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## **Employment Generation and Gender Dimension in the Common Property Resource Based Activities of the Monpa Tribal Women in Tawang District of Arunachal Pradesh, India**

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### **ABSTRACT**

Common Property Resources were very much important and crucial for the economies of the tribal people specifically for the women. Unfortunately development agencies gave little bit interest for the needs and interest of the tribal women in the implementation of any programme and policy. Women's role is crucial in the family and household economy, yet women have not been given equal rights in social, political as well as economic fields. The necessity of improvement of status of women has been recognized all over the world as an important aspect of national progress and development. Apart from the day to day household work, varied farm activities and other domestic responsibilities, women particularly in this tribal society spare a substantial time for Common Property Resources (CPRs) based activities. Keeping this fact in mind, the present study is a modest attempt to analyze the importance of common property resources on the life of the tribal women. The study also envisages constructing a household model of women participation on common property resource based activity using evidence from rural study area. Forest/CPR based collection for daily household purposes completely depended on the females in the study area. Women were engaged averagely at least 4.16 h per day in CPR based collection for their daily household purposes where as the males spent only 3.09 h daily in CPRs-based activities. In the study area, it is seen that employment of male would reduce dependency on CPRs at a large but employment of female would reduce dependency on CPRs a very little.

**Key words:** Tribal women, household economy, domestic responsibilities, common property resource, employment

### **INTRODUCTION**

Women are an integral part in Monpa society. The nature and type of economic and non-economic role played by women have undergone continued transformation in accordance with the changes in socio-economic factors, education levels and technological developments and with the changing concepts regarding the extent to which women's contribution is desirable and necessary. Although women's role is crucial in the family and household economy, women have not been given equal rights in social, political as well as economic fields. The necessity of improvement of status of women has been recognized all over the world as an important aspect of national progress and development. Poverty alleviation of the poor people cannot be possible without providing opportunities of productive employment to women. Employment to women gives necessary economic base and thereby improves the social status of the family in the society.

It is observed that the average land holding size of the poor people is very low. So in the poor families there are always surpluses of labour. But due to underdeveloped factor market these

surplus labour could not find suitable place to be absorbed. Consequently they are forced to dependent upon Common Property Resources (CPRs) activities to a greater extent. Generally, the male engage in the collection of timber, bamboo (for the collection of their houses) hunting, collection of honey etc. The works like the collection of fuel wood, fodder, edible fruits, vegetables etc. are done by the female and child only.

Apart from the day to day household work, varied farm activities and other domestic responsibilities, women particularly in this tribal society spare a substantial time for Common Property Resource (CPR) based activities. They collect various minor as well as major forest products for their day to day requirement. Carrying of heavy loads of fuel wood (one of the most important CPR product) either on head or with traditional basket by women is a long practice in the tribal society. In the traditional tribal society the strength of a good mother and wife is judged by the amount of wood/fish they can carry/catch. However, the incursion of macroeconomic forces like emergence of property right, development of marketing network, commercialization of various CPR products, urbanization, etc. gradually deprived the tribal women from their age-old access to these resources. It results in numbers of illegal activities like encroachment, felling of valuable trees in the purpose of fuel wood, commercial extraction of CPR products, etc. for which the rural poor specifically the women have to suffer a lot. Very few studies are conducted so far on common property resources and its implementation to rural poor in the state. Keeping this fact in mind, the present study is a modest attempt to analyze the importance of common property resources on the life of the tribal women. The study also envisages constructing a household model of women participation on common property resource based activity using evidence from rural study area (Mandal and Ete, 2008).

CPRs are those resources, which are accessible to the whole community to which no individual has exclusive property rights. The resources of CPRs in India are protected forests, community forests, village pastures, waste lands, waste dumping places, watershed drainages, grazing land (gauchar), village ponds, canals, tanks, wells, streams, rivulets and river beds. However, CPRs are regarded as an important resource base for the rural economy in many of the developing and underdeveloped countries till today because of their significant economic contributions to the sustenance of rural livelihood (Jodha, 1986). The commoners' right over the resources has gradually declined over the years. The relatively poor households are depending on community forest for firewood, bamboo and other minor forest products like leaves, medicinal herbs and seeds, vegetables and roots but the relatively rich households exploits the community forest more for timber consumption and other forest products which can be marketed (Singh, 2010).

