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# CONTRIBUTION OF COMMON PROPERTY RESOURCES FOR SUSTAINABLE RURAL LIVELIHOODS IN ODISHA: PROSPECTS AND CONSTRAINTS

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**ABSTRACT**

*Common Property Resources (CPRs) play a significant role in the life and livelihood of rural poor, for whom income and employment generation opportunities from private land are limited. In this paper, an attempt has been made to determine the contributions of CPRs to rural household income and their fuelwood and fodder requirements in four villages in Keonjhar district of Odisha from 1 April, 2012 to 31 March, 2013. The study covered 200 households (120 poor households and 80 non-poor households) comprising landless and agriculture labourers, marginal and small farmers (poor households), and medium and large farmers (non-poor households) from four villages of two different sample blocks. The study reveals that encroachment, implementation of various developmental programmes and over-exploitation resulted in degradation of CPRs, leading to livelihood crisis situation for the rural poor. Even now apart from their shrinkage and degradation, CPRs meet substantially the total requirements of fuelwood and fodder of both poor and non-poor households. It has been found that the income and employment opportunities from CPRs among poor households are more than non-poor households in the study area, but not in absolute terms. Measures are required to ensure retention, regeneration and sustainable utilisation of CPRs to provide livelihood security to the CPR-dependent rural communities.*

## Introduction

Every living being requires certain natural resources for his sustenance, such as land, water, atmosphere, light, forest, and biodiversity. Depletion of environmental resources (renewable and non-renewable) has received serious consideration from researchers, policy makers, scientists, and intellectuals since long time and has got impetus very recently. In this context, identification and preservation of common property resources deserve serious consideration in so far as they can be highlighted as an instrument for poverty alleviation and economic development. Over the years, environmental resources have been categorised into four types based on the relationship between the resources and the resource user. They are: (a) private property resources, (b) state property resources, (c) open access resources, and (d) common property resources (CPRs). The present study is confined to common property resources.

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On the basis of use right, property can be defined as private if only an individual or a family has use rights over resources, and it is common property resources (CPRs), if the use right is collective (Bromley 1989). Broadly speaking, common property resources (CPRs) are those resources that are accessible to the whole community in a village and to which no individual has an exclusive property right. In the context of Indian villages, common property resources include community forests, common grazing lands, wastelands, watershed drainages, village ponds, tanks, rivers/rivulets, riverbeds, etc., where well-defined property regime may not exist (Jodha 1986 ,1990; Nadkarani 1989, Arnold and Stewart 1991). Since the historical past, these resources have been contributing a lot to the village economies. Jodha (1986) has documented that the poor gained more than the non-poor households. About 84 to 100 per cent of the poor households gathered fuelwood, food, fodder and fibre from CPRs; in contrast just 10 to 20 per cent of the rich households depended on the CPRs for these items. A study (Chopra et al. 1990; Iyengar 1989) reveals that the poor gain from CPRs more than the rich in relation to their own income, but not in absolute terms. Despite their valuable contribution to rural economy in general and rural poor in particular, there is overall depletion and degradation of common property resources. This is due to pressure of population, encroachment, over-exploitation, commercialisation and deforestation.

CPRs benefit the rural masses in providing them fuelwood, food, fodder, small timber, mulch and manure, fruits, medicinal herbs, etc. CPRs also help in maintaining the ecological balance by way of checking soil erosion, deforestation and siltation. Common property resource-based activity generates income and employment opportunities and is also complementary to agricultural activity, which is favourable to rural community (Beck 1994). In addition to this, the common property resources provide critical biomass services such as fuel, fodder and also help in performing some subsidiary occupations like animal husbandry, dairying and minor forest product collection. Common property resources thus play a significant role for enhancing the livelihood of rural poor.

In the context of Odisha so far no in-depth study has been undertaken to analyse the role of CPRs in the livelihood of poor and how with population growth there has been shrinkage of CPRs and environmental degradation causing hardship to the poor. In this study an attempt has been made to analyse the importance of CPRs in the life and livelihood of the rural poor in four villages in tribal dominated Keonjhar district of Odisha.

The objectives of the study are (1) To examine the status and trends of common property resource area in the study villages; (2) To determine the contributions of common property resources to the livelihood of rural poor and non-poor; (3) To explore the causes of degradation of CPRs; (4) To suggest policy measures for sustainable utilisation of CPRs to provide secure livelihood to rural poor.

**Methodology**

The total geographical area of Odisha is about 15571 thousand hectares. In 1950-51, the area under common property land resources, including the forest land ( protected and unclassified), barren and uncultivable land, permanent pasture, cultivable waste and fallow land other than current fallow, in Odisha was 8519 thousand hectares, accounting for 54.7 per cent of the total geographical area of the State. By 2010-11, there has been substantial decline in common property land resources which is 5108 thousand hectares accounting for 32.8 per cent of the total geographical area of the State (Economic Survey, Government of Odisha, 1960-61, 2011-12).

