishment of Irrigation Councils in all the 45 divisions is over and the federation has come in to existence covering the entire system.

There remains the problem of coordination between the WRO, Public Works Department (PWD), which is responsible for irrigation systems above the sluice outlets and the Agricultural Engineering Department (AED), which is responsible for OFD and other activities below the sluice outlets. The difficulty focuses on the optimum flow concept of the AED as the PWD could not properly maintain the main system.

The purpose of the WUA at the sluice level is to ensure equitable distribution of irrigation waters. With the existence of a well-defined rotational sharing, there could be no difficulty in the operation. Leadership has not been questioned, and grounds for conflict do not seem to exist. Rotational sharing

has not resulted in frictions as the AED has programmed it in consultation with the farmers. The farmers meet when necessary either to talk about rotational sharing or to resolve disputes that arise in irrigation. They contribute money and labour for *Kudimaramathu*. Cropping has become a better proposition, and income has increased because of better yields. The area under irrigation too has increased after the formation of the WUAs. One indication of the success of the approach is its application in the Periyar-Vaigai system.

6.3.2 Periyar-Vaigai Command

The Periyar Vaigai project covers an area of about 1,30,000 ha. The WRO is involved in the major conveyance and development works, system operation and maintenance under Periyar-Vaigai Improvement Scheme from 1977. On the other hand, the AED has been responsible for OFD works under the centrally sponsored programme since 1982. Under this programme OFD works and a *warabandi* system were introduced.

Around 1990, realising the crucial role of water users in all aspects of irrigation management, the AED developed a strategy for farmers' participation. The AED decided to form WUAs to deal with problems relating to water scheduling, equitable water distribution, better water use efficiency, and conflict resolution and system maintenance at the tertiary level.

Rotational Water Supply System: The AED, Madurai has created a sub-division exclusively for introducing rotation water supply (RWS) system. RWS is modeled on *warabandi*, according to which water is supplied to farmers in proportion to their land holdings and according to a predetermined time schedule. The irrigation system has been designed for paddy cultivation where field-to-field irrigation was practiced. According to AED's RWS model, water is supplied to individual holdings through watercourses. For this purpose, the AED has taken up construction of field channel as well as lining them to block and micro-blocks. System maintenance such as desilting, removal of weeds, and earthworks are done by the WUAs.

Organising Strategy: As a first step, the AED recruited young men and women to serve as Irrigation Community Organisers (ICOs). This is a direct corollary of the Thindal experience. Care was taken to select ICOs from the same area so that they would not have difficulty integrating themselves with the community. Since most of the ICOs had a civil engineering background, a short-term training in community organising was given to them immediately after appointment. They were responsible for organising farmer organisations, training farmers, and addressing water-related conflicts. The ICOs were to be the vital link between the irrigation bureaucracy and the farmers.

As in Thindal, the first and the foremost task of the ICOs were to gain acceptance in the farming community. They were cautioned against talking about irrigation too early, lest they be identified as agents of the irrigation bureaucracy. They called farmers and served as social facilitators by helping them with day-to-day problems. Over time, the ICOs tried to identify factors that tended to inhibit the formation of WUAs. Encroachment of field channels taking bulk flow, creating channels on private lands, water disputes and litigations were determined by ICOs, by addressing these problems, carved a niche for themselves in the community.

With the help of key farmers, they organised farmers meetings and informed them of the functions they can perform in irrigation management. These helped farmers to come out with their grievances against the irrigation agency in relation to poor quality of construction work, undependable water supply and improper planning. The ICOs convinced the farmers that they could solve these problems with collective efforts and they could take up OFD works on their own. Thus, the AED's strategy succeeded in instilling confidence in farmers and in the creation of WUAs that could address the problems of irrigation management at the farm level.

The matter of strategy, after a WUA is formed, the ICOs moved on to the next sluice so as to cover the entire irrigation division (*Pasanakottam*) of 2,000 ha within the stipulated time. The WUAs formed earlier could not get technical services or guidance of the ICOs over an extended period. This

adversely affected the development and sustainability of the WUAs. In the absence of follow-up, farmers may not be able to resolve issues entirely on their own. The solution to this problem has not been found and continues to undermine the WUAs.

Farmer Organisations: As in Lower Bhavani, a three-tier structure was conceived. At the grass root level are the farmers' organisations (WUAs), each consisting of one or two sluices. Until March 1996 19 farmer's organisations have been formed covering 41,440 ha and benefiting 56,703 farmers. All the landholders are eligible to become members. Since women who own lands and become members play a passive role. ICOs reported that though women attended farmers meetings, they were unable to voice their viewpoints due to cultural barriers. No woman found a position in the governing body of the WUAs or Councils.

At each sluice level, the WUA has office bearer's. The WUA appoints a full time water distributor (*neerkatti*) in consultation with informal block level committees. The *neerkatti* implements water deliveries to the micro-blocks and is generally in charge of four or five blocks. *Neerkattis* are paid in kind or cash by the WUA. The presence of full time *neerkatti* is immensely valuable as conflicts relating to water distribution can be avoided.

Farmer Council: A group organisation in a *Pasanakottam* (Irrigation Division) forms a council in which all the office bearers of the WUAs become members. Until March 1994, 23 farmers councils were formed. Each council has its own executive committee and office bearers. The executive committee consists of a representative from each FA at the sluice level. From among them, five members are selected to be the office bearers, namely, President, Vice President, Secretary, Joint Secretary and a Treasurer.

Women's Groups: An interesting feature of the Periyar-Vaigai project which is different from the Thindal experience is that WUAs were formed to involve women in irrigation management at the sluice level and provide them with development programmes to supplement their family income. A few ICOs took the lead to support such initiatives in five villages. As the development programme launched by women's association were not connected to irrigation, by and large, they remained outside the fold of the organisation for irrigation management.

