

## Tribal Livelihood and gender empowerment in rice-based farming system

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### ABSTRACT

*A study was undertaken in Dhenkanal district of Orissa to analyze the livelihood pattern of tribal farmwomen in rice-based farming system and identify different income generating opportunities. The study highlights the extent of tribal women's empowerment through various income generating activities in rice-based farming system. The livelihood pattern of tribal farmwomen of Dhenkanal district was mainly from rice cultivation, horticultural and animal husbandry activities. The data relating to major income generating activities revealed that most of the respondents had taken up 'integration of other crops viz., oilseeds, pulses and vegetables with rice' which ranked first. The overall gain in empowerment of tribal farm women through income generating activities was 25.6 per cent. The study further revealed that income generating activities contributed significantly for enhancement in empowerment. Illiteracy was perceived as the top most constraint by 94.17 per cent respondents in empowerment through income generating activities in rice-based farming system.*

*Key words:* Tribal livelihood, gender empowerment, rice-based farming system

Historians believe that it was women who first domesticated crop plants thereby initiated the art and science of farming (Swaminathan, 1985). The involvement of women, specially tribal women, in agriculture is an age old practice. Tribal women play a significant and crucial role in agriculture along the side of their menfolk, sharing the arduous burden of farm work and care of animal and poultry birds in addition to their major responsibilities as home maker. They continue to suffer from the pangs of poverty, exploitation and drudgery of life. Enhancing women's economic status is an important strategy for improving the welfare of entire family. Socio-economic upliftment and improvement of livelihood condition of the people can be directly linked with empowering rural women for agricultural sustainability and efficient use of available rural resources to make them self-sufficient in terms of employment generation.

Rice-based farming system is found to be a productive enterprise to generate employment, achieve sustainable family income, utilize natural resources, and ensure food and nutritional security. The tribal women are involved in several farm related activities in rice-based farming system. This signifies the importance of

having a better understanding of the role and contribution of farm women in rice-based farming system, so that the extension services may accordingly be tuned to fully integrate them in the developmental process. In this context a study was undertaken in Dhenkanal district of Orissa with the objectives to study the livelihood pattern and involvement of the tribal farmwomen in different rice-based farming activities, identify major income generating activities in rice-based farming system taken up by the tribal farmwomen, study the extent of tribal women's empowerment through various income generating activities and identify the constraints in empowerment of tribal farmwomen.

### MATERIALS AND METHODS

The study was conducted in Kamakhyanagar block of Dhenkanal district, Orissa. A total of 200 tribal farmwomen were selected from six villages of three Gram Panchayats viz., Kusumjodi, Barua and Kantiokateni through random sampling. The research design used was ex-post-facto. The data were collected through personal interview by using structured and pre-tested interview schedule and analyzed for percentage, mean and standard deviation. Regarding the involvement

of tribal farm women in different rice-based farming activities the responses were recorded in 3-point scale i.e., actively involved (2 scores), moderately involved (1 score) and not involved (0 score). The responses were ranked on the basis of mean scores obtained.

Income generating opportunities in rice-based farming system were identified and a total of 120 tribal farmwomen were selected from six villages i.e., 20 respondents from each village of the three selected Gram Panchayats to study the extent of empowerment through income generating activities. Two self-help groups from each village were selected and with each group 10 tribal women were registered for taking up the identified income generating activities for one year. After one year the extent of empowerment of tribal farmwomen through income generating activities in rice-based farming system was analyzed by using empowerment index. The empowerment index was studied by selecting nine variables viz., education, land ownership, ownership of other assets (other than land), control over income contributed by her to the family, control over the income of the family, savings, access to credit, social participation and cash income earned from income generating activities (Rs. / month). Based on the score obtained from these nine variables extent of empowerment was calculated by computing the empowerment index in percentage. Gain in empowerment was calculated by taking difference between empowerment index value before and after taking income generating activities. Paired 't' test was used to verify the significance of difference in empowerment before and after taking income generating activities.

## RESULTS AND DISCUSSION

In Dhenkanal district the livelihood pattern of tribal farm women in rice-based farming system was mainly from rice cultivation, horticulture and animal husbandry activities. Therefore, it is very important to know the involvement of tribal women in these three activities.

The data relating to the involvement of tribal farmwomen in rice-based farming system with respect to three major areas, viz., agriculture (rice cultivation), horticulture (vegetable cultivation) and animal husbandry (dairy and poultry) activities are presented in Table 1. Participation of respondents in rice cultivation was

studied in three selected sub-areas namely, (A) Pre-sowing and sowing activities, (B) Inter-cultural activities and (C) Harvest and post-harvest activities. Perusal of Table-1 revealed that majority of tribal women (77%) were actively involved in 'transplanting' followed by 'sowing of seeds' and 'nursery raising'. In intercultural activities, majority of respondents were actively involved in 'weeding' (84.5%) and 'thinning and gap filling' (83%). In harvest and post-harvest activities greater percentage of tribal farmwomen were engaged in operations like 'harvesting' (97.5%), 'drying and cleaning of grains' (95.5%), 'winnowing' (94%) and 'storing grains' (86.5%), whereas, only 2.5 per cent respondents were actively involved in 'treating grains with insect repellants'. These findings are in line with the findings of Bhople and Patki (1992), Mohanty (1993), Gopalappa (1997) and Das (1999).

