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Factors Affecting Farmers Decision to Join Joint Forest Management Programme in Jammu Division of Jammu and Kashmir

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

The present study was conducted in purposively selected "East Forest Circle" of Jammu division of J&K. Multistage sampling plan was followed for the selection of respondents. Six forest ranges from East circle having maximum number of Joint Management Programme (JFM)Cs were selected purposively. Twenty four committees, four from each selected ranges of East circle and eight members from each selected JFMC were selected through random sampling technique. The respondents were divided into two groups 1).Treatment group: Eight members from each selected JFMC were selected randomly for the study making the sample size to 192 respondents. 2).

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Control group: Two villages from each range (12 villages in total) were selected through random sampling technique. From each selected village nine non- JFMC members were randomly selected. Thus, a total sample of 108 non-JFMC members were selected from these villages. Binary regression model was applied to analyze the factors affecting farmer's decision to join JFM programme. The result of the study showed that family size, area under trees, extension contact and social participation significantly affecting farmer's decision to join JFM programme.

Keywords: Joint forest management; factors; ranges; binary; regression; participation.

1. INTRODUCTION

India is the seventh largest country in the world though it owns 1.8% of the global forest on the 2.5% of the global land area. In India, it was reported that 706,820 sq km (23.80%) of the area is under forests (World Bank Indictor, 2015). It is estimated that about 200 million people live in and around forests, and fully depend for their livelihood on forest resources. Several approaches initiated to conserve forests without involving the local communities have not met with reasonable success. Thus, it is increasingly recognized that involvement of people in forest management, apart from contributing to regeneration of degraded forest, and helping in cost-effective conservation, also meets community's subsistence needs. To push such efforts, a decentralized and participatory forest management programme called joint forest management (JFM) is being promoted in India since 1990. The JFM provisions, under the JFM guidelines of 1990, expected to promote peoples' involvement, collective decision-making, and social fencing, empowerment of the village community and sharing of authority, focus on sustained harvest of usufructs. Murali [1] India's national forest policy of 1988 was a landmark policy for local people's rights over forest resources. The policy recognized people's participation in using and protecting forests and suggested the forest communities should develop and conserve forests together with the state forest departments. This reform in forest policy has begun to transform how forests are protected and used in India. Communities that were historically perceived to be encroachers and illegal users of forests by the state were invited to partner with the state in protecting forests. Following national implementation guidelines in 1990, various state governments began implementing their own Joint Forest Management strategies. West Bengal became the first state to adopt the JFM in 1990. Since 1990 JFM guidelines from the Centre, all the states have resolved to implement JFM making it one of the largest communities based natural resource management programme in the world [2]. The idea is to bring 33% of the forest cover in India within this joint forest programme by the year 2020. By the end of 2006, close to 100,000 communities were practicing/adopting one or the other form of JFM covering an area of about 22 million hectares in 28 states, [3]. Evidence on the success of JFM based on the yields of timber and its benefit sharing has shown mixed results [4]. The impact of JFM has been argued to differ due to the degree of specific rights and benefits that forest department has allowed to the local communities. As per the Champion & Seth Classification of Forest Types (1968), the forest in UT of Jammu & Kashmir and UT of Ladakh belong to eight Type Groups which are further divided into 42 Forest Types, the highest in the country. The Jammu & Kashmir Forest Act, 1987 is the only state-specific Forest/Wildlife act or rule that exists in the UTs. The two UTs have a Forest Protection Force to assist the Department in enforcing the forest laws on the ground and protection of forests and wildlife. The Forest Department of the two UTs have implemented various schemes focusing on rehabilitation of degraded forests, consolidation and demarcation, Eco Task Force, urban forestry, pasture and fodder development, stabilization of strip area on National Highways, development of Conifer Forests, CM's Participatory Afforestation Scheme, Integrated Forest Protection, participatory grazing land development programme etc. (India State of Forest Report 2019). Recorded Forest Area (RFA) in the two UTs is 20,230 sq km of which 17,643 sq km is Reserved Forests, 2,551 sq km is Protected Forest, and 36 sq km is Unclassed Forests. In the UT of Jammu & Kashmir and UT of Ladakh, during the period 1st January 2015 to 5th February 2019, no forest land was diverted for non-forestry purposes under the Forest Conservation Act, 1980 (MoEF&CC, 2019). Total no of JFMCs in Jammu and Kashmir are 4,173. (MERCC, 2014-15). JFM involves sharing of responsibilities and rights of local communities and forest department (FD) as primary stakeholders in forest management system. It is

