Experiencing the Factors of Tribal Women Involvement in Agriculture and Livestock Management

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ABSTRACT

In developing countries like India as the male members of the family frequently migrate to the other area in search of alternative livelihood. In such a situation, the insight into tribal women involvement in livestock and agricultural management has an enormous role for future policy implication. The study was conducted in two villages of West Garo Hills district of Meghalaya. In the present study, the involvement index is considered as the predicted variable and other eleven variables were considered as the predictor variables. Multistage, purposive and random sampling procedures were followed for final respondent selection. Data were collected through personal interview method in the designed structured interview schedule. Statistical measures like descriptive statistics, correlation coefficient and regression coefficient have been used for data analysis. Result revealed that the independent variables namely family type and age had higher consistency compared to others independent variables. It has also been found that the variable social participation (X_8) is positively and significantly associated with the dependent variable, women involvement index. The R^2 value being 0.115, it is to infer that the eleven predictor variables put together have explained 11.5% variation embedded with the predicted variable, tribal women involvement index in agriculture and livestock production.

Key words: *Tribal women; Involvement pattern; Livestock management; Regression analysis; Alternative livelihood;*

Women's involvement in agriculture and livestock production is a long-standing tradition in India. Managing farm and home along with rearing of domestic animals has been an integral part of the women's activity in the family farming system. In most of the developing countries like India, the male members of the farm family are migrating from rural area to urban area in search of alternative livelihood option. The ethnic community is not an exception. In such a situation, an insight into the tribal women's involvement in livestock and agricultural management would have an enormous role for future policy implication. Farm women are the backbone of the Indian agriculture and the animal husbandry enterprises are completely dependent on them (*Chauhan, 2012*). Tribal farm-women also play an important role in agriculture and livestock production as well as maintenance of their home. They take important decisions in the home and outside the home reported the by (*Antoniades et al 2000*). Women have to play a double role like looking after their children as well as managing their family farm. In Meghalaya, Garo tribes are the main inhabitant of the Garo districts, believed to be a member of Tibet- Burman family (*Singh, 2012*).

The social system is such that most of the farm operations and household activities are performed by the women only. They are also involved in decision-making process but their low knowledge level about the improved practices and developments in the area of agriculture restricts them to go for modern farming practices and efficient marketing of the farm produces (*Bihari, 2012*). In rural tribal area, women are involved in various activities such as land preparation, seed selection and seedling production, sowing, applying manure, fertilizer and pesticide, weeding, transplanting, threshing, winnowing and harvesting; in livestock production, fish production, poultry production, collection

of non-timber forest produce (NTFP) etc. It is a well-recognized fact that more than 60% of agricultural operations have been traditionally handled by women (*Chauhan, 2011*). Landless women agricultural labourers also play important role in agriculture as they earn their income through their engagement in different agricultural operations during the seasons. Role and contribution of women human resource in agriculture has been a very crucial input not only in enhancing the crop production but also in overall agricultural diversification (*Bihari et al., 2012*). Lack of education, technologies and other socio-economic factors leads to an adverse impact on the lives of tribal women farmers. Due to the non-availability of wood on village common lands, rural women were compelled to spend 15-35 hours every week in walking long distances for collecting fuelwood from interior forests (*Hegde, 2000*). In the rural area, the tribal women use traditional or public extension media for exchange of idea and innovation. Communicator is one of the most important elements of communication process and his effectiveness is largely dependent upon his credibility as perceived by the clientele (*Meena & Meena, 2012*). It is seen that tribal communities use traditional sources of information and they trust only those who meet frequently or living around them. For saving and credit facility, they form and join Self Help Group in their locality and which is linked with nearby bank, NGO or any other financial agency. They rear cattle, pigs and poultry as secondary income generation activity. Village headman (locally called Nokma), friends, neighbours are the main key informants for the source of information and credit facility. In most of the cases, the social participation of the female is more compared to that of a male counterpart. This study is designed to identify the correlates of tribal women involvement pattern in agriculture and livestock management.