Impact of Farmer Participation: An evaluation of the impact of participation in RWS (Rotational Water Supply) implementation in the XI branch channel showed that well planned canal operation, coupled with rotational water supply, has resulted in the saving of water (8.68 per cent), besides increasing the yield of paddy (incremental yield of 77.3 kg/ha). The area irrigated per unit volume of water has increased by 15.12 per cent. RWS has ensured higher production in the head reach by adjusting sluice discharges to prevent excess use during rains and crop maturity. Water distribution has been systematised according to the availability of water, potential crops are decided in the farmers meetings and farmers are informed about the same in advance.

6.4 Donor Influenced Farmers Organisations

6.4.1 Amaravathy New Canal System, Coimbatore

The new Amaravathy canal takes off from the Amaravathy Dam commanding about 9,000 ha. The management and maintenance of the canal system is looked after by the WRO, PWD. The World Bank assisted modernisation programme insists that the existing WUAs be involved in system management and maintenance below the distributory level in line with the AED practice. The organisational structure would have a three-tier structure consisting of Sluice Level Organisations (WUA), Farmer Councils (FC), and an Apex Body (Federation).

Improvements to the main canals to enhance the equitable supply of water between the head, middle and tail reaches of the system were implemented under the National Water Management Project (NWMP). This is expected to build up confidence in the minds of the farmers in getting their rightful share of water.

Some sluices have informal WUAs. They manage water distribution within the sluice area with the help of a *Neerkatti*. Farmers pay 20 kg of paddy per ha. The sluice level WUAs have limited credibility at the government level, as they are far too small a body to be of any great value in handling system management, FCs, with a command of 2,000 ha and above would have greater clout dealing with problems of system management and maintenance.

Initially, the consultants intended WUAs to cover an area of 2,000 ha, but farmers expressed the view that such a large area would involve ten or more villages and would be difficult to manage. They felt that an area of about 500 ha covering three to five villages would be appropriate. The farmers' views were accepted. Considering the characteristics of the sluices and the manner in which they could be grouped, 27 councils have been proposed with the area under each ranging from 200 ha to 600 ha.

After long discussions, it was agreed that farmers would pay Rs 500 per ha towards a trust fund to be created at the level of the FC. This fund would be deposited in a bank and the interest from it would be used to maintain the system and the channels in the area of the council. The entire programme is organised by the O&M staff of the line department (WRO). Only the farmer council (FC) is required to be registered, and the Government will enter into a Memorandum of Understanding (MoU) with the FCs on sharing responsibilities.

6.4.2 Tank Farmer Organisations

While tanks of great antiquity exist in Tamil Nadu, their importance as contributors of agricultural development and rural prosperity has been only lately realised. Ford Foundation continued its institutional research assistance to the CWR, Anna University, while funds for rehabilitation were provided to the Government of Tamil Nadu by the European Economic Community. Under the project, four tanks, Kattiamandal (Chengalpattu district), Kedar (Villupuram district), Kannangudi (Pudukkottai district) and Sowdarpati (Madurai district) were selected for participatory rehabilitation in 1988-89 in the first phase.

The formation of Water User Associations (WUAs) by giving priority to community concerns and making farmers key decision makers was new approach to the Government. The success of the project depended on the line agencies accepting a new role and whether farmers were committed to work cooperatively. A CWR team consisting of an Institutional Organiser (IO) and Process documenter. The administrative support apparatus for the project consisted of the WRO (PWD), AED, an NGO viz., ASSEFA and other related Government departments. A steering committee was constituted and was chaired by secretary PWD, the principal line agency.

WUAs were formed in all tanks and were registered under the Tamil Nadu Societies Registration Act 1975. The Government agreed to award the WUAs the contract to execute some rehabilitation works and advance loans for the purpose, as farmers could not be expected to possess adequate resources. Some difficulties like guarantee for financial surety, security deposit, and power of attorney were encountered. These were eventually overcome by the steering committee in which CWR played an important role.

As would be expected, some WUAs had strong local leadership, which succeeded when issues of collective interests were involved. However, others were not so successful. As a result, the rehabilitation work was smoother in some villages (Kedar and Sowdarpati) than in others (Kattiamandal). In one case an NGO provided sustained support and moderated between factions to sustain the WUA. On the whole, the office bearers managed to resolve internal conflicts and the WUAs continued to function as representative of the farmers.

The experience with the four tanks shows that the line agencies can change their approach in dealing with WUAs provided they are backed up from the highest levels of the Government. Similarly, established Government procedures can be modified, for instance, with regard to awarding work contracts to farmers; changes in rules to suit the financial capability of farmers, and granting usufruct rights in tanks.

It is evident that farmers can take initiatives, a certain amount of risk and collective responsibility to implement high quality works at reasonable costs. The farmers felt that their suggestions, on what they need and do not if implemented would be sustainable and beneficial to them in the long run than implementing the standard schemes prepared for the state as a whole or a region. Farmers further felt that pre-determined blue prints do not meet local needs.

However, farmers quite often need the assistance of an external agency, be it an NGO, a research institution, or just an impartial but interested group of people, to energise interaction within the community to sustain group action. When such assistance is available, WUAs could better decide what they want and also set priorities, make resource allocations, and mobilise resources to fund common needs.

