

**RURAL COMMON PROPERTY RESOURCES:
CONTRIBUTIONS AND CRISIS**

N.S. JODHA

International Centre for Integrated
Mountain Development (ICIMOD)
Kathmandu, Nepal

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FOUNDATION DAY LECTURE
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NEW DELHI**

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1. Introduction

Common property resources (CPRs) can be broadly defined as those (non-exclusive) resources in which a group of people have co-equal use rights. Membership in the group of co-owners is typically conferred by membership in some other group, generally a group whose central purpose is not the use or administration of the resource (*per se*), such as a village, a tribe, etc. (Magrath 1986, Bromley and Cernea 1989). In the context of Indian villages the resources falling in this category include community pastures, community forests, waste lands, common dumping and threshing grounds, watershed drainages, village ponds, rivers, rivulets as well as their banks and beds. Even when the legal ownership of some of these resources rests with another agency (e.g. waste lands belonging to the Revenue department of the State), in a *de facto* sense they belong to the village communities. The first three of the resources mentioned above, being large in area and major contributors to rural people's sustenance, are more important. Unlike in high-income countries, in the case of developing countries CPRs continue to be a significant component of the land resource base of rural communities. This is more so in the relatively high-risk, low-productivity areas such as the arid and semi-arid tropical regions of India. Historically, (i) the presence of factors less favourable to rapid privatisation of land resources; (ii) community level concerns for collective sustenance and ecological fragility; and (iii) dependence of private resource based farming on the collective risk sharing arrangements, constituted circumstances favourable to the institution of common property resources in these areas (Table 1). CPRs in turn contribute to the production and consumption needs of rural communities in several ways. However, notwithstanding their private contributions, CPRs are faced with a serious crisis, as reflected by their area shrinkage, productivity decline, and management collapse. This paper, based on field studies of CPRs in the dry tropical regions of India, presents micro-level evidence on contributions of CPRs, their present crisis, and future prospects. The evidence presented here on different aspects of CPRs, especially their decline, user groups, productivity and management aspects etc. has been corroborated by other micro-level studies on the subject in different parts of the dry regions of India. (Iyengar 1988, Brara 1987, Chen 1988, Blaikie et al. 1985, Gupta 1986, Wade 1988, Ananth Ram and Kalla 1988 and Oza 1989).

In the following section 2, we introduce the study areas, the data base, and the methodological highlights of the field work behind the evidence presented here. Section 3 presents quantified details on contributions of CPRs. Section 4 discusses the changing status of CPRs in terms of declines in area, productivity and management systems. The dynamics of the decline of CPRs discussed in section 5 identifies the role of various factors in this process. Section 6 discusses the people's responses to changing situation of CPRs. The last section comments on the future prospects of CPRs in the dry regions of India.

Table 1 : Circumstances Historically Associated with Importance of Common Property Resources in Dry Regions of India^a

Natural Resource Base and Agro-ecological Features		
Low and variable precipitation, heterogeneous (including sub-marginal/fragile land) resources, nature's low regeneration capacities, limited and high risk production options etc.		
Implications/Imperatives		
Regional Level	Community Level	Farm Level
<ul style="list-style-type: none"> • Low population pressure; market isolation; limited technological, institutional interventions, etc. • Limited incentives and compulsions for privatisation of CPRs • Circumstances favourable to CPRs 	<ul style="list-style-type: none"> • Heterogeneity, fragility of resource base; inadequacy of private risk strategies; • Balancing extensive-intensive land uses; focus on collective risk sharing • Community sanctions for CPRs (protection, access, usage etc.) 	<ul style="list-style-type: none"> • Narrow, unstable production base; diversified, biomass-centred, land-extensive farming systems • Reliance on collective measures against seasonally and risk • Complementarity of CPR - PPR^b-based activities.

a. For more details and evidence on different aspects covered by the table see (Jodha 1988b, 1989b, Gadgil 1985, Gupta 1986, 1987, Brara 1987, Iyengar 1988, Chambers et. al. 1989, Stewart 1989)

b. PPR = Private Property Resource

MAP 1. Districts and Number of Villages Covered by
The Study on Common Property Resources in Dry
Regions of India.



2. Data Base and Methodology

The evidence presented in this paper is based on the field studies of CPRs conducted during 1982-1985, when I worked at ICRISAT. The village and farm level data collected over a period of four years relate to 82 villages from 21 districts, scattered in seven major States in the dry tropical zone of India. Map 1 indicates the location of the districts and the number of the study villages therein. Depending on the nature of information, the same was collected through different methods. The methods included regular monitoring, structured surveys, physical verification/measurement, recording of oral history and participant observations by (background and age-wise heterogeneous) teams of formal and informal cooperators in each district. The above information was supplemented by detailed longitudinal data available from ICRISAT's village level studies (Singh et al. 1985) conducted in ten villages of five districts which were also covered by the CPR studies.

The study areas were selected purposively, with two important preconditions: (i) representation to zones with different soils, agro-climatic features and population densities; and (ii) availability of local cooperators to help in the field work. The latter was a logistic requirement imposed by the nature of the studies. The CPR studies, unlike routine agro-economic surveys, required greater flexibility and use of unconventional methods of information-gathering on the one hand and close familiarity of investigators with the villages and their oral history on the other. Because of the latter, identification of relevant cooperators from different agro-climatic zones preceded the purposive selection of study areas (Jodha 1986).

3. Contributions of Common Property Resources (CPRs)

In the context of villages in the dry region of India, CPRs perform several functions. Their contribution to people's employment, income generation, and asset accumulation (directly or through complementing the private resource based activities) are numerous. However, being part of the routines, they are seldom recognised and recorded. This sort of invisibility of CPR contributions is more pronounced in the case of long-term social and ecological processes characterising dry areas. Table 2 sketches the broad picture of contributions of various CPRs. They range from the direct and more visible contributions in terms of physical supplies to the less visible gains implied by sustainability of agro-ecological systems.

Table 2: Contributions of Common Property Resources to Village Economy in Dry Regions of India^a

Contributions	CPRs ^b					
	A	B	C	D	E	F
PHYSICAL PRODUCTS						
Food/fibre items	X		X	X		
Fodder/fuel/timber etc.	X	X	X		X	X
Water				X	X	
Manure/silt/space	X	X	X			X
INCOME/EMPLOYMENT GAINS						
Off-season activities	X				X	X
Drought period sustenance	X	X				X
Additional crop activities			X	X		X
Additional animals	X	X				
Petty trading/handicrafts	X					X
LARGER SOCIAL, ECOLOGICAL GAINS						
Resource conservation	X	X				
Drainage/recharge of groundwater						
Sustenance of poor			X	X	X	
Sustainability of farming systems	X	X	X		X	X
Renewable resource supply	X	X	X			
Better micro-climate/environment	X	X		X	X	

a. Table adapted from Jodha (1985b).

b. CPRs: A - Community forest, B - Pasture/waste land, C- Pond/tank, D - Rivet/rivutet, E- Watershed drainage/river banks, F-river/tank beds.