also supposed to invoke active participation of local people and application of their traditional wisdom and knowledge in countering ecological and economic vulnerabilities in the form of soil erosion, drought condition, loss of soil productivity and scarcity of timber, fuel wood, fodder, plant leaves etc. [5]. Therefore keeping in view the importance of Joint Forest Management Programme in conservation of forest resources the present study was conducted to find out the factors affecting farmer's decision to join Joint Forest Management programme in Jammu Division of Jammu and Kashmir

2. MATERIALS AND METHODS

The present study was conducted purposively in "East Forest Circle" of Jammu division. Jammu division is classified into three forest circle namely: East circle, West circle and Chenab valley circle. East circle comprises of maximum number of districts namely: Jammu, Samba, Kathua and Udhampur. So, the present study was purposively conducted in East circle because of having maximum number of districts. Multistage sampling plan was followed for the selection of ultimate respondents as described under:

2.1 Selection of Forest Ranges

Six forest ranges from East circle having maximum number of JFMCs were selected purposively.

2.2 Selection of JFM Committees

Twenty four committees comprising of four from each selected range of East circle were selected through random sampling technique.

2.3 Selection of Respondents

The respondents were divided into two group:

1. Treatment group: Eight members from each selected JFMC were selected randomly for the study making the sample size to 192 respondents.

2. Control group: Two villages from each range (12 villages in total) were selected through random sampling technique. From each selected village nine non- JFMC members were randomly selected. Thus, a total sample of 108 non-JFMC members was selected from these villages.

3. RESULTS AND DISCUSSION

3.1 Socio-economic Status of the Respondents

Table 1 depicts the Socio-economic status of the respondents and the description is as under. The average age of the JFM and Non-JFM members was 60.79 and 55.32 years respectively. This might be due to non interest of young masses in farming and allied activities and their association to tertiary sectors. Further there was statistically significant difference between the mean age of JFM and Non-JFMC members (t= 4.396; p=value 0.001). Overall average number of formal schooling years completed by JFMC and Non-JFMC members was 6.52 (± 3.14) and 6.87 (± 3.76) years respectively. Overall 33 per cent of the JFMCs members had middle level education, 31 per cent had primary level education at the same time, overall 17 per cent of the respondent had matriculation level, 7 per cent below primary, 1 percent each of 10+2 and graduate and above level of education. Only 10 per cent of the respondent was illiterate. Where as in case of Non-JFM members overall 35 per cent of the respondent had middle level of education, 26 per cent had matriculation level, 15 per cent primary, 4 per cent 10+2, 2 per cent below primary, 1 per cent graduate and above level of education and 17 per cent of the respondent were illiterate. Education standard were found to be very less in study area. This trend may be attributed to non existence of government school, high fee of private school, non interest of parents as well as children for attending school. With regard to telephone connectivity, 52 per cent of the JFMCs members had telephone connections, where as in case of Non-JFM members 77 per cent of the respondents had telephone connections. All respondents had mobile phone connectivity only. Average family size of the respondents was 6.07 (± 1.43) members. In case of Non-JFM members the average family size was 6.27 (± 1.89) members. With respect to categorization of the family size done by using Singh cube root method (1975), 14 per cent of the JFMCs members were under the family size of less than 5 members (Small), 54 per cent 5-7 members (Medium) and 33 per cent were under the family size of more than 7 members (Large). In case of Non-JFM respondents 15 per cent were under the family size of less than 5 members (Small), 44 per cent 5-7 members (Medium) and 41 per cent were under the family size of more than 7 members (Large). The average family size was found to be higher than the state average of 5.7 (Census of India, 2011). This may be explained

by existence of joint as well as isolated families in the region.

