CHAPTER V
FINDINGS, SUGGESTIONS AND CONCLUSION

MAJOR FINDINGS OF THE STUDY

The study sheds light on the major issues of water use practices of farmers in the study area. The following are some of the significant findings of the study.

- Agriculture is the primary occupation of the respondents and 85.60 per cent of the respondents except agriculture there is no secondary occupations.
- The age of the composition of the farmers revealed that 79.7 per cent of the farmers are belonging to the age of group of 15-59 years.
- The study revealed that young people are hesitate to take up agriculture as a source of livelihood.
- The study area is predominantly inhabited by small farmers with 57.7 per cent with the average holding of 4.7 acres.
- Change of cropping pattern is frequently done by 46.3 per cent of the farmers.
- The cultivation of vegetable is very low in all the three regions of the study.
- The information about water availability, storage and monsoon has bearing on the choice of crops for different seasons.
- Water is the crucial determinant of cropping pattern for 86.5 per cent of the farmers.
- The major crops cultivated in the study area are K.43, Andhra Ponni, IR20 and Black gram and Sugar cane.
- The study revealed the water related problems are more critical in determining the cropping pattern than non water related problems. The water related issues such as acute water scarcity, insufficient quantity of water, field channel encroachment by other farmers, unfair practices of water seller and delay in water release from the canal have major bearing on the planning and changing cropping pattern of farmers in the study area.
- Low rain fall is the primary reason for reduction of water supply for 21.4 per cent of the farmers and 28.6 per cent of farmers feel natural silt is the cause for reduction in water supply.
- The major obstruction in the flow of canal water is found to be natural silt.
 Majority of the farmers (73.6 per cent) feel that reduction in water supply has led to changes in cropping pattern.

 If canal water is not adequate, bore wells are the major alternative source of irrigation for the farmers.

 Farmers feel during critical period they receive water less than the requirement and this view is held by 69.8 per cent of the farmers.

 The methods pursued by the farmers in the three regions in mitigating water shortages are quit distinct.

 Farmers feel field channels and maintenance work is not done properly and this view is shared by 63 per cent of the farmers.

 Water Users Associations’ performance is really appalling according to 71.3 per cent of the farmers and 77.3 per cent of the farmers are dissatisfied with the existing settlement mechanism of Water Users Associations.

 It is felt by 92.1 per cent of the farmers that training programmes for the members of the Water Users Association are not conducted properly.

 Flooding is the only method of irrigation and other method of irrigation like drip method and sprinkler are conspicuously absent.

 There is no significant difference between the region with regard to irrigation practices.

 Majority of the farmers (96.6 per cent) feel that field channel is the most popular and effective method of irrigation.

 The present irrigation system is satisfactory according to 55 per cent of the farmers. But they also opined that the irrigation system needs vast improvement.

 It is found that Conveyance losses of water is minimum in the study area.

 The study has revealed that an overwhelming number of respondents, 295 out of 300 (98.33 per cent) feel that inadequate water supply is the major constraint in the canal system.

 Farmers in all the three regions adopt the inefficient method of field to field drainage method.

 A vast majority of the farmers (92.6 per cent) used their own funds for maintaining and enhancing their irrigation potential. But the amount spent is very small.
Farmers are not having access to vital information about Pullambadi canal water. The information about storage of water, opening and closing dates of canal and quantum of water flow are not available to the farmers.

- 66.6 per cent of the farmers practice night irrigation even though it wrought with dangers.
- The study revealed that co-operatives are contributing 55 per cent of the funds required by the farmers to meet the cost of cultivation.
- Indigenous bankers and local money lenders are providing substantial farm credit in the study area.
- It is found that 149 (50 per cent) farmers are investing their hard earned savings on their farm improvement.
- There is a significant association between different regions and the efficiency of irrigation system under canal.
- The primary task of farmers to improve their land lies on better irrigation techniques. This opinion is shared by all the farmers.

- A sizeable section of the farmers resort to extra legal practices of taking water. They are: 1) Taking water on anothers turn 2) Breaking or cutting the field channel 3) Breaking the bunds 4) Consuming water in excess of their requirement 5) Damaging the channels by cattle 6) Damaging the channels by men and 7) Obstruction placed in the minor to raise water level.
- The major form of investment under taken by the farmers is ploughing back their income on agriculture itself which constitutes 68.7 per cent.
- The level of mechanization in the study area, the type and the amount of fertilizers and pesticides used, the seeds (cropping pattern) and the labour cost are the most important farm related variables influencing the water use efficiency of the farmers.
- The labour cost which is always on the increase reduces the water use efficiency of the farmers by escalating the cost of cultivation.
- The water use efficiency index is overall high in the study area with a percentage of 72.94.
- The water use efficiency is very high in the tail-end area with 80.28 per cent and relatively low in the head region with 68.07 percentage. The middle
region has a water use efficiency of 70.45 per cent. The water use efficiency indices differ considerably among the regions.

