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A study on adoption of watershed practices by beneficiary farmers of Sujala watershed development programme

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ABSTRACT

The study was undertaken during 2010-2011 with an objective to study the impact of Sujala Watershed Development Programme in Dharwad district of Karnataka. Totally 120 beneficiary farmers from 12 villages were interviewed by administering the standardized interview schedule. The results revealed that majority of the beneficiaries were middle aged, semi-medium income group (50.83%), high social participation (47.50%), high management orientation (63.33%). Nearly 30.00 per cent of beneficiaries were educated upto pre-university and had medium land holding category. About 50.00 per cent of them having bore well as source of irrigation and high extension contact. Majority of beneficiary farmers (60.83%) were found in medium adoption category, whereas 37.50 per cent of beneficiary farmers were belonged to high adoption category, while only 1.67 per cent of them belonged to low adoption category.

INTRODUCTION

Watershed development is aimed at conservation of natural resources and maintaining the ecology of the area by using the simple soil and water conservation techniques. In other words, watershed management is overall development of particular region including water conservation, maintaining soil fertility, pasture land, agriculture, horticulture, forestry and allied aspects. Soil health and water contributes the vital resources for the development of the country. These two resources nourish and support the plant and animal life. The prosperity and welfare of humanity is also depending on water, which is irreplaceable resource. Soil, water and vegetation are most important natural resources, which provide food, firewood, fiber and raw materials to satisfy variety of needs of people. Hence, its judicious management is a pre-requisite for overall development of the country. This clearly implies that judicious utilization of soil and water will increase substantially the present level of food grain production. In recent years more attention has been given for soil and water management.

METHODS

The study was conducted in purposively selected Sujala Watershed Project of Dharwad and Hubli Talukas of Dharwad district in Karnataka. This watershed project was started during the year 2001 in a phased manner and completed in the year 2008. "Ex-post facto design" was employed in the present research study as the events have already occurred and design was considered appropriate.

A list of recommended practices to be followed in case of watershed area was prepared in consultation with district

watershed development authority. Respondents were asked questions to know whether they have adopted them or not. Each practice was given a score of zero, one and two for non-adoption, partial adoption and full adoption, respectively. The scores obtained by the individual respondent for all practices were summated to get the adoption score of individual respondents. A respondent's general adoption level was determined quantitatively by using the following adoption quotient:

$$\text{Adoption quotient} = \frac{\text{Adoption score of respondents}}{\text{Maximum adoption score}} \times 100$$

Thus, after computing the adoption quotient, the respondents were grouped into high, medium low categories by taking the mean and standard deviation as a measure of check.

OBSERVATIONS AND ANALYSIS

The profile of beneficiary and non-beneficiary farmers is presented in Table 1.

It was revealed that majority of the beneficiaries (40.00%) were middle aged. Usually farmers of middle aged were more enthusiastic and have more work efficiency. Further, it can be discussed that middle aged persons have more physical vigour and have more family responsibility than the young and old respondents. These results are in agreement with the findings of Ningareddy (2005).

Considerable per cent of beneficiary farmers (31.67%) were educated up to pre-university level followed by Middle School and High School. In general, nowadays people are educated and farmers are no exception to this. This could be the result of common social environment. In the present scenario, almost all want to be literate because of awareness about the importance of the education by the various Government programmes. Similar results were also reported by Ninga Reddy (2005).

More per cent of beneficiary farmers were found in medium land holding category (30.80%) followed by marginal land holding category (25.00%). This might be due to the fragmentation of ancestral land from generation to generation which might have led to smaller size of land holdings. The present findings are in line with the results of Ningareddy (2005).

The observations regarding annual income indicated that majority of beneficiaries (50.83%) belonged to semi-medium income group. Hence, they fell under semi-medium annual income group. Further, 11.67 per cent of beneficiaries belonged to high income category. The possible reason that could be attributed was their large size of land holding and they were growing commercial crops like horticulture and floriculture. The

Table 1 : Personal and socio–economic characteristics of the beneficiary farmers (n=120)

Sr. No.	Characteristics	Frequency	Percentage
	Age		
1.	Young (18-30 years)	30	25.00
2.	Middle (31-50)	48	40.00
3.	Old (>50)	42	35.00
	Education		
1.	Illiterate	13	10.83
2.	Primary School	23	19.17
3.	Middle School	24	20.00
4.	High School	17	14.17
5.	Pre-university	38	31.67
6.	Graduate and above	5	4.17
	Land holding		
1.	Marginal (up to 2.5 acres)	30	25.00
2.	Small (2.51-5.00 acres)	17	14.17
3.	Semi medium (5.01-10 acres)	23	19.20
4.	Medium (10.01-25 acres)	37	30.80
5.	Big (>25 acres)	13	10.30
	Annual income		
1.	Low (<Rs. 17,000)	15	12.50
2.	Semi medium (Rs. 17,001-34,000)	61	50.83
3.	Medium (Rs. 34,001-51,000)	30	25.00
4.	High (>Rs. 51,000)	14	11.67
	Source of irrigation		
1.	Well	33	27.50
2.	Bore well	58	48.33
3.	Tank	5	4.17
	Social participation		
1.	Low (< 3.80)	51	42.5
2.	Medium (3.81-7.40)	12	10.00
3.	High (> 7.50)	57	47.50
	Mean= 5.63	S.D.= 4.32	
	Extension contact		
1.	Low (< 3.72)	46	38.34
2.	Medium (3.73-7.37)	14	11.66
3.	High (> 7.38)	60	50.00
	Mean= 5.55	S.D.= 4.31	
	Management orientation		
1.	Low (< 16.72)	18	15.00
2.	Medium (16.73-18.94)	26	21.67
3.	High (> 18.95)	76	63.33
	Mean =17.83	S.D.=2.62	

