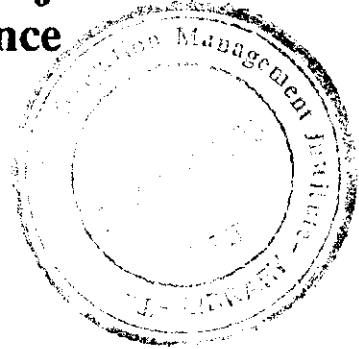


**Status of Irrigation Management Transfer in India**

**Water Users Association in A9  
Mahilancheri Channel (Saliperi)  
Cauvery-Valappar Project:  
Farmers' Experience**

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**Water Users Association in A9 Mahilancheri Channel  
(Saliperi) Cauvery-Valappan Project: Farmers' Experience**

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## Foreword

This booklet is one of the series of short narratives about farmers' efforts to create and manage water user associations. The purpose of the series is to provide other farmers in the state with succinct, readable, and interesting information about these efforts that might enable farmers to improve their access to the irrigation services. This study is being published in both Tamil and English. See the back cover for information about the other narratives in this series.

This narrative was written by S. Marimuthu under the guidance of IIMA and IIMI team members. He lived with the farmers described here from October, 1994 to April, 1995. While there, he interviewed and observed the farmers in order to document the water user association and irrigation management transfer process at this site. The information presented here reflects the ideas and opinions of the farmers themselves.

S. Marimuthu's effort was part of the study on Status of Irrigation management Transfer in India being carried out from 1993 to 1995 by the Indian Institute of Management, Ahmedabad, and the International Irrigation Management Institute, Colombo, with funding from the Ford Foundation. The study investigated and documented the policies and activities of agencies, non-governmental organizations, and others with regard to promoting irrigation management transfer from the government to farmers. The overall goal was to contribute to formulation of effective policies and programs with regard to irrigation management transfer in India. In addition to this series of short narratives, study results are reported in more traditional research reports and other forms.

The primary members of the IIMA/IIMI study team were Shashi Kolavalli, Amarlal Kalro, Gopal Naik, and S. Ramnarayan from IIMA, and Jeffrey D. Brewer, R. Sakthivadivel, and K.V. Raju from IIMI. Editing in Tamil was carried out by S. Subramanian. The edited first draft was translated into English and reviewed by the study team, particularly by R. Sakthivadivel and Jeffrey D. Brewer.

The members of the study team, including S. Marimuthu, wish to thank the people of Village Saliperi, concerned government and non-governmental agencies who gave their hospitality and time to answer questions and explain how things work without expecting compensation. We sincerely hope that their experiences will be useful to others.

Jeffrey D. Brewer  
IIMI

Gopal Naik  
IIMA

## **Water Users Association in A9 Mahilancheri Channel (Saliperi) Cauvery-Valappar Project: Farmers' Experience**

In Tamil Nadu, a three-tier organization for water users is being developed by the agricultural engineering department (A.E.D), with an association for a sluice, a council for a distributary and a federation for the system. The Government has provided subsidy during the first three years to meet the cost of operation and management of all three tiers.

For providing training to personnel engaged in irrigation on irrigation management, an Irrigation Management Training Institute (IMTI) was established at Thuvakkudi, Tiruchirapalli, with assistance from USAID. An action research programme Centre functions as a constituent of the IMTI.

One of the tasks of ARC is formation of water user associations. In 1989, ARC initiated steps to form a WUA at Saliperi in the Mahilancheri channel command of the Valappar river which is in the Cauvery command. Valappar is supervised by the Kodavasal section officer.

Kudamurutti and its distributaries and branch rivers are under the control of Nannilam sub-divisional officer who is an assistant executive engineer; there are four sections under this sub-division - Valangaiman, Kodavasal, Nannilam, and Thirumarugal.

The PWD Superintending Engineer, Thanjavur, looks after the entire Cauvery system below the Grand Anicut. There are three divisions of the river: Cauvery, Vennar and Grand Anicut Canal (GAC). Each is supervised by an executive engineer.

### **Seasons and Rainfall**

Hot climate prevails in Thanjavur and Quaid-e- Milleth districts. Temperature in summer months (May through September) ranges from 39°C. to 39°C Relative humidity during the main cropping season

(October-January) is 84 per cent. During the first crop kuruvai season the mean relative humidity is 64-76 per cent. The mean annual rainfall in the 50 years period (1921-70) was 1159 mm. Fifty eight per cent of this precipitation is received in October, November, and December through the north-east monsoon. The south west monsoon brings in 24 per cent of rainfall.