➢ Lack of motivation is the primary reason for not forming the Water User Association in the study area. This view is held by 41.8 per cent of the respondents and 87.7 per cent of the farmers feel that government must play a proactive role in the formation of Water User Association.

➢ The members of Water Users Association have not contributed either financially or non financially for the conduct of Water Users Association and this view is expressed by 83.5 per cent of the respondents.

➢ The dearth of quality leadership is the primary cause identified by the farmers as the primary reason for not forming the Water Users Association.

➢ The success of Water Users Association is viewed by the farmers in different ways among the regions.

➢ The study reveals that farmers differ widely on the different yardsticks of evaluating the functioning of WUA.

➢ There is a significant difference among the farmers in prioritizing the methods of meeting out the water shortages.

➢ The preferred crop when there is a water stress is millets for majority of the farmers.

➢ To tide over the distress of water, farmers in general demand regular supply of electricity and want frequent interruptions in power supply should be stopped.

➢ The technology adoption in the study area is very low.

➢ The cropping pattern is severely loaded in favour of paddy and this mono cropping is not favourable to land and to farmers in the study area. But there is wide differences in the cultivation of other crops.

➢ The most important difficulty of canal irrigation is the location of farm holding at far off places and the difficulty of water to reach out those areas.

➢ The delay in cultivation is due to lack of co operation among farmers in sharing the canal water. This view is shared by 51 per cent of the farmers in the study area.
SUGGESTIONS

This analytical study on the water use efficiency of farmers of Pullambadi canal in Tiruchirappalli and Ariyaur districts has led to some vital suggestions and recommendations to all the stake holders using canal water for irrigation. These suggestions are made to enhance the water use efficiency of Pullambadi farmers and also to enhance their farm income.

1. In order to improve water use efficiency the farmers have to plan their cropping pattern well in advance on the basis of water availability. This necessitates selection of appropriate variety of crops especially in Paddy. Farmers can go for short duration and High Yielding Varieties in the tail-end regions to optimally use the water available to them.

2. The farm mechanization and type of irrigation must be modernized. Instead of flooding which is a popular methods of irrigation farmers can switch on to sprinkler irrigation for Paddy and drip irrigation for Sugar cane, Vegetables and Pulses.

3. The cropping pattern presents a mono cropping of paddy in all the regions. Instead of Paddy if the farmers opt for Groundnut, Pulses, Vegetables it will improve their income and employment.

Suggestions to Farmers

- The farmers must plan well in advance about the cropping pattern for the agricultural year based on the monsoon and storage position of water in Mettur reservoir.

- The farmers especially in the middle and tail-end region should opt for short duration and High Yielding Varieties like IR 50 and IR 20 instead of long duration crops like Ponni.

- The drought resistance crops recommended by the agricultural scientists should be cultivated by the farmers in the middle and tail-end regions.

- The encroachment made in the canals, field channels and in the banks of canals should be removed. These encroachments prevent the smooth flow of water and make the farmers in the tail-end region water starved.
• The encroachments can be removed by the farmers by their own efforts and farmers should not seek government intervention in removing encroachments.

• The water bodies in the study area are in awful condition. They should be renovated and banks of the lakes and ponds should be strengthened. Desilting operations in the water bodies will considerably enhance water shortage position and reduce water wastages due to seepages and breaches.

• The technology adoption is very important to improve water use efficiency. The modern irrigation techniques like sprinkler and drip irrigation can be used by the farmers. The government subsidies in purchasing these irrigation implements will help the farmers to buy them at affordable prices and institutional finance is also available to purchase these implements.

• The cropping intensity of the farmers can be increased by suitable cropping mix.

• The water used for irrigation through gravity flow system and consequently flooding should be ceased. This method of irrigation prevents the farmers opting for non-paddy crops.

• Farmers now have passion towards pump sets driven by electricity and they show scant respect in maintaining the canal system. This ultimate result in dwindling water table and sustainable agricultural will be at stake as it happened in some parts of this study area.

• The practice of night irrigation should be improved especially in the head region.