Odisha is rich in natural resources like forest, minerals, water and land. But these valuable natural resources are being degraded over time. Deforestation, soil erosion, water

pollution, intensive mining, etc., affected the environment as well as the poor adversely. The problem of environmental degradation is however not observed uniformly over the different districts in Odisha. Among the thirty districts of Odisha, Balangir, Kalahandi, Kandhamal, Keonjhar, Koraput, Malkangiri, Mayurbhanj, Nawarangapur, Rayagada and Sundergarh are the most dominated tribal districts inhabited by around 65 per cent of the total tribal population of the State. As per 2011 census, the scheduled tribe population in Keonjhar district accounts for 44.5 per cent which is (22.2 per cent) more than all- Odisha figure. Poverty is concentrated mainly in tribal concentrated areas of Keonjhar district in Odisha. Keonjhar district is selected for the study on the basis of high incidence of poverty and high degree of CPR degradation. Though CPR degradation is a major problem in Keonjhar, no in-depth study has yet been undertaken to examine the extent of degradation and explore the causes of such over-exploitation which created livelihood crisis for the rural poor. Anandapur and Ghasipura block in Keonjhar district were selected for the study because of high incidence of poverty, high degree of CPR degradation and too much of dependency on CPRs for their livelihood observed in this area. From these two blocks, two villages from each block were selected on the basis of largest percentage of land under CPR area from 1980-81 to 2010-11. Kantipal and Kolimati villages were selected from Anandpur block and Madanpur and Birgovindpur villages were chosen from Ghasipura block.

Stratified random sampling technique is used to select sample households from the above four villages. The households are classified into two groups: poor and non-poor. The poor households include landless labourers, agricultural workers, artisans, small farmers (= 1.00 = 1.99 ha. of land) and marginal farmers (=0.99 ha. of land). The non-poor households include servicemen and small entrepreneurs, very large farmers (> 9.99 ha), large (= 5.00 = 9.99 ha.), upper middle (=3.00 = 4.99 ha.) and lower middle (=2.00 = 2.99 ha.) farmers. Sample households are then selected from each village after giving proper weightage to each category. The total number of households for intensive field survey is 200: 120 poor and 80 non-poor (Table 1). Among the poor households, the proportion of scheduled tribes is the highest at 40 per cent, followed by other backward castes (24.2 per cent), scheduled castes (19.1 per cent) and other castes (16.7 per cent) in that order. All the sample households belonging to different classes and castes are mainly dependent for their livelihood on collection of fuelwood, food, fodder, timber and non-timber forest product (NTFP) such as harida, bahada, mahula, kendu, sal leave, mango, jamu, jackfruit, sal seeds, medicinal and herbal plants for their domestic consumption and sale. They are selling these products to outside traders through middlemen who are mostly non-tribal. The villages are surrounded by forest from all sides. Besides collecting products from CPRs, the main occupation of villagers is encroachment on CPR land for cultivation purpose. During the lean agricultural season, when there is no agricultural work, they earn their livelihood as wage labourers on works of Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), Pradhan Mantri Gram Sadak Yojana (PMGSY) and other poverty alleviation programmes.

**Table 1: Distribution of the Sample Households by Caste and Class**

| Name of the Village | Category of Households | No. of Sample Households by Caste | | | | |
|---|---|---|---|---|---|---|
| | | SC | ST | OBC | OC | All |
| Madanpur | Poor | 4 | 6 | 9 | 7 | 26 |
| | Non-poor | 5 | 4 | 6 | 5 | 20 |
| | All | 9 | 10 | 15 | 12 | 46 |
| Kolimati | Poor | 5 | 15 | 6 | 4 | 30 |
| | Non-poor | 3 | 9 | 4 | 2 | 18 |
| | All | 8 | 24 | 10 | 6 | 48 |
| Birgovindpur | Poor | 6 | 11 | 8 | 7 | 32 |
| | Non-poor | 7 | 9 | 4 | 2 | 22 |
| | All | 13 | 20 | 12 | 9 | 54 |
| Kantipal | Poor | 8 | 16 | 6 | 2 | 32 |
| | Non-poor | 4 | 6 | 6 | 4 | 20 |
| | All | 12 | 22 | 12 | 6 | 52 |
| All villages | Poor % | 23 | 48 | 29 | 20 | 120 |
| | | (19.1) | (40.0) | (24.2) | (16.7) | (100.0) |
| | Non-poor % | 19 | 28 | 20 | 13 | 80 |
| | | (23.7) | (35.0) | (25.0) | (16.3) | (100.0) |
| | All % | 42 | 76 | 49 | 33 | 200 |
| | | (21.0) | (38.0) | (24.5) | (16.5) | (100.0) |

(Figures in parentheses are percentages of the total)

Source: Field Survey.

Primary data were collected from all sample households through personal interview method using the pre-tested schedules. Data were collected on individual household characteristics, particularly pertaining to demography, income-consumption pattern, dependence on CPRs as a source of income, use of forest land for fuelwood collection and other CPRs, types of benefit derived from CPRs and future prospects of CPR land. The primary data were related to the year from 1 April, 2012 to 31 March, 2013. Secondary data pertaining to CPR area, reserve forest and other land use classification were collected from the district statistical office, census abstracts, divisional forest office, tahasil office, gram panchayat office and local revenue offices.

**Status and Trends of CPR Land**

CPR Land of a village includes area under barren and uncultivable land, cultivable wasteland including Gauchar and Groves, other fallow land and forest. Data on changes in land area under different categories of CPRs were collected from village level land records and are presented in Table 2.