The precipitation in the south-east part of the Cauvery system (Vedharanyam) is 1500 mm and goes down to 1100 mm along the northern coast. As one proceeds in the interior of the command towards west, one could observe a decline in the amount of precipitation. It is just 900 mm at West Vallam. The south-west monsoon rains recede from west to east while the north-east monsoon rains increase from west to east. Bulk of the rainfall is received as downpour when the low pressure in the Bay of Bengal intensifies into a cyclonic storm and moves towards the landmass. Since heavy rainfall is received in fewer days there exists little possibility of storing and using the storm water in the delta. Surplus water flows into the sea.

### **Cropping System**

Single or double crop rice is grown in this region with river water; for double crop, water is released by June 12 each year. With a discharge of 13,300 Cusec; water discharged will be 35 TMC in a month. During October, November, and December the discharge will be regulated taking into account the precipitation in the command area.

Double crop rice cultivation begins in June and continues till September/October. This is followed by Thaladi (the second crop) from October to January. Area under double crop rice is 1,60,000 hectares. In the remaining area single crop samba is raised from August/ September to January in 2,20,000 hectare with ground water supplementation. In addition, sugarcane, banana, betel vine, cotton, groundnut, soybean, gingelly, and black gram are grown. In the Grand Anicut Canal, groundnut is grown from December to March for which canal water is supplied.

For raising double crop rice nurseries, groundwater is invariably used. Only where wells are not available will nurseries be raised with canal water. Planting is invariably done with canal water, nowadays in some areas planting is done with well water. If water release is delayed beyond the third week of June, the crop will be affected by the north-east monsoon. For water to be released on June 12, the water storage in the Mettur Dam should be 40 TMC by May 20; if storage is low or water receipt into the dam is not encouraging, water release will be postponed. Such delays in release were usual throughout the eighties. Heavy rain during 1992, 1993 and 1994 facilitated water release on the target date.

### **Soils**

In the Vennar command black soil with high percentage of clay is found in lower reaches. The soil cracks during summer. It has high water holding capacity and poor drainage. The soils along the river courses are loamy and fertile. They have good water holding capacity; sufficient drainage exists for most of the irrigated dry crops.

In Grand Anicut Canal area, soils are red loamy and shallow and are suited for growing groundnut, gingelly and rice. The soils have high iron content; so they harden on drying.

### **Saliperi**

The land irrigated by the Mahilancheri channel of the Valappar river belongs to village Saliperi. The village is situated 2 km west of Nannilam.

Most of the land are owned by the Vallalars. Other communities own land only to a small extent. They also own most of the wells. As Saliperi is situated at the tailend of a big irrigation system, it suffers in both scarcity and surplus times. Water reaches the village very late after the opening of the Mettur Dam. Also the quantity is not adequate. Kudamurutti which bifurcates from the Cauvery river is the main source of water. The Valapar river through the A9 Mahilancheri channel and the B1 and B2

branch channels irrigate 120 hectares of land in Saliperi. The river Valapar in its 32 km run irrigates 7,145 hectares. Since water supply is unreliable, 27 wells have been dug in this area. Groundwater is of good quality; only one well has saline water.

### **Soil**

The soil of Saliperi belongs to the Kalathur series. It is clayey soil with high water holding capacity and poor drainage. It is neutral soil with ph ranging from 6.0-7.8. It is poor in nitrogen and potassium but rich in sodium. Zinc deficiency is very common.

### **Rainfall**

Annual precipitation is 1230 mm of which the north-east monsoon accounts for 750 mm. Since the village is situated just 20 km from the sea coast, north east winds speed are high. Though bulk of the rain is received in just three months, it is not continuous.

### **Society**

People belonging to different communities live in this village. Kaliyam, Vellalar, Karkatha Vellalar, Mudaliar, Brahmins Padayachi, Nadar, and Adidravidas are the important castes in the village.

### **Cropping System**

Double crop rice (kuruvai-thaladi) is cultivated in 48 hectares and single crop rice (samba) in 72 hectares. Just before rice is harvested in January, black gram is sown along side the standing crop. Before rice is harvested the black gram germinates and grows with residual soil moisture.