Today poverty and household food security are much debated issues especially in development literature. Women's contributions to the family and thereby to the society for food and economic security have received attention for the last 15 years only. Collection of natural resources from CPRs is usually performed entirely by women in developing countries, particularly in fragile and rugged mountain areas. The value of women's contributions may be calculated by 2 methods: opportunity costs and output method. The results will show that women are at the forefront of food and economic security (Agarwal, 2004).

Women spend considerable time in collection of fuel wood and household energy from forests and elsewhere, directly along with their children spending considerable time by walking for long distances in the developing world. For example, in Nepal, women and girls collect 84% of the fuel and the average hours spent by them per day are between 1 and 5 h per adult with one or two children. In some other developing countries, the pictures are more or less same, the average h

spent per day in gathering fuel are as follows: in Bangladesh, 3 to 5 h; in Tanzania, 8 h; in Kenya, 3.5 h and in Peru 2.5 h. The women also walk for a long distance for such work (Sheila, 1989).

## **MATERIALS AND METHODS**

**Universe of the study:** Arunachal Pradesh is fortunate to have immensely rich biodiversity and natural resources with a forest cover exceeding 80% of its area. This state is situated near the tropic of cancer, lying between latitudes 26°28'N and 29°30' N and longitude between 91°30' E and 97°30' E in the North-East extremity of India. The land and topography of the state is hilly beginning from foothills to snow-clad zones of alpine region. The elevation of the hills ranges from 150 m to over 7,300 m. The State has 83,743 km<sup>2</sup> areas covering around 2.5% of the total geographical area of the country and bearing only 0.11% of its population with population density 17 km<sup>-2</sup> as per 2011 census (Mandal, 2012).

**Sampled area:** Tawang is one of 17 districts of Arunachal Pradesh. The district has 9 circles under 3 blocks. Out of 9 circles, 3 circles (administrative units) viz. Mukto, Lumla and Zemithang along the international boundaries of Tawang district with China (Tibet) and Bhutan were considered as geographical area to study. These 3 administrative units along the international boundaries were considered because the livelihood pattern of the people of these three units was primitive type and depended more on common property resources. Globalization and modern live style were not seen in this coldest area of the state. The three basic needs of life: food, cloth and shelter were managed by their own production on the basis of community cooperation.

**Data base:** The study based completely on primary data collected from village survey through face to face interaction with the respondents with the help of pre-tested and pre-structured questionnaire. Three villages of each circle, which contains more population, was selected for survey and 50 households from the three villages were selected through random sampling technique without replacement to fill up the pre-designed and pre-tested questionnaire through direct interaction with respondents, i.e., 50 households from each circle. Total respondents of 3 circles were 150 (50×3 = 150). Out of 50 households from each village, 25 males and 25 females from the age group (20-50) years were selected as respondents to fill up the questionnaires, as this age group is particularly more responsible to earn the livelihood for their family. The village survey was taken in the month of August, 2009.

**Tools:** Simple numerical calculations, graphical representations, different statistical tools like mean and Yule's Coefficient of Association are used to analyze the data.

## **RESULTS AND DISCUSSION**

In the surveyed area the various sources of household energy were fuel wood, kerosene, LPG and electric power. Almost all the households were using fuel wood for cooking purpose and getting room temperate as there was extreme cold due to frequent snow falling. In the study area, collection of fuel wood from common property resources was a main source of domestic energy. It dealt mainly with the women's labour allocation to fuel wood collection along with other products from CPRs.

Local CPRs were very much important in the economy of rural people in general and women in particular. Women and children were the sole or significant collector of various items from CPRs. Women by virtue of their gender role and domestic responsibilities had been pushed in their efforts

to meet daily household needs from CPRs. Here only adult males and females are considered. Gender dimension i.e., number of males and females in the common property resource based activities on the basis of man-days is shown in Table 1.

