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Farm women's participation in watershed programme and their extent of adoption of soil and water conservation technologies in Sithayankottai watershed, Dindigul district of Tamil Nadu

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ABSTRACT

Watershed development is essentially a group and community oriented programme. Rural women actively participate in different activities. To achieve the success of the programme people's participation especially women's participation and adoption of resource conservation technologies are to be ensured. With this background, this study was conducted in Sithayankottai watershed, Dindigul district of Tamil Nadu, to assess the farm women socio economic profile, their attitude, participation in watershed programmes, knowledge level, extent of adoption of soil and water conservation (SWC) technologies and constraints faced by them. The data was collected from fifty farm women who were selected randomly from Sithayankottai watershed and for comparison purpose, 25 farm women were selected from outside the watershed. Results indicate that majority of the farm women in the watershed and outside the watershed were having medium level of socio-economic status, social participation, risk preference and attitude towards people's participation in SWC programmes. As a whole, knowledge level of the farm women of watershed and outside the watershed was found to be 43.76% and 32.05%, respectively. Overall adoption level of the farm women of watershed and outside the watershed was 38.64% and 25.64%, respectively with considerable difference between two samples. Farm Women's participation in watershed programme was recorded to be 41.1%. Farm women's role in adopting SWC technologies was very less and reason could be attributed to the more drudgery in execution of these activities. Major constraints perceived by the farm women in adoption of SWC technologies were lack of fund, non availability of inputs in time, lack of awareness and knowledge about the technologies, small and fragmented holdings, and poor extension service. As the farm women's knowledge on SWC technologies was low, it could be improved through exposure visits, awareness camps, imparting intensive trainings, etc. and accordingly Adoption level could be improved.

1. INTRODUCTION

Farm women, along with household activities play a pivotal role in crop production and livestock rearing and management. For achieving sustainable production the basic natural resources like soil and water need to be conserved and utilized effectively. In the recent years, the watershed programmes are given due emphasis for improving the livelihood of rural people through resource conservation and sustainable agricultural production. Watershed development is essentially a group and community oriented programme. Rural women actively participate in different activities *i.e.* soil and water conservation (SWC), crop production fodder and vegetable production, livestock, poultry and goat rearing, small scale industry etc. But rural women's contribution in sustainable agriculture system and watershed programmes has been inadequately understood or largely ignored (Johnson *et al.,* 2013). Over the past few years though special emphasis is given on women development, but in practice still it is staggering due to factors like lack of decision making ability and opportunity (Arya and Sarhadi, 2002). Arya *et al.,* 2018 also reported that the adoption and spreading of SWC technologies is not only a technical problem that can be solved only by research but

also socio-cultural and economic problems with many constraints play a role. To achieve the success of the programme, people's participation especially women's participation and adoption of resource conservation technologies by them are to be ensured. There are number of technologies in the field of SWC which have been developed by different research organizations of a region. But whether the farm women have adequate knowledge about these technologies and to what extent technologies have been adopted, what role women do they play in adoption, what are the constraints they face, whether the watershed programmes have got any influence on women with respect to above aspects. With this background, this study was conducted with the following objectives:-

- To study the profile of farm women
- To study the attitude of farm women towards people's participation in SWC programmes
- To assess the extent of farm women's participation in SWC programmes
- To assess the knowledge level of the farm women on SWC technologies
- To find out the extent of adoption of SWC technologies by farm women
- To identify the constraints perceived in adoption of SWC technologies by farm women

2. MATERIALS AND METHODS

This study was conducted in Sithayankottai watershed of Dindigul district, Tamil Nadu. Fifty farm women were selected as sample randomly and for comparison, 25 farm women from outside the watershed (Patchamalayankottai village), were also selected. The data were collected through personal interview with the help of the pre-tested interview schedule constructed for the purpose and analysis was done by using the statistical tools like percentage, mean, and People's Participation Index (PPI).

$$PPI = \frac{Mean\ participation\ score\ (p)}{Maximum\ participation\ score} \times 100$$

Where, $P = \frac{\sum_{i=1}^{N} pi}{N}$

Where, N = Total no. of respondents

$$pi = \sum_{i=1}^{k} (PPj + Pij + PMj)$$

Where, PPj = Total score of People's participation in programme planning; PIj = Total score of People's participation in programme implementation; PMj = Total score of People's participation in programme maintenance; k = Total number of statements on which responses from respondents were recorded.

3. RESULTS AND DISCUSSIONS

Socio Economic Profile of the Farm Women

The socio-economic factors like age, socio-economic status, social participation risk taking ability, attitude of the farm women etc. might greatly influence acquisition of knowledge on SWC technologies and extent of adoption of the same. Hence, the data on various socio-economic factors for the farm women (watershed and outside watershed) were collected and analysed. The results are presented in the Tables 1 to 5.