METHODOLOGY

The study was conducted in two villages namely Chenggapara and Okkapara Songgitcham in West Garo Hills district of Meghalaya in north eastern region, India during January, 2017. The study area is mainly dominated by the *Garo* tribe. The respondents were selected through multistage purposive and random sampling procedures. The district and block were selected purposive randomly, the villages and respondent selected randomly. The total number of respondents was 60 *Garo* tribe people engaged in agriculture and livestock activities. The involvement index is considered as the dependent variable for the present study and other eleven variables were considered as the independent variables for study. The variables were conceptualised and operationalized according to the need of the study and measured with the help of pre-constructed or constructed tools. The data were collected with the help of structured interview schedule through personal interview method. The collected data were tabulated and analyzed by using statistical tools like frequency, percentage, mean, standard deviation, correlation coefficient and regression coefficient.

RESULTS AND DISCUSSION

The Table 1 presents the different socio-economic and socio-personal characteristic of the respondents. The independent variables are the family type, age,

Table 1. Distribution of respondents according to their attributes

Variables	Range	Mean	SD	CV
Family type	1.00- 2.00	1.18	0.39	33.05
Age	1.00 - 3.00	2.10	0.66	31.24
Education	1.00 - 7.00	3.70	1.79	48.32
Main Occupation	1.00 - 5.00	3.67	1.71	46.75
Cultivable land (local unit)	1.00 - 5.00	3.33	1.37	41.21
Nos. of animal reared	3.00 - 52.00	13.93	8.62	61.84
Sources of information	1.00 - 4.00	2.52	1.17	46.55
Social participation	1.00 – 4.00	2.95	1.25	42.52
Sources of annual income	1.00 – 6.00	3.85	1.96	51.02
Availability of credit facility	1.00 – 6.00	3.43	2.07	60.28
Information source availability	0- 3.00	1.37	0.80	58.67
Involvement Index	2.5 -75	45.44	23.47	51.65

education, main occupation, cultivable land, numbers of animal reared, the sources of information, social participation, the sources of annual income, availability of credit facility, information source availability wherein involvement index is considered as the dependent variable.

The variable family type of the respondents ranges from 1-2. The mean score of the total distribution, the family type is 1.18 and the standard deviation of the distribution is 0.39. The coefficient of variation value within the distribution 33.05 signifies high consistency level of the distribution for the variable 'family type'. The score for the variable age of the respondents ranges from 1.00 - 3.00 with mean score of 2.10 and standard deviation 0.66. The coefficient of variation within the distribution 31.24 signifies high consistency level of the distribution for the variable "age". The variable education ranges from 1.00 - 7.00 that is illiterate to graduate and the mean score is 3.70. The standard deviation of the distribution is 1.79 and coefficient of variation 48.32 signifies the medium level of consistency of the distribution for the variable "education". The score for the variable main occupation ranges from 1.00 - 5.00 that means the respondents in the study area are engaged in five types of occupation namely wage labour, livestock rearing, business, service and farming. The mean score is 3.67 and the standard deviation of the distribution is 1.71. The coefficient of variation shows medium consistency level with the value of 46.75 of the distribution for the variable "main occupation". The variable cultivable land ranges from 1.00 - 5.00 and its mean is 3.33, standard deviation 1.37 and coefficient of variation shows medium consistency level i.e. 41.21. The variable numbers of animal reared ranges from 3.00 - 52.00 numbers and its mean score is 13.93. The standard deviation of the distribution is 8.67 and coefficient of variation being 61.84 signifies low consistency level of the distribution for the variable "numbers of animal reared". The variable sources of information ranges from 1.00 - 4.00 which covers neighbour, friend, village-headman and extension worker. The mean score is 2.52 and the standard deviation is1.17. The coefficient of variation shows medium consistency level with a value of 46.55 of the distribution for the variable "sources of information". The score for the variable social participation ranges from 1.00 - 4.00 that means no membership to SHG membership and the mean score is 2.95. The standard deviation is 1.25 and the coefficient of variation shows medium consistency level i.e. 42.52 of the distribution for the variable "social participation". The variable sources of annual income ranges from 1.00 - 6.00 that implies six categories of income sources as wage labour, livestock rearing, business, service, horticulture and agriculture. The mean score is 1.96 and the standard deviation within the distribution is 1.25. The coefficient of variation value 51.02 signifies medium consistency level of the distribution for the variable "sources of annual income". The variable 'availability of credit facility' ranges from 1.00 - 6.00 that is a friend, neighbour, village-headman, local money lender, relatives and banks. The mean score is 3.43 and the standard deviation of the distribution is 2.07. The coefficient of variation value being 60.28 signifies low consistency level of the distribution for the variable "availability of credit facility". The variable 'information sources availability' ranges from 0-3 that means the absence of modern information sources, radio, television and mobile. The mean score is 1.37 with a standard deviation value of 0.80 within the distribution. The coefficient of variation value being 58.67 indicates the medium level of consistency of the distribution for the variable 'information sources availability'. The value of the dependent variable involvement index ranges from 2.5 - 75 and the mean score is 45.44. The standard deviation within the distribution is 23.47 and the coefficient of variation value 51.65 signifies medium consistency level of the distribution for the dependent variable "involvement index".