### **Kudimaramathu**

*Kudimaramathu* is an age-old community channel maintenance practice. The reasons are many for its discontinuance in recent years. Lack of



leadership is one factor. Saliperi villagers had their own method of *kudimaramathu*. Each farmer depending on his landholding, will be allotted a certain length of channel to be cleaned. For every 'ma' (33 cents) a farmer cultivates, he has to clean 10 m length of the channel. Since lands are fragmented and scattered, the length of the channel to be cleaned by the individual may not be near his holding so he loses interest. Small farmers evince little interest in *Kudimaramathu*.

Receipt of water in the Mettur reservoir has declined considerably during 50 years after the dam was constructed. Receipt has declined from 224 TMC in 1924 to just 125 TMC in 1974. Consequently, supply to this tailend area is very low and inconsistent. The cultivators feel no compulsion to clean the channel when there is no water in it. This is another reasons for the neglect of *Kudimaramathu*. After the entry of politics in village administration, the system has completely collapsed.

During the 1980s, water supply was very low and crop failures were very common. It became difficult to bring the villagers together to do maintenance work of the supply channel and structures. The main channel got silted and water flow was very much affected. Drainage also caused problems for the village.

During this period, the Action Research Programme (ARP) staff of IMTI started motivating farmers for group action, especially for channel maintenance. In one of ARP meetings held in a village some villagers of Saliperi also attended.

Some of the youngsters were impressed by the ARP approach. They met some of the village leaders and told them about the ARP activities. Some of the leaders of the village met the ARP staff and enquired about their programme and assured cooperation. The stoppage of *Kudimaramathu* for 15 years, consequent low receipt of water for irrigation, the problem of drainage, and scarcity situation during the preceding 10 years resulting in crop failures all acted on the minds of the villagers and motivated them towards group action. The ARP staff capitalized on the awareness of the villagers and initiated efforts for the formation of association.

Initially ARP's effort was to motivate water users to unite in a small group having total land holding of say 8 hectares to take up *Kudimaramathu*. ARP later realized that taking up maintenance of such a small unit will not bring desired change. Hence it took up a viable unit of a branch channel with about 150 land holders. It held a meeting near Nannilam and explained why group action was necessary.

Water is a common property resource. Individuals alone cannot manage it. The individual farmer can see this flow increasing or decreasing in the supply channel but cannot control it. If the community is united it can clean the channel and increase the flow. If the drainage courses are cleaned of accumulated silt and debris, surplus water can be drained without inundation.

Some leading villagers especially service minded Sargunanatha Pillai, who had contacts with PWD, approached the water users to unite to do *kudimaramathu*. The ARP staff visited the village at least twice a month, contacted villagers and assessed their agriculture needs including irrigation. When farmers explained that weed infestation suppressed the crop yields, ARP staff arranged summer ploughing through the Agricultural Engineering Department (AED). The interest shown by tailend farmers was encouraging. Other farmers started realizing the need to unite. When the farmers came forward to form an association, group meetings with villagers and ARP staff were held for formulating rules and regulations for the association. An agreed draft memorandum was prepared.

An year's effort was fruitful in forming *Mahilancheri Channel Saliperi Village Water Users Association*. It was registered on June, 10, 1989. Sargunanatha Pillai was elected as President, Pechiapillai as vice president, S. Ganesan as secretary, and B. Sreenivasan as treasurer, besides 10 members executive committee.

All land holders could become members of the association. Each farmer was to contribute Rs. 100 per acre of land owned. A matching

contribution will be made by IMTI. In future all development works will be executed by the president in consultation with members.

A 14 member executive committee would be elected by the general council consisting of all members. It will have a three years term. The executive committee will; scrutinise monthly accounts, convene general body meetings, draw up annual plan, effect changes in rules and regulations, undertake construction works, appoint or dismiss association staff.

### **Objectives of the Association**

1. With users' contribution and government matching grant, maintain water courses on *kudimaramathu* pattern
2. Create *kudimaramathu* fixed deposit and use it
3. Undertake maintenance of irrigation channels and farm channels
4. To ensure equity in water availability by adopting rotational water supply
5. Inform PWD about deficiencies in the Mahilancheri channel and connected structures
6. Resolve conflicts on water distribution
7. Provide protection to standing crop from cattle trespass and theft of matured crop
8. Execute rural development works sponsored by government
9. Work jointly with Valapar Mahilancheri Channel Council and the Valapar River Irrigation Council

10. Help farmers adopt improved agricultural practices to increase productivity and ensure easy availability of agricultural inputs
11. To work for rural development without consideration to religion and creed
12. To assist farmers on education, medical aids, and legal aspects for development
13. To act as a link between farmers and officials

### **Association Activities**

The association has started taking up maintenance of irrigation and drainage courses. The irrigation channel is cleared of silt and shrubs and sectioning is done twice a year: before receipt of water in the channel (June) and after the rains (December).

