IMPACT OF WATER USER'S ASSOCIATION ON WATER USE EFFICIENCY IN THENI DISTRICT OF TAMIL NADU

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Abstract: Water is the elixir of life, a precious gift of nature to mankind and millions of other species living on the earth. It is fast becoming a scare commodity in most part of the world. Water resources comprising of surface water (river and lakes), ground water and marine and coastal waters, support all living things including human beings. A water user's association (WUA) is an organization of water users administered on the principles of cooperation and its role is to implement water institutions, and in the process to achieve a fair water allocation across different locations. Given the existing water supply scenarios, the demand management strategies will be considered more relevant for the efficient management of the available supplies. Therefore, what is needed is the clear understanding of the value of water in alternate uses as well as the incentive to allocate the water among competing crops and uses in different river basins. This will also help to work out the performance of both irrigation and agriculture sectors at basin level. Accordingly, the following objectives are set forth: to discuss the characteristics of WUAs and the impact of such characteristics on the water use efficiency of the selected farms. to examine the participation of farmers under WUAs in the selected area The deliverables will be a boost for water user association and find a way possible ways for the water use in a economic prospects.

Keywords: Water User's Association, Participation, Water Use Efficiency, Vaigai-Periyar River Basin.

Introduction: In recent years, management reforms can be observed in Tamil Nadu, by Participatory management through water users associations (WUAs) and contracting out of irrigation canal management to individuals. To promote Participatory Irrigation Management (PIM), the Governments of Andhra Pradesh (Nikku, 2002) and Tamil Nadu have enacted 'Andhra Pradesh Farmers Management of Irrigation System Act of 1997' and the 'Tamil Nadu Farmers Management Irrigation System Act of 2000', respectively These policy reforms emphasize "Irrigation Management Transfer" from the State Department to Water User Association / Water User Cooperative Society – a paradigm shift from state management to user institutions. A high participation in off-farm employment among WUA members, and hence a low reliance on agricultural production, may reduce the incentives of group members for improving agricultural water use efficiency. The impact of WUAs on farm production, income and water savings is examined by Wang et al. (2005, 2006, 2010). These studies find that WUAs have not been universally successful in either saving water or improving farm incomes, and link the performance of water management systems to the incentives that these new institutions provide to water managers. Empirical research that identifies the relative importance of different factors influencing water use efficiency through user-based water management is needed to underpin such policies.

Objectives

1. to discuss the characteristics of WUAs and the impact of such characteristics on the water use efficiency of the selected farms.
2. to examine the participation of farmers under WUAs in the selected area

Methodology: Based on the coverage of water users association Theni District have been purposefully selected for studying their impacts, user group and characteristics of WUAs. In this area Vaigai-Periyar river basin have been selected. To fullfil the objectives, the study focused on 60 farmers under WUAs and 45 famers under Non-WUAs which is covered under this river basin and thus making the total sample size to 105 farmers. Cluster analysis was used to classify explanatory variables which group together signifying a unified dimension to classify objects of analysis to relatively homogeneous groups called clusters. Objects in each cluster tend to be similar to each other and dissimilar to objects in the other clusters. Set of variables or characteristics representing the objects to be clustered were used to calculate the similarity between objects.

Results and Discussion: The WUA's were grouped into two clusters with similar characteristics with respect to explanatory variables. Considering the strength of different variables responsible for clustering WUA'S, the second cluster showed a active participation of members by covering more number of acres when compared to the first cluster village. It is observed that most of the WUAs were not receiving any funds from the government. Eranampatti water association showed high cultivation of paddy when compared to Thombicherry water user's association whereas Banana is the mostly cultivated under cluster

II which showed 35.24. The cluster-I was characterized as well performing, since it had, the highest farmer's participation and the highest percentage of meetings held for the development for the association.

