

THE INTERNATIONAL JOURNAL OF HUMANITIES & SOCIAL STUDIES

Economic Value of Village Common Property Resources in Ganjam District of Orissa

Basanti Kumari Nayak

Assistant Professor, Satyawati College, University of Delhi, India

Abstract:

The common property resources (CPRs) play an important role in the ecological, socioeconomic and cultural life of the people of the villages in India. The rural CPRs include ponds, grazing lands, threshing ground, village forests, and orchards and so on. It is reported that the income generated by the CPRs for the poor rural families is higher than the benefits derived from a number of anti-poverty programmes.

The failure of the economic markets to reflect the total economic value (TEV) of the CPRs is often cited as the most prominent factor behind the 'tragedy of commons'. During the last two decades in environmental and ecological economics conceptualizations have advanced to capture the components of TEV of environmental resources through a number of market and non-market techniques. This paper applies some of those methods to determine the economic value of the CPRs in three villages - Gurunthi, Moundpur and Krishnapur - of Ganjam district of Odisha, India. The study uses a participatory rural appraisal (PRA) survey mainly to derive the present use value of the resources in money terms. An attempt is also made to elicit the preferences and willingness to pay of the people for the continued existence of the resources.

The study concludes that the CPRs yield a variety of goods and services with a small amount of labour that fetches a good return in the market.

The net present value (NPV) calculated from the direct use value of the resources is comparable with the value of the private lands of the villages. People feel that they should be adequately compensated when development projects claim their CPRs.

1. Introduction

The process of economic development in India has not transformed the urban and rural sectors in equal measure and vigour. The urban economy has been modernized and industrialized. The rural areas have languished, in some cases village economies have become the victim of developmental paving over process. In other cases, remote agricultural and tribal villages cannot escape from underdevelopment and backwardness trap. Even at a low pace of development many of the vital inputs of sustainable development of the villages are lost or depleted. For the villages CPRs are described as the kingpin of sustainability (Sahu and Mishra, 1996). They substantially support the rural poor. Jodha (1986) reported that they generate income per household per year in the range of `530 to `830 which is higher than the benefits derived from a number of anti-poverty programmes.

Apart from 'tragedy of commons' (Hardin, 1968) and 'social trap' (Costanza and Perrings, 1990) phenomena, the CPRs have suffered lack of attention through the developmental activities and other public policies. In cost-benefit analysis of developmental projects, their economic value is considered zero or negligible.

It is in this context important to develop money measures of the CPRs in terms of annual rental values and net present value, so that they are properly taken care of in socioeconomic accounting and cost-benefit analysis.

This study attempts an empirical valuation exercise in order to address the issue. Three villages of Ganjam district in Orissa have been sampled out for the purpose.

2. CPRs: Meaning and Classification

The rural CPRs refer to the resources, accessible to the whole community of the villages and to which no individual has exclusive property rights (Jodha, 1986). They are otherwise known as common pool or open access resources. Like public goods, they are characterized by the principles of non-excludability and non-rivalry.

The village CPRs includes a wide variety of lands, wetlands and space for different activities as the following:

- i. Uncultivable fallow lands
 - Rivers, rivulets, streams, stone flats, hills, sand dunes, tanks, ponds and erosion affected waste lands.
- ii. Land areas, specially set apart for the use of village community.

- Roads, water reservoir, canals, open fields, meeting grounds, market places and religious places including common festival sites.
- iii. Land reserved for specific purposes.
 - Grazing land, cremation ground, village forests and government orchads.
- iv. Cultivable fallows
 - Grass lands and waste lands.

Normally the Revenue Department of state government, as in Odisha (C.P.S.W., 1994) possess ownership over the CPRs. Further, recorded forest lands are also used by the surrounding villages as CPRs under the traditional rights, privileges and concessions granted to the people by the ex-rulers and recognised by the government later on (Sahu, 1986).

3. Functions of CPRs.

CPRs are diverse in terms of titles as listed above. But they are further diverse in respect of their economic and ecologic services for the people of the villages (Sahu and Mishra, 1996). The products contributed by CPRs include biomass fuels, fodder, broom, thatching grass and so on. Some of the product-based activities such as collection of firewood and minor forest products (MFP) and stone crushing provide employment and income to the people. Land for grazing of animals and shifting cultivation and water channels for irrigation augment the resources of the people, particularly the village poor. Functional benefits of the CPRs include soil formation and conservation, fertility maintenance and regulation of water cycle. Other indirect services include gathering space for different economic and social activities like marketing, fairs and festivals. The CPRs facilitate reduction of rural inequality caused by the, possession of private property resources (PPRs).