Maintenance of channel twice a year and cleaning of the drainage channel have helped smooth flow of water and easy drainage. Though PWD is supposed to maintain owing to default by the PWD the association is forced to undertake this operation itself.

Drainage channels were cleaned after 50 years. This single act has helped avoid damage from surplus water. Water is easily drained from the fields. The tailend farmers are happy because the association has ensured easy water flow.

The A9 Mahilancheri channel irrigates both Saliperi and Mahilancheri villages. Before the association was formed, the regulator was so operated to supply water proportionately to both villages. Irrigation was done throughout day and night.

Some drainage channels (3) from upstream join the Mahilancheri Channel above the regulator hence channel size is very larger than that required for supply. The two villages joined together and planned a novel method to

allocate water among themselves. Under this agreement, Saliperi was supplied water from 6 a.m to 6 p.m. Water for Mahilancheri would be let out during night time. The water so let out during night will be stored in the huge channel without being used for irrigation during night. The channel acts as a mini reservoir and irrigation is done during day time. Through this ingenious method, night irrigation, which is inefficient, is avoided.

### **Regulations on Irrigation Management**

- \* Preference is given to raising nurseries.
- \* In the command water in a well is salty. This farmer will raise Kuruvai with well water, as soon as water is received in the channel, preference will be given to this farmer for irrigating his fields. The canal water will dilute the salt and reduce its harmful effects.
- \* Third day from seeding, water will be drained from the nursery beds. This facilitates firm rooting and easy establishment of seedlings. Water is drained in the channel; water for irrigation should not be allowed in the particular field channel as it will affect drainage (same channel is used for irrigation and drainage). Water should not be pumped directly from the A9 Mahilancheri Channel.
- \* The association has appointed a thalayari who also acts as an irrigator. He will regulate the B<sub>1</sub> and B<sub>2</sub> sluices. He will also attend to the work of watch and ward.
- \* For transporting manure and other crop inputs, a cart tract will be made in the A9 Mahilancheri Channel. When water is received no cart tract will be permitted.

### **Community Tank**

At the head reach of a block, each one of the pattadars (landowners) has set aside a small piece of land for nursery raising. The area varies from

2 cents to 50 cents, according to their land holding. This arrangement is to avoid wastage of water by passing through the full length of the course. Water could be directed at the head end itself for all the nurseries. This is an age old practice in the Tanjavur delta.

Farmers are now tapping groundwater for raising nurseries. The Nurseries are now scattered; even farmers having no wells lease water from neighbours. The piece of land at the head reach specifically meant for raising nurseries is no longer used for that purpose.

These pieces of land are too small for individual farmers to take up cultivation operations. Farmers with a vision have come together and converted these pieces of land into a community tank for cattle use. Provision has been made for canal water to fill the tank with an off-take for irrigation. However, the tank water is seldom used for irrigation. After the association was formed the tank is being used to raise fish and the lease amount fills the coffers of the association.

A threshing floor has been constructed by the association for threshing, harvested rice crop.

### **Water Distribution**

The thalayari regulates the  $B_1$  and  $B_2$  shutters and closes them when not needed. The farmers guide the water to their fields. About 10 fields will be irrigated simultaneously. Only when these fields are irrigated that others will irrigate their land. Irrigation starts from the head reach.

During 1994-95, rainfall was 223 mm in October, 379 mm in November, and 118 mm in December. There was no need for irrigation during this period; however a brief dry spell for 15 days in December made irrigation necessary.

The farmers made their own arrangements for irrigation. Those having pumpsets supplemented canal water with groundwater. At the headreach water flows with considerable force and time taken to irrigate was lower

than that for a similar piece of land in the tailreach. Though the land is plain, there is slight gradient along the water course. Hence no difficulty is experienced in water flow. Small farmers irrigate themselves while big land holders engage farm labour for guiding water.

### **Channel Maintenance**

Water courses are cleaned twice a year. Weeds, shrubs, silt are removed and sectioned for smooth flow of water. All the water users provide labour for this operation. They are paid reduced wages.

### **Implementation of Rules and Regulation**

A villager excavated soil from the A9 Mahilancheri Channel for brick kiln. He was prevented from doing so and was also fined.