3.1 Quantification of Benefits

Owing to a number of problems of monitoring and measurement, complete quantification of contributions of CPRs indicated by Table 2 is not easy. However, it was attempted in the field studies mentioned above. The relevant information detailed elsewhere (Jodha, 1986), is summarised under Table 3. Owing to their degradation and reduced productivity, CPRs at present do not offer high returns to their users. Hence, all sections of the rural community are not equally attracted by these gains. The rural poor with limited alternative means of income, depend more on the low pay-off options offered by CPRs. The rural rich, i.e. large farmers indicated by category "others" in Table 3, depend very little on CPRs. The proportion of poor households depending on fuel, fodder and food items from CPRs ranged between 84 and 100 per cent in different villages. The corresponding figures for rich households except in very dry villages of Rajasthan, ranged between 10 and 19 per cent (Jodha 1986). The recent tendency on the part of the rural rich is to acquire CPR land as private property rather than to rely on the meagre outputs from these resources. The intermediate categories of households, not included in Table 3, depend more on CPRs than the rich.

Table 3 suggests the following inferences. The rural poor obtain the bulk of their fuel supplies and fodder from CPRs. CPR products collection is an important source of employment and income, especially during the periods when other opportunities are almost non-existent. Furthermore, CPR income, despite being likely to be under-estimated, accounts for 14 to 23 per cent of household income from all other sources in the study villages. More importantly, the inclusion of CPR income in total household incomes from other sources, reduces the extent of rural income inequalities as indicated by lower values of the Gini-coefficient.

3.2 Contributions to Private Farming

The real significance of the CPR-contributions becomes clear when their time-specific end-uses are examined. An examination of this aspect may highlight the complementary role of CPRs in farming systems based on the PPR (private property resource). Table 4 presents some evidence on this aspect for small and marginal farm households in different areas. Accordingly, 31 to 42 per cent of the total own farm inputs, used during the pre-sowing to pre-harvest stages of cropping, are contributed by cash or kind inflows from CPRs. Such contributions during other stages of the cropping season are smaller due to availability of alternative means, such as high wage earnings etc. A still greater dependence of private resource-based crop-farming on CPRs is revealed by the extent of support it receives for sustenance of farm animals. The maintenance of such animals without the CPR facility would have meant diversion of a substantial proportion (48 to 55%) of crop lands from food and cash crops to fodder crops. The alternative-option i.e. reducing animal numbers to levels sustainable by own fodder/feed resources, would have implied loss of own farm inputs e.g. draft power (68 to 76%) and farmyard manure (35 to 43%). Table 4, also reveals CPRs' contribution to drought-period sustenance of the farm families. If the contribution of relief and credit is excluded, 42 to 57 per cent of the sustenance income during drought years is contributed by cash and kind inflows from CPRs. The corresponding figures for non-drought years (post-drought years) are 14 to 22 per cent. The key inferences relating to CPR-PPR complementarity revealed by Table 4 are as follows (Jodha, 1987c).

(i) Due to the short wet period (planting period) and the quantity of manure required for his land, the dry land farmer keeps more animals than could be maintained or fully utilised over the year, by his narrow production base consisting of a small holding and the short cropping season. The implied high overhead cost of private crop-farming is met through CPRs as a source of fodder and forage.

(ii) Owing to non-covariability of production flows (and input requirements) of CPR - use and PPR - based farming, CPRs help fill in the resource and product gaps faced by private resource based farming.

(iii) The pressure on CPRs is greater when the productivity of PPR based farming (as during the drought years) is low. The same is true in the spacial context when areas with high and low cropping potential are compared (Chambers et al. 1989, Iyengar 1988).

(iv) PPR based farming in the dryland context can be strengthened through revitalisation of CPRs.

4. Depletion of CPRs

Despite their valuable contributions to the rural economy as revealed by Tables 3 and 4, CPRs are among the most neglected areas in development planning in the country. The formal invisibility or non-recognition of their contributions has led to disregard of CPRs by both welfare and production programmes. The consequence is their depletion both in terms of area and of productivity. This in turn induces further fall in their payoffs, to be followed by further neglect and degradation. Of the two forms of depletion of CPRs, the decline in area is relatively easy to observe with the help of written or oral records of village land usage. In contrast, the fall in production from CPRs, although keenly felt by villagers, is difficult to quantify because their productivity has not been recorded in the past.

Table 3: Extent of People's Dependence on Common Property Resources (CPRs) in Dry Regions of India^a

States (with no. of districts and villages)	House- hold catego- ries ^b	CPRs contribution to household supplies, employment, income etc:						Value of Gini-coefficient of incomes from ^h	
		Fuel supplies ^c (%)	Animal grazing ^d (%)	Per household Employ- ment ^e days (no.)	Annual income ^f (Rs.)	CPR-income as propor- tion ^g (%)	all sources (%)	all sources excluding CPRs(%)	
Andhra Pradesh (1,2)	Poor	84	-	139	534	17	0.41	0.50	
	Others	13	-	35	62	1	0.41	0.50	
Gujarat (2,4)	Poor	66	82	196	774	18	0.33	0.45	
	Others	8	14	80	185	1	0.33	0.45	
Karnataka (1,2)	Poor	-	83	185	649	20			
	Others	-	29	34	170	3			
Madhya Pradesh (2,4)	Poor	74	79	183	733	22	0.34	0.44	
	Others	32	34	52	386	2	0.34	0.44	
Maharashtra (3,6)	Poor	75	69	128	557	14	0.40	0.48	
	Others	12	27	43	177	1	0.40	0.48	
Rajasthan (2,4)	Poor	71	84	165	770	23			
	Others	23	38	61	413	2			
Tamil Nadu (1,2)	Poor	-	-	137	738	22			
	Others	-	-	31	164	2			

a. This and all other tables in the paper are based on village/household data from study villages reported by Jodha (1986).

b. Numbers of sample households from each village varied from 20 to 36 in different districts. 'Poor' are defined to include agricultural labourers and small farm (< 2 ha. dryland equivalent) households. 'Others' include large farm households only.

c. Fuel gathered from CPRs as proportion of total fuel used during three seasons covering the whole year.

d. Animal unit grazing days on CPRs as proportion of total animal-unit grazing days.

e. Total employment through CPR product collection.

f. Income mainly through CPR product collection. The estimation procedure underestimated the actual income derived from CPRs (Jodha 1986).

g. CPR income as % of income from all other sources.

h. Higher value of Gini-coefficient indicates higher degree of income inequalities. Calculations are based on income data for 1983-84 from a panel of households covered under ICRISAT's village level studies (Singh et al. 1985). The panel of 40 households from each village included 10 households from each of the categories, namely large, medium and small farm households and labour households.