Majority of the farm women of watershed and outside the watershed were young followed by middle aged. The young group was relatively better educated than the other 2 groups and in addition to agriculture they were going for some other jobs also.

Table: 1
Distribution of farm women according to their age

S.No.	Category	Dindigul district					
		Sithayankottai watershed (n = 50)		Outside watershed (n = 25)		Total (n = 75)	
		No.	%	No.	%	No.	%
1.	Young	22	44	12	48	34	45
2.	Middle	18	36	8	32	26	35
3.	Old	10	20	5	20	15	20
	Total	50	100	25	100	75	100

Table: 2
Distribution of farm women according to their socio-economic status

S.No.	Category	Dindigul district					
		Sithayankottai watershed (n = 50)		Outside watershed (n = 25)		Total (n = 75)	
		No.	%	No.	%	No.	%
1.	Low	4	8	4	16	8	11
2.	Medium	37	74	16	64	42	56
3.	High	9	18	5	20	25	33
	Total	50	100	25	100	75	100
	Mean	31.9		31.1		31.5	

Table: 3
Distribution of farm women according to their social participation

S.No.	Category	Dindigul district					
		Sithayankottai watershed (n = 50)		Outside watershed (n = 25)		Total (n = 75)	
		No.	%	No.	%	No.	%
1.	Low	19	38	5	20	24	32
2.	Medium	22	44	16	64	28	51
3.	High	9	18	4	16	13	17
	Total	50	100	25	100	75	100
	Mean	1.8		1.5		1.75	

From the Tables 2, 3 and 4 it could be inferred that majority of the farm women of watershed and outside the watershed were having medium level of socio-economic status, social participation and risk taking ability.

Attitude of Farm Women Towards People's Participation in SWC Programmes

If the women have favorable attitude towards people's participation in watershed programmes it will definitely ensure their support in successfully implementing the programme. From the Table 5 it could be inferred that majority of the farm women of watershed and outside the watershed were having favourable attitude towards people's participation in SWC programmes.

Farm Women's Participation in SWC Programmes

In the present days watershed development programmes with people's participation are given high priority wherein SWC is the major component. Like any other development programme, the success of the watershed development programme also depends on the extent of people's involvement in all the stages of the programme. The data on extent of the farm women's participation in different stages namely planning, implementation and maintenance were collected from the selected watershed and the results are presented in the Tables 6 to 10.

In the watershed, farm women's participation in different stages namely planning, implementation and maintenance was found to be 46.67%, 40.00% and 36.67%, respectively with an overall PPI of 41.1%.

Knowledge Level of the Farm Women on SWC Technologies

Awareness and access to knowledge are very important. Ghadilly (1988) opined that awareness and knowledge of rural women are precondition to any kind of social change. Among the various factors, the knowledge level of the farm women on SWC technologies greatly influences their adoption behavior. Thus, knowledge level of the farm women of the selected watershed and outside the watershed was analyzed. Knowledge and adoption level were studied with respect to 39 SWC technologies developed for Dindigul region by different research organizations. The results are presented in the Table 10.

Overall knowledge level of the farm women on SWC technologies of watershed and outside the watershed was found to be 43.76% and 32.05%, respectively which implies that there is a considerable difference in knowledge among the farm women of watershed and outside the watershed which may be attributed to the learnings by farm women from watershed programme.

Adoption Behaviour of Farm Women

Women played an important and significant role in watershed development activities and training and demonstration programme implemented have instilled confidence in them, resulting in implementation of vermicomposting and animal feed preparation in their own lands (Johnson *et*

Table: 4
Distribution of farm women according to their risk taking ability

S.No.	Category	Dindigul district					
		Sithayankottai watershed (n = 50)		Outside watershed (n = 25)		Total (n = 75)	
		No.	%	No.	%	No.	%
1.	Low	13	26	7	28	20	27
2.	Medium	23	46	15	60	38	51
3.	High	14	28	3	12	17	23
	Total	50	100	25	100	75	100
	Mean	17.5		16.2		16.9	

Table: 5
Distribution farm women according to their attitude towards people's participation in watershed programme

S.No.	Category	Dindigul district					
		Sithayankottai watershed (n = 50)		Outside watershed (n = 25)		Total (n = 75)	
		No.	%	No.	%	No.	%
1.	Unfavourable	1	2	3	12	4	5
2.	Favourable	49	98	20	80	69	92
3.	More favourable	0	0	2	8	2	3
	Total	50	100	25	100	75	100
	Group attitude index	2.2		2.1		2.15	

Table: 6
Distribution of farm women according to their participation in planning stage of watershed programme

S.No.	Category	Dindigul district Sithayankottai watershed (n = 50)	
		No.	%
1.	Low	15	30
2.	Medium	21	42
3.	High	14	28
	Total	50	100
	Mean	14	
	PPI	46.67	

Table: 7
Distribution of farm women according to their participation in implementation stage of watershed programme