**Findings:** With depletion of local forests women were forced to go to other forests for collection of fuel wood etc. where the forest protection committees of those forests were posing a major hindrance. Hence the women were facing great difficulty in procuring minor forest produce for their day-to-day household activities. Locally, an acute scarcity of fuel wood and fodder was expected in the near future. The women were expected to be severely affected in the process. The work performed by Monpa women and their contribution in terms of family affairs i.e., household works were unlimited. Forest/CPR based collection for daily household purposes completely depended on the females in the study area. Major part of agricultural work including shifting cultivation went on the shoulder of the women. But major works like cutting the trees for shifting cultivation or house construction were performed by the males.

The employment generated by CPRs is usually estimated by evaluating the working days spent by a household in the collection of CPR products and in CPR based activities (Singh, 1994; Jodha, 1986). The female basically spend a number of hours for collection of firewood, leafy vegetables and other minor products. The male spend for extraction of timber, hunting of wild animals (Singh, 2010). In the Table 1, it was seen from the field study that 27 number of man-days for males and 39 number of man-days for females were observed out of 150 respondents (males = 75 and females = 75) for collecting the different items daily from CPRs for maintaining their livelihood considering 1 man-day = 8 h. Circle wise there were 9, 10 and 8 man-days for males in Zemithang, Lumla and Mukto respectively while there were 14, 13 and 12 man-days for females in Zemithang, Lumla and Mukto, respectively. Again percentage wise the share in respect of total man- days of males were 13.64, 15.15 and 12. 12 and that of females were 21.21, 19.70 and 19.70 in Zemithang, Lumla and Mukto respectively for the collection of items from CPRs. The share of females for collecting the different items daily from CPRs was always higher than that of males in all the three circles in regard of man-days. The percentage of gender-wise days spent in collection of forest products in the surveyed villages was 59.09% for females and 40.91 per cent for males shown in Fig. 1. Therefore, women engaged averagely 4.16 h daily where as males 3.09 h daily on the CPR-based activities.

In case of decision making and exercising of authority women took decisions related to child care, children’s education, type of feast to be prepared, purchase of utensils and clothes, house related activities, cooking, upgrading house, extension of house, maintenance and agricultural activities. Thus, decisions related to major issues were taken by husbands, while decisions on

Table 1: Employment generated of males and females in the common property resource based activities on the basis of man-days

Circles	Respondents		Total hours spent in collection of different items from CPRs daily		No. of man-days in collection of different items from CPRs daily		Percentage of males and females in respect of total man-days	
	Male	Female	Male	Female	Male	Female	Male	Female
Zemithang	25	25	72	112	9	14	13.64	21.21
Lumla	25	25	80	104	10	13	15.15	19.70
Mukto	25	25	64	96	8	12	12.12	18.18
Total	75	75	232	312	27	39	40.91	59.09

Source: Field Survey; 1 man day: 8 h spent in collection of items from the CPRs

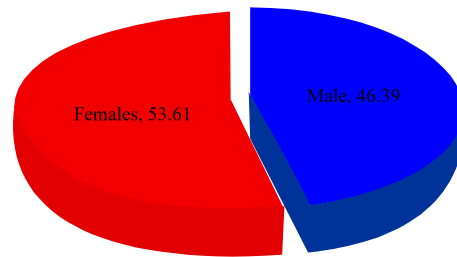


Fig. 1: Percentage wise share of males and females in the earning from common property resource based activities in terms of labour value through opportunity cost

activities within the house were dominated by women. Men dominated in taking decisions on number of children to bear, arranging children's marriage, sale/purchase of animals and land, settlement of disputes, social visits and to some extent voting. Thus, controlling and decision making in important activities were decided by the husbands. In other words, where there was social prestige men dominated, while decisions associated with responsibility and duties of use value were left to women. But recently, there was a positive change among younger educated women to participate actively in making variety of decisions.