4.1 Decline of CPR Area

Changes in area have been recorded for community pastures, village forests, waste lands and other minor CPRs such as the community threshing grounds, watershed drainages, and fallowed catchments of ponds in all of the 82 villages covered by the study. The reference period is 1950-52 when comprehensive land reforms were introduced in the country. The introduction of land reforms initiated changes in the status and management patterns of CPRs. Moreover, being a major event in the memory of villagers, land reforms also provided an important context that facilitated recording of the oral history of CPRs. The 1950-52 situation of CPRs is compared with that during 1982-84, when the field work was conducted. According to Table 5, the CPR area has declined by 31 to 55 per cent in the study villages of different States. The impact of this change is clearly visible in terms of both the decline in the proportions of CPR lands in the total village area and the increase in the population pressure on CPRs. Substantial declines in the extent of CPRs have also been recorded by several other studies in different parts of the country (Iyengar 1988, Blaikie et al. 1985, Brara 1987, Chopra et al. 1990).

4.2 Physical Degradation of CPRs

In the absence of recorded benchmark information for assessing the degradation or decline in productivity of CPRs over time, a benchmark had to be constructed from oral history and scattered village records. The evidence on the reduced productivity and production potential of CPRs reported earlier (Jodha 1987a, 1987b) is summarised in Table 6.

Table 4: Contribution of CPRs to PPR-based Fanning Systems in Dry Regions of India

Items	Range of values in different areas		
(A) Proportion of cash/kind inflows in total own inputs used during different stages of cropping ^a			
• Pre-sowing to pre-harvest	(%)	31-42	
• Harvest	(%)	11-16	
• Post-harvest	(%)	8-10	
(B) Potential decline in own resource availability for cropping in the absence of CPRs ^b			
• Draft power	(%)	68-76	
• Land area for cash/food crops	(%)	35-43	
• Land area for cash/food crops	(%)	48-55	
• Crop by product for sale	(%)	84-96	
(C) CPR contribution to total sustenance income (excluding relief and credit) during ^c			
• Drought years	(%)	42-57	(68 - 72) ^d
• Non-drought years	(%)	14 - 22	(25 - 38)

- a. Data under sections (A) and (B) covering average of two cropping years (1983 and 1984) relate to small and marginal farmers (i.e. those having 2 ha. dry land equivalent of area). The districts and number of sample households covered are as follows ; Mahbubnagar (13), Akola (10), Sholapur (12), Sabarkantha (20), Raisen (18).
- b. The procedure for estimation of the potential decline in own-resource supplies (following the non-availability of CPRs) was as follows (i) Average fodder requirements and outputs of small number of animals currently stall-fed for 6 to 8 months a year were estimated, (ii) This average was applied to currently owned animals receiving negligible stall feeding, to estimate their fodder requirement and its implications in terms of transfer of own land area from cash and food crops to fodder crops and reduced marketable surplus of crop by-products. In the absence of above potential adjustments, the implications in terms of reduced animal numbers and consequent decline in draft power and manure supplies were estimated.
- c. Data based on studies of drought years and post-drought years conducted in the following districts (with number of sample households), Banaskantha in Gujarat (100), Barmer and Jodhpur in Rajasthan (144 and 100 respectively), Sholapur in Maharashtra (80). For details see Jodha (1978).
- d. Figures in the parentheses indicate % of village households using CPRs.

A drastic decline in the number of products, following the disappearance of a number of plant and tree species from CPR lands, which villagers used to gather from the commons in the past (i.e. before the early 1950s), is a major indicator of physical degradation of the CPRs. Local names of a limited number of plots indicated their coverage by specific vegetation in the past. At present hardly any of those species grow there. Similarly, a number of selected CPR plots that were traditionally used for grazing more productive animals, like cattle in milk, working bullocks, etc., are now no more able to carry these animals. With their forage potential depleted and the vegetation composition changed, they are now grazed by sheep and goats instead of cattle. The number of watering points, an important component of common grazing lands, has also declined.

Differences in the number of species found on protected and unprotected CPRs are important indicators of vegetative degradation and the associated resource depletion. Certain CPR areas are protected through religious sanctions against removal of live trees, shrubs etc. The number of trees and shrubs recorded per hectare was 3 to 6 times higher in protected CPRs compared to the unprotected ones (Table 6).

An important indicator of the reduced productivity of CPRs is the greater time and longer distances involved in collection of the same quantity or less of CPR products today as compared to the past. Similarly, in the past the whole village community used CPRs; at present as indicated earlier, mainly the poor households with little alternative options try to meet their needs from the meagre products from these resources.

The reduced production potential of CPRs has also been recorded by other studies (Iyengar 1988, Brara 1987 and Roy Burman 1986).

4.3 Slackening of Management Systems

The physical degradation of CPRs is a product of their over-exploitation and poor upkeep. Both the reduction in their area leading to overcrowding, and the absence of usage regulations, have encouraged over-exploitation of CPRs. The inability to enforce obligations of CPR users (in terms of grazing tax or compulsory labour input for trenching, fencing etc.) has led to their poor upkeep. These failures have resulted from the slackening or complete abolition of the traditional formal or informal

Table 5: Extent and Decline of CPR Areas in Dry Regions of India^{al}

State (and no. of districts)	No. of study villages	Area of CPRs ^b		CPRs as proportion of total village area		Decline in the area of CPRs since 50-52 (%)	Persons per 10 ha of CPR area	
		1982-84 (ha)	1982-84 (%)	1950-52 (%)	1951 (no)		1981 (no)	
Andhra Pradesh (3)	10	827	11	18	42	48	134	
Gujarat (3)	15	589	11	19	44	82	238	
Karnataka (4)	12	1165	12	20	40	46	117	
Madhya Pradesh (3)	14	1435	24	41	41	14	47	
Maharashtra (3)	13	918	15	22	31	40	88	
Rajasthan (3)	11	1849	16	36	55	13	50	
Tamil Nadu (2)	7	412	10	21	50	101	286	

a. Table adapted from Jodha (1986), where more disaggregated details are reported.

b. CPRs include community pasture, village forest, waste land, watershed drainage, river and rivulet banks and other common lands. Data indicate average area per village.

management practices for CPRs (Jodha 1985a, Brara 1987, Chambers et al. 1989, Roy Burman 1986, Singh 1986 and Stewart 1989). Table 7 presents the extent of discontinuation of several measures which constituted integral parts of traditional management systems of CPRs. Accordingly, in most of the States not even a tenth of the villages currently follow the practices which they used to in the past.