The salient features of the WUA formation models in the state of Tamil Nadu are summarized in Section 6.5. The time line of irrigation system management in Tamil Nadu is presented in Section 6.6

6.5 Salient Features of the Water Users Associations Formation Models in Tamil Nadu

Items	Traditional	CADA	Salipperi	ECTIP	FOT
Scheme size	Major/Medium/Minor	Major	Major	Minor (tanks)	Major / Medium
Scheme coverage	Tambiraparani river basin projects / tanks	1. Lower Bhavani Project 2. Vaigai Project 3. Tambraparani river basin projects	1. Cauvery Delta	1. Spread across state	1. Spread across state
Implementing Agency		AED	IMTI, WRO	WRO	WRO
Funding Agency		Central (50%) and State (50%) Governments	State Government	European Union for the work cost and Government of Tamil Nadu for the Establishments	World Bank
Period	28 –130 years back	1988 onwards	1989 onwards	1985 – 1999	1999 onwards
Names of the Associations	Irrigation Association	WUAs, Irrigation Councils and Federation	WUAs	Water User Association	Farmers Council
No. of Associations	< 10	More than 2000 WUAs, 45 Councils in LBP and a strong Federation	50	CWR (13) CO (100) NGO(29)	1166
Members	Only Ayacutdhars				
Organisational Structure	Single	1. Sluice level 2. Irrigation Council 3. Apex body	1. Sluice level 2. Council	Single	1. Sluice Committee 2. Farmers Council 3. Apex Council
Average Area coverage	Depends on the tank or system	2000 ha		CWR & CO (135 ha) NGO (500 ha
Objectives	1 Water distribution	Water Distribution	Water Distribution	Rehabilitation and maintenance	O&M
(in order)	2 O&M	O&M	O&M	O&M	Water Distribution
	3	OFD works			
Catalysts	Intrinsic	Irrigation Community Organisers	IMTI	CWR / Community Organisers / NGO	Social Organisers / NGOs
Presence of Catalysts	None	1-2 years but had Cos programme for over 10 years		CWR (> 5 years) CO (1-2 years) NGO (1-2 years)	~ 1 year

6.6 Timeline of Irrigation System Management in Tamil Nadu

Period	Events
< 1300 AD	During the periods of Tamil Kings Chera, Chola, Pandiya and Pallava, tanks were constructed almost in each villages. The tanks were managed, operated and maintained by the Erivariyam members. The members were elected through democratic 'Kudavolai' system. The irrigation system maintenance by the beneficiaries themselves is called Kudimarmathu system, which was followed during this period.
13 th to 16 th Century AD	Same Kudimaramathu system was followed even during the Vijayanagar empire period
17 th Century AD	When Mughals defeated Vijayanagar rulers, they started to award Jagirs and Imams to their political supporters. They have not shown any interest to maintain the irrigation systems.
17 th to early 18 th Century	During the Dutch, French and British period, they started collected Kisthi (land tax) and took over the maintenance of the system. The East India Company entrusted all the tanks and canals to the control of its Military Engineering Services of British Engineers.
1809 AD	New departments was created separately called Superintendent of Tank Repairs and for canals under separate department
1858 AD	Both departments were merged together and formed Public Works Department in the Madras Presidency. The government tried to bring back the 'Kudimaramathu' by an enactment of a legislation called "Madras Compulsory Labour Act – 1858". The government made the participation in the irrigation system maintenance as compulsory. But this act failed to bring the expected outcome in the system maintenance.
Pre-Independence during 19 th Century	British government constructed many dams like Periyar and Mettur. Developed operation and maintenance procedure for the new systems, but failed to develop a working procedure to maintain tanks.
After Independence during 1950s to 1970s	The Indian and Tamil Nadu state governments concentrated on the construction of new irrigation projects. They called these projects as 'Temples of Modern India'. In the mean time, the tank irrigated area got drastically reduced to 0.53 million ha, out of 1 million ha, the total command area of all tanks.
1980s	The government's attitude changed from developing new irrigation potential to stabilising the created irrigation potential. Government took more of rehabilitation related works with state, central and external funds. CADP project started in the year 1988 and implemented by Agricultural Engineering Department, EC assisted TN tank irrigation project started during 1984.
1990s	The government's attitude beginning to change from top-down approach to bottom-up approach in the irrigation management. Water Resources Consolidation Project (WRCP) started in the year 1995. NGOs are also cropped up in the water resources sector, especially in the tank irrigation system rehabilitation and management. The Farmers' Management of Irrigation Systems Act bill was introduced in the year 1999.
2000s	The Farmers' Management of Irrigation Systems Act was enacted in the year 2001.

7 Present status of Water Users Associations in Tamil Nadu

7.1 Farmers involvement in the scheme related activities

Majority of the farmers showed enthusiasm and willingness to involve themselves in the community activities like rehabilitation, water distribution and O&M activities. One third of the farmers are holders of EC membership at least in a year since WUA formed. Nearly 80% of the farmers have contributed to the rehabilitation activities by way of either (a) cash or (b) labour or (c) supervision of works. Those who worked as EC members alone informed that they are involved in the decision making with regards to water distribution. Nearly half of the respondents mentioned that they are involved in water distribution within their land limits. The rest 17% of the farmers said that they are using the services of *Neerkattis* or hired labourers to distribute water even to their own fields. Nearly 20% of the farmers in the well functioning WUA sector mentioned that they are not at all involved in the O&M activities. However they regularly pay the annual fees. The rest of the farmers mentioned that they are involved by way of contributing labour and supervision activities.

Water distribution was mainly carried out by the *Neerkattis* with the direction from WUA members. Only in one WUA under Periyar Vaigai scheme, individual farmers distribute water, but as per the instruction from the WUA. The rotational system is being adopted invariably in all schemes.

WUA is involved only in the activities like (a) sluice operation, (b) water distribution, (c) maintenance and (d) rehabilitation works. Those associations which are not involved in water distribution are not functioning well (for eg. Perinjakulam tank and Velliyanai tank). WUAs so far restricted their activities to the rehabilitation only. None of the surveyed associations are involved in the co-operative actions like seed and fertiliser distribution; produce collection and selling, and other resource multiplication strategies. The concept of collection of water rates by WUA, like in the states of Orissa and Andhra Pradesh, has not yet been implemented in Tamil Nadu.