**Table 2 : CPR Area in Study Villages (Area in Hectares)**

| Area | Kantipal | Kolimati | Birgovindpur | Madanpur | All |
|---|---|---|---|---|---|
| Total geographical area | 1,092.25 | 564.54 | 644.85 | 889.9 | 3191.54 |
| (a)CPR area (1980-81) | | | | | |
| (i) Forest land | 74.06 | 32.38 | 100.77 | 170.37 | 377.58 |
| (ii) Barren and uncultivable land | 187.77 | 141.64 | 258.19 | 32.37 | 619.97 |
| (iii) Cultivable wasteland including Gauchar and Groves | 191.42 | 169.97 | 158.64 | 161.47 | 681.5 |
| Total CPR area (a) (i+ii+iii) | 453.25 | 343.99 | 517.60 | 364.21 | 1679.05 |
| CPR area as a percentage of total geographical area | 41.4 | 60.9 | 80.2 | 40.9 | 52.6 |
| (b) CPR area( 2010-11) | | | | | |
| (i) Forest land | 64.23 | 58.21 | 108.81 | 105.30 | 336.55 |
| (ii) Barren and uncultivable land | 11.52 | 102.84 | 312.24 | 192.53 | 619.13 |
| (iii) Cultivable wasteland including Gauchar and Groves 7.00 | 154.32 | 21.33 | 34.75 | 217.40 | |
| Total CPR area (b) (i+ii+iii) | 82.75 | 315.37 | 442.38 | 332.58 | 1173.08 |
| CPR area as a percentage of total geographical area | 7.5 | 55.8 | 68.6 | 37.3 | 36.7 |
| Decline in area of CPRs since 1980-81 (in per cent) | 81.7 | 8.3 | 14.5 | 8.6 | 30.1 |

Source: Village land records, Census of India, 1981 and 2011.

Data reveal that the share of CPR area in the study villages ranges between 41 per cent in Madanpur and 80 per cent in Birgovindpur in 1980-81 and 7 per cent in Kantipal and 68 per cent in Birgovindpur in 2010-11. In 1980-81, 1679 hectares of CPR land (which constitutes 52 per cent of the total geographical area of the villages) was available in the sample villages. But the area declined to 1173 hectares (36 per cent of the total geographical area of sample villages) by 2010-11. Thus, there is substantial (30 per cent) decline in CPR area. The decline in CPR area varies between 28 hectares in Kolimati (8 per cent) and the maximum of 370 hectares (81 per cent) in Kantipal village (Tables 2 and 3).

**Table 3: Distribution of Lost CPR Area in the Study Villages (Area in Hectares)**

| Area | Kantipal | Kolimati | Birgovindpur | Madanpur | All |
|---|---|---|---|---|---|
| Total CPR area lost | 370.50 (100.0) | 28.62 (100.0) | 75.22 (100.0) | 31.63 (100.0) | 505.97 (100.0) |
| Lost on CPR area as a percentage of total geographical area | 33.9 | 5.0 | 11.6 | 3.5 | 15.8 |
| CPRs encroached by the poor (private access)* | 99.18 (26.8) | 8.21 (28.7) | 26.66 (35.3) | 10.31 (32.6) | 144.36 (28.5) |
| CPRs distributed to the poor by the government (poverty alleviation programme) * | 89.67 (24.2) | 7.22 (25.2) | 22.32 (30.1) | 9.00 (28.5) | 128.21 (25.3) |
| CPRs encroached by the non-poor (no access by the poor)* | 181.65 (49.0) | 13.19 (46.1) | 26.24 (34.6) | 12.32 (38.9) | 233.40 (46.2) |

(Figures in parentheses are percentages of the total CPR area lost)

Source : Field Survey.

The reduction in CPRs is mainly due to encroachments by rural households and the developmental programmes of the government. However, the area under forest land increased from 32 to 58 hectares in Kolimati and from 100 to 108 hectares in Birgovindpur village due to implementation of social forestry programme. There is significant decline in the area under forest land from 170 to 105 hectares in Madanpur village due to encroachments by rural households and distribution of CPR land to poor households. In all four sample villages taken together, forest area declined from 377 hectares in 1980-81 to 336 hectares in 2010-11. There is also significant decline in the area under cultivable wasteland including Gauchar and Groves from 681 hectares in 1980-81 to 217 hectares in 2010-11 in the four study villages. However, the area under barren and uncultivable land declined in Kantipal (187 to 11 hectares) and in Kolimati (141 hectares to 102 hectares) except in Birgovindpur and Madanpur villages. The area under barren and uncultivable land is almost same between 1980-81 and 2010-11 in all the selected villages.

The total CPR area lost between 1980-81 and 2010-11 is 506 hectares which constitutes around 16 per cent of the total geographical area of the four sample villages as shown in Table 3. Out of the total 506 hectares of lost CPR area, 233 hectares ( 46 per cent) has been encroached by the rural non-poor. CPRs encroached by the non-poor is the highest in Kantipal village followed by Birgovindpur, Kolimati, and Madanpur in that order. The State Government tried to improve the access of rural poor by distributing the CPR lands to individuals for crop cultivation, housing and for social forestry which amounts to 128 hectares (25 per cent of the lost CPRs). This, of course, might have improved the economic status of some of the rural poor who have obtained such lands, but contributed very marginally in meeting their biomass requirements. Apart from the grant of CPR land to the poor, the poor themselves managed to have complete access over a part of the CPRs by way of encroachments. This amounts to 144 hectares (28 per cent of the lost CPRs), awaiting regularisation by the government. In our study villages, 53 per cent of the total CPRs lost is under private access of the rural poor. This includes both CPRs encroached by the poor and land distributed to the individuals by the government under anti-poverty programmes (Table 3). With this one could expect their economic status to have improved. These beneficiaries neither crossed the poverty line nor are self-sufficient in their biomass requirements. Distributing this type of land seems to destroy the village economy. The type of land granted and /or encroached by them is very poor quality and non-viable. Also, the crops and method of cultivation adopted by them yield low output as well as low proportion of crop residues which are used as fodder and fuelwood. In this situation, these poor households transfer their lands to the non-poor. Jodha found in his study of dry villages in India that the CPR lands privatised by the poor had gone to the hands of non-poor. The CPR lands received by the poor were also given up by them as they did not have complementary resources to develop and use the newly-received lands (Jodha 1986).