**Critical dependence on forests for subsistence:** Women were dependent on forest for food, fibre, fodder, medicines, raw materials for producing small items like leaf plates, mats etc. for use at home or for selling them in markets and stones for construction house. Apart from their dependence on forest lands as gatherers of forest produce, the women were also employed by forest department and contractors to work as unskilled labour. Women were supposed to participate in community forestation programmes and were also involved as producers in farm forestry programmes. Hence, four roles which women played in forestry are gathering, wage employment, management and production. But here women faced three main problems; their rights of collection were not well recognized and publicized, many minor forest products had been nationalized by state in the interest of revenue and diminishing opportunities for self-employment through collection of forest products (Saxena, 1993).

**Women's priorities not reflected:** Indigenous communities in many localities have embarked on social forestry programmes to improve their quality of life and regenerate surrounding environment by planting trees. The performance of such social forestry projects is a mixed experience, where some have sustained, while many others have not. From gender perspective, most of them have failed to incorporate women groups' perceptions, priorities and needs. Commercial species planted on grazing land at the behest of forest department have deprived local women of any benefit and encouraged local level institutions like panchayats to harvest such plantation for income. Women's priorities, in species selection are not of any consequence for social forestry projects here; such priorities and indigenous knowledge have been kept out of the projects by default (Saxena, 1993). The same picture was seen in the study area. Plantation programmes were also taken in several times in this area where women were main participants but their roles were not reflected.

**Tedious job of collecting water, fuel and fodder:** The nature of their major functional responsibilities is highlighted below:

- Collection of fuel and fodder were appeared to be quite time-consuming activity. The women spent more than 4 h daily for such a task for at least 5 days a week
- Apart from their daily requirements of fuel and fodder they had to collect also additional quantities to take care of rainy season
- The women collected water from the river, spring but in some nearby market areas they collected drinking water from common tap made by PHE, Govt. of Arunachal Pradesh
- The women were required to walk around 5 kilometer for collecting fuel and fodder. Most of their time was spent in collecting water, fuel and fodder
- They spent about 5 h or so in cooking and other household work. The women also spent about 3 h for field work like weeding out roots and/or bamboo work

**Impact of diversion, employment and unemployment on the dependency of CPRs:** Women to gatherer fuel, particularly in tribal belts and lower strata of the society, had to walk a long distance in a day to collect a load of fuel wood on their back to boil the pot of their family due to the massive deforestation. The employment generated by CPRs is usually estimated by evaluating the working days spent by a household for the collection of CPR products or CPR based activities. Eight working hours by an adult person or sixteen working hours by a child have been considered equivalent to one working day (Singh, 1994; Jodha, 1986). An attempt is made in this study to compare the contribution of community forest that accrues to poor and non-poor households as well as rural livelihood linkages. There are many studies which estimated the gross household income (Jodha, 1986; Pasha, 1992) but the income data suffered from a lot of errors, as respondents normally hesitated in reporting his/her real income and sources of income. The illiteracy of the respondents in the study area was another obstacle in it. Hence, in order to examine the relative importance of community forest in the household economy, the consumption from them in relation to total consumption was analysed. From the discussion with the villagers, it was known that the dependency on CPRs was gradually decreasing year by year. As a reason they said that the villagers were migrating from village to town for livelihood and education. This is due to the fact that higher level of schooling might have better exit options due to high opportunity cost and hence, forest extraction activities might be less attractive for those households. Besides, availability of government sector jobs might well divert people from dependency on forests.

Again it can be calculated how much did the unemployed and employed rural people at their own local area depend on CPRs in the study area? In this respect Yule's Coefficient of Association of local people with CPRs may be applied following Yule method to see correlation between employed and dependency on CPRs as per Table 2.