4. Economic Valuation of CPRs: Rationality, Components and Methods

The village CPRs is as much economic as ecologic resource base. In environmental economics literature, several arguments are provided justifying the need for economic valuation of environment (Sahu et al. 1996). One can count a few important justifications as applicable to CPRs here:

- i. As the conventional market fails or of limited use in determining the money value of environmental services of CPRs, it is necessary to find out the same by proper valuation methods.
- ii. The 'free rider' problem (Pearce and Moran, 1994) of the CPRs can be reduced by bringing the difference between private and social cost to minimum.
- iii. In all socioeconomic policies and programmes environmental valuation are important. The loss in losing the resources and the gain in protecting them can be estimated through valuation.
- iv. The social accounting process needs to be refined by including the contributions of CPRs. A comprehensive natural resource accounting would make CPRs visible to the policy makers.
- v. One of the imperatives of sustainable development warrants maintenance of a constant natural capital stock which in its term requires valuation of natural assets.

The term value refers to the money measure of the subjective weightage or preference given to the natural assets by the people. In 'economics' this preference of people is measured by willingness to pay (WTP) and willingness to accept (WTA). WTP refers to what people are willing to pay for the benefits derived from the environmental asset. WTA is what they are willing to accept when they lose those benefits. The conservation value of common property resources can be measured by a concept called 'Total Economic Value' (TEV). The TEV has a number of components which can be expressed in the following equation.

$$\begin{aligned} &\text{➤ TEV} = \text{UV} + \text{FUV} + \text{NUV} \\ &\text{➤ (DUV} + \text{IUV)} + (\text{OV} + \text{QOV}) + (\text{BV} + \text{XV}) \end{aligned}$$

TEV includes present value, future use and non-use values. The use values (UV) refer to direct and indirect use values to the user in production and consumption. Direct use values include the value of the products and services directly used by the people. Indirect values correspond to the ecological functions of the natural assets.

The future use values (FUV) implies benefits obtainable in future to the user in production and consumption. The FUV includes option value and quasi-option value. Option value is the willingness to pay to safeguard an asset for the option of using it in future. This is an insurance value (Pearce and Moran, 1994). The concept of quasi-option value refers to the value of the future information protected by preserving an asset. The Non-use values (NUV) also known as passive values, include bequest value and existence value. The former is defined by the WTP to ensure that the future generations inherit a particular environmental asset (Mac Arther, 1996). However, existence value is simply derived from the existence of that asset. It is often referred to as the intrinsic value of an environmental asset.

There are various direct and indirect methods to measure the components. Experiment method, contingent valuation and ranking approaches come under direct methods. Under the Indirect approaches, we have travel cost, averting behaviour, property market, labour market, dose-response, replacement cost and opportunity cost methods.

5. Materials and Methods

In this study we have made an attempt to measure mainly the present use value of village CPRs in money terms. The opportunity cost of labour engaged in CPRs is used to derive the values. The exercise covers analysis as both primary and secondary data. The primary data required for the study were collected from 150 sample respondents of three villages in Ganjam district. The data were gathered through a Participatory Rural Appraisal (PRA) 'survey'. In each of the villages I spent five to seven days to observe the activities of

the villagers on the CPRs. Several types of relevant information such as, the amount and time spent for the collection of grass, cow dung, dryleaves, fuel woods, fruits, fish and time spent in *digging* nalas (water channels), cleaning tanks, etc. were collected from 50 households of each of these villages. The questions raised also included a question on the WTP of the people for continued existence of the assets. Requisite secondary data were collected from the offices of the Gram Panchayats and local offices of the Revenue Department of the Government of Orissa. The information were collected and then processed with the help of standard statistical tools like measures of central tendency and dispersion.

6. The Socio-Economy of Sample Villages

The three sample villages are Moundopur and Krishnapur of Chikiti Block and Gurunthi of Kukudakhandi Block in Ganjam District of Orissa. The socio-economy of the villages are described as follows : Moundopur: The village Moundopur is just 3 kilometers away from Chikiti N.A.C. towards west. The village is situated on the foot hills of the Kerandimal hills, a part of Eastern Ghat hills. The total population of the village is 330, out of which 255 belong to the general caste and the rest belong to the scheduled caste community. Around 58 percent of the total population are literate (Table -I). A majority of the people depend upon agriculture. However, some proportion of the population depend upon the nearby forest for their livelihood.