WUAs formed under TNWRCP and Salipperi models have received a matching grant at the rate of Rs. 250 per ha of ayacut from state Government for those who contributed Rs. 250 per ha. All the surveyed WUAs belong to the above models have received the grant from the Government. WUAs formed under the CADA programme have received a matching grant at the rate of Rs. 450 per ha from state and central Governments for those who contributed Rs. 50 per ha of ayacut. The WUAs surveyed under the above category have received the grant in full. Only the Parambur tank association that belongs to 'traditional' category received the Rs. 250 per ha matching grant from state Government. None of the other traditional schemes received any assistance from the state Government except playing a key role in the rehabilitation works as in NK WUA.

The annual maintenance expenses of the WUAs of minor schemes range from Rs.5.9 per ha to Rs. 31.4 per ha. There are no significant changes in the expenses over the years. But the variation between the schemes is attributed to the year of rehabilitation. For example the rehabilitation of Alundur tank was carried out during 1999 and the current maintenance expense is only Rs.5.9 per ha, whereas in the Sowdarpatti tank, which was rehabilitated during 1993, the current annual maintenance expense is Rs. 31.4 ha.

The traditional schemes belong to the major irrigation schemes, Peikulam and Kulayankaraisal WUAs, spent around Rs.150 per ha for maintenance. The WUAs belong to Periyar Main Canal (PMC)scheme spent around Rs.4 per ha due to the recent rehabilitation works.

Also, on an experimental basis, they have successfully distributed water within a distributory on volumetric basis. The organisation claims that in the years of water shortage, they were able to distribute the available water amongst them equally and could avoid potential crop loss. Such initiatives and involvement from the part of the organisation has tremendous impact on the farmers of the command. Also, they claim to have achieved one of the highest water use efficiency in agriculture (apparently producing more per unit of water).

They also intend to extend the similar distribution system to the entire command. The federation with the support of the FC enjoy the political clout and power to represent its grievances at the highest level of the Government. When we look at the history of the establishment of the LBP Farmers Federation, their success story lies in the following factors.

- A committed group of officials from AED at the helm of affairs, who worked very closely with the farmers right from inception.
- Deployment and continued functioning of the ICOs with adequate technical and administrative support and training from the department for fairly longer period.
- A committed and selfless group leadership it had right from the inception.
- Project area, fairly homogenous and contiguous with hard working and progressive culture of the farmers.
- Farmers are now aware of the important technical matters relating to irrigation management, like Duty, Optimum Flow, measurement of Irrigation water and irrigation scheduling.
- The federation members attend similar programme initiatives else where in the state and also in other states, which eventually enriches their ability to manage their own.
- The core group of farmers is very much aware of the new developments like the introduction of Tamil Nadu Farmers Management of Irrigation Systems Act and Rules and its implications.
- In short, the crucial factors responsible for sustainability were,
 1. Committed leadership
 2. Financial independence
 3. Better awareness and
 4. Adoption of democratic principles

The LBP now has one of the best models/practices, which could be used by the people involved in irrigation sector elsewhere in the country with modifications to suit their local needs. Also, these organisations shall be supported to be complete in all respects so that it serves as Role models.

7.2 Community Organisation and Role of Catalysts

Community organisation is one of the major activities, which is useful instrument for the WUA formation and its activities. Various strategies were adopted in the above models. Traditionally the organisations were formed due to either the conflicts aroused over water sharing or strong and generous leadership that exist in the village. In the other models catalysts were involved to mobilise the farmers. The catalysts are as follows.

- a) Community organisers worked under the direct control of Project Management Unit – Eg. EC Tank Project, CADA (AED)
- b) Community organisers deputed from NGOs but technically under the control of Project Management Unit – FOT (WRCP)
- c) Community organisation works handed over to NGOs – EC Tank Project,
- d) Community organisation work by the department officials – Salipperi model

All the surveyed farmers and the WUAs appreciated the role of catalysts and even encourages by saying that they must be involved at least for ten years for the sustainability of the WUA. It is also clear from the survey that wherever the role of catalysts is restricted to less than 2 years are not functioning well.

None of the schemes have adopted clear withdrawal or exit strategy for the community organiser programme. Even those NGOs, who were involved in EC Tank Project and FOT (WRCP), do not continue their support to the WUAs as there is no continuous financial assistance from the government. Currently the WUAs are sustained only due to either strong leadership and coercion or strong resources.

For a sustainable WUA, the continuance of community organisation is must. Government may provide atleast one third of the community organisers' salary. The remaining may be given by the respective

WUAs. In this manner, the amount required from the government is negligible compared to the salary paid to the government employees to maintain the irrigation structure. The above said is the view of the WUAs and the Apex body members of the Lower Bhavani Project.

7.2.1 Problems of Surveyed WUAs

Sl. No.	Problems	% of surveyed WUAs					
		Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	No Problem
1	Fund constraints	93.3	6.7	0.0	0.0	0.0	0.0
2	Water availability	11.0	56.0	22.0	0.0	0.0	11.0
3	Support from Govt.	33.3	33.3	0.0	0.0	0.0	33.3
4	Poor attendance of members	0.0	20.0	20.0	0.0	0.0	60.0
5	Unsolved conflicts	0.0	10.0	0.0	10.0	0.0	80.0

7.3 Advantages of the WUA formation to solve environmental issues

The formation of WUAs has brought down some of the environmental problems. For example, the water logging and salinity problems were experienced during pre-WUA period in 40 percent of the surveyed schemes. These problems were more pronounced in both tank and canal irrigation schemes. The post-WUA period showed improved situation due to (a) controlled and regulated supply of water in the canal due to the application of effective water distribution system and (b) canal improvement works. Nearly 50% of the schemes have experienced slightly poor quality of groundwater below their ayacuts (command area).