Overall average operational land holding of the JFMCs members was 1.17 (± 0.17) hectares while in case of Non-JFM members the average operational land holding was 0.71 (± 0.45) hectares. Statistically there is significant difference between JFMCs members and Non-JFM respondents in average operational land holding (t= 6.073; p= 0.001).Further in case of farm size of JFMCs members 44 per cent of the respondents fell under the Marginal category having less than 1 ha of land, 44 per cent were in small category having 1-2 ha of land, 10 per cent fell under semi-medium category having 2-4 ha of land and 2 per cent of the respondents fell under medium category having 4-10 ha land. Where as in case of Non-JFM respondent's 81 percent respondents fell under marginal

Table 1. Descriptive statistics regarding socio-economic status of the respondents (% respondents)

Parameters	JFM members (n= 192)	Non JFM members (n= 108)	Statistics (*p*- value)
Average age (years)	60.79±10.26	55.32±10.47	t= 4.396** (0.001)
30 to 50	(12)	(28)	z= 3.034* (0.002)
50 to 71	(72)	(67)	z= 0.767 (0.441)
Above 71	(16)	6 (5)	z= 2.537* (0.011)
Average education (schooling years completed)	6.52±3.14	6.87±3.76	t= 0.847 (0.198)
Level of education (% respondents)			
Illiterate	(10)	(17)	z= 1.448 (0.147)
Below Primary	(7)	(2)	z= 1.705 (0.087)
Primary	(31)	(15)	z= 2.688* (0.007)
Middle	(33)	(35)	z= 0.298 (0.764)
Matriculate	(17)	(26)	z= 1.549 (0.121)
12th	(1)	(4)	z= 1.358 (0.174)
Graduation and above	(1)	(1)	--
Phone connection (%respondents)	(52)	(77)	z= 3.694** (0.001)
Head of Family (%respondents)	(93)	(92)	z= 0.268 (0.787)
Average Family size (No.)	6.07±1.43	6.27±1.89	t= 1.088 (0.138)
Small>5	(14)	(15)	z= 0.201 (0.841)
Medium5-7	(54)	(44)	z= 1.414 (0.158)
Large<7	(33)	(41)	z= 1.171 (0.242)
Average operational land holding (ha)	1.17±0.71	0.71±0.45	t= 6.073** (0.001)
Categorization of farm size (% farmers)			
Marginal (<1 ha)	(44)	(81)	z= 5.404** (0.001)
Small (1-2 ha)	(44)	(17)	z= 4.146** (0.001)
Semi- medium (2-4 ha)	(10)	(3)	z= 2.007* (0.044)
Medium (4-10 ha)	(2)	0	z= 1.421 (0.156)
Average irrigated area	0.05±0.13	0.03±0.09	t= 1.418 (0.078)
Average unirrigated area	1.12±0.65	0.06±0.38	t= 6.372** (0.001)
Average number of fragments (No.)	2.24±0.80	2.20±0.79	t= 2.603* (0.009)
Average area for grazing purpose (ha)	0.34±0.17	0.22±0.07	t= 6.634** (0.001)
Average area under tree plantation (ha)	0.15±0.08	0.06±0.02	t= 9.908** (0.001)
Distance of village from different places			
Average distance of village from town (km)	12.89±6.84	12.61±7.56	t= 0.327 (0.608)
Average distance of village from forest office (km)	16.59±8.70	16.54±10.32	t= 0.055* (0.019)

Table 2. Factors affecting farmer's decision to join JFM programme

Model	Factors	Coefficient (B)	S.E	p-value	Model summery
Step-1	Constant	-1.474	.231	.000	Nagelkere R^2 = .685
	Extension contact	2.563	.290	.000	-2 Log likelihood = 184.165
Step-2	Constant	-8.388	1.265	.000	Nagelkere R^2 = .883
	Area under trees	3.392	.568	.000	-2 Log likelihood = 81.914
	Extension contact	3.086	.500	.000	
Step-3	Constant	-5.818	1.649	.000	Nagelkere R^2 = .921
	Family size	-.975	.268	.000	-2 Log likelihood = 57.750
	Area under trees	5.001	.937	.000	
	Extension contact	3.843	.783	.000	
Step-4	Constant	-9.166	2.869	.001	Nagelkere R^2 = .936
	Family size	-.969	.275	.000	-2 Log likelihood = 47.710
	Area under trees	6.658	1.738	.000	
	Extension contact	6.717	1.879	.000	
	Social participation	-4.488	1.812	.013	