**Dependence on CPR Land for Income**

In spite of the shrinkage and degradation of CPRs, their contribution to the rural economy continues to be significant, particularly in dry and drought-prone areas. Jodha found in his study that per household per year income derived from CPRs ranged between ₹ 530 and ₹ 830 in different areas of India, and this was higher than the income generated by a number of anti-poverty programmes in some areas (Jodha 1986). The present study also observed a similar trend in the sample villages.

**Table 4: Contribution of CPRs to Gross Income of Households**

| Name of the Village | Category of households | Number of households | Average Gross Income per Household from All Sources (Rupees/Year) | Average Gross Income per Household from CPRs (Rupees/Year) | CRP Income as Per cent of Average Gross Income per household |
|---|---|---|---|---|---|
| Madanpur | Poor | 34 | 15105 | 4432 | 29.3 |
| | Non-poor | 12 | 25689 | 6945 | 27.0 |
| | All | 46 | 18241 | 5176 | 28.3 |
| Kolimati | Poor | 30 | 20205 | 5775 | 28.5 |
| | Non-poor | 18 | 30286 | 7136 | 23.5 |
| | All | 48 | 23412 | 6208 | 26.5 |
| Birgovindpur | Poor | 32 | 13153 | 2892 | 21.9 |
| | Non-poor | 22 | 21493 | 4458 | 20.8 |
| | All | 54 | 15488 | 3338 | 21.5 |
| Kantipal | Poor | 32 | 10268 | 1829 | 17.8 |
| | Non-poor | 20 | 17831 | 2671 | 14.9 |
| | All | 52 | 12595 | 2088 | 16.5 |
| All villages | Poor | 120 | 14452 | 3655 | 25.3 |
| | Non-poor | 80 | 23687 | 5276 | 22.2 |
| | All | 200 | 17222 | 4141 | 24.0 |

Source: Field Survey.

Table 4 shows that in the study villages both poor and non-poor depended to a large extent on CPRs. The source of income from CPRs is divided into two groups viz. (i) income from open grazing on CPRs and the value of food, fuelwood collection of different timber and non-timber forest products (NTFPs) for both consumption and selling purposes (ii) income from cultivation of encroached and government distributed CPR land. The important CPR products which are collected for both the purposes of domestic consumption and selling of timber, firewood, sal leaves, sal seeds, char seeds, kusum seeds, harida, bahada, panas, mango, jack fruits, etc. The share of income from CPR land for poor households to their total income is comparatively higher in Madanpur village followed by Kolimati, Birgovindpur and Kantipal village in that order. Because, they do not have sufficient private property through which they could maintain their livelihood. Around 25 and 22 per cent of the gross income of poor and non-poor households, respectively come from CPRs. Though the available CPRs are degraded and are unable to meet the required biomass by the rural households, nevertheless, in their absence, rural households would have difficulty to pay heavily towards the purchase of such biomass. Since the cash income of the rural poor is hardly enough to provide two meals a day, spending on fuelwood and fodder could be suicidal for them.

Though CPR plays a crucial role in the household economy of the rural poor, it is the non-poor who get more benefits from CPR in absolute terms. Nadakarni (1989) found in his study in the Western Ghats of Karnataka that income from the CPR was much greater for rich households than poor families, though in relative terms the poor obtained a greater proportion of their income from them. We obtain a similar

picture in our study villages. It can be seen from Table 4 that poor households derive on an average gross income of ₹ 3,655 per household from CPRs while the non-poor households derive ₹5,276. Thus, the ratio of income derived from the CPRs by poor and non-poor households are 1:1.44. The average gross annual income of the poor households from the CPRs ranges from ₹ 1,829 to ₹ 5,775 in different study villages during the reference period. The CPR income for the non-poor varies between ₹ 2,671 and ₹ 7,136. Though the poor households get much less average gross income per household from CPRs as compared to the non-poor household, it is relatively more important in their household budget in all the study villages. However, despite the non-poor getting greater benefits in absolute terms, a greater proportion of the household income of the poor is derived from CPRs. This proportion varies between 17 per cent of the gross income per household in Kantipal village and 29 per cent in Madanpur village, and for all the sample poor households it is 25 per cent. Even in the case of the non-poor, the contribution of CPR income as a proportion of gross income per household varies between 15 per cent in Kantipal and 27 per cent in Madanpur. Hence, on an average, one-fourth of the income of the poor is derived from the CPRs whereas it is 22 per cent for the non-poor, and 24 per cent for the entire household in the reference period.

**Fuelwood Collection from CPR Land**

The most widespread use of CPR land is for collection of fuelwood for cooking. As the availability of fuelwood from CPRs declines, and the rural families income rises, these households shift to new methods of fuel use and consumption, i.e. to biogas, electricity, kerosene, fuel-efficient 'choolas' (hearths), etc. It observes that there seems to be a shift, though a marginal one, in favour of other sources of cooking energy such as kerosene and biogas in the study villages. The percentage distribution of households by cooking media is presented in Table 5.