Krishnapur; Krishnapur is situated 7 kilometers away from Chikiti N.A.C towards west. The village is situated on the bank of river Bahuda . The total population of the village is 785, out of which 573 belong to the general caste (Table 1) . Around 45 percent of the population are literate. Most of the people depend on agriculture and some are engaged in petty trading activities. Gurunthi: Gurunthi is 7 kilometers to the North of Berhampur, which is a major commercial town of South Orissa. The total population of the village is 2348, out of which 2148 belong to the general caste and the rest belong to the scheduled caste community. Agriculture is the main economic occupation of the people. However, some are engaged in small and cottage industries in Berhampur town and nearby areas. Around 52 percent of the total population are literate.

Among the three villages Gurunthi has 79 percent of the total population below the poverty line, which is the highest. Where as the area under CPRs is the lowest in the village, that is 39.68 acres. The reverse is the situation in Krishnapur where the population below the poverty line is the lowest with 69 percent and the area under CPRs is 49.224 acres which is the highest in Moundopur which is 0.13 acres, where as the proportion of CPR to PPR is highest in Krishnapur village, that is 0.188 (Table 1) followed by Moundopur and Gurunthi.

Table 2 classifies the CPRs of the three villages. The water bodies such as ponds, tanks and canal occupy the largest amount of common property resources. The other major categories of common lands include grazing land, village road, stone flat and hilly lands, cremation ground, common threshing grounds and sacred places.

7. Assessment of benefits from CPRs

The CPR-based economic activities are classified under two categories: Individual and collective . At the individual family level, people engage in activities like grass collection, raw cowdung collection, drying dung cakes, collection of dry leaves, fuel woods, fishes and fruits. Collectively the villagers clean the tanks and dig nalas (water channels) to fetch water for irrigation. People also cut branches of trees in cremation ground for blurring of the dead bodies of poor people. An estimation of the benefits per family per year in physical and labour' terms is given in Table 3. Grass collection is the prominent activity at the individual level in all the villages. Fuel wood collection is a major activity in Moundopur and Gurunthi but not in Krishnapur because of most of their CPRs are covered either by water bodies or roads. In Krishnapur the water bodies have been given on lease which prohibit fish catching activity at the individual level. In all the villages the poor people indulge in dung cake making and collection of dry leaves. Among the collective activities the families have devoted a small amount of time to clean the village tank. The activity consumes less time, but brings the community together. The average labour hours engaged in CPR based activities per family per year is the highest in Moundopur followed by Krishnapur and Gurunthi (Table 3).

8. Valuation of CPRs

The annual benefits received from the CPRs by the 50 families of each of the villages are valued both on the basis of market price and labour' cost in Table 4. In case of the individual activities labour cost value (human days times wage rate of Rs.35 per day) is found lower than the market value in the villages. This indicates that by devoting smaller amount of labour, the people are producing commodities which have higher market value. In other words, the value of the material content of the products is more than its labour content which helps the poor to make some money for sustenance. For examples in Moundopur Rs.634 worth of labour in collection and drying of cowdung yields 59 quintals of dung cakes, the money value of which is Rs.3074 (Tables 3 and 4) . Such a situation is found in almost all activities carried on the CPRs at the individual level. Under collective activities, some provisions such as bathing do not have monetary dimension. Some other activities such as grazing, cleaning of tanks and digging of water channels do have labour cost dimension. In the village cremation ground the people often cut the branches of the trees to burn the dead bodies of the poor whose families are unable to buy firewood from the commercial market. This is categorised as collective activity because burning of the dead bodies are considered as the collective responsibility of the people in the villages. The value of the branches of the trees cut for such purposes is indicated both in terms of their market and labour cost dimension.

On the basis of average labour hours of employment generated by the CPRs (Table 3) total employment generated for all the families of the three villages is calculated in Table 5. People of Krishnapur have the highest amount of employment from the CPRs followed by the two other villages which have nearly a similar amount of employment. The total labour cost value calculated on the basis of the wage rate indicates that the value of the CPRs in Krishnapur, Moundopur and Gurunthi are respectively Rs.2.33, Rs. 1.68 and Rs.1.48

lakhs (Table 5). From these annual direct benefits the present value of the CPRs is calculated in table 6. It is found that the present value of CPRs per acre on the basis of the labour cost approach ranges from Rs.33,700 to Rs.42,890. The average market value of private lands is two to four times more than the value of the CPRs (Table 6). If the present value of CPRs is calculated from market value of the benefits it would be just comparable with the market value of private lands. Further, what is estimated here is only DUV. If other components of TEV such as IUV, OV and XV are calculated, the NPV of CPRs will be further higher.