Four out of six schemes that have yielded below normal level of crop productivity during pre-WUA period have indicated just normal yields during the post-WUA period. Same number of schemes has shown above normal level of yield from normal level of yield after WUA formation. Farmers perception is that it happened due to (a) application of right quantity of water at right time, the consequence of proper distribution pattern, (b) reduced water logging condition, (c) awareness about soil, water and crop management aspects. Their awareness was judged by asking them about the requirement of training on the above aspects. 83%, 90% and 93% of the farmers do not want training on water, crop and soil management respectively. However 85% of the farmers want training on WUA management especially on how to raise the resources and how to deal with the Government departments.

8 Gender sensitivity in water users associations in Tamil Nadu

Three fourth of the surveyed farmers said that they are involving their family women members for the works like (a) transplanting, (b) weeding and (c) harvesting. However, only 15% of the farmers mentioned that they are involving women family members in irrigation activities. The rest one fourth of the farmers are not involving women family members in any of the above activities due to (a) not interest among women folks, (b) looking after house activities and (c) working in some other places doing other than agricultural activities. None of the farmers want to involve their women family members in WUA activities, without any specific reason. Interestingly one of the women farmers in Lower Bhavani project has increased her land holding size manifold after her husband's death, around 20 years back. She has alone managed the agricultural activities with courage and will power. However, she declines to work for the community as an effective member in the WUA. She felt that the WUA like community activities are to be managed only by the male members those who can travel and attend all the meetings.

Sample selected for WUA Evaluation – UNESCO Project – Annexure 1

No.	Name	Location	Type	Region	Size	Catalyst
Traditional						
1.	Peikulam Landlords Farmers Welfare Association	Tirunelveli	System	South	Medium	Self Motivated
2.	Perambur Tank Irrigation Association	Pudukottai	Tank	East	Minor	Self Motivated
3.	Pathinettupatti Tank Irrigation Association	Tanjavur	System	East	Medium	Self Motivated
4.	N K S K & Nadhiyunni Channel Irrigation Association	Tirunelveli	System	South	Medium	Self Motivated
5.	Kulaiyankarisal Village Farmer Association	Tirunelveli	System	South	Medium	Self Motivated
Tank – EC Project						
6.	Peerjankulam Irrigation Association	Pudukottai	Tank	East	Minor	NGO
7.	Villur Periakulam Irrigation Association	Madurai	Tank	South	Minor	NGO
8.	Vengal Bigtank Irrigation Association	Tiruvallur	Tank	North	Minor	CWR
9.	Sowdarpatti Karisalulam Irrigation Association	Madurai	Tank	South	Minor	CWR
10.	Alundur periyakulam tank Farmers Association	Tiruchi	Tank	East	Minor	CO
11.	Vellankulam Kanmai Farmers Irrigation Association	Karur	Tank	West	Minor	CO
12.	Kedar tank Irrigation Association	Villurpuram	Tank	North	Minor	CWR
AED – Tindal Model						
13.	U3 A, Lower Bhavani turn Irrigation Farmers Association	Sathiyamangalam	System	West	Major	AED
14.	U7, Lower Bahavani Turn Irrigation Farmers Association	Gobichettipalayam	System	West	Major	AED
15.	M2B, Lower Bahavani Turn Irrigation Farmers Association	Pallapalayam	System	West	Major	AED
16.	M13, Lower Bahavani Turn Irrigation Farmers Association	Arachalur	System	West	Major	AED
17.	L5, Lower Bahavani Turn Irrigation Farmers Association	Sivagiri	System	West	Major	AED
18.	L14, Lower Bahavani Turn Irrigation Farmers Association	Kodumudi	System	West	Major	AED
IMTI – Saliperi Model						
19.	Mahilancheri Channel Saliperi Village Water Users' Association	Tanjavur	System	East	Med/Maj.	IMTI
20.	Udhayamarthandapuram water users Association	Thiruthuraiipoondi	System	East	Med/Maj.	IMTI
21.	Pathalapettai water users Association	Lalgudi	System	East	Med/Maj.	IMTI
22.	Thattimoola water users Association	Nannilam	System	East	Med/Maj.	IMTI
WRCP – FOT Model System						
23.	Periyar main canal, Periyar – Vaigai Double crop irrigation Farmers Sabai No: 11	Madurai	System	South	Medium	AED
24.	Periyar – Vaigai, Periyar main canal, Double crop irrigation Farmers Sabai No: 13	Madurai	System	South	Medium	AED
25.	Periyar main canal, Periyar – Vaigai Double crop irrigation Farmers Sabai No: 3	Tiruvannamalai	System	North	Major	NGO
26.	Chinnamannur Nanchi Farmers Pattathar Association	Theni	System	South	Medium	PWD
27.	Kaniyur Rajavaikal Irrigation Farmers Association	Udumalpet	System	West	Major	PWD
28.	Amaravathi maincanal Jothampatti tributaries irrigation farmers Association	Udumalpet	System	West	Major	PWD

Interview Schedule - A

Water User Association

System Details

Name of the Irrigation System _____

Type of the System (Major / Medium / Minor)

(Canal / Run-of-river / Tank)

Name of the Major System _____
(only for Major and Medium Schemes)