**Table 5: Percentage Distribution of Households by Cooking Media**

| Name of the Village | Category of House-holds | No. of House-holds | Cooking Media (Percentage) | | | | |
|---|---|---|---|---|---|---|---|
| | | | Fuel-wood | Fuel-wood and Dung cake | Fuelwood Dung cake and crop residue | Others | All |
| Madanpur | Poor | 26 | 36.3 | 45.2 | 9.3 | 9.2 | 100 |
| | Non-poor | 20 | - | 51.4 | 22.1 | 26.5 | 100 |
| | All | 46 | 27.1 | 48.6 | 11.4 | 12.9 | 100 |
| Kolimati | Poor | 30 | 6.7 | 54.5 | 36.3 | 2.5 | 100 |
| | Non-poor | 18 | - | 4.7 | 93.6 | 1.7 | 100 |
| | All | 48 | 3.4 | 35.3 | 59.5 | 1.8 | 100 |
| Birgovindpur | Poor | 32 | 31.1 | 28.6 | 23.1 | 17.2 | 100 |
| | Non-poor | 22 | 15.6 | 26.4 | 42.4 | 15.6 | 100 |
| | All | 54 | 29.1 | 25.2 | 27.3 | 18.6 | 100 |
| Kantipal | Poor | 32 | - | 7.8 | 33.6 | 58.6 | 100 |
| | Non-poor | 20 | - | 12.2 | 49.7 | 38.1 | 100 |
| | All | 52 | - | 41.6 | 41.8 | 16.6 | 100 |
| All villages | Poor | 120 | 24.1 | 30.2 | 23.1 | 22.6 | 100 |
| | Non-poor | 80 | 4.4 | 21.3 | 52.8 | 21.5 | 100 |
| | All | 200 | 15.6 | 29.4 | 39.4 | 15.6 | 100 |

Source: Field Survey.

Exclusive use of fuelwood is the highest (29 per cent) in Birgovindpur village followed by Madanpur (27 per cent) and Kolimati (3 per cent). The availability of CPR forest land is limited in Kolimati and Kantipal villages. The share (percentage) of exclusive use of fuelwood from CPRs to the total consumption is higher among the poor (24 per cent) as compared to the non-poor (4 per cent), whereas the share (percentage) of the use of fuelwood, dung cake and crop residue from CPRs to the total consumption is higher among the non-poor (52 per cent) as compared to the poor (23 per cent). The non-poor households have managed to meet the requirements from their own lands. Further, in our study villages the poor households depend on available CPRs for their fuelwood requirements, they do also purchase it from the market. This shows that the overall development of the village affected the poor much in terms of decreased availability of fuelwood from CPRs. Eventhough fuelwood is a dominant cooking medium, the exclusive use of fuelwood is very limited. Only 15 per cent of the total households used fuelwood, 29 per cent used fuelwood and dung cake, 39 per cent depended on fuelwood, dung cake and crop residue for their fuel needs and 16 per cent depended on other combinations of fuels.

**Table 6: Fuel Use Pattern in Study Villages**

| Name of the Village | Category of House-holds | No. of House-holds | Cooking Media (Percentage) Fuel-wood | Dung cake | Biogas/ Kerosene | Crop residue | All |
|---|---|---|---|---|---|---|---|
| Madanpur | Poor | 26 | 86.0 | 8.0 | 3.6 | 2.4 | 100 |
| | Non-poor | 20 | 71.0 | 13.0 | 13.5 | 2.5 | 100 |
| | All | 46 | 81.0 | 9.0 | 8.0 | 2.0 | 100 |
| Kolimati | Poor | 30 | 87.0 | 8.0 | 1.0 | 4.0 | 100 |
| | Non-poor | 18 | 76.0 | 9.0 | 2.0 | 13.0 | 100 |
| | All | 48 | 82.5 | 8.2 | 2.0 | 7.3 | 100 |
| Birgovindpur | Poor | 32 | 90.0 | 4.0 | 0.0 | 6.0 | 100 |
| | Non-poor | 22 | 69.0 | 18.0 | 1.7 | 11.3 | 100 |
| | All | 54 | 84.4 | 6.2 | 1.2 | 8.2 | 100 |
| Kantipal | Poor | 32 | 41.3 | 15.5 | 9.2 | 34.0 | 100 |
| | Non-poor | 20 | 35.4 | 21.7 | 13.5 | 29.4 | 100 |
| | All | 52 | 38.4 | 17.4 | 11.3 | 32.9 | 100 |
| All villages | Poor | 120 | 75.5 | 8.6 | 4.1 | 11.8 | 100 |
| | Non-poor | 80 | 65.0 | 15.0 | 6.7 | 13.3 | 100 |
| | All | 200 | 70.8 | 11.4 | 5.2 | 12.6 | 100 |

Source: Field Survey.

Fuelwood has been collected from the developed plantation (social forestry project) and reserve forest free of cost. Dung cake and crop residues are derived from both own fields as well as from other sources (other farmers' fields and forests). Biogas and kerosene are exclusively derived from own sources and the cost has been borne by the people themselves. Table 6 shows that on an average nearly 75 per cent of fuel requirements of the poor, 65 per cent of the non-poor and 70 per cent of all households are met through fuelwood. But at the village level, the share of fuelwood to total fuelwood requirements varies between 38 per cent in Kantipal and 84 per cent in Birgovindpur.