Table 2: Percentage of dependency of employed and unemployed male and female on CPRs

Dependency on CPRs (%)	Male		Female		Total
	Employed	Unemployed	Employed	Unemployed	
Above 50	5	30	7	60	102
Below 50	15	10	3	20	48
Total	20	40	10	80	150

Source: Field survey

**Findings:** During field study, it was sought that how much the local people depended on CPRs for their livelihood and accordingly the percentages of dependency on CPRs were calculated among employed and unemployed persons. On the basis of above 50% dependency on CPRs, the number of employed and unemployed of males was 5 and 30 and that of females was 7 and 60, respectively. Again below 50% dependency on CPRs, the number of employed and unemployed of males was 15 and 10 and that of females was 3 and 20, respectively. Out of 150 respondents, males employed were 20 and female employed were 10 where as males unemployed were 40 and females unemployed were 80 shown in Table 2.

On the basis of data of Table 2, Yule's Coefficient of Association between the dependency of local people on CPRs and employment for males and that for females can be calculated. Here employment means government regular or contingency job as there were very limited scopes for private job in the study area.

**Applying yule's method for male:** Let A denotes employment. Therefore,  $\alpha$  would denote unemployment.

Let B denotes dependency on CPRs above 50%. Therefore,  $\beta$  would denote dependency on CPRs below 50%.

**Construction of table for calculation yule's coefficient of association for male:**

	<b>A</b>	<b><math>\alpha</math></b>
<b>B</b>	<b>7</b>	<b>60</b>
<b><math>\beta</math></b>	<b>3</b>	<b>20</b>

$$\text{Yule's coefficient of association} = \frac{(AB)(\alpha\beta) + (A\beta)(\alpha B)}{(AB)(\alpha\beta) + (A\beta)(\alpha B)} = \frac{(5 \times 10) + (15 \times 30)}{(5 \times 10) + (15 \times 30)} = \frac{400}{500} = 0.80$$

Thus, there is high negative association between the dependency on CPRs and employment of male meaning that increase in employment decreases the dependency upon CPRs.

**Applying yule's method for female:** Let A denotes employment. Therefore,  $\alpha$  would denote unemployment.

Let B denotes dependency on CPRs above 50%. Therefore,  $\beta$  would denote dependency on CPRs below 50%.

**Construction of table for calculation yule's coefficient of association for female:**

	<b>A</b>	<b><math>\alpha</math></b>
<b>B</b>	<b>5</b>	<b>30</b>
<b><math>\beta</math></b>	<b>15</b>	<b>10</b>

$$\text{Yule's coefficient of association} = \frac{(AB)(\alpha\beta) + (A\beta)(\alpha B)}{(AB)(\alpha\beta) + (A\beta)(\alpha B)} = \frac{(7 \times 20) + (3 \times 60)}{(7 \times 20) + (3 \times 60)} = \frac{40}{320} = 0.12$$

Thus, there is low negative association between the dependency on CPRs and employment of female meaning that increase in employment decreases the dependency upon CPRs (Mandal, 2012).



**Findings:** Yule's Coefficient of Association between the dependency on CPRs and employment of male and female is -0.80 and -0.12. Both are negative association between the dependency on CPRs and employment. But the value for female is much lower than that of male meaning that employment of female can withdraw them very little from CPRs i.e., employment of female would reduce dependency on CPRs very little in comparison to the male. Therefore, employment of male would reduce dependency on CPRs at a large but employment of female would reduce dependency on CPRs a very little.

**Value of women's contribution:** The value of women's contributions may be computed by two methods: opportunity cost method and output method. Livelihood pattern in a predominantly rural, traditional tribal society from empirical standpoint might mean somewhat different from other part of India. Money income is important in urban areas, whereas access to food and land resources to produce food and other necessities are more important in the given traditional societies, which nevertheless are gradually getting monetized from non-money economies. The concepts of work and occupation, similarly needs redefinition. Work in modern societies is related to employment and monetary rewards. But in this indigenous community, it might connote different things. Sharing of labour through rotation basis, use of family labour as collective endeavours in subsistence agricultural practices throughout the year are without the involvement of money and wage. Thus, employment or unemployment are an unimportant questions-no one is unemployed and no one is employed (by someone else)-everyone works nevertheless; periods of no work are periods of relaxation and rejoice (Mandal, 2012).