Ayacut Area (ha) _____

Major Crops during Main Season 1. _____ 2. _____ 3. _____

Major Crops during Second Season 1. _____ 2. _____ 3. _____

No. of Ayacutdhars _____

Land Holding Size (0.0 – 0.5 ha) _____ (0.5 – 1.0 ha) _____

(1.0 – 2.0 ha) _____ (> 2.0 ha) _____

Association Details

Name of the Association _____

Number of Villages Involved _____

Name of the Village(s) _____

Date of Formation _____

Formed under which Project _____

Activities of the WUA

	Yes / No
1. Sluice operation	_____
2. Water distribution	_____
Is it through appointment of Neerkattis (or) sluice operator (or) water distributor	
3. Maintenance of head works	_____
4. Maintenance of the canals	_____
5. Maintenance of field channels	_____
6. Seed distribution	_____
7. Fertiliser distribution	_____
8. Produce collection	_____
9. Money lending to members	_____
10. Any other (Specify) _____	_____
11. Any other (Specify) _____	_____

Resource Mobilisation

Have they received any matching grant from Govt? Yes / No
 If yes mention the amount Rs. _____

	1998-99	1999-2000	2000-01
Inflow to the account			
Annual membership renewal fees			
Annual maintenance fees			
Tree cuttings			
Fishing			
Bank interests			
Loans from banks or individuals			
Any other			
TOTAL INFLOW			
Outflow from the Account (Expenses)			
Expenditure on maintenance			
Neerkatti fees			
Other labour fees			
Loan interests			
Any other			
TOTAL OUTFLOW			
A/c Balance at the end of the year			
Amount required for full maintenance of the system (Rs.)			
Amount required for running the WUA successfully (Rs.)			

Interview Schedule - B Farmer Beneficiaries

Understanding Participation and Satisfaction Levels of Farmers

Name of the Farmer _____

Address (house no. and street) _____

Ayacut area owned/leased by the Farmer _____ ha

Location of the Farm Head / Middle / Tail

Association links

Are you a member of the association Yes / No, If not in the past Yes / No

Are you an Executive Committee member Yes / No, If not in the past Yes / No

Are you involved in the WUA decision making process Yes / No, If not in the past Yes / No

Water Availability after Rehabilitation or After Association Formation

Very High Satisfaction () High Satisfaction ()

Moderate Satisfaction () Acceptable ()

No Satisfaction ()

General Functioning of the Association (Use tick mark)

	Very high satisfaction	High satisfaction	Moderate satisfaction	Acceptable	No satisfaction
Past (during formation)					
Present (last year and now)					
Future (perception)					

Functioning of the Association

a. Leadership Poor () Average () Good ()

b. Resource Mobilisation Poor () Average () Good ()

c. Structural Maintenance Poor () Average () Good ()

d. Equity in Water Distribution Poor () Average () Good ()

e. Conflicts Severe () Less () No ()

f. Satisfaction over the Catalysts Poor () Average () Good ()

Who should operate and maintain the system?

Government() WUA() Group of Farmers() No need()

What are the Solutions to the Problems (Farmers' Perception) if any

a. General Functions _____

b. Leadership _____

c. Resource Mobilisation _____

d. Structural Maintenance _____

e. Water Distribution _____

f. Conflicts _____

Involvement

Are you involved in Rehabilitation? Yes / No

If yes how? Labour / Contribution / supervision / EC member / any other

Are you involved in Water Distribution? Yes / No

If yes how? For your land alone / EC member / any other

Are you involved in Operation and Maintenance? Yes / No

If yes how? Contribution / Labour / Supervision / EC member / any other

How many meetings you attended last year? _____

How much you paid last year to the association Rs. _____

Are you prepared to give resources to the association? Yes / No

If yes how much per year Rs. _____

Are you receiving enough water at your field end? how many years in 10 years with

Good supply ____ years Manageable ____ years Insufficient ____ years

Have you had any training in the following aspects?

Water Management (Yes / No) Crop Management (Yes / No) Soil Management (Yes / No)

WUA Management (Yes / No)

Role of Women

1. Are you involving your women family members in the farm activities?

If yes in what way _____

If no why? _____

2. Are you involving your women family members in the association activities?

If yes in what way _____

If no why? _____

Specific questions to Women Farmers

1. Are you involved in the decision making activities of your Farms Yes / No

- | | |
|---------------------------------|----------|
| a. Water distribution | Yes / No |
| b. Crops raising | Yes / No |
| c. Marketing | Yes / No |
| d. Canal maintenance activities | Yes / No |

2. Are you a member in the WUA Yes / No

3. Are you attending the WUA meetings regularly / occasionally / never

4. Are you involved in the decision making activities of WUA (like appointment of Neerkattis, approving the budget for annual maintenance, etc.)

Yes / No

5. Are you facing any major constraints? Yes / No

If yes, is it

Due to your husband Yes / No

Due to your society Yes / No

WUA meetings conducted late in the evening Yes / No

No other women in the association Yes / No

Heavy work at home Yes / No

Any other, Specify _____

6. What is your vision for the future?

Summary list of WUAs formed under various projects in Tamil Nadu

Table 1: Associations formed by Agricultural Engineering Department of Tamil Nadu (AED) – under Command Area Development Project (CADP) - Major Irrigation Schemes

Sl. No	Name of command	No. of farmers councils formed	No. of farmers associations formed	Area covered (Ha)	Beneficiaries
1	Cauvery command	233	1864	164298	133190
2	Lower Bhavani Project	44	2774	81400	63247
3	Parambikulam Aliyar Project	87	1370	117291	67842
4	Cumbum valley project	13	183	7828	7955
5	Amaravathy reservoir project	23	161	7313	5123
6	Kodaiyar Chittar Pattanamkal Project	26	231	20285	31480
7	Periyar Vaigai Project	38	904	65857	34548
8	Sathanur Reservoir Project	15	238	10009	12386
	<i>Total</i>	<i>479</i>	<i>7725</i>	<i>474281</i>	<i>355771</i>

Table 2: Associations formed by Public Works Department of Tamil Nadu (PWD) – under WB Assisted Water Resources Consolidation Project – Minor Irrigation Schemes