4.4 CPRs and the Process of Pauperisation

The current status of CPRs represents an indivisible dimension of rural poverty in dry areas. In the dynamic context, the depletion of CPRs and the implied decline in access to bio-mass is an important indicator of pauperisation of rural areas (Chambers et al. 1989). This becomes clear on realisation of the fact that the functions and contributions of CPRs, implied by Tables 1 and 2, have declined or become less feasible. However, the pauperation process involves more than this.

Firstly, in the larger social and ecological contexts, the transfer of sub-marginal CPR lands to crop cultivation, through their privatisation, implies a step towards long-term sustainability of land-based activities in dry regions (Jodha 1988b, 1989b and 1990).

Secondly, the reduced products and income generation options, following degradation of CPRs, imply increased scarcity, and stress for those who depend on CPRs. The longer time and distance involved in collection of the same or lesser quantities of CPR products and the reduced effective period (months) of sustained grazing offered by CPRs today, as compared to the past are just two of the several examples of this phenomenon.

Thirdly, despite the increasingly inferior options available from CPRs, the rural poor continue to depend on them. This is because the opportunity cost of their labour to harness the inferior options is still lower. Hence, the progressive decline in the value of CPR products, accompanied by equally increasing number of people relying on them for sustenance, is a more definite indicator of increasing poverty. The whole process remains invisible, but it implies a situation where the community silently eats away its permanent asset. Since the poor are sustained by CPRs without any direct and visible burden on the public exchequer (through community subsidy or development assistance), not many would realise that the process may prove costlier than any alternative means to help the poor.

Table 6: Some Indicators of Physical Degradation of CPRs in Dry Regions of India^a

Indicators of changed status and context for comparison	States (with no. of villages)						
	Andhra Pradesh (3)	Gujarat (4)	Karna-taka (2)	Madhya Pradesh (4)	Maharash-tra (3)	Rajas-than (4)	Tamil Nadu (2)
CPR - products collected by villagers: ^b							
• In the past (no.)	32	35	40	46	30	27	29
• At present (no.)	9	11	19	22	10	13	8
Per hectare no. of trees and shrubs in:							
• Protected CPRs ^c	476	648	662	882	454	517	398
• Unprotected CPRs	195	103	202	215	77	96	83
No. of watering points (ponds) in grazing CPRs							
• In the past	17	29	20	16	9	48	14
• At present	4	13	4	3	4	11	3
No. of CPR plots where rich vegetation, indicated by their nomenclature, is no more available	-	12	3	6	4	15	-
CPR area used for cattle grazing in the past, currently grazed mainly by sheep/goats (ha) ^d	48	112	95	-	52	175	64

- a. Table adopted from Jodha (1987a):- Based on observation and physical verification of current status (during 1982-84) and the past details collected from oral and recorded description of CPRs in different villages. The choice of CPRs where plot-based data are reported was guided by availability of past information about them.
- b. Includes different types of fruits, flowers, leaves, roots, timber, fuel, fodder etc. in the villages. 'Past' indicates the period preceding the 1950s, 'Present' indicates the early 1980s.
- c. Protected CPRs were the areas (called 'oran' etc.), where for religious reasons live trees and shrubs are not cut. the situation of CPR plots (numbering 2 to 4 in different areas) was compared with other bordering plots of CPRs which were not protected by any religious or other sanctions.
- d. Relates to area covered by specific plots, traditionally used for grazing high productivity animals (e.g. cattle in milk, working bullocks or horses of feudal landlords). Because of their depletion, such animals are no more grazed there.

The efforts by the State to control the decline of these (CPR) social assets, to be discussed in the next section, have not succeeded because they lacked the CPR-perspective.

5. Dynamics of Decline of CPRs

The declines in the area, productivity, and upkeep of CPRs has been a part of the common scenario in most of the developing countries, where these resources continue to be important. The recent literature on the subject attributes these changes to population growth, market forces, public interventions, technological changes and environmental stress (e.g. drought), (Runge 1981, Repetto and Holmes 1984, Ciriacy - Wantrup and Bishop 1975, Bromley and Chapagain 1984, Jodha 1985a, 1985b, Bromely and Cernea 1989). Figure 1 sketches the process through which these factors individually or jointly contribute to the decline and depletion of CPRs. These factors influence the informal or formal norms and arrangements governing people's approach to CPRs. These norms and arrangements can alter with changes in the perceptions and needs of the community (Magrath 1986). These changes in turn are reflected through public policies and interventions and local communities' responses to them. This is being focused in the following discussion.

Ideally, change in CPRs would be discussed in terms of the process sketched in Figure 1. However, not for each step of the process are detailed data available. Hence, we will concentrate largely on public interventions affecting CPRs. The role of other factors will receive relatively less attention.

5.1 Public Interventions Affecting CPRs

Public policies and programmes influencing CPRs can be grouped under three categories, namely, (a) those affecting the area of CPRs; (b) those relating to products and productivity of CPRs; and (c) those influencing the management, usage and upkeep of CPRs. There may be several public measures which fall under more than one of these categories.

5.2 Public Interventions and Decline of CPR Area

As revealed by Table 5, large-scale privatisation of CPRs has led to a decline in their extent in all the areas studied. This change is closely associated with land distribution policies of the governments. They followed the introduction of land reforms in the early 1950s and are continued to-date under various populist programmes. They encouraged the privatisation of CPRs. Practically all the programmes designed to provide land to specific beneficiaries, mainly landless people, have resulted in the curtailment of the CPRs. Having failed to acquire land for redistribution through land ceiling laws (Ladejinsky 1972) or through voluntary donation under movements like *Bhoodan*, (voluntary donation of land by private landowners), the curtailment of CPR lands was found to be the easiest option for the purpose. The privatisation involved either formal distribution of land to landless and other groups under different welfare and development schemes, or legalisation of illegal grabbing of CPR lands by people.

The privatisation of CPRs in the name of helping the poor, brought more land to the already better off households. It will be seen from Table 8, that the proportion of poor households in the total recipients of CPR lands was generally higher in all the study villages. However, the proportion of land received by them was much lower than that of the other social groups. The poor

Table 7: Some Indications of Changes in Management of CPRs in Dry Regions of India^a

State (with no. of villages)	Formal/informal regulations on CPR use ^b		No. of villages pursuing the following measures:		Users formal/informal obligation towards upkeep of CPRs ^c	
	In the past ^e	At present ^c	Formal/informal taxes/levies on CPR use ^d		In the past	At present
			In the past	At present		
Andhra Pradesh (10)	10	- ^f	7	-	8	-
Gujarat (15)	15	2	8	-	11	2
Karnataka (12)	12	2	9	-	12	3
Madhya Pradesh (14)	14	2	10	-	14	3
Maharashtra (13)	11	1	6	-	10	1
Rajasthan (11)	11	1	11	-	11	2
Tamil Nadu (7)	7	-	4	-	7	1

a. Table adopted from Jodha (1987a).

b. Measures such as regulated/rotational grazing, seasonal restrictions on use of CPRs, provision of CPR watchmen etc.