The data with respect to horticultural activities i.e., vegetable cultivation is presented in Table 2. Perusal of the table shows that majority of the tribal women were actively involved in 'weeding' (96%), 'thinning and gap filling' (90.5%), 'harvesting' (88.5%), 'uprooting and transplanting' (73.5%) and 'seed sowing and watering the nursery' (73.5%) whereas, only 5 respondents involved actively in 'preparation of value added products'. The tribal farmwomen belong to low income group and income obtained from small holding is insufficient for a reasonably comfortable living. The poor involvement of tribal women in preparation of different value added products might be due to illiteracy, lack of awareness and exposure to different training programmes. These findings are in line with the observations of Gidda Reddy (2003). The mean score and rank for involvement in dairy activities presented in Table 3 revealed that the first four areas in which respondents participated actively were 'maintenance of cattleshed', 'care and management of animals', 'feeding of animals' and 'fodder collection' with mean scores of 1.11, 1.04, 1.02 and 1.01, respectively. The results support the findings of Sharma *et al.* (1989), Shashikala *et al.* (1990), Jamal (1994) etc.

Majority of the tribal women (43.5%) involved actively in 'maintenance of bird cages' followed by 'care and management of birds' and 'feeding the birds', respectively. The same was also reported by Saikia *et al.* (1986) and Waghmare and Chaudhari (1989).

**Table 1. Distribution of Respondents according to the extent of involvement in rice cultivation activities**

Pre-sowing and sowing activities					
Activities	AI	MI	NI	Mean Score	Rank
Land preparation	14 (7.00)	57 (28.50)	129 (64.50)	0.43	IV
Seed selection and treatment	20 (10.00)	28 (14.00)	152 (76.00)	0.34	V
Sowing seeds	51 (25.50)	54 (27.00)	95 (47.50)	0.78	II
Nursery raising	48 (24.00)	52 (26.00)	100 (50.00)	0.74	III
Transplanting	154 (77.00)	26 (13.00)	20 (10.00)	1.67	I
Intercultural activities:					
Activities	AI	MI	NI	Mean Score	Rank
Weeding	169 (84.50)	26 (13.00)	05 (2.50)	1.82	I
Thinning and gap filling	166 (83.00)	25 (12.50)	09 (4.50)	1.79	II
Irrigation	15 (7.50)	23 (11.50)	162 (81.00)	0.27	III
Pesticide application	00 (0.00)	04 (2.00)	196 (98.00)	0.02	V
Fertilizer application	14 (7.00)	13 (6.50)	173 (86.50)	0.21	IV
Harvest and Post-harvest activities:					
Activities	AI	MI	NI	Mean Score	Rank
Harvesting	195 (97.50)	05 (2.50)	00 (0.00)	1.98	I
Threshing	43 (21.50)	85 (42.50)	72 (36.00)	0.86	V
Winnowing	188 (94.00)	12 (6.00)	00 (0.00)	1.94	III
Drying and cleaning	191 (95.50)	09 (4.50)	00 (0.00)	1.96	II
Treating grains with insect repellants	05 (2.50)	11 (5.50)	184 (92.00)	0.11	VI
Storing grains	173 (86.50)	13 (6.50)	14 (7.00)	1.79	IV

(Figures in the parentheses represent percentage)

AI = Actively Involved

MI = Moderately Involved

NI = Not Involved

**Table 2. Distribution of Respondents according to the extent of involvement in horticultural (vegetable cultivation) activities**

Activities	AI	MI	NI	Mean Score	Rank
Collection of vegetable seeds	81 (40.50)	62 (31.00)	57 (28.50)	1.12	VII
Nursery bed preparation	104 (52.00)	36 (18.00)	60 (30.00)	1.22	VI
Seed sowing and watering the nursery	147 (73.50)	30 (15.00)	23 (11.50)	1.62	V
Uprooting and transplanting	147 (73.50)	39 (19.50)	14 (7.00)	1.67	IV
Thinning and gap filling	181 (90.50)	14 (7.00)	05 (2.50)	1.88	II
Weeding	192 (96.00)	05 (2.50)	03 (1.50)	1.94	I
Harvesting	177 (88.50)	12 (6.00)	11 (5.50)	1.83	III
Preparation of value added products	05 (2.50)	12 (6.00)	183 (96.50)	0.11	VIII

(Figures in the parentheses represent percentage)