S.No.	Category	Dindigul district Sithayankottai watershed (n = 50)	
		No.	%
1.	Low	10	20
2.	Medium	30	60
3.	High	10	20
	Total	50	100
	Mean	12	
	PPI	40	

Table: 8
Distribution of farm women according to their participation in maintenance stage of watershed programme

S.No.	Category	Dindigul district Sithayankottai watershed (n = 50)	
		No.	%
1.	Low	14	28
2.	Medium	22	44
3.	High	14	28
	Total	50	100
	Mean	11	
	PPI	36.67	

Table: 9
Distribution of farm women according to their overall participation in watershed programme

S.No.	Category	Dindigul district Sithayankottai watershed (n = 50)	
		No.	%
1.	Low	15	30
2.	Medium	21	42
3.	High	14	28
	Total	50	100
	Mean	37	
	PPI	41.1	

Table: 10
Distribution of farm women according to their knowledge level

S.No.	Category	Dindigul district					
		Sithayankottai watershed (n = 50)		Outside watershed (n = 25)		Total (n = 75)	
		No.	%	No.	%	No.	%
1.	Low	6	12	5	20	11	15
2.	Medium	39	78	15	60	54	72
3.	High	5	10	5	20	10	13
	Total	50	100	25	100	75	100
	Mean	17.1		12.5		14.8	
	Overall knowledge index	43.76		32.05		37.90	

al., 2013). Government has made efforts to disseminate the various SWC technologies among the farming community through various development programmes. Despite, the efforts from Government, all the SWC technologies were not adopted by farmers as expected. The major reason for low adoption or poor maintenance of SWC measures, was the occurrence of droughts in initial years of their adoption as cited by Kumar *et al.,* 2021. At this juncture it is essential to know that to what extent they have actually adopted the SWC technologies which may help in developing the strategies to improve their adoption behavior. An attempt has been made to analyse data on actual adoption behavior of farm women of the selected watershed and outside watershed. The results are presented in the Table 11.

Table: 11
Distribution of farm women according to their actual adoption level

S.No.	Category	Dindigul district					
		Sithayankottai watershed (n = 50)		Outside watershed (n = 25)		Total (n = 75)	
		No.	%	No.	%	No.	%
1.	Low	5	10	5	20	10	13
2.	Medium	39	78	15	60	54	72
3.	High	6	12	5	20	11	15
	Total	50	100	25	100	75	100
	Mean	15.1		10		12.6	17
	Overall adoption level	38.64		25.64		32.1	

Table: 12
Constraints in adoption of SWC technologies as perceived by the farm women

S.No.	Constraints	Dindigul district	
		Frequency (n = 75)	Percentage
1.	Lack of fund	53	70.66
2.	Non-availability of input in time	34	45.3
3.	Lack of awareness and knowledge about some technologies	51	68
4.	Small and fragmented holdings	48	64
5.	Poor extension service	35	46.7
6.	Not possible to adopt some of the technologies individually	58	77.3
7.	Operational difficulty to adopt some of the technologies	28	37.3

Overall adoption level of the farm women of the watershed and outside the watershed was 38.64% and 25.64%, respectively with considerable difference among them which could be attributed to the efforts taken by the PIA. Among the commonly adopted SWC technologies, the women's involvement in the watershed and outside the watershed was found to be more in crop based measures and it was negligible in mechanical measures as it involves more drudgery.

Constraints in Adoption of SWC Technologies as Perceived by Farm Women

The various SWC technologies recommended by the research organizations are not completely adopted by the farm women. In this investigation an effort was made to know the reasons for non-adoption which may help in suggesting measures to overcome the constraints and to improve their adoption behavior. The results are presented in the Table 12.

The major constraints perceived by the farm women in adoption of SWC technologies were difficulty in adopting some of the technologies individually followed by lack of fund, lack of awareness and knowledge about the technolo-

gies, small and fragmented land holdings, poor extension service and non availability of inputs in time. The farm women's knowledge needs to be improved through awareness camps, exposure visits and periodical trainings and they need to be motivated to adopt more SWC technologies through financial assistance from different agencies. As the extension service is very poor, periodical visit of field extension staff are to be ensured. Women are being involved in watershed programmes but their involvement had been limited mainly due to limitations such as lack of land ownership (entitlements), credit and capabilities, low literacy, lack of productive skills and suitable technologies etc. (Johnson *et al.,* 2013; Arya and Sarhadi, 2002). Bourai, 2002 also reported that women's participation is constrained by problems like lack of time and no institutional and organizational support.

4. CONCLUSIONS

Farm women of watershed and outside the watershed were young followed by middle aged and they were having medium level of socio-economic status, social participation, risk preference and faourable attitude towards people's participation in SWC programmes. Farm women's overall participation in SWC programmes in different stages was less and hence steps need to be taken for more participation so that success rate of watershed management programmes could be enhanced. The farm women's knowledge needs to be improved through awareness camps, exposure visits and periodical trainings.

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