**Table 7: Other Aspects of Fuelwood Collection**

| Name of the Village | Category of Households | No. of House-holds | Average Fuel-wood Consum-ption (Kg. Per Week) | Average Value of Fuel-wood Consu-med (₹ Per Week) | Average Time Spent Per Collection (Hours) | Average Value of Total Fuelwood Collected Per Year (in ₹) | Distance from Home to CPR (in km) | Accessi-bility (Percen-tage of People Who Felt CPR is Open) |
|---|---|---|---|---|---|---|---|---|
| Madanpur | Poor | 26 | 44.10 | 59.30 | 4.47 | 4014.63 | 3.02 | 62.1 |
| | Non-poor | 20 | 47.48 | 63.42 | 6.00 | 4276.87 | 3.12 | 61.5 |
| | All | 46 | 45.10 | 60.33 | 4.92 | 4092.33 | 3.05 | 61.9 |
| Kolimati | Poor | 30 | 51.25 | 67.32 | 6.06 | 4510.73 | 3.00 | 41.1 |
| | Non-poor | 18 | 47.31 | 63.50 | 6.71 | 4304.42 | 3.00 | 94.2 |
| | All | 48 | 48.31 | 66.10 | 6.27 | 4445.09 | 3.00 | 60.0 |
| Birgovindpur | Poor | 32 | 44.84 | 47.29 | 4.94 | 3455.16 | 2.88 | 71.2 |
| | Non-poor | 22 | 42.84 | 56.39 | 6.42 | 3924.57 | 3.57 | 41.8 |
| | All | 54 | 37.70 | 48.71 | 5.36 | 3586.60 | 3.08 | 62.1 |
| Kantipal | Poor | 32 | 17.60 | 19.98 | 5.77 | 2090.11 | 2.88 | 19.6 |
| | Non-poor | 20 | 26.70 | 34.81 | 6.62 | 2601.25 | 3.37 | 16.5 |
| | All | 52 | 20.40 | 26.62 | 6.03 | 2247.38 | 3.03 | 18.3 |
| All villages | Poor | 120 | 38.18 | 48.73 | 5.27 | 3482.20 | 2.95 | 47.5 |
| | Non-poor | 80 | 40.50 | 54.35 | 6.43 | 3754.26 | 3.26 | 56.3 |
| | All | 200 | 39.48 | 51.42 | 5.62 | 3563.82 | 3.04 | 51.2 |

Source: Field Survey.

Some other aspects of fuelwood collection from CPRs that emerged during the survey are presented in Table 7. On an average, the poor used 38 kg, the non-poor used 40 kg and all households used 39 kg of fuelwood per week. Between the villages the household consumption of fuelwood per week ranges from 48 kg in Kolimati to 20 kg in Kantipal. The average imputed money value of fuelwood consumed per week is almost ₹ 49 for the poor, ₹ 54 for

the non-poor, and ₹ 51 for all households. The market value of collected fuelwood from CPRs per year, on an average it works out to ₹ 3482, ₹ 3,754 and ₹ 3,563 for the poor, non-poor and all households, respectively. Generally, households in all the study villages regularly go for fuelwood collection. But in summer they collected fuelwood more intensively, to be stored for the rainy season, when fuelwood collection would be very difficult.

Table 7 also shows that the distance between the place of dwelling (habitation) and source of fuelwood collection (forest) is around 3 km, but to collect fuelwood, people have to go deep into the forest due to degradation of forests and congestion of fuelwood collectors. It is observed in the study villages that women and children aged between 10 and 15 belonging to the poor households browse over three to four km on CPRs (including road sides) for dead and fallen wood, twigs, thorny bushes, dry leaves, roots etc.The average time spent per collection of fuelwood varies between a minimum of four hours and a maximum of seven hours.

Villagers do not have total access to all types of forests. Forest authorities (the forest department) regulate accessibility to the forest area specially when these are under reserve forest or protected area category. About 47 per cent of the poor, 56 per cent of non-poor and 51 per cent of all households in the study villages feel that the forest is open for fuelwood collection without any restriction.

**CPR Land as a Source of Fodder**

Fodder is another important derivative of the common property resource, 80 per cent of the sample households owned livestock. Table 8 reveals that 46 per cent of the total fodder uses by all livestock-holding households derive from CPRs. The corresponding percentage for the poor and non-poor is 51 and 42, respectively. Except Kantipal, in the other villages more than 50 per cent of the fodder derives from CPRs by poor households, which in absolute terms is lower than that of non-poor households.The non-poor derive 46, 49, 31 and 37 per cent fodder from CPRs in Madanpur, Kolimati, Birgovindpur and Kantipal villages, respectively. The supplementary source of fodder through crop cultivation helps the non-poor to depend rather less on CPRs. Poor households do not depend fully on crop cultivation, as crop cultivation is risky and uncertain. Also, their average size of landholding is very small (0.1 hectare) and hence non-viable as compared with that of the non-poor. At the aggregate level, both in absolute and relative terms, the non-poor derive a higher share of total fodder from own sources as compared to the poor. The non-poor derive 51 per cent and the poor derive 38 per cent of fodder from own sources.