**Opportunity cost method:** In this method it can be found out the value of products of CPRs with the help of opportunity cost for males and females, i.e., the labour value may be found if the concerned male/female sales his/her labour in another action for the time for which he/she has already spent for the collection of products of CPRs. Organised labour market was absent in the study area. Labours are purchased especially for building and road construction. It was heard from the labourers about their labour value per day for male and for female. The contractor generally paid Rs. 250/- for male per day (8 h) and 200/- for female. Accordingly it is found out the labour value as shown in Table 3.

**Findings:** From the Table 3, it is seen that total hours spent for collection of different items from CPRs daily were 72, 80 and 64 h for 25 males and 112, 104 and 96 h for 25 females in Zemithang, Lumla and Mukto, respectively. These hours can be converted in to man-days considering that one

Table 3: Common property resource based activities of males and females in terms of labour value through opportunity cost

Respondents	Total hours spent for collection of different items from CPRs daily for		No. of man-days for collection of different items from CPRs daily for 25 males and 25 females		Total labour value of man-days @ Rs. 250/-per day per male and @ Rs.200/- per day per female for 25 males and 25 females		Average labour value (Rs.) per male and per female			
	Male	Female	Male	Female	Male	Female	Male	Female		
Zemithang	25	25	72	112	9	14	2250	2800	90	112
Lumla	25	25	80	104	10	13	2500	2600	100	104
Mukto	25	25	64	96	8	12	2000	2400	80	96
Total	75	75	232	312	27	39	6750	7800	90	104

Source: Field survey

man-day equals to eight hours. Therefore, 25 males performed 9, 10 and 8 man-days while 25 females performed 14, 13 and 12 man-days in Zemithang, Lumla and Mukto, respectively. Again on the basis of average labour value, it was observed that male earned Rs. 90/-, Rs. 100/- and Rs. 80/- while female earned Rs. 112/-, Rs. 104/- and Rs. 96/- per day from the collected items from CPRs in Zemithang, Lumla and Mukto, respectively. In average, male earned Rs. 90/- and female earned Rs. 104/- per day in the study area. The earnings from CPRs of males and females differed because of engagement of time duration in collecting CPRs produces. Percentage wise share of males and females in the earning from Common Property Resource based activities in terms of labour value through opportunity cost is shown in Fig. 1 where males earned 46.39 per cent and female earned 53.61%.

**Output method:** In output method, it is found the value of the collected items from CPRs by selling them in the market. The collected items are easily sold at high prices in the market of urban areas while in the study area there was no such as local market to sell them, if they were sold but their prices were very low. Because, the villagers were very cooperative, their needs were fulfilled with the help of others without money transaction. Any household could get the collected items from CPRs from others at free of cost or at nominal prices. Therefore, it is difficult to get the value of collected items from CPRs through output method. But the studier heard from the respondents that they could earn handsome money more than labour value from the selling of the collected items in the market of district town. Some herbs collected from the CPRs were sold outside of the state at very prices. The priest/lama in Monpa society is generally very wise to cure of all types of ailment by the local herbs. The people generally go first to local herb man/lama/priest for any type of their trouble. They are not so much accustomed to modern allopathic treatment. But actual value of collected items from CPRs is difficult through output method.

## CONCLUSION

Common Property Resources were very much important and crucial for the economies of the tribal people specifically for the women. Unfortunately development agencies gave little bit interest for the needs and interest of the tribal women in the implementation of any programme and policy. As a result achievement was unsatisfactory. Therefore attempt should be made to increase the women participation in the management of these resources where they are the actual users and make them partner of profit earned from CPRs as the employment of women are not so much effective to reduce their dependency on CPRs. Therefore, the authority has to think about this matter to maintain the quantum of CPRs through sustainable development and side by side try to regenerate the rare species in the CPRs.

A participatory approach to indigenous women would empower them to explain their priorities, present their indigenous knowledge systems, their problems and capabilities. On the basis of such information generated, they would be able to plan social forestry programmes along with men and improve their entitlement to forest resources so as to lead their lives with less of hardship and also become custodians of local natural resources as stakeholders in regeneration of forest.

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