A small attempt, however, has been made to indicate the XV. It has been ascertained that people have preference for the existence of the CPRs. In the three villages, the average WTP per family per year for the CPRs ranges between Rs. 6 to Rs. 8 . People are also willing to devote their labour for the promotion of the CPRs. The WTP in terms of labour" is 3 to 4 human days, the money value of which is higher than what people are willing to pay in cash. To a question whether people should get compensation for the loss of CPRs, it is found that people wish to be compensated adequately when CPRs are taken for the developmental purposes.

9. Conclusion

In rural India the common property resources play a very important role in sustainable development. However, the first thing a village normally loses to economic development are the CPRs . They also get depleted and degraded on account of their public goods character on the one hand and the poverty of users on the other. This study on the economic benefit of the CPRs in three villages of the Ganjam district of Orissa says that the poor people derive a good amount of benefits from them. Often they produce goods and services with a small amount of labour¹ that yields a good return in the market. The Net present

Value calculated from the Direct Use Value is found comparable with the market value of private lands of the villages. It is also found that even the poor people are willing to pay in terms of cash and kind for the continued existence of CPRs. There is a strong feeling that people should be collectively compensated when their- CPRs are claimed by economic development, particularly the big developmental projects.

10. References

- i. Arthur, J.M. (1997), 'The economic valuation of biodiversity, its implications and importance in bioresource planning and initiatives for its regular use in planning conservation projects in India, in P. Pushpangadan, K. Ravi, V. Santosh eds., Conservation and Economic Evaluation of Biodiversity, Oxford and IBM publishing Co. Pvt. Ltd., vol.2, PP. 335-354.
- ii. Chopra, K., G .K. Kadrkodi and M.N.Murty (1989), 'Peoples' participation and common property resources/ Economic and Political weekly, PP. A 189-194.
- iii. CPSW (1994), State of Orissa's Environment, Council of Professional Social Workers, Bhubaneswar. Costanza, R. and C. Pairings (1990), 'A flexible assurance bonding system for improved environmental management, ^Ecological Economics, Elsevier Science Publishers B.V., Amsterdam, Vol.2, PP. 57- 75. Hardin, G. (1986), 'The tragedy of commons,' Science Vol. 162, PP. 1243- 1248. Jodha, N.S. (1986), 'Common property resources, and rural poor in dry regions of India,' Economic and political weekly, Vol. XXI, No.27, PP. 1169-1181.
- v. Jodha, N.S. (1990), ' Rural common property resources: Contributions and crisis,' Economic and political weekly, Vol. XXV, No.26, PP. A -65-78
- vi. Jodha, N.S. (1995), 'Studying common property resources - Biography of a research project,' Economic and Political weekly, Vol. XXX, No. 11, PP. 556-559.
- vii. Kurion, J., and A.J.Vejayn (1995), 'Income spreading mechanisms in common property resource', Economic and Political Weekly, Vol. XXI, No.28, PP.1780-1785.
- viii. Kant, S. (1992), 'Privatisation of CPRs ; The tree patta scheme in Uttar Pradesh,' in Anil Agarwal eds., The price of Forests, Centre for Science and Environment, New Delhi, PP. 219-221. Murty, M.N. (1994), 'Management of common property resources: Limits to voluntary collective action,' Environmental and Resource Economics, ,
- ix. Kluwer Academic Publishers, No.4, PP.581-594. Pearce, D. And D. Moran (1994), 'The economic value of biodiversity,' London: Earhscan Publications Ltd., 172 P. Sahu, N.C. and M.K.Mishra (1996), 'Role of common property resources hi sustainable development of the rural economy of Orissa'. Sahu, N.C. Ms. B.Nayak, D.P.Maharana and B.Nayak (1996), 'Economic valuation of environment: Components and complexities. Shiva, V. (1986), 'Coming tragedy of the commons,' Economic and political
- xi. Elilior Ostrom (1990) ,'Governing the Commons; The evaluation of Institution for collective action. weekly, Vol. XXI, No.5, PP.613-614.