Sl. No	Name of command	No. of farmers councils formed	No. of farmers associations formed	Area covered (Ha)	Beneficiaries
1	Cauvery command	233	1864	164298	133190
2	Lower Bhavani Project	44	2774	81400	63247
3	Parambikulam Aliyar Project	87	1370	117291	67842
4	Cumbum valley project	13	183	7828	7955
5	Amaravathy reservoir project	23	161	7313	5123
6	Kodaiyar Chittar Pattanamkal Project	26	231	20285	31480
7	Periyar Vaigai Project	38	904	65857	34548
8	Sathanur Reservoir Project	15	238	10009	12386
	<i>Total</i>	<i>479</i>	<i>7725</i>	<i>474281</i>	<i>355771</i>

Table 3: Associations formed by Public Works Department of Tamil Nadu (PWD) – under EC Assisted Tamil Nadu Tank Irrigation Systems Project – Minor Irrigation Schemes

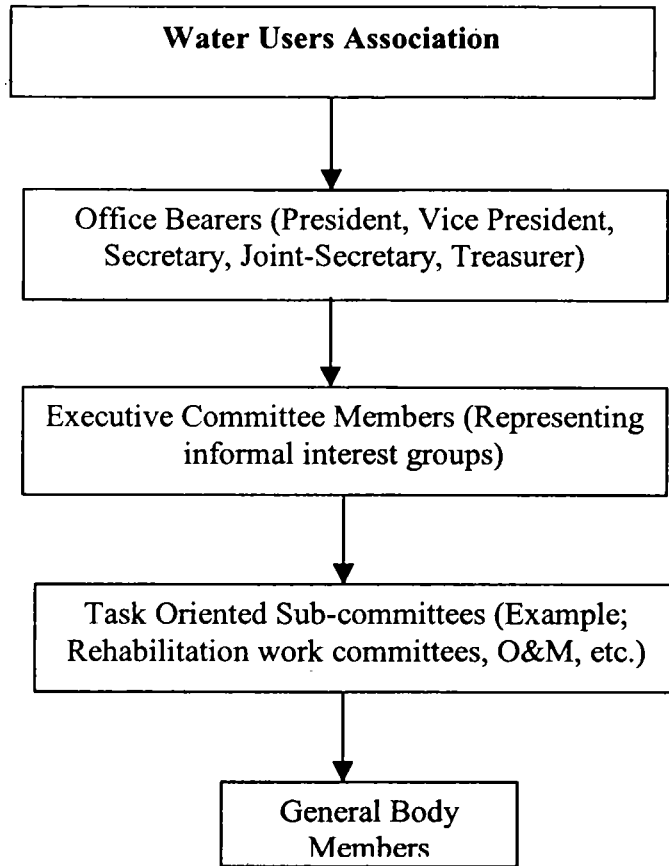
Sl. No	Name of Project	No. of farmers associations formed	Area covered (Ha)	Beneficiaries
1	Phase II (1989-96)	296	29687	57636
2	Phase II Extension (1996-99)	100	13769	26732
3	Windfall funds	48	2488	5813
	Total	444	45944	32545

Table 4: Traditional Associations – Both Major and Minor Irrigation Schemes

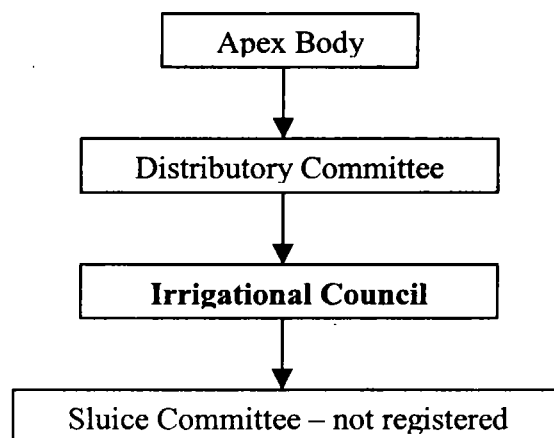
Sl. No	Name of Project	System
1	Peikulam Water Users Association	Medium irrigation project
2	Pathinettupatti	Medium irrigation project
3	N. Kodaimelalagiyan	Medium irrigation project
4	Kulayankaraisal	Medium irrigation project

Source: Various records and Enquiries, Agricultural Engineering Department, Public Works Department and Centre for Water Resources - Anna University

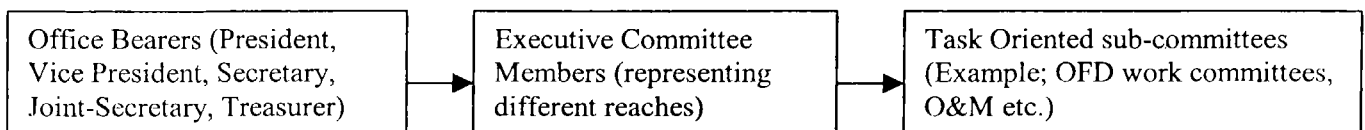
Organizational Structure
European Commission assisted Tamil Nadu Tank Irrigation Project



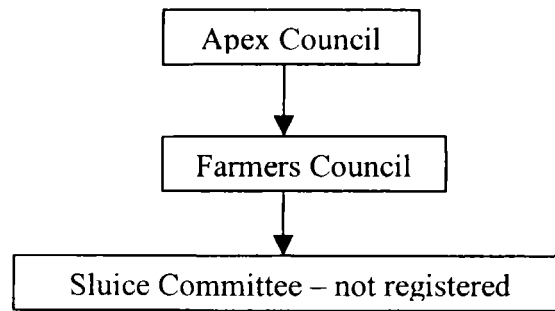
Organizational Structure
Command Area Development Programme Project / Agricultural Engineering Department