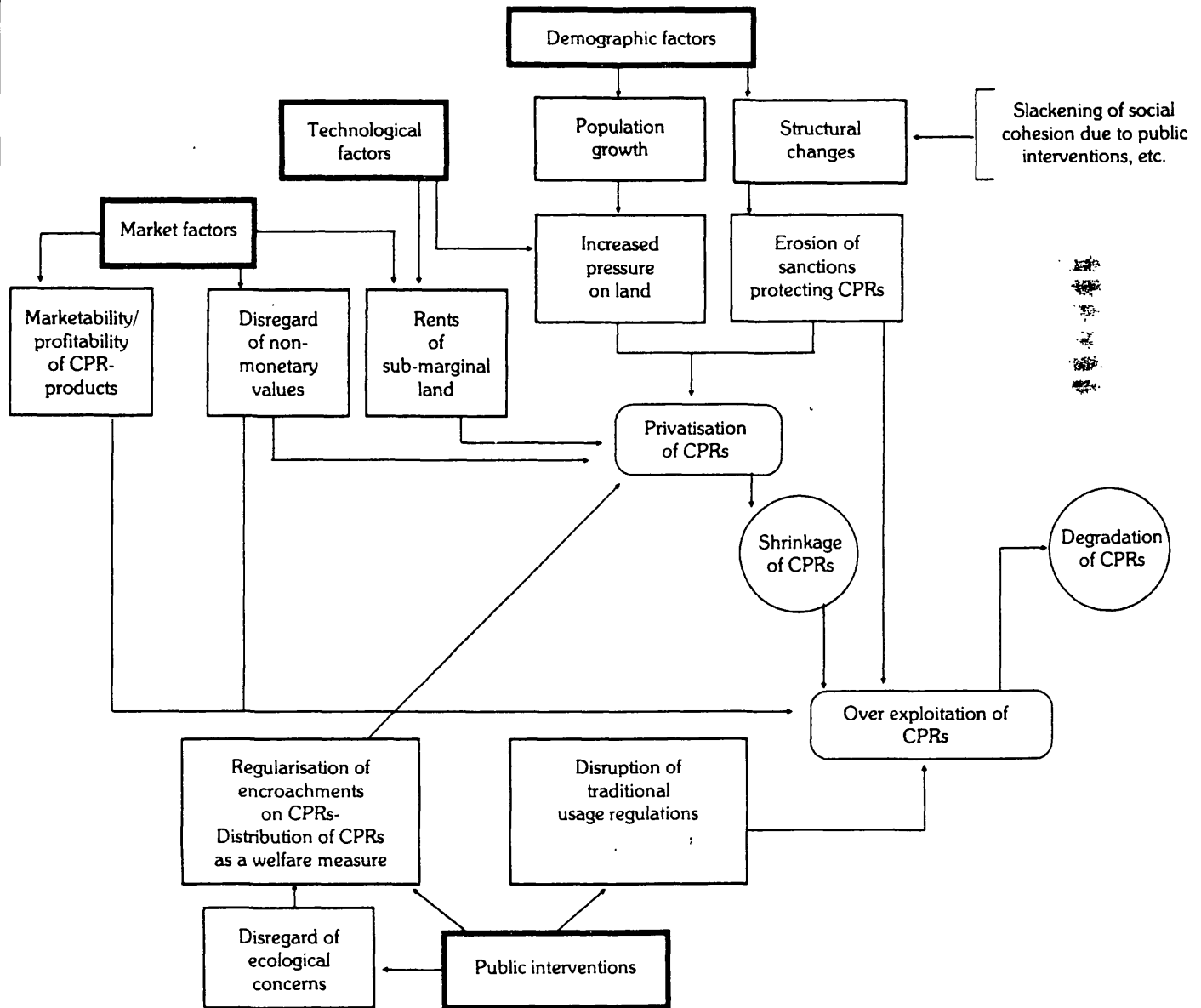
c. 'Past' stands for period prior to the 1950s, 'present' stands for the early 1980s.

d. Measures such as grazing taxes, levies, and penalties for violation of regulations on use of CPRs. See Jodha (1985a) for descriptive account.

e. Measures such as contribution towards desilting of watering points, fencing, trenching, protection of CPRs etc.

f. (-) indicates nil.

Figure 1. Process of depletion of common property resources in the dry regions of India.



received barely more than one hectare per household on average. The corresponding area received by "others" ranged between 2 and 3 hectares. The last column of Table 8 reveals that those who already had relatively more land also received more out of the privatised CPR land. Furthermore, as revealed by detailed enquiry, poor households in all but one area were dispossessed of 23 to 45 per cent of the land received. The reasons included lack of complementary resources to develop and use the land, the quality of the land being too poor to sustain annual cropping, etc. (Jodha 1986). Thus the government's policies to help the rural poor through land distribution did not work as intended. It is quite doubtful whether the poor people's collective loss through reduced CPRs has been compensated by their individual ownership of the erstwhile CPR lands.

5.3 Public Interventions and CPR Productivity

The policies and programmes for raising the productivity of CPRs adopted since the early 1950s generally lacked a CPR - perspective. For instance, even when the programme titles refer to the community, (e.g. rehabilitation of community forest or community pasture), they are often treated as State-run activities. They are conceived as measures relating to physical resources located in the villages, implemented by administrative-cum-legal procedures, and sustained by State subsidy with very little

involvement of the village communities. Chambers et al. (1989) summarise evidence on these aspects from different studies.

Another related feature of the productivity raising initiatives for CPRs is their almost exclusive focus on production technology (Gupta 1987, Shankarnarayana and Kalla 1985 and Jodha 1988b). Having a strong input from relevant science and technology, these programmes emphasize techniques rather than community involvement and the user - perspective. Hence, one comes across the long inventories of technically well-assessed species of trees and grasses, methods for reseeding rangelands and reforesting wastelands, plant establishment and thinning techniques, and a variety of other silvicultural or agrostological recommendations for community lands. However, there is little in terms of institutional sensitivity of these measures to raise the productivity of the CPRs involved. Moreover, to establish and demonstrate the viability of technological measures, in several cases the community lands are alienated from the people, and transferred to pilot projects, etc (Chambers et al. 1989).

One serious consequence of productivity-raising efforts initiated without sufficient concern for the user-perspective is virtual conversion of CPR lands into commercial production fields, as witnessed in a number of social forestry projects (Chambers et al. 1989, Stewart 1989, and Gupta 1987). In the process most of the functions of CPRs indicated by Table 2 are sacrificed. Besides, the more productive CPRs are faced with yet another problem. The State often attempts to grab such resources. Directly or through contractors, the State acquires the monopoly of collection or marketing of CPR products from these resources (Jodha 1985b, Chambers et al. 1989). This deprives the village communities or specific groups from having fuller benefit of high-productivity CPRs. The villager's protest in some cases end up in prolonged litigation (Brara 1987, Iyengar 1988, and Kaul 1987).

