

COMMON PROPERTY ECOLOGICAL RESOURCES AND VILLAGE ECONOMIES: A STUDY OF QUALITATIVE DIMENSIONS & VALUATION

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Abstract: The purpose of this paper is to evaluate the common property (CP) institutions and their management systems in the context of rural land and water resources. In this empirical work an attempt is made to examine the traditional CP institutional arrangements and their role in sustaining the local economies. For the local communities, the neighborhood, and the households, CPRs take on a different significance and complexity.

Accordingly this paper attempts to quantify the extent of decline in CPRs in terms of quantity, quality and also the extent of commercialization and its impact on CPRs in the study region. Also the paper discusses the complementarities between private property resources and common property resources and the relationship between common property and equality, drawing on the results obtained from the study. Unlike the previous micro-level studies, in this study an effort is made to assess the extent of dependence of households in terms of employment and income in both the agrarian and tribal social communities. Besides, the focus is on the class structure across both land and caste hierarchy as well as the nature and extent of CPR dependence.

Keywords: common property resources, commercialization, institutions, valuation.

I. INTRODUCTION

The broad purpose of this paper is to evaluate the common property (CP) institutions and their management systems in the context of rural land and water resources. It is based on a survey of four villages, two an exclusively tribal villages and another two, predominantly non-tribal, in District Warangal, Northern region of state of Andhra Pradesh, India.

In this empirical work an attempt is made to examine the traditional CP institutional arrangements and their role in sustaining the local economies.

Due to variety of roles that CPRs play in the rural as well as tribal households, an attempt was made to examine its significance in terms of household food security, the farm, employment, the market and the social organization.

The aim of this paper is to analyze the erosion of village CPRs and the factors that are contributing to their present crisis as reflected by their area shrinkage, productivity decline, commercialization and collapse of CP institutional management regimes.

This paper examines the way land is utilized, the magnitude and various sources of decline of CPRs and its implication to local livelihoods.

Unlike the previous micro-level studies (Jodha, N. S., 1986; Iyengar, S. 1989 and Pasha, S. A. 1992) in this study an effort is made to assess the extent of dependence of households in terms of employment and income in both the agrarian and tribal social communities. Besides, the focus is on the class structure across land and caste categories as well as the nature and extent of CPR dependence.

The significance of the common property for rural poor and their ultimate dependence on these resources is evident considering the pattern and distribution of landholdings.

II. METHODOLOGY

The study is based on both primary and secondary sources of data. The main purpose of this study, as stated earlier, is to investigate the current status, institutional arrangements, and the accessibility of CPRs for different sections of the local population consisting of both tribal and agrarian resource use systems. For the purpose of the study a sample of four villages – two tribal and two agrarian – was selected.

The CPRs in the study region are primarily smaller grazing areas, communal forests and groves, irrigation systems, tank-bred fisheries, community ponds, streams, rivers etc. And they are diverse across agra-

rian vis-à-vis hilly tribal regions. Because these are relatively small-scale CPR situations where the processes of community-evolved arrangements and self governance are easier to study than in many others. Out of 720 households in the four selected villages, a sample of 190 households consisting of 111 households from the agrarian villages and 79 households from tribal villages was selected for the study. The data on farming, asset position, transactions, access to various types of CPRs, employment etc., from each respondent household was collected with the help of a structured questionnaire. In addition to the formal survey of the households with the help of a questionnaire, other methods such as group discussions, case histories, physical observations were employed. In obtaining the information on the access, use and institutional arrangements relating to CPRs in the past and present, informal discussions were useful. In each village along with the village officers some elderly persons were informally interviewed.

The estimation of CPRs' contributions in terms of money income was made on the basis of village level prices of those items. In the case of CPR-based activities such as fishing, toddy-tapping, basket-weaving, timber collection, the private costs, if any, like fees, were deducted from the income generated by that particular activity and only net income was taken into consideration. The CPR products like edible roots, tubers, wild fruits which are not yet brought into the cash transactions and do not possess market price as such, local barter arrangements were taken into consideration in imputing market values.

Since most of the data related to both qualitative and quantitative information on the current and historical situation of CPRs at micro-level, they were initially gathered using a mix of unconventional methods rather than administering the structured questionnaire. Given the qualitative and quantitative information, processing of the data also involved examining the information and its amenability for tabulation for specific purposes depending on the requirement and its relevance. To capture the degradation of the CPRs, the indicators such as fall in physical supplies or reduced periods of their supplies were recorded through an informal discussion with the village elders and land revenue officials who have seen the physical status and contributions of CPRs in the past and witnessing the implications of its degradation at present. Information collected in this fashion is organized by some unconventional measures to capture the status of CPRs in the past units with its present status. These methods include: a) use of nomenclatures and physical locations of CPR units as source of past information; and b) initially anecdotal and subsequently recollection based information from the elder people in the villages.