Annexure

SI. No.	Particulars	Moundopur	Gurunthi	Krishnapur
(1)	(2)	(3)	(4)	(5)
1.	Block	Chikiti	Kukudakhandi	Chikiti
2.	Total Population	330	2,348	785
3.	Total families	65	539	123
4.	Scheduled caste	75	200	212
5.	Scheduled Tribe	--	--	--
6.	General caste	255	2148	573
7.	Literate	57.19	52.33	44.93
8.	People below poverty line	77%	79%	69%
9.	Total area	369.124 (Acres)	539.68 (Acres)	310.854 (Acres)
10.	Area under PPR	327.124 (Acres)	500 (Acres)	261.63 (Acres)
11.	Area under CPR	42 (Acres)	39.68 (Acres)	49.224 (Acres)
12.	Per capita CPR	0.13 (Acres)	0.016 (Acres)	0.06 (Acres)
13.	CPR/PPR	0.128	0.079	0.188

Table 1: Profile of The villages
Source: Concerned Block offices

SI. No.	Types of CPRs (in Acres)	Moundopur	Gurunthi	Krishnapur
(1)	(2)	(3)	(4)	(5)
1.	Glazing land	8.719	6.75	—
2.	River bed	”	”	—
3.	Village road	5.399	9.00	16.41
4.	Stone flat	—	1.25	”
5.	Tank, Canal	16.258	8.25	30.114
6.	Waste lands	—	—	—
7.	Canal bank	—	—	—
8.	Small mountain	—	12.18	0.58
9.	Cremation ground	2.135	—	2.12
10.	Others *	9.49	2.25	--
	Total	42.00	39.68	49.224

Table 2: Classification of common properties
Source: Office of the Revenue Inspector of different villages
* Others include: Scaled places, common threshing ground, school area etc.

SI. No.	Particulars	Moundopur		Gurunthi		Krishnapur	
		Quantity (in Qtls)	Labour hours	Quantity (in Qtls)	Labour hours	Quantity collected (In Qtls)	Labour hours
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Grass collection	22	140	13	78	28	164
2.	Drying cowdung	59	145	51	150	21	93
3.	Dry leaves	6	42	8	56	4	29
4.	Fuel woods	30	126	25	105	—	--
5.	Fish	~	--	0.3	1	—	—
6.	Fruits	0.12	2	0.18	2	—	--
	Total	118	455	97.48	392	56	286

(Collective)

1.	Digging water channels	—	58	—	30	--	75
2.	Cutting branches	18	75	—	—	16	67
3.	Cleaning tanks	—	4	—	7	--	5
	Total	18	137	-	37	16	147
	Grand Total	136	592	97.48	429	72	433

Table 3: Output and employment generated by different CPR - based activities (Per family per year)

SI. No.	Particulars	Moundopur		Gurunthi		Krishnapur	
		Market value	L x W	Market value	L x W	Market value	L x W
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Grass collection	836	612	2765	2074	980	718
2.	Drying cowdung	3074	634	4880	1304	962	407
3.	Dry leaves	360	184	480	245	232	127
4.	Fuel woods	3600	551	3840	604	~	—
5.	Fish	—	—	84	4	--	--
6.	Fruits	96	9	144	9	—	--
	Total	7966	1990	12193	4240	2174	1252

(Collective)

1.	Digging water channels	—	254	--	132		328
2.	Cutting branches	2160	328		--	1920	293
3.	Cleaning tanks	--	18	—	31		22
	Total	2160	600	-	163	70	643
	Grand Total	10126	2590	12193	4403	2363	1895

Table 4: Market and labour cost value of different commodities and services produced from CPRs (Rs. per family per year)

SI. No.	Name of the villages	Total employment of the villages (Rs. in thousand mandays)	Total labour cost value (Rs. in thousands)
(1)	(2)	(3)	(4)
1.	Moundopur	4.81	168.35
2.	Gurunthi	4.23	148.27
	Krishnapur	6.65	233.00

Table 5: Total employment generated and labour cost value of the CPRs in the three sample villages

N.B.: The total employment from the CPRs of the village Gurunthi has been determined from the labour hours devoted by the people, below poverty line, whereas in case of other two villages we have considered all the households. This difference in the basis is due to the fact that Moundopur and Krishnapur are agricultural villages, whereas Krishnapur are agricultural villages, whereas Gurunthi being near Berhampur town only poor depend on CPRs.

SI. No.	Name of the villages	Total present value of CPRs (In thousand Rupees)	Present value per acre (In thousand Rupees)	Average market value of private land per acre (In Rupees)	WTP for existence of CPRs in kind or cash
(1)	(2)	(3)	(4)	(5)	(6)
1.	Moundo pur	1518.51	36.15	120	Rs. 7 per family per year 4 human days per family per year
2.	Gurunthi	1337.39	33.70	130	Rs.6 per family per year 3 human days per family per year.
3.	Krishnapur	2101.66	42.89	97.5	Rs. 8 per family per year 4 human days per family per year

Table 6: Net present value of direct benefits existence value of CPR, and market value of private land in the villages