**Table 8: Sources of Animal Fodder**

| Name of Village | Category of Households | No. of Households | Source of Animal Fodder (in ₹ ) | | | | |
|---|---|---|---|---|---|---|---|
| | | | Own | Other Farms | Purchased | On CPRs | Total |
| Madanpur | Poor | 20 | 969 | 213 | 208 | 2959 | 4349 |
| | | | (22.3) | (4.9) | (4.7) | (68.1) | (100) |
| | Non-poor | 15 | 4625 | 338 | 528 | 4676 | 10167 |
| | | | (45.5) | (3.3) | (5.2) | (46.0) | (100) |
| | All | 35 | 3014 | 243 | 324 | 3584 | 7165 |
| | | | (42.0) | (3.4) | (4.5) | (50.1) | (100) |
| Kolimati | Poor | 25 | 2139(33.2) | 237 | 519 | 3544(55.1) | 6439 |
| | | | (33.2) | (3.7) | (8.0) | (55.1) | (100) |
| | Non-poor | 13 | 4369 | 35 | 540 | 4832 | 9776 |
| | | | (44.7) | (0.3) | (5.5) | (49.5) | (100) |
| | All | 38 | 2932 | 215 | 516 | 3958 | 7621 |
| | | | (38.5) | (2.8) | (6.7) | (52.0) | (100) |
| Birgovindpur | Poor | 26 | 2018 | 347 | 304 | 2921 | 5590 |
| | | | (36.1) | (6.2) | (5.4) | (52.3) | (100) |
| | Non-poor | 18 | 6327 | 40 | 275 | 3038 | 9680 |
| | | | (65.4) | (0.4) | (2.8) | (31.4) | (100) |
| | All | 44 | 4108 | 249 | 258 | 2975 | 7590 |
| | | | (54.1) | (3.3) | (3.4) | (39.2) | (100) |
| Kantipal | Poor | 27 | 2946 | 0 | 415 | 2499 | 5860 |
| | | | (50.2) | (0.0) | (7.1) | (42.7) | (100) |
| | Non-poor | 16 | 3536 | 0 | 334 | 2311 | 6181 |
| | | | (57.2) | (0.00) | (5.4) | (37.4) | (100) |
| | All | 43 | 3189 | 0 | 378 | 2492 | 6059 |
| | | | (52.6) | (0.0) | (6.2) | (41.2) | (100) |
| All villages | Poor | 98 | 2439 | 267 | 391 | 3248 | 6345 |
| | | | (38.4) | (4.3) | (6.1) | (51.2) | (100) |
| | Non-poor | 62 | 4897 | 195 | 457 | 3972 | 9521 |
| | | | (51.4) | (2.1) | (4.8) | (41.7) | (100) |
| | All | 160 | 3761 | 231 | 392 | 3780 | 8164 |
| | | | (46.1) | (2.8) | (4.8) | (46.3) | (100) |

(Figures in parentheses are percentages of total)
Source: Field Survey.

In all our study villages, we find both poor and non-poor households maintaining sheep and goats. Due to the degradation of CPRs, rural households try to concentrate on less risky animals (sheep and goats) which can be maintained on lower quality and lesser availability of herbages and forages from CPRs than in case of other types of animals. Similar changes in the composition of livestock due to the degradation of CPRs have been recorded by Jodha in his study of dry regions in India (Jodha 1990). Another study in a drought –prone region of Karnataka by Pasha also found that as the quality and quantity of CPRs decline, apart from the poor even the non-poor households concentrate on the rearing of sheep and goats (Pasha 1991).

**Prospects of CPRs in Study Villages**

The present analysis shows that there is abundant CPR land under forest, barren and uncultivable land, cultivable waste and other fallow land categories in the study villages. The forest land being under the direct control of the forest department, there is very limited scope for encroachment on forest CPR. Though there is very limited scope for depletion of CPRs in the study villages, degradation has been happening due to encroachment on barren and uncultivable land, grazing land, cultivable wasteland, fallow other than current fallow, and distribution of CPR land by the government to the poor for crop cultivation, housing and social forestry, and over-exploitation through collection of fuelwood, food, fodder, non-timber forest products (NTFPs) for their domestic consumption and sale. Thus, over-exploitation of common property forest resources resulted in the degradation of CPRs with ultimate adverse effect on the rural community. The CPR-based activity of rural households itself is a cause for degradation.

All the surveyed households are collecting fuelwood from the forest land and, therefore, it can be safely assumed that a majority of the households in the study villages are doing the same. The population of the villages multiplied over the years but the forest area remains constant, increasing the pressure on the existing forest resources through increased fuelwood collection. In addition, the administrative mechanism failed to popularise alternative fuels and efficient fuelwood - based chullas at affordable prices.

In the study villages, all the sample livestock holding households are sending their animals to the forest CPR for open grazing. Both the poor and non-poor derive a substantial portion of total fodder requirements from forest CPR. Livestock is indispensable for small and marginal farmers, on which their subsistence farming is based, but fodder from own sources is insufficient to maintain their livestock, and they cannot afford to purchase fodder. Therefore, these households depend heavily on CPR forest for their fodder requirements. There are no restrictions of any kind on open grazing in forest lands, causing over-exploitation of forest resources.

**Table 9: Participation of Sample Households on Joint Forest Management (JFM)**

| Name of the Village | Category of Households | No. of Households | JFM (VFC/VSS/ FPC) Households (No.) | Active Participation Households on JFM (No.) | Percentage of Active Participation Households to total Sample Households on JFM |
|---|---|---|---|---|---|
| Madanpur | Poor | 26 | 12 | 7 | 26.9 |
| | Non-poor | 20 | 11 | 5 | 25.0 |
| | All | 46 | 23 | 12 | 26.0 |
| Kolimati | Poor | 30 | 18 | 12 | 40.0 |
| | Non-poor | 18 | 8 | 6 | 33.3 |
| | All | 48 | 26 | 18 | 37.5 |
| Birgovindpur | Poor | 32 | 21 | 14 | 43.7 |
| | Non-poor | 22 | 13 | 7 | 31.8 |
| | All | 54 | 34 | 21 | 38.8 |
| Kantipal | Poor | 32 | 15 | 8 | 25.0 |
| | Non-poor | 20 | 7 | 4 | 20.0 |
| | All | 52 | 22 | 12 | 23.0 |
| All village | Poor | 120 | 66 | 41 | 34.1 |
| | Non-poor | 80 | 39 | 22 | 27.5 |
| | All | 200 | 105 | 63 | 31.5 |

Source: Field Survey.

Table 9 reveals that around 31 per cent household members (63 out of 200 sample households) in all villages actively participated in Joint Forest Management (JFM). The active participation in JFM by the poor is 34 per cent whereas for the non-poor households it is 27 per cent, and from all households it is 31 per cent. The active participation in JFM among four sample villages varies between 23 per cent (in Kantipal village) to 39 per cent (in Birgovindpur village). There are village forest committees since 2000 in all the sample villages consisting of 105 members on paper, but work is being done by the forest department with the involvement of only 63 members.