Though these measures are the same for the study villages, when furnishing the information, importance was given to the aspects that are crucial for the local people of the each village separately. The period for which the information is collected through is roughly forty years from mid 1960s to mid 2000s. Further, when considering to points of time, the CPRs may undergo many changes in terms of name use-systems, accessibility, control and extent of use changes and severity of its consequences to the local people. The lands other than cultivated were placed under different names according to their use systems in land record – like forests, grazing pastures, cultivable and uncultivable waste lands, tanks / tank beds and other water sources and village site.

The CPRs under various use-systems were taken as units to attribute the manifestation of degradation. The information collected through this method about the past status of the individual units of the CPRs is provided along with their present position in Tables II and III (refer appendix) and manifestation of degradation in various forms can be observed from Table III (refer appendix) relating to both agrarian and tribal villages.

III. VILLAGE COMMUNITIES AND COMMONS-FINDINGS OF THE STUDY

It is evident from the Tables that the productivity status of CPRs degenerated sharply for the agrarian villages and relatively moderate for the tribal villages. But the degeneration of environmental resources is a serious problem in both the social systems of resource use. This could be attributed to the reduction in CPR land on the one hand and the increased population pressure on the other resulting in an excessive use of CPR lands. Whether it is vegetative composition, ability to sustain a specific category of domestic animals or actual uses to the local people, the productivity status is much lower at present than forty years ago. Most of the areas, particularly of agrarian, reported as forest or village pastures in the land records are now reduced to denude and vegetation less patches with the consequent soil erosion, water runoff and productivity decline of private farm land. This is shown in Tables II and III, that the degradation of village commons is more acute in agrarian villages than in tribal villages.

On account of several pressures, the extraction rates increased to alarmingly higher levels with excessive grazing and root digging for subsistence fuel wood. The result is increased soil erosion and land degradation, as is already evident in some areas.

The removal of rootstocks is a final blow in the impoverishment of any ecosystem and without these roots, top soil erosion will accelerate and rapid rege-

neration possibilities are lost (Poffenberger, et al, 1986).

The disturbances by human and domesticated animal contributing to the degradation of natural resources often involve the following processes: i) removal of woody species at rates exceeding their renewability; ii). Excessive grazing by livestock of grass and other herbaceous matter, iii) Increased incidence of fire, IV) top soil loss and soil compaction, and v) a decrease in water retention and recharge capacity. Thus, the degradation often occurs gradually as a succession of biotic disturbances slowly depletes vegetation, suppressing natural regeneration, including sheet and gully erosion of top soil.

Decline in the area of CPRs, causing overcrowding and overexploitation of the resource base, has resulted in physical degradation and reduced productivity of CPRs. This is often reflected in the reduction of their physical supplies and the time involved in producing the produce. Though all the study villages show the erosion of CPRs, the extent of severity differs given the local vegetative systems and nature of private farming across agrarian plains and tribal areas.

In the case of tribal villages with extensive forest crown, the decline of CPRs is moderate and local forests are capable of yielding considerable amount of forest produce. However, there was sizeable decline in the food content of the produce. It was reported that despite fierce resistance by the tribals, the contractors / forest department indiscriminately cut 10 to 15 fruit giving trees in the surrounding forests in the area resulting in large scale shrinkage of food items and forest produce. The commercial and state conducted logging adversely affected the gum-yielding tree species and bamboo shoots which are known to process economic significance and are extensively used by local tribe.

Apart from considerable decline in the reserved forests around the tribal settlements, the reserved tree species in the open or village forest are also not spared from felling.

In the case of agrarian plains, the availability of quality timber, forest-based charcoal, gum and fodder completely ceased some 10 to 12 years ago. The specific fibers which were extensively used for making stringed cots and various agricultural uses, considerably declined in recent period.

Apart from the decline in physical supplies both in time and quantity, and important indicator of the reduced productivity of CPRs is the longer distances and greater time involved in the collection of some quantity or less of CPR item at present when compare to the past.

In contrast to the common access and easy availability of CPRs in the past, as time moves on, with steep decline in CPRs, the accessibility and availability is reduced to the capitalist and large farm households which are well-placed in term of asset position.

On the other hand, small peasants and landless households with the lack of adequate asset position, as the time needed for collecting basic amenities such as fuel wood and water increases, agriculture is ignored with disastrous consequences. Moreover this considerably increases time and labor that women have to spend to obtain them.