Neighbouring villagers were using the A9 Mahilancheri Channel water illegally. All the association members marched to the area with arms and threatened the illegal water users. This put an end to the practice of illegal tapping.

### **Reasons for Successful Functioning of Association**

The same person has been functioning as president from the inception of the association. He hails from a family of repute, is learned, is influential with the villagers, is service minded, encourages youth to take up responsibilities, and has good rapport with PWD engineers. He hates wasteful expenses and is interested in constructive activities. It is no doubt that his way of functioning is the foremost reason for the success of the association.

ARP has its office just 15 km from the village. It makes frequent visits to the village, has extended several facilities, and has encouraged youth to take responsibility.

## **Finance**

Every member has to pay Re 1 as entrance fee and Rs. 5 as annual subscription. Since most members have paid Rs 100 initially they are reluctant to pay the subscription. The association has collected Rs 60,000 (members' contribution of Rs 30,000 and IMTI matching grant of Rs 30,000) and has deposited Rs 45000 in a fixed deposit account. Interest from the fixed deposit amount is used for association activities. In 1993-94 the association earned Rs 10,000 through auctioning fishing rights in the community tank. The auctioning amount has been increasing every year. The amount received through auctioning fish rights was used to repair the drainage channel.

Members do not face any difficulty on sharing irrigation water. However, funds are not adequate for maintenance. The labour cost is increasing. The daily wage of a labourer of Rs 25 a few years ago has risen to Rs 40. The interest amount is proving not sufficient for undertaking irrigation related activities. To augment its financial resources, the association is contemplating to intensify fish culture, plant coconut in puramboke lands, and purchase a tractor and thresher for hiring.

## **Improvement in Cropping System**

Well-owning farmers used to raise double crop rice, (kuruvai - thaladi), followed by blackgram or greengram. Now soybean, sunflower, and cotton are cultivated. Improvements in drainage have increased Kuruvai area (double crop). Farmers have adopted improved agricultural practices like summer ploughing, green manuring, seed treatment, manuring micronutrient etc. All these have led to higher productivity and increased farmers income.

Cleaning channels twice a year has increased labour employment opportunities for several small and marginal farmers have benefited by association activities. IMTI corresponds with water users and meets them often. These meetings provide an opportunity for exchange of views. The association office bearers meet twice a year at ARP centre, Tiruvarur, and



prepare action plans. They discuss the actions taken previous year, shortcomings, and improvements to the action to be taken.

Last year IMTI imparted training for five members. They were taken to the Soil and Water Management Research Institute at Kattuthottam, and the Tamil Nadu Rice Research Institute, Aduthurai. During the training period water management, crop production and protection aspects were discussed.

The various development and maintenance activities undertaken by the association have ensured easy flow of water even to tailenders and to individual fields. During the rainy season, flood water recedes quickly. Conjunctive use of surface and groundwater has helped increase in double cropping area. Sugarcane area shows upward trend, new crops such as soybean have been introduced. These cropping activities have increased the income of farmers. Regulations on irrigation have reduced litigations.

**List of case studies published in local languages under Irrigation Management Transfer Project**

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1. Water Users' Association in Anklav Subminor, Mahi Kadana Project: Farmers' Experience
2. Water Users' Association in Right Bank Canal of Pingot Medium Irrigation Project: Farmers' Experience
3. Water Users' Association in Left Bank Canal of Baldeva Medium Irrigation Project: Farmers' Experience
4. Water Users' Association in Bhestan Minor (Mohini), Ukai Kakrapar Project: Farmers' Experience
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*Case Studies conducted in Maharashtra and published in Marathi*

1. Water Users' Association in Phulewadi Lift Irrigation Scheme: Farmers' Experience
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7. Water Users' Association in Minor 10, Bhima Project: Farmers' Experience

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1. Water Users' Association in XIth Branch Canal, Periyar Vaigai Project: Farmers' Experience

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3. Water Users' Association in Dusi Mamandur Tank: Farmers' Experience
4. Water Users' Association in 28L and 29R Outlets of Mettupalayam distributary in Lower Bhavani Project: Farmers' Experience
5. Water Users' Association in Malayadipalayam Distributary of Parambikulam Aliyar Project: Farmers' Experience
6. Water Users' Association in A9 Mahilanchery Channel (Saliperi), Cauvery-Valappara Project: Farmers' Experience
7. Water Users' Association in Panchanthatipatti Tank: Farmers' Experience
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