AI = Actively Involved

MI = Moderately Involved

NI = Not Involved

Most of the respondents had taken up 'integration of other crops viz., oilseeds, pulses and vegetables with rice' as the major income generating activity (Table 4). The other income generating activities taken up by the respondents in order of rank were 'kitchen gardening', 'integration of livestock production with rice', 'mushroom cultivation', and 'preparation of different value added products'. The data pertaining to the extent

of empowerment of tribal farmwomen through income generating activities is presented in Table 5. There was 26.7 per cent gain in empowerment in Kusumjodi Gram Panchayat whereas; it was 26.0 per cent and 24.1 per cent in Barua and Kantiokateni Gram Panchayats, respectively. The overall gain in empowerment was 25.6 per cent. The 't' values revealed that, there was significant difference in mean values of empowerment

**Table 3. Distribution of Respondents according to the extent of involvement in animal husbandry (dairy and poultry) activities**

Dairy activities Activities	AI	MI	NI	Mean Score	Rank
Milking cow	05 (2.50)	07 (3.50)	188 (94.00)	0.08	VII
Feeding animals	79 (39.50)	46 (23.00)	75 (37.50)	1.02	III
Maintenance of cattle shed	96 (48.00)	29 (14.50)	75 (37.50)	1.11	I
Fodder collection	78 (39.00)	49 (24.50)	73 (36.50)	1.01	IV
Care and management of animals	83 (41.50)	42 (21.00)	75 (37.50)	1.04	II
Marketing and disposal of milk	15 (7.50)	12 (6.00)	173 (86.50)	0.21	V
Preparation of milk products	05 (2.50)	12 (6.00)	183 (91.50)	0.11	VI
Poultry activities: Activities	AI	MI	NI	Mean Score	Rank
Feeding the birds	63 (31.50)	70 (35.00)	67 (35.50)	0.98	III
Maintenance of bird cages	87 (43.50)	73 (36.50)	40 (20.00)	1.23	I
Care and management of birds	65 (32.50)	71 (35.50)	64 (32.00)	1.01	II
Selling eggs / birds	57 (28.50)	62 (31.00)	81 (40.50)	0.88	IV

(Figures in the parentheses represent percentage)

AI = Actively Involved

MI = Moderately Involved

NI = Not Involved

**Table 4. Major income generating activities taken up by the tribal farmwomen**

Activities	Rank
Integration of other crops with rice	I
Integration of livestock production with rice	III
Integration of rice-cum-fish along with other crops	VI
Preparation of different value added products (From rice, pulses, oilseeds, vegetables, milk, maize, mushroom etc.)	V
Mushroom cultivation	IV
Kitchen gardening	II

**Table 5. Extent of empowerment of tribal farmwomen through income generating activities**

Gram Panchayats	Index value(before)	Index value(after)	Gain in empowerment	't' value
Kusumjodi	14.71	41.41	26.7	18.66**
Barua	18.81	44.81	26.0	29.41**
Kantiokateni	16.11	40.21	24.1	26.66**
Total	16.54	42.14	25.6	39.14**

of tribal farmwomen before and after taking up income generating activities, that in turn significantly contributed for enhancement in empowerment.

The constraints in empowerment as perceived by tribal farmwomen are furnished in Table 6. It was evident that 'illiteracy' was perceived as the top most constraint as 94.17 per cent respondents agreed with it and as many as 78.33 per cent respondents opined that 'lack of practical knowledge' as the second most

important hindrance in empowerment. The other constraints perceived by the respondents in order of importance were 'lack of exposure to training programme due to male dominance' (68.33%), 'problems of financial support' (35.83%) and 'family discouragement' (31.67%) to take up any activity. Only 18.33 per cent respondents expressed 'heavy burden due to dual responsibility' as one of the constraints in empowerment. The results of the study revealed that

**Table 6. Constraints perceived by tribal farmwomen in extent of empowerment through income generating activities in rice-based farming system**

Constraints	Frequency	Percentage*	Rank
Illiteracy	113	94.17	I
Lack of practical knowledge	94	78.33	II
Lack of exposure to training programme due to male dominance	82	68.33	III
Problems of financial support	43	35.83	IV
Family discouragement	38	31.67	V
Heavy burden due to dual responsibility	22	18.33	VI

(\*The added percentage is more than 100 since multiple responses were allowed)

the extent of gain in empowerment through income generating activity was 25.6 per cent and total empowerment was 42.14 per cent which indicated that still there is scope to empower the women by reducing the perceived constraints. Appropriate crop and livestock technologies, input and services, training and education, organized marketing and credit facilities need to be provided in raising the employment and income potential of tribal farmwomen.

Hence, empowerment of women is very important to increase the employment and income. The income generating activities need to be promoted through entrepreneurship development programme including house-hold enterprises activities. This process will not only help tribal women to increase their income but also empower them to participate actively in rice-based farming system, thereby, improving their employment opportunities, economic status and ultimately quality of life.

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