The subsistence nature of farming and lack of basic amenities make women and children to engage in a number of complementary production activities like cultivation, cattle grazing, fetching water, collecting firewood and fodder, cooking food and producing indigenous marketable products. The production throughout these activities is low and is highly time consuming, which places heavy burden on the poor, in particular on the women.

Therefore, the degradation of environmental resource base (in addition to low capital and growing population) makes the labor productivity even low. This in turn lead to a vicious cycle of "low productivity-low income-high natural resource dependency" in an already deteriorating resource base systems which are supplemented by lower levels of labor productivity (Dasgupta, Partha 1995).

To conclude, the productivity of common property land resources is affected adversely by over exploitation, whether arising from the pressures of growing population or increasing commercial use. Over exploitation and environmental degradation are intensified when the access of the rural poor is reduced by privatization of the CPRs (Table I and II refer appendix).

It was the State takeover and subsequent granting of exclusive right to commercial interests that aggravated the depletion of environmental resources in fragile tribal regions.

Whereas in agrarian plains it was due to failure of the local economic interests to give due emphasis to the need for taking sufficient account of the sustainability of the resource base, resulting in drastic decline in community lands and forest resources.

3.1 Erosion of CPRs and Its Implications

3.1.1 - As the degradation of CPRs increases, both the time one has to spend and distances to be covered increases. For the same or less time spent on CPR products collected, the house-holds in agrarian plains spend greater amounts of time due to degraded condition of CPRs than the households in tribal villages.

Over a period this process accentuates with the depletion of CPRs and it has got serious implications to the rural poor and social security arrangements in the arid regions, amongst others.

3.1.2 - The most pertinent issue is that depletion of CPRs severely affects women with much of their 'non-economic' activity originating from CPR-based activities. This is an important contribution of females to the household economy which goes unnoticed in the usual national income accounting and prevalent development strategies.

This might be on account of the lack of CPR-perspective and inadequate appreciation of the role of the informal social security arrangements in rural economy and its support systems

3.1.3 - Another implication of erosion of CPRs and their increasing scarcity is that more and more restrictions emerge on the traditional access of the poor to the private lands in various forms.

3.1.4 - Besides, commercialization of agriculture, monetization of the economy and growing urban linkages further penetrate into what poor previously enjoyed as 'common rights' and lead to conflicts over access to resources

3.1.5 - The problem acquires serious proportions in the case of tribal villages' if the government continues to lease the local forest resources and grant liberal licenses towards indiscriminate felling of trees in these fragile environments.

This would completely deprive the local tribe of their traditional sources of livelihood and lead to violent protests against increasing resource alienation as is already evident in some areas in the region.

3.2 PPRs, CPRs and Equity

3.2.1 - An important finding of the study as evident from earlier micro-level assessment is that common property institutions can co-exist with significant inequality and to a great measure the role of CP institutions can be appreciated only in the context of private property resource (PPR) endowments.

In consequence, relatively well-endowed households are better placed to undertake activities involving scale economies than the poor households, who are constrained by asset poverty.

3.2.2 - Indeed, as far as the role of CPRs in agricultural production is concerned it is more often a complementarity between CPRs and PPRs such as extent of private farming, livestock, carts etc., but not necessarily the CPRs and labor endowment position of households.

This is evident from the fact that as landholding size increases the share of CPRs in agricultural inputs and

animal husbandry increases significantly. Thus, the tiny peasants and land poor indeed put less pressure on the common lands of fragile dry areas than do the landed rich.

3.2.3 - These observations negate the widely held values of equality and also the notion of the complementarity between the use of CPRs and labor endowment position of the households (which is also advocated by earlier micro-level studies, Jodha, N.S. 1986).

But, at the same time, whatever the poor could procure from CPRs is of vital importance from the point of view of their livelihoods.

3.2.4 - More importantly, the private endowments and hired (or attached) labor are not only put to the PPR-based farming but also for excessive extraction of CPRs. In an agrarian setup, in addition to the benefits of government subsidies and development, it is the landed who exploit high-yielding CPR items like timber, quality fuel wood, tank-bed silt and raw materials on a large scale.

On the other hand, constrained by asset poverty, the poor crucially depend upon CPRs for basic amenities such as fuel-wood, food items, fodder and other items. Therefore, these findings run counter to the general opinion that blame the poor for over exploitation of CPRs and their fast declining productivity.