5.4 Public Interventions and Management of CPRs

As mentioned earlier, the traditional management systems for CPRs, (involving usage regulation, enforcement of user-obligations, and investment for conservation and development), have practically disappeared. This is a side-effect of certain

Table 8: Distribution of Privatised CPR Lands to Different Household Groups in Dry Regions of India^a

State (with no. of villages)	Total land given (ha)	Total house- holds receiving land (no)	Share of poor ^b in (2) (%)	Proportion of poor in (3) (%)	Per household land received by by		Average land size after receiving new land:	
					Poor (ha)	Others ^c (ha)	Poor (ha)	Others (ha)
1	2	3	4	5	6	7	8	9
Andhra Pradesh (6)	493	401	50	74	1.0	2.1	1.6	5.0
Gujarat (8)	287	166	20	45	1.0	2.6	1.8	9.4
Karnataka (9)	362	203	43	65	1.3	3.0	2.2	8.0
Madhya Pradesh (10)	358	204	42	62	1.2	3.2	2.5	9.5
Maharashtra (8)	316	227	38	53	1.1	1.9	2.0	6.2
Rajasthan (7)	635	426	22	36	1.2	3.2	1.9	7.2
Tamil Nadu (7)	447	272	49	66	1.0	1.5	1.9	6.7

a. Table adapted from Jodha (1986). Number of districts covered by the table are 3 in each of the States except Andhra Pradesh and Tamil Nadu where 2 districts each were covered.

b. 'Poor' includes agricultural labourers and small-farm (2 ha of dry land equivalent) households,

c. 'Others' in this table unlike other tables, includes both medium and large farm households.

institutional reforms, such as the introduction of land reforms and new gram (village) panchayat systems (elected village councils). The former led to abolition of a number of levies and taxes on CPR users (Jodha 1985a). The latter undermined the traditional informal authority of village elders and replaced the formal authority of feudal landlords in some areas. But panchayats have failed to fulfil their responsibilities towards CPRs. Despite their legal powers, the village panchayats are generally unable to enforce any regulation about CPRs. The dependence of panchayats on community votes, compelling them to avoid unpopular steps like enforcing CPR-user obligations, and their domination by the influential with little interest in CPRs, make these new institutions ineffective (Jodha 1985a, Gupta 1987 and Stewart 1989). However, the panchayats rarely miss any opportunity to seek government grants in the name of CPRs. The default on the part of the panchayats has thus converted CPRs into open access resources and what follows in terms of the tragedy of "open access resource" (Bromley and Cernea, 1989). The exceptions are the cases where village elders still have informal authority (Brara 1987).

Furthermore, traditional conventions and informal social sanctions relating to the use and maintenance of CPRs, have been replaced by unenforceable legal and administrative measures. This has marginalised the people's initiatives and alienated them from the CPRs. It has also encouraged dependence on government grants or relief rather than mobilising local resources (as in the past), for the upkeep of CPRs (Jodha 1985a).

5.5 CPRs and Side-effects of Other Developments

Besides the above mentioned public interventions directly related to CPRs, there are a number of other components of general development strategies for rural areas, which indirectly affect CPRs through their negative side-effects. A few examples may be noted. The government-subsidised process of tractorisation has led to the rapid conversion of sub-marginal CPR lands into croplands (Jodha 1974, 1985a). The increased extent of monetisation and commercialisation of rural areas, a part of the transformation process, has adversely affected people's attitudes to CPRs (Jodha 1985b, 1988a). The improved accessibility and market integration of hitherto isolated, fragile areas into the mainstream economy, have also led to over-exploitation of CPRs (Jodha 1985a, 1985b). As mentioned earlier, programmes like social forestry have changed the composition of products and the poor people's access to the CPRs, (Chambers et al. 1989). However, space does not permit elaboration on these issues here.

5.6 Non-uniform Impact of Public Interventions

An important qualification of the discussion above on CPRs and public interventions is that it provides a generalised picture. The impact of public policies and programmes may not be uniform everywhere. Depending on the local circumstances, the actual impacts vary. This is partly indicated by the inter-village differences in the decline of CPR areas even within the same district of a State, where the public policies influencing the CPRs were not different. Table 9, illustrates this by presenting inter-village differences in terms of: (i) the CPR area as a proportion of the total village area during 1950-52 as well as 1982-84; and (ii) the percentage decline in the CPR area during this period. The differences in village-level impacts of uniform public policies are also indicated by the varied approaches of villagers to different types and units of CPRs within the same villages. These differences could be part of adaptations to the general collapse of traditional CPR - management system. They could also be a product of village - specific circumstances, affected differently by uniform public policies. Hence, a need to look into other factors influencing the CPRs, with or without support of public policies. The other factors in this context are grouped under: (i) demographic factors (ii) ecological factors, and (iii) market-related factors. It may be mentioned that for want of sufficient data on other aspects, we will examine their impact only in terms of the decline of the CPR areas. However, in most cases, there is not much divergence between the trends relating to the decline in the area, the productivity and the management of CPRs.

5.7 Role of Other Factors (Demography, Ecology, Market)

The village-specific features considered for the above-mentioned three categories of factors influencing CPR area are as follows. Demographic factors include the size and density of the village population; the number of households; and the growth of population during 1951-1981. Some qualitative attributes of village populations (e.g. occupational shifts, the degree of factionalism and socio-economic differentiation, etc.), are also considered for a more detailed analysis. Ecological factors include variables such as the area of the village (as the size of a village is often negatively associated with the harshness and marginality of agro-climatic environment); the extent of sub-marginal lands (e.g. low fertility, gravelly, sandy, woody lands with undulating topography and some incidence of salinity, water-logging etc.), which are usually kept as CPRs; predominance of an extensive pattern of land use reflected by importance of livestock farming etc. Market-related factors include the distance from a market centre; the proportion of cash crops in the total cropped area; and the extent of communication facilities conducive to market-orientation of agriculture. Analysis of village-level data (through both bi-variate tabulation and regression method) was attempted to see the association between the above variables and the extent and decline of CPR areas (Jodha 1987a, 1988a). The broad picture revealed by the analysis is shown in Table 10.

Table 9: Range of Inter-village Differences in the Extent and Decline of CPR Area in Dry Regions of India^{al}

State (with no. of village)	Range of CPR area as proportion of total village area in:		Range of decline in the area of CPRs:
	1950-52 (%)	1982-84 (%)	1950-52 to 1982-84 (%)
Andhra Pradesh (10)	9-30	5-20	25-56
Gujarat (15)	7-31	2-23	21-69
Karnataka (12)	6-36	4-30	16-50
Madhya Pradesh (14)	29-69	19-47	14-51
Maharashtra (13)	8-43	6-34	14-52
Rajasthan (11)	20-49	8-26	17-71
Tamil Nadu (7)	7-39	5-23	21-65

a. Table adopted from Jodha (1986), based on field work and village records.