** p<0.05 indicates significant*

category having less than 1 ha of land, 17 per cent under small category having 1-2 ha of land, 3 per cent were in semi-medium category having 2-4 ha of land and there were no respondents which fell under medium and large category having 4-10 ha and more than 10 ha of land respectively. Further the average irrigated area of JFMCs respondents was 0.05 (± 0.13) ha, average unirrigated area was 1.12 (± 0.65) ha, average number of fragments was 2.24 (± 0.80), average area for grazing purpose was 0.34 (± 0.17) ha and average area under tree plantation was 0.15 (± 0.08) ha. Where as in case of Non-JFM respondents, the average irrigated area was 0.03 (± 0.09) ha, average unirrigated area was 0.06 (± 0.38) ha, average number of fragments was 2.20 (± 0.79), average area for grazing purpose 0.22 (± 0.07) ha and average under tree plantation was only 0.06 (± 0.02) ha. Further there were statistically significant difference between the JFMC members and Non-JFM members in average unirrigated area, average area for grazing purpose and average area under tree purpose (t=6.371; p=0.001), (t=6.634; p=0.001) and (t=9.908; p=0.001) respectively.

Overall average distance of the JFM village from the nearby town was 12.89 (± 6.84) km and average distance from the forest office was 16.59 (± 8.70) km. Where as in case of Non-JFM respondent's the average distance of the village from the nearby town was 12.61 (± 7.56) km and average distance from the forest office was 16.54 (± 10.32) km. Due to hilly topography the location of the respondents was far scattered from different headquarters of the government offices, and this is also one of the factors for the delayed reach different government interventions.

3.2 Factors Affecting Farmer's Decision to Join JFM Programme

Binary regression model was applied to analyze the factors affecting farmer's decision to join JFM programme. In this case age, education, family size, operational land holding, area under trees, area under pasture land, number of animals, extension contact and social participation were taken as independent variables. Among all these independent variables, it was found that family size (p=.000), area under trees (p=.000), extension contact (p=.000), and social participation (p=.013) were significantly affecting farmer's decision to join JFM programme having Nagelkere R^2 value .936 which indicates that model so applied had prediction power of 93 per cent. The communities participate in forest management and rehabilitation have access to forest products such as fuel wood, fodder and collection of dead trees, cutting grass, medicinal plants, etc and nontimber forest products like beekeeping, cattle fattening and forest coffee in group and individual manner similar results were also founded by Jana et al. [6]. The result regarding factors affecting farmer's decision to join JFM programme is presented in Table 2.

4. CONCLUSIONS

It is concluded on the basis of major findings that the average age of the JFMC and Non-JFM

members was 60.79 and 55.32 years respectively. Majority of the respondents were educated upto middle level. The number of marginal farmers was dominant in the study area. The average operational land holding of JFMC members was 1.17 ha. It is concluded on the basis of findings that family size, area under trees, extension contact, and social participation significantly affecting farmer's decision to join JFM programme having Nagelkere R^2 value .936 which indicates that model so applied had prediction power of 93 per cent. It is also concluded that JFM is promoting participation of local people in implementation of different government schemes for the conservation of different forest resources. More awareness and training programme should be organised to aware the masses related to Joint Forest Management programme. More efforts need to be done to exploit JFM platform to increase forest tourism in rural areas for enhancing the employment opportunities and income of the communities residing in close proximity of forests.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Murali KS. Joint forest management in India and its ecological impacts. Environmental Management and Health. 2002;5(13):512-528.
2. Kumar S. Does participation in common pool resource management help the poor? A social cost benefit analysis of joint forest management in Jharkhand. India World Development. 2002;30(5):763-782.
3. Saxena NC. Research issues in forestry of India. Indian Journal of Agricultural Economics. 2000;55(3)D:370-381.
4. Khare A, Sarin M, Saxena NC, Patil S, Bathla S, Vania F, Sathyanarayana M. Joint forest management: Policy, practice and prospects. IIED Publishers, Londen; 2000.
5. Mir NA, Abidi RA, Bhat HA, Asif M. Livelihood support of joint forest management (JFM) in rural India. International Journal of Pharma and Bio Sciences. 2014;5(1b):361-367.
6. Jana SK, Lise W, Ahmed M. Factors affecting participation in joint forest management in the West Bengal state of India. Journal of Forest Economics. 2014;20(4):317-332.

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