3.4.5 - However, the conditions of tribal villages are on a different footing with a relatively higher degree of homogeneity in the ownership of landholdings and other assets. The accessibility of common lands and forests is equal and the extent of dependence is purely conditioned by households' changing consumer-worker proportion with the absence of functional specialization.

This is also due to the subsistence nature of their agriculture and resource dependency which means primacy of immediate consumption and little consideration of surplus generation.

IV. CONDITIONS FOR SUSTAINABLE USE OF CPRS AND CONCLUSIONS

4.1 - The unequal distribution of endowments is not in consonance with the widely held values of CP institutions, especially when they are 'open access' resources resulting in their fast erosion.

If all the users of common property have more or less similar endowments, management decisions which benefit one user will tend to benefit all the others. If their endowments differ, there is more potential for decisions to yield redistribution within the group of users (Quiggin, John 1993).

4.2 - Given the relative class homogeneity seems an important element in successful management of CP

institutions; one can understand that the existence of inequality in endowments and dominance of local elites would militate against a collective effort prospering its group members (Blaire, Harry 1996).

4.2 - This study also gives evidence to support the view that CP institutions in India are associated with reductions in inequality (compared to the private property alternatives) as well as observations on the problems which arise when wealthy groups have disproportionate access to political power (Jodha N S 1984).

4.3 - It is of great help to understand how actually the rural households perceive the CPR problem. The observations from the field investigation in the agrarian villages show that while the well-to-do households do not show any interest, the poorer households are very much concerned about the decline of CPRs and its consequences. But they are placed in a more vulnerable and helpless situation given the 'open access' CPRs vis-à-vis the prevalent socio-economic equations within a rural society.

Excluding the specific occupational groups, the majority of the poor prefer the exclusive use-rights or outright privatization of CPRs in the plains.

The reasons that one could infer broadly include:

(I) Unequal distribution of personal property resources (PPRs) of land, livestock, and other assets;

(ii) Asset poverty or lack of CPR-based PPRs among the poor;

(iii) Neglect of locally-evolved social security systems and other non-market forces such as socio-economic variations within the communities or local polity; and

(iv) More importantly, lack of a clear policy on the part of the government about user rights and management of CPRs and the relevant locally-evolved institutions.

However, the future of these CP user-groups and other traditional institutions in the villages and the user-managed CPRs which they consider as their inheritance does not depend overwhelmingly on the local specific conditions. It however hinges crucially on socio-economic empowerment which results from the processes and institutions evolved in the collective efforts of the people.

And also, the interacting factors which have an important bearing on the collective action in the study region are the extent of commercialization, socio-economic diversity of localities, the nature of state intervention and social activism of local communities.

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APPENDIX

Table I: QUALITATIVE INDICATORS OF DEGRADATION OF CPRS IN AGRRIAN VILLAGES.**INDICATORS OF PRODUCTIVITY STATUS.**

	In the past based on (A) Nomen Clature (B) Villager elders experience (C) Village records	At present based on (A) Field observation (B) Villagers experience (c) Village records
Village Nagaram -1		
Forest (730 acres)	Capable of yielding good timber teak (<i>Tectona grandis</i>), Nallamaddi (<i>Terminallia Tomentosa</i>), Tirman (<i>Anogeissus latifolia</i>), Shisham (<i>Dalbergia sissoo</i>), Chinnangi (<i>Lagerstroemia pariflora</i>), Kodisha (<i>Cleistanthus collinus</i>), and bamboo; provided quality timber and fuelwood; sustained hundreds of cattle by providing top feed of different species and grasses; also the source of several grass species like mannapri and modian for thatching and making ropes.	Almost reduced to a scrub jungle; only 4-5 medium sized low quality tree species can be seen and most of the area reduced to thorny bushes and vegetation less patches; some blocks of forests can be seen in private holdings with the same vegetation.
Pastures (172 acres)	Provided rich grasses and top feed; also a source of green manure and low quality fuel wood with the plant species of wild indigo and other medium size plant; also a source of variety of grass species for various domestic uses.	No longer a green pasture worth the name; almost reduced to vegetation less barren land except during rainy season; special types of grasses used for broomstick making started disappearing.
Grazing common (180 acres)	Provided rich grasses for cattle and most of the area covered with tendu and modugu trees fetching tendu fruits and leaves for thatching respectively.	Most of the area converted into private agricultural lands.
Tanks (120 acres)	Water dried up during drought seasons; catchment and bunding were covered of modugu and chinnangi trees species.	The capacity of the tank was maintained as a result of lifting of silt as a manure for agricultural purposes on a large-scale; Vegetation on its banks and catchments areas completely cut down.
Village Ramanujapuram 2		
Forest (6 acre)	Provided timber and fuel wood; sustained the local cattle by providing top feed of different tree species.	Completely privatized.
Grazing Pastures (43 acres)	Pastures adjoining the village forest used for grazing cattle, sheep; also a source of green manure and low quality fuel wood.	Most of the land privatized; almost reduced to vegetation less barren land except during 2 or 3 rainy months.
Tank bed (30 acres)	The only water source where water dried up during summer, especially, drought years; tank bund and foreshores covered with rich vegetation.	Maintained well; water dries during summer; also a source of fish during winter, Bunds and foreshores are completely denuded.