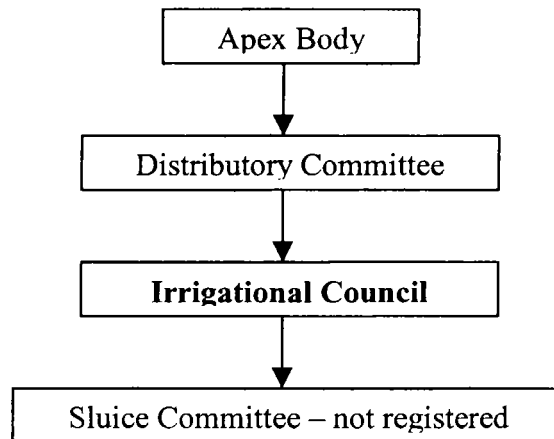
Each tier has the following structure



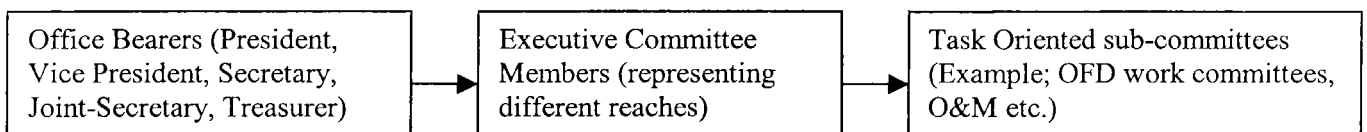
Organizational Structure
Farmers' Organisation and Turnover, WRCP-Water Resources Organisation



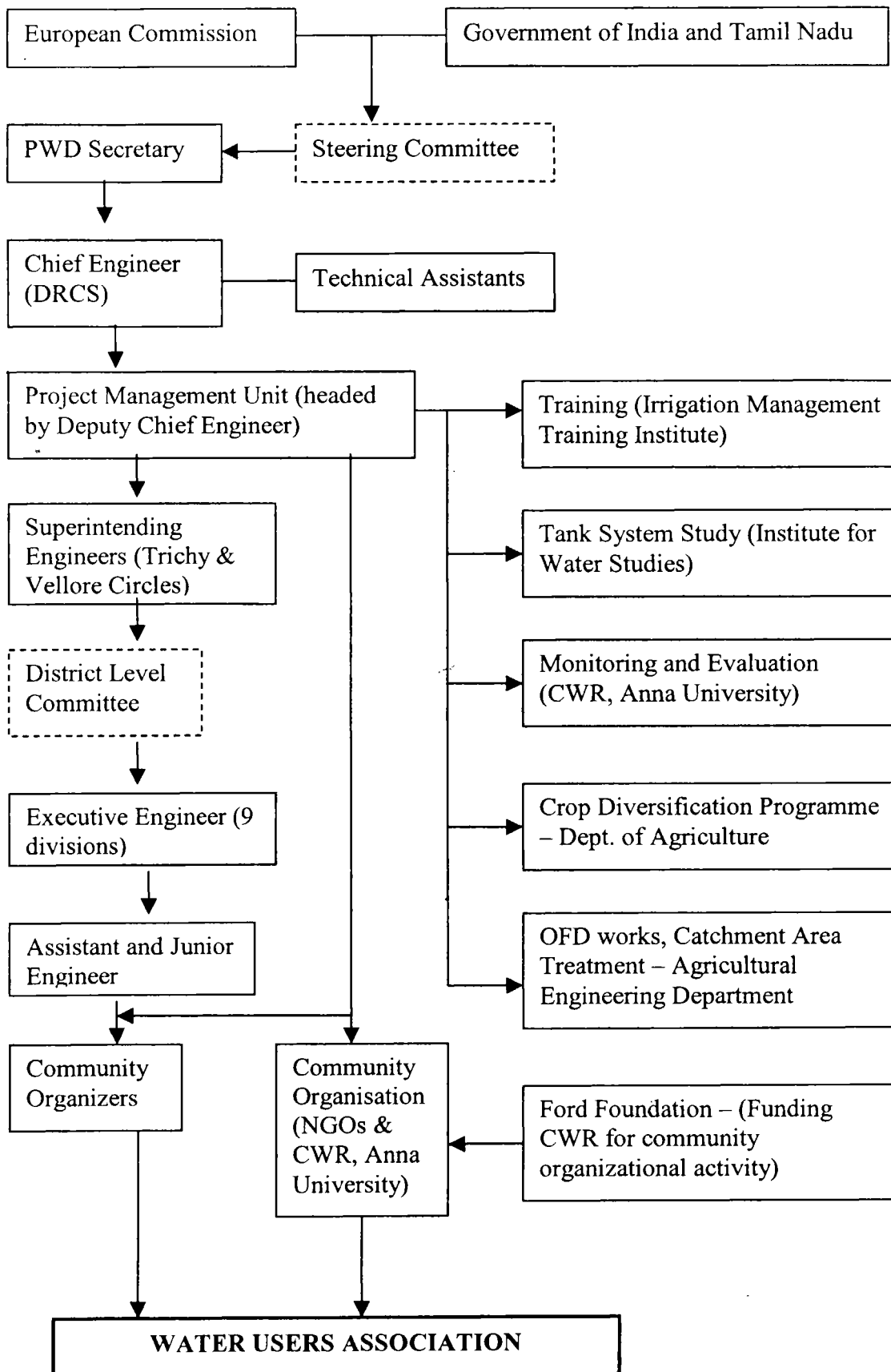
Organizational Structure
Salipperi Model – Irrigation Management Training Institute



Each tier has the following structure



Project Organizational Chart
European Commission assisted Tamil Nadu Tank Irrigation Project



**Project Organizational Chart
Farmers Organisation and Turnover, WRCP, WRO**