Table 10: General Inferences from Analysis of the Village Level Data on Status and Changes in CPR Areas and Associated Factors in Dry Regions of India^a

Attributes of villages	Relative Position of CPRs			
	Extent of CPR area (1950-52)		Decline in CPR area 1950-52 to 1982-84	
	Higher	Lower	Higher	Lower
Demographic Factors				
Higher population		X		
Greater no. of households		X	X	
Higher Population increase over time			X	
Ecological Factors				
Larger area of village	X		X	
Larger extent of sub-marginal lands	X		X	
Larger initial area of CPRs			X	
Greater importance of livestock	X			X
Market-related Factors				
Greater distance from market centre	X			X

a. Based on comparison of groups of villages in each State having the highest and the lowest extent of CPRs, (1950-52) and those having the highest and the lowest decline of CPRs (1950-52 to 1982-84). For details see Jodha (1987a).

(i) In smaller and isolated villages, where traditional social sanctions are still respected, the decline of the CPR area is less. The transaction costs of enforcing social discipline regarding CPRs are lower in such cases.

(ii) In the villages at relatively greater distances from market-centres, where market forces are less effective in eroding traditional values vis-a-vis CPRs the protection of the CPR area is better.

(iii) In smaller and isolated villages (often located in bio-physically less favourable environments) the ecological compulsions to retain and protect CPRs are stronger.

(iv) In the villages with a smaller initial extent of CPRs, where the communities have fuller knowledge and an active concern about their common resources, the decline of CPRs is less. Informal, social guarding of CPRs is easier in such areas.

(v) A further analysis of the association between qualitative features of village populations, and the status of CPRs was attempted. Accordingly, the groups of villages with the highest and the lowest values of specific demographic characteristics (e.g. factionalism, occupational shifts, etc.) were compared with respect to the decline in their CPR areas. Details are presented in Table 11. A similar analysis was also done by comparing the groups of villages with the highest and the lowest decline of CPRs vis-a-vis the values of demographic characteristics mentioned above. This also confirmed the results indicated by Table 11, summarised below.

The decline in the CPR areas is lower in the villages with the following characteristics:

(a) Lower extent of occupational changes (i.e. shift from handicrafts, caste services, etc. to cultivation), implying lesser increase in the demand for conversion of CPR lands into private croplands;

(b) Lower degree of commercialisation, implying lesser erosion of social sanctions and informal arrangements protecting CPRs;

(c) Lower extent of factionalism in the village, implying greater degree of social cohesion, conducive to the protection of CPRs;

(d) Lower socio-economic differentiation ensuring equity of access and benefits from CPRs, equal stake in the maintenance of CPRs and lesser extent of CPR-grabbing;

(e) Lesser dependence on State patronage for resource transfers to village, implying lesser opportunity for interference in village affairs from above, including for privatisation of CPRs as part of populist programmes.

The discussion above on dynamics of decline of CPRs suggests that the process is a product of several inter-related factors. However, the most important of these factors emerging from the discussion is the complex of public policies and programmes. This has not only directly and independently affected CPRs, but has reinforced the role of other factors, like population and the market, in eroding CPRs.

6 Adaptations to The Changing CPRs

Rural communities as the key actor in the field, operating under the influence of public interventions or pressures generated internally (e.g. through population growth), have contributed to the decline of CPRs at the village level. In the process they have also evolved their own strategies to cope with the changing CPR situation. The primary focus of such strategies is on maximisation of private gains from the worsening status of CPRs. This, however, does not exclude small initiatives directed to protection and rehabilitation of CPRs in some cases.

Since the extent and type of private gains extracted from the rapidly declining CPRs are very much related to the capacities and needs of individual families, the above adaptation strategies are shaped accordingly. Hence, one can notice differences in the responses of the rural rich and the rural poor towards the changing situation of CPRs, although, some responses may be common to both. For instance both the rich and the poor attempt to grab CPR lands, despite their different capacities to succeed (Jodha 1986). Table 12 summarises some relevant aspects of response strategies adopted by different groups in the study villages.

6.1 Changing CPRs and the Rural Rich

As observed during the field-work and corroborated by other evidence, the dominant responses of the rural rich (e.g. large farmers) to the changing situation of CPRs include the following:

(i) Withdrawal from CPRs as user of CPR products, as their opportunity cost of labour for collecting and using CPR products is higher than the value of the CPR products (Jodha 1986).

(ii) Increased reliance on alternative options (Jodha 1986, 1988b, Steward 1989). The alternatives include: own supplies of biomass, substitution of renewable CPR products by non-renewable and/or external products (e.g. stone fencing for thorn fencing, or rubber tyres for wooden tyres for bullock carts, iron tools for locally made wooden ones).

Table 11: Decline of CPR Area in the Villages Differentiated by Qualitative Changes in their Population (1950-52 to 1982-84) in Dry Regions of India.

Changes in demographic characteristics	Villages covered (no)	Decline in the area of CPRs (%)
A. Occupational Change:		
Proportion of households who newly shifted to agriculture:		
Higher ^a	27	37
Lower	21	12
B. Degree of Commercialisation:		
Higher ^b	31	44
Lower	28	18
C. Factionalism, Group Dynamics:		
Higher ^c	30	28
Lower	26	14
D. Socio-economic Differentiation:		
Higher ^d	28	42
Lower	32	15
E. Dependence on State Patronage:		
Higher ^e	25	60
Lower	27	16

- a. Table adopted from Jodha (1988a). Households which shifted away from traditional caste occupations and became cultivators. Their proportion to total households in the village ranged from 15 to 20 per cent and 2 to 5 per cent respectively in the villages with 'higher' and 'lower' occupational shifts.
- b. Accessibility to the market and related facilities are used as proxy for commercialisation. Better accessibility is broadly defined to include the situation of villages having market centres within a distance of 2 km, availability of more than 5 shops in the village, regular operation of a town-based trader or his agent in the village, year-round bus service, etc. On the basis of the presence or absence of these attributes, villages are grouped as those having 'higher' and 'lower' degree of commercialisation.
- c. 'Higher' factionalism means presence of two or more factions in a village with vast differences in their strength and political patronage from above. Villages with 'lower' factionalism lacked these features. They had factions of equal strength, able to control each other.
- d. Differentiation reflected by values of Gini-coefficient of owned land-holdings, which ranged from 0.63 to 0.75 and 0.34 to 0.40 in the villages with 'higher' and 'lower' socio-economic differentiation respectively.
- e. Villages which had officially sponsored land (patta) distribution functions more than twice during the past 10 years, had 100 per cent dependence on State grant for CPR improvement, are put under "higher" group. The villages with 'lower' patronage did not have these attributes.