Table 2. Correlation Coefficient of involvement index(Y) with eleven predictor variables(X)

Variables	(r)
Family type(X_1)	0.001
Age(X_2)	-0.024
Education(X_3)	-0.038
Main Occupation(X_4)	-0.171
Cultivable land (Local unit) (X_5)	-0.111
Nos. of animal reared(X_6)	-0.193
Sources of information(X_7)	-0.056
Social participation(X_8)	0.217*
Sources of annual income(X_9)	-0.090
Availability of credit facility(X_{10})	-0.160
Information sources availability(X_{11})	-0.105

*significant at 5% level

Table 2 shows that the variable namely social participation of tribal women (X_8) is positively and

significantly associated with the dependent variable, involvement index.

Social participation and involvement index : The active social participation by the tribal women inspires them to access various information sources to get up-to-date themselves regarding agriculture and livestock production. Higher social participation helps them in appropriate decision making and effective use of agricultural information collected from different information sources in their farm and home. Social participation also provides the opportunity to obtain timely and accurate information which would, in turn, help the farmers predict any unfavourable situation and thereby plan appropriate strategies to overcome the challenges and continue their cultivation and livestock rearing in a sustainable way. That is why the variable 'social participation' is significantly and positively associated with women involvement index in agriculture and livestock management.

Besides this, it has also been found that the variable namely Family type (X_1) is positively associated with the dependent variable, involvement index whereas the variables namely Age (X_2), Education (X_3), Main Occupation (X_4), Cultivable land (X_5), Numbers of animal reared (X_6), Sources of information (X_7), Sources of annual income (X_9), Availability of credit facility (X_{10}) and Information sources availability (X_{11}) have negative association with the predicted variable, involvement index of the tribal women in agriculture and livestock management.

Table 3 presents the multiple regression analysis of involvement index with the eleven predictor variables. The result shows that the variables namely family type (X_1), education (X_3), cultivable land (X_5), sources of information (X_7), social participation (X_8), sources of annual income (X_9) and information sources availability (X_{11}) are contributing positively towards characterizing the predicted variable, involvement index. On the other hand, the variables like age (X_2), main occupation (X_4), nos. of animal reared (X_6) and availability of credit facility (X_{10}) are contributing negatively towards characterizing the dependent variable, involvement index.

Form the result of multiple regression analysis, it has been found that social participation has the highest and positive influence on the involvement index of the tribal women in agriculture and livestock management.