Table No.1: Characteristics of water user's association selected for the study in Vaigai-Periyar River basin of Tamil Nadu:

Sl. No	Features of the Association	Thombicherry water association Cluster I	Ernampatti Canal Association Cluster II
1	Command area of society (acres)	1342	1867
2	Grants from Govt	No	No
3	Paddy area in (%) Khariff	87.56	91.50
	Rabhi	75.34	28.89
4	Banana area in %	24.47	35.24
5	Total number of members	145	125
6	Number of Farmers in the Association	97	112
7	Percentage of farmers who attend general body meetings	80	72

Source: David Chella Baskar (2014)

From the Table No.2 it could be inferred that the associations below 1500 acres cultivate paddy during summer which covers of 30.5 per cent and the water release form the command area were distributed towards these area for effective utilization of water during summer season. As the participation of the farmers were more in numbers (198) the strength of the association show a positive impact on the water distribution and allocation. Even though the association below the command area possesses more financial contribution, but the participation on cultivating the paddy was high when compared to the associations which are below 1500 acres.

Table No:2 Characteristics of WUA based on their command area in Periyar-Vaigai River Basin:

S.No	Characteristic of the Association	Association Below the Command area (Below 1500 acres) Number of Association-19	Association Above the Command area (Above1500 acres) Number of Association-11
1	Area under Paddy during summer season in %	30.5	26.7
2	Percentage of membership (%)	57	42
3	Number of farmers in the societies area	198	156
4	Total fund available with the society per farmer (Rs.)	280	185
5	Number of borewells in the command area (No.)	10	11

Source: David Chella Baskar (2014)

Variable No	Independent variables	Correlation coefficient
X1	Age	0.112*
X2	Education	0.314**
X3	Occupation	
X4	Farm Size	-0.006 NS
X5	Farming Experience	0.213*
X6	Annual Income	-0.023NS
X7	Cropping Intensity	0.046NS
X8	Irrigation Intensity	0.124*
X9	Productivity	0.031NS
X10	Source of Irrigation	-0.002NS
X11	Social Participation	-0.054NS
X12	Risk Awareness	0.063*

Table.No:4 Zero-order correlation of characteristics of respondents with their efficiency of water use for paddy:

** Significant at 1 per cent

* Significant at 5 per cent

NS Non-significant

Out of the twelve independent variables taken for analysis, age, education, farm size, farming experience, irrigation intensity and risk awareness were found to have positive significant relationship with the efficiency of water use in the selected area.

Farming experience showed a positive and highly significant relationship with the efficiency of water use for paddy crop. Most of the respondents were

having high to medium level of experience. This might have influenced them to greater water use efficiency in paddy farming. As the farming experience increases their experience made them efficient to use the available water.

Irrigation intensity showed a positive and highly significant relationship with the efficiency of water use for paddy crop. As the irrigation intensity increases the efficiency of water use also increases because they get water from different sources. This results showed parallel with the findings of vignesh (2006).

As far as Age is concerned it showed a positive and highly significant relationship with the efficiency of water use for paddy crop. As the age increases their experience influenced them to use the available water in a efficient way.

Educational status was found to have positive and highly significant relationship with the efficiency of water use for paddy crop. Obviously, educated respondents develop a positive attitude towards efficiency of water use.

Risk Awareness showed a positive and highly significant relationship with the efficiency of water use for paddy crop. Risk orientation develops the respondent's ability to face the odds in farming. Thus, increase in risk awareness increases the efficiency of water use of respondents.

Conclusion: This study has analysed the characteristic and participation of water users association formed in Thamirabharani River Basin of Tirunelveli District of Tamil Nadu. Most of the WUAs showed a active participation in the allocation and distribution of river water but there is lacuna in conducting meetings regarding the general body. The association however contributing to resolve the conflicts between the farmers but showed a least interest in conducting the meetings. The WUAs functionaries perform their activities under the supervision of the president on periodical basis. With all the odds being faced by the association, the study has revealed the potential of a water users association in canal water distribution through participatory approach.

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