• One must not forget the fact that the traditional tank structures followed by our ancestors helped a lot in recharging of ground water. These tanks have been neglected over time which led to drought situation. Since study area has the locational advantage of number of lakes and ponds and restoration of water bodies can help efficient storage of rain or flood waters diversification of crops and exploring the possibility of raising double crops every year.
Suggestions to Water Users Association

- The Water Users Association is present only in small parts of the study area. Farmers in the study area must recognize the benefits of Water Users Association and make efforts to start them. This will help the use of water optimally without any conflicts.

- The farmers should earmark some amount of money for the successful functioning of the Water Users Association. The expenses involved for conducting Water Users Association is very productive and useful. The Water Users Association represents the problems of farmers to the district Collector and the Public Works Department Authorities efficiently than the individual farmers.

- The Water Users Association lacks efficient leadership to motivate the farmers to redress their problems. The farmers should come forward to identify and nurture farmer leaders to lead the Water Users Association.

- The performance of Water Users Association had received severe flake from the farmers. So the leaders of the Water Users Association should be proactive and accountable to the farming community.

- In fact, village of Palinganatham farmers demand the split of Water Users Association in order to serve their interests. This raises the question of viability of the size of Water Users Associations.

- The main reason for the ineffectiveness of the Water Users Associations is that lack of co-operation and interest among the farmers. However, lack of interest among farmers in the Water Users Association activities need not be taken as an indication of failure of Water Users Associations. Attempts should be made to understand the reasons behind such apathy. This study indicates that the farmers are not against the concept of Water Users Association. On the other hand, their awareness about the Water Users Association is rather low. Therefore, efforts should be made to increase the awareness of the farmers about the benefits of Water Users Association.
Suggestions to the Government

The government is an active partner in upholding the supply of irrigation water to the farmers of the different regions of the study area.

- The Government Order MS. No. 2865, P.W.D. dated 13th October 1965, which insists on the storage of level of 94 feet for the release of water to Pullambadi canal is a severe set back for the farmers of Pullambadi canal. The government should relax the condition of Mettur water storage and release water to the farmers on the basis of their need and requirement of water.

- The farmers in the study area felt that auctioning of lakes and bonds for fishing for some money by the government authorities prevent them from using the water from these water bodies when a vast chunk of agricultural lands are starving without water. The inland fishing is practiced in the study area should be regulated. Hence the government should avoid auctioning of lacks and bonds for fishing.

- The government should strengthen the banks of the tanks and lakes. These reservoirs are posing flood havoc to the farmers especially in the rainy season. Farmers are living near canal are facing the impounding threat of breaching of canals and tanks. So the government should invest more in strengthening of the banks of the reservoir and deepen them by removing land slides and vegetation.

CONCLUSION

The research work has resulted in some significant findings which are very relevant to the farmers as well as to the policy makers. From the farmers point of view they are not effecting changes in their cropping pattern to suit the exigencies of water non availability. They quite reluctant to go for modern irrigation methods to optimize the water use and derive maximum benefit out of it. The Water Users Associations of the farmers are defunct in majority of the areas and there is no cooperation and government machinery to facilitate the formation of Water Users Association in the study area. From the government point of view the G.O. related to the release of Pullambadi canal had proved to be a heart burn for the farming community.
The opening and closure of Pullambadi canal put the farmers at the mercy of the government. The auctioning of lakes and tanks by the government put the farmers in quandary in planning their cropping pattern. The maintenance of lakes is much to be desired, often farmers fear about the breaching of lakes and consequent loss of crops and live stocks. The apathy of the government to support Water Users Association is a major hurdle to use of water prudently at the time of distress. The research has a very strong policy recommendation of farming Public Private Partnership to maintain, enhance and optimize the water use by the farmers in the study area.

**POLICY IMPLICATIONS**

This analytical has paved the way for some significant policy implications. These policy implications are furnished below.

- The government policy of auctioning of lakes and bonds for fishing when agricultural operations are in the high swing should be stopped. The government earns only a meagre amount by auctioning and this benefits only a handful to non agriculturists but lot of agriculturists are completely deprived of water for agricultural operations.

- The removal encroachment drive is effectively done by the government but still encroachments are massive and government should engage in the removal of encroachments on war footing.

- The Government Order pertaining to the release of water to the Pullambadi canal should be modified when the water availability in the Cauvery flow is satisfactory, the government must release water to the Pullambadi canal instead of waiting for the water level at Mettur to touch 94 feet mark.

The policy recommendations have far reaching significance not only to the farming community but also to the whole society in the study area.