The possible reason behind this may be that the involvement of women in various social organizations provides them the opportunity to expose themselves to various information sources which ultimately enhances their knowledge and motivates them to actively engage in agricultural and allied activities. The variable social participation is contributing 23.50 per cent in case of characterizing the dependent variable, involvement index of tribal women farmers. Similarly, the source of annual income is another variable which has a moderate influence on the involvement index of tribal women farmers. As the source of annual income indicates the economic affluence of the individual, therefore, higher annual income leads an individual towards profit orientation through active participation in different improved farming practices. Hence, the variable source of annual income is contributing 16.30 per cent towards characterizing the involvement index of tribal women farmers. Likewise, the variables namely family type, information source availability, area (bigha), the source of information have contributed 8.40 per cent, 5.80 per cent, 5.10 per cent and 3.70 per cent respectively in a positive direction. One important variable that is the education has positive but least influence on the involvement index of the tribal women farmers. This may be due to the fact that they are living in such remote areas where their mere survival has become more important issue compared to getting a proper education. Therefore, the tribal women prefer to get involved in various farm activities rather than formal educational activities.

On the other hand, the variable main occupation is

Table 3. Multiple Regression analysis of involvement index (Y) with eleven predictor variables (X)

Variables	(ß)	(*b*)	S.Eof *'b'*	t-value
Family type	0.084	4.721	8.804	0.536
Age	-0.035	-1.245	7.144	-0.174
Education	0.030	0.399	2.366	0.169
Main Occupation	-0.228	-3.116	4.585	-0.679
Cultivable land	0.051	0.872	3.165	0.276
Nos. of animal reared	-0.196	-0.533	0.491	-1.086
Sources of info.	0.037	0.736	4.145	0.178
Social participation	0.235	4.398	3.044	1.445
Annual income	0.163	1.948	3.554	0.548
credit facility	-0.104	-1.179	1.686	-0.699
Information sources	0.058	1.688	5.588	0.302

** Significant at 1% level,

* Significant at 5% level, $R^2 = 0.115$

contributing 22.80 per cent but negatively in the case of characterizing the involvement index of tribal women farmers. A very pertinent issue has been observed during the study which is a plausible reason behind this. Farmers who take agriculture as their main occupation are mainly involved in cashew-nut and areca-nut plantation which gives considerable profit without much management and that is why their involvement has been less in their agricultural enterprise. Another variable number of animals reared contribute 19.60 per cent towards characterizing the involvement index of women tribal farmers negatively. It is obvious because the tribal women who give both their time and labour to look after their livestock would usually get less time to involve effectively in the farming activity and therefore, number of animals reared has a negative influence on the involvement index of women tribal farmers. Similarly, availability of credit facility and age are the two variables which are contributing negatively in the magnitude of 10.40 per cent and 3.50 per cent respectively in case of characterizing the dependent variable, involvement index of women tribal farmers. The R^2 value being 0.115, it is to infer that the eleven predictor variables put together have explained 11.5 per cent variation embedded with the predicted variable, tribal women involvement index in agriculture and livestock production. Still, 88.50% variables embedded within predicted one remain unexplained. Thus it would be suggested that the inclusion of some more contextual variables possess direct bearing on involvement index of tribal women in agriculture and livestock management could have increased the level of explicability.

CONCLUSION

Since the prehistoric era, the women are soldering the responsibility of agriculture and livestock management as well. But the contribution of women productive sector is still undervalued of efficiency by the planner and policy maker due to some inside and outside dichotomy. Still the women and their efficient contribution in case of taking decisions related to crop production and livestock management in the modern era is not in limelight. The challenge of male seasonal migration also compelled women to involve themselves mentally and physically in agriculture and allied sector. Keeping all these in the view the present study focuses on identification of associated factors with the women involved in agriculture and livestock management. The inference can be drawn from the study that tribal farm women were more active in social participation as well as the maintenance of their house. Rural tribal farm women play important role in farm management and animal husbandry enterprise. The participation in social sector empowers the women for raising their voice in a logical manner with the help of updated information. With this it can be concluded that the involvement of women participation in crop and livestock management can efficiently enhance the productivity, profitability and sustainability of the enterprises and uplift the social esteem and prestige in the existing socio-cultural milieu.

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