There are various problems in all sample villages. First, Forest Protection Committees (FPCs) are set up in haste without adequate consultation with local community except with 63 members. Second, there is a conflict among different caste and tribal groups, for instance Juang and Bhuiyan, SCs (Pana) and OBCs (Teli, Gopala), sometimes leading to violence for protection of village forest area. Third, the forest dwellers are getting small timber and firewood

from the forest formally or informally. But they do not get any additional incentive in these items for their own use under JFM scheme. A Government of Odisha resolution in 1993 on JFM offered 50 per cent share in any major/final harvest and 100 per cent of intermediate products to forest protection committee, called *Vana Sanrakhyan Samiti*. Joint Forest Management seeks to involve and treat local communities as equal partners in the task of protection and management of forest. But the absence of good relation between forest department and local communities in all the sample villages makes this a remote reality. Local communities find JFM unacceptable since this tends to erode decision making at community level, and also disregards the traditional knowledge system of the community. The restriction on sale of gathered firewood or small timber is unrealistic as many of the poor forest dwellers depend on sale of these forest produce for their subsistence. Under JFM, Forest Department plays an important role in decisions relating to forest. Fourth, in the absence of a General Body, the Forest Protection Committee is not always representative of all sections of forest users of the village. Fifth, the rights and tenures of the community over forest patch are not specified. Only certain concessions for fulfilling the requirements are spelt out; there is no mention of any share in the intermediate or final harvest in the sample villages.

Apart from protecting the CPRs from further degradation, participative management by all the rural households, particularly the rural poor, promotes the social bond across families at the village level. This will help both poor as well as the non-poor. In our study villages, though the development agencies have tried and succeeded in protecting and regenerating the degraded CPRs, and equitable distribution of benefits of all rural households, they have failed in involving all sections of the rural society in such developmental programmes. In addition to the increased availability of biomass from the protected CPRs, community-based use and management of these resources can also help in promoting sustainable development of agriculture and allied activities of the rural areas. Once all the rural households are involved in the management of CPRs, it may not be difficult even to have common irrigation equipment, tractors, tillers, grain hullers, etc., at the village level. If this happens, the overall development of the village, particularly of the poor families can be achieved. It appears that the share of poor households in the biomass from the CPRs may further decline as the quantity and quality of biomass from it increases. This is because it is the non-poor who have an absolute control over the use and management of such resources. Even in taking up the degraded CPRs for development it appears that all the households are not consulted or involved. The officials along with representatives of the rich seem to have persuaded one or two poor households to accept the scheme. The poor as a result of their socio-political and economic submission to the non-poor hardly express their views clearly. Keeping the poor in the background, a few representatives of the rich try to commercialise and gain from the CPRs.

However, it may be interesting to understand how actually the rural poor perceive the CPRs. In other words, to what extent do they protect the CPRs by their participation in their use and management, if equal chance is given to them. We noticed through our own discussions with the poor households in the sample villages that, even these households largely prefer the available CPRs to be distributed among them as private property resources (PPRs) due to: (1) Unequal distribution of PPRs (land and livestock) among the rural poor families, (2) Lack of CPR-based PPRs among the poor, (3) Neglect of non-market forces in the rural economy, and (4) Lack of proper policy by the government about CPRs, particularly, regularisation of the encroached CPRs. Thus, in

such a situation promoting participation from all sections of the rural society in the use and management of CPRs seems to be a difficult task.

If the present CPR use structure is allowed to continue unaltered, then the future for common property resources in the study villages appears bleak. Due to the degradation of CPRs, many households are already facing shortage of fuelwood and fodder. Many households therefore, started shifting towards other fuels such as dung cake and inferior fuels like crop residue for cooking. The degradation of CPR forest increased the time required for fuelwood collection and resulted in the neglect and over-exploitation of forest CPRs. Thus, there has been a vicious circle of degradation and over-exploitation of CPRs. If this vicious circle is not broken, then the 'tragedy of common property resources' is certain to occur.

**Conclusions**

CPRs play a very important role in the rural economy of Odisha. In absolute terms, the contribution from CPRs to the gross income of the rural non-poor is much more than in case of poor families. But in relative terms whatever the poor get from CPRs is very important and crucial in their household economies. Fuelwood collection from CPR meets more than two- thirds of the total energy requirements of the poor households. The share of exclusive use of fuelwood from CPRs to the total consumption is higher among the poor as compared to the non-poor, whereas the share of the use of fuelwood, dung cake and crop residue from CPRs to the total consumption is higher among the non-poor as compared to the poor. Poor households derive a larger proportion of total fodder from CPRs as compared to the non-poor in relative terms. At the aggregate level, both in absolute and relative terms, the non-poor derive a higher share of total fodder from own sources compared with the poor. Even now apart from their shrinkage and degradation, CPRs meet substantially the total requirements of fuelwood and fodder of both poor and non-poor families. In the survey villages, a substantial proportion of the total geographical area is under common property resource category. There is a significant decline of CPR area between 1980-81 and 2010-11 due to encroachment, developmental programmes of the government and over-exploitation of CPR forest land in the selected villages. Encroachment of CPRs by the non-poor is more than the poor due to distribution of land by the government to the poor. Effective participation of local population and equitable distribution of benefits are not happening in the sample households, mainly due to institutional weaknesses. Thus, the pressure on the existing CPRs increases, which would result in their over-exploitation and degradation. Increasing the access of rural poor to CPRs by protecting and regenerating these resources as well as giving equal opportunity to the poor in the use and management of CPRs on a sustainable way seems to be the urgent need of the day.

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