Source: Field study

Table II: QUALITATIVE INDICATORS OF DEGRADATION OF CPRS IN TRIBAL VILLAGES.

	In the past based on (A) Nomenclature (B) Village elders experience (C) Village records	At present based on (A) Field observation (B) Villagers experience (C) Village records
Village Gangaram: 3		
Forest (1585)	Full of rich timber and the source of nearly 15 to 20 types of fruits and nuts fetching tree species; having thousands of tree species yielding large quantities of quality gum; sustained some hundreds of cattle through out the year.	Half of the forest was cut down indiscriminately; most of the fruit fetching trees were disappeared; gum yielding tree species like tirman (<i>Anogeissus latifolia</i>), maddi (<i>Terminalia tomentosa</i>) and andugi etc. declined considerably; still the forest is a source of minor forest produce and rich grasses for grazing.
Pastures (172 acres)	Major source of village tree crops and groves like mohua, tamarind and Bamboo bushes; source of rich Grasses that sustained the village Cattle.	Most of the land converted into cropland; tree species very limited in number; grasses available for limited period after monsoon.
Grazing Common (180 acres)	Apart from second source of grazing, it was the only nearest patch of land containing rich thatch and here and there bamboo bushes; also the source of fruit fetching species like Tendu and Parika and some other Berry species.	Almost reduced to mere grazing for a limited period; most of the area converted into agricultural lands.
Tanks (9 acres)	Water dries up during summer season; source of fish during winter and summer.	Water dries up in every summer season; catchment area has been increasing over a period due to improvements in its bunding; quantity of fish also increased.
Village Kistapur: 4		
Forest and Grazing Pasture (or Porambokes) (12 acres)	capable of yielding rich timber-maddi (<i>Terminalia tomentosa</i>), tirman (<i>Anogeissus latifolia</i>), eppa (<i>Hardwickia binata</i>), teak (<i>Tectona grandis</i>), Chinnangi (<i>Lagerstroemia pamiiflora</i>), Sandra (<i>Acacia Catechu</i>) And bamboo. Also a source of fruit Fetching trees like Panchangai, Perika, Ulendu, Usirika, Uduga, Purjuri, Morli and eluka.	Most of the forest is cut down, due to podu cultivation. Only some medium sized trees of some species and fruit fetching bushes are left.
Tanks/tank Bed (4 acres)	The only pond, where water dried up every summer season; source of fish during winter season; its bund and foreshores were rich in tree species like guvenka, maddi (<i>Terminalia tomentosa</i>), eppa (<i>Hardwickia binata</i>) and teak.	Well maintained; catchment area increased due to improvements in bunding; quality of fish increased; tree cover is completely lost.

Source: Field Study

TABLE-III MANIFESTATION OF DEGRADATION OF CPRS IN THE STUDY VILLAGES.

Sl No.	Manifestation	village	Community forests	Tank/ pastures	Watershed tank bed	Ground drainage water
1	Degradation in biological composition of vegetation	* ¹	*	*	-	-
2.	Emerging vegetation less patches	*	*	-	*	-
3.	Reduced carrying capacity	*	*	-	-	-
4.	Fall in physical supplies	*	*	-	-	-
5.	Increased instability of supplies	*	*	-	-	*
6.	Reduced period of assured Supplies	*	*	-	-	*
7.	Erosion/deep gully formation	*	*	-	*	-
8.	Fall in water table	-	-	-	-	*
9.	Low recharge in wells	-	-	-	-	*
10.	Underutilized pump sets	-	-	-	-	*
11.	Out of use wells	-	-	-	-	*
12.	Extent of wells requiring re-digging	-	-	-	*	*
13.	Increased salinity of ground water	-	-	-	-	*
14.	Increased silting	-	-	*	*	*
15.	Shrinkage of command/ service Area	-	-	* ²	-	-

1. * This denotes that manifestation is applicable.

2. In Tribal villages, however, there has been a significant rise in command/ service area due to collective repair works and maintenance by the local communities.