results are in consonance with the findings of Ninga Reddy (2005).

More per cent of beneficiaries (48.33%) were having bore well as a source of irrigation. The plausible reason for having bore well as a source of irrigation might be because most of the beneficiaries were growing paddy, so it is necessary to have some sort of source of irrigation. The findings derive support from the studies conducted by Sathish (2010).

Majority of the beneficiaries (47.50%) belonged to high social participation. Maximum per cent of beneficiaries participated in the watershed sangha and self-help groups created by the watershed department in the project area. The findings were in conformity with the results reported by Bagadi and Joshi (2007).

Half of the beneficiaries (50.00%) belonged to high extension contact. Beneficiary farmers were under close supervision and monitoring of extension professional. They used to seek information at every stage of the pre-project period and after the project period and they have greater reach to extension services. These findings are in agreement with the results reported by Ninga Reddy (2005).

Majority of the beneficiaries (63.33%) had high management orientation. The reason attributed for high management orientation in beneficiaries were that they belonged to high social participation, extension contact and attended more training programmes Similar results were reported by Chaudhari *et al.* (1999).

Overall adoption of watershed practices by the farmers:

The data in the Table 2 reveal the overall adoption level of watershed practices by the farmers. A higher per cent of beneficiary farmers were found in medium adoption category (60.83%) and 37.50 per cent farmers belonged to high adoption category. Beneficiary farmers were benefited by Sujala Watershed Project and they have good social participation and extension contact. They have also more participation in training on soil and water conservation. They were also exposed to other transfer of technology programmes like study tour, demonstrations etc. These results are in line with the finding of Kulshreshta and Kushwaha (2010).

Table 2 : Overall adoption of watershed practices by the beneficiary farmers (n = 120)

Sr. No.	Adoption category	Frequency	Percentage
1.	Low (< 9.21)	02	1.67
2.	Medium (9.22-14.01)	73	60.83
3.	High (> 14.02)	45	37.50

Mean = 11.61 S.D. = 5.65

Adoption of selected watershed practices by the farmers:

The results presented in Table 3 indicated that majority of beneficiary farmers adopted practices like ploughing across the slope, intercropping and strengthening of existing bunds. The reason attributed was that these are the commonly followed practices, further no high cost and technical guidance is required for adopting these practices.

However, least per cent of beneficiaries adopted rubble filled check, farm pond, contour bunding and waste weir. The reasons attributed for above findings are the requirement of strong technical guidance, willingness of farmer to lose some portion of field and these practices require heavy investment. The results are in line with the findings of Kadam *et al.* (2001).

Table 3 : Adoption of selected watershed practices by the beneficiary farmers (n=180)

Sr. No.	Practices	Full adoption	Partial adoption	Non - adoption
1.	Field bund	87	33	0
		(72.50)	(27.50)	(0.00)
2.	Stubble mulching	7	25	88
		(5.83)	(20.83)	(73.33)
3.	Inter cultivation	57	63	0
		(47.50)	(52.50)	(0.00)
4.	Waste weir	8	0	102
		(6.67)	(0.00)	(85.00)
5.	Levelling	32	80	8
		(26.67)	(66.67)	(6.67)
6.	Vegetative barrier	7	12	101
		(5.83)	(10.00)	(84.17)
7.	Deep ploughing	8	49	63
		(6.67)	(40.83)	(52.50)
8.	Rubble filled check	17	0	103
		(14.17)	(0.00)	(85.83)
9.	Farm pond	12	0	108
		(10.00)	(0.00)	(90.00)
10.	Contour bunding	5	31	84
		(4.17)	(25.83)	(70.00)
11.	Ridges and furrows	7	39	74
		(5.83)	(32.50)	(61.67)
12.	Intercropping	85	24	11
		(70.83)	(20.00)	(9.17)
13.	Ploughing across the slope	93	27	0
		(77.50)	(22.50)	(0.00)
14.	Use of improved agric. implements	34	62	24
		(28.33)	(51.67)	(20.00)
15.	Strengthening of existing bunds	72	28	20
		(60.00)	(23.33)	(16.67)

Figures in parentheses indicate percentage

Conclusion:

Majority of the farmers have not adopted important watershed practices like farm pond, contour bunding. Hence,

awareness has to be created among farming community through various extension tools like training, field trips and demonstration.

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