(iii) Private squeeze on CPRs as assets, as reflected through the tendency to grab CPR lands, preventing others from using their private land during off-season (i.e. seasonal CPRs), and enriching own soil by mining and taking silt and top soil from CPR lands to private fields (Jodha 1986, 1988b, Iyengar 1988, Brara 1987).

(iv) Indifference to management of CPRs despite their influence and ability to use legal-cum-administrative superstructure and public funds (grants/subsidies) available for rehabilitation of CPRs (Jodha 1989a, Chambers et al. 1989, Stewart 1989).

Perpetuation of these responses would mean further decline in the area and the production from CPRs, and ultimately complete irrelevance of community resources for the rural rich.

6.2 Changing CPRs and the Rural Poor

Depending on their capacity, poor households also attempt some of the measures adopted by rural rich. However, their specific responses include the following:

(i) Utilise the CPRs as an important source of sustenance and attempt maximisation of complementarity between CPRs and PPRs (Tables 3, 4).

Table 12: People's Adaptations to Changing Situation of CPRs in Dry Regions of India^a

Measures adopted by different groups in the face of decline in area, productivity and management systems of CPRs.

Rural rich	Rural poor	Rural community (general)
<p>1. Withdrawal from CPRs as user of products: (Opportunity cost of labour higher than CPR product value)</p> <p>2. Increased reliance on alternative options</p> <ul style="list-style-type: none"> • Own bio-mass supplies; (stall feeding etc.) • Non-renewable/external resources (e.g. replacing stone fencing for thorn fencing, wooden tyres for carts, iron tools for local, wooden ones) <p>3. Private squeeze on CPRs as assets:</p> <ul style="list-style-type: none"> • Grabbing CPR lands, • Preventing others using seasonal CPRs (private crop lands during off-season) <p>4. Approach to CPR management:</p> <ul style="list-style-type: none"> • Indifference to decline of CPRs. • As rural influential party to non-functioning legal and administrative superstructure for community resources 	<p>1. Use of CPRs as an important source of sustenance: Complementarity of CPR and PPR-based activities</p> <p>2. Acceptance of interior options:</p> <ul style="list-style-type: none"> • Opportunity cost of labour lower than value of products of degraded CPRs. <p>3. Measures reflecting desperation:</p> <ul style="list-style-type: none"> • Premature harvesting of CPR products • Removal of roots/base of product • Over-crowding and over exploitation of CPRs • Use of hitherto unusable inferior products 	<p>1. Acceptance of CPRs as open access resources: over-exploitation without users' obligations, regulations</p> <p>2. Selective approach to specific CPR units: despite general neglect of CPRs, concern for some units.</p> <p>3. Focus on 'other' uses of CPRs: Item in seeking government subsidy/relief, in running factional quarrels, in populist programmes etc.</p> <p>4. Part of non-operating legal and administrative measures:</p> <p>5. Structural changes/focus on alternative sources:</p> <ul style="list-style-type: none"> • Changes in livestock composition (replacing cattle by sheep/goats, etc.) • Agro-forestry initiative (revival of indigenous agro-forestry etc.)

a. Based on observations and changes recorded during the field work (1982-85). For elaboration and evidence see, Jodha 1989a, Ayengar 1988, Brara 1987, Stewart 1989, Chambers et al. 1989.

(ii) Ready acceptance of increasingly inferior options offered by CPRs. This is both because of non-availability of alternative options and the falling rate of opportunity cost of labour with their increasing poverty in most cases.

(iii) Resort to measures manifesting a high degree of desperation. Examples are: increased frequency of lopping trees and premature harvest (collection) of CPR products, reducing seed formation and regeneration possibilities; removal of plant and bush roots (the very basis of CPR products): use of hitherto discarded (inferior) products with negative side-effects on the health of users; and overcrowding and over-exploitation of CPRs (Jodha 1985b, 1988b, and Brara 1987).

The consequence of these trends will be further degradation of the CPRs and the rapid decline of whatever cushion the rural poor have through the CPRs.

6.3 Changing CPRs and the Rural Community

A number of response measures against the changing CPR - situation adopted by different groups in the villages are reflected clearly at the total community level. They include the following:

(i) General acceptance of CPRs as open access resources, following the abolition or disintegration of traditional usage regulations. This is reflected by the complete absence of users obligations and the consequent over-exploitation of CPRs on the one hand and the failure to question the non-functional legal and administrative measures relating to CPRs (Jodha 1988b, 1989a, Singh 1986, Roy Buran 1986, Brara 1987, Blaikie et al. 1986, Odell 1982, Gupta 1986 and Stewart 1989).

(ii) Focus on "alternative uses or rather misuses" of CPRs, as reflected by : treating CPRs as an issue in factional disputes, projecting CPRs as an item to secure government subsidies/grants for village panchayats, using CPR lands for distribution of political patronage, etc. (Jodha 1989a).

(iii) Structural changes to be elaborated shortly, as reflected through changes in the composition of livestock (Table 13) the revival of indigenous agro-forestry, and the search for alternative options etc (Jodha 1985a, 1988b, 1989b).

(iv) General neglect of CPRs with a selective management approach to specific CPR types and units, (as revealed by Table 14), to be elaborated shortly.

The last two categories of community responses to the changing CPR - situation are elaborated further.

6.4 Changes in the Composition of Livestock

Since one of the most important direct contributions of CPRs is towards the sustenance of the community's livestock the decline of the former forced significant adjustments in this sector of the rural economy. Reduced grazing space and depletion of the forage potential have made it difficult to productively maintain large numbers of animals. Detailed studies based on data at two points of time in the villages of Rajasthan (Jodha 1985a) indicated both reduction in the size and changes in the composition, of animal holdings. Similar enquiries, largely based on oral histories and the current position of sample households in other areas, also confirmed similar trends. According to Table 13, in the case of sample households, the number of bullocks has declined by 19 to 42 per cent in different areas during 1982-84 as compared to 1950-52. Besides an increased degree of mechanisation in certain areas, the high overhead cost of maintaining bullocks is responsible for this. Using bullocks only for 3 or 4 months and feeding them for the whole year (without CPR - support) is difficult. The number of cows also declined for similar reasons. In dry areas, owing to droughts and frequent miscarriages etc. the prolonged unproductivity period of cows often exceeds their lactation period (Vyas and Jodha 1974). Maintaining unproductive animals without CPR support is difficult. Moreover, the high private cost implied by increased stall-feeding favoured buffalo-keeping as against cows. This is easy to understand in the context of fat-based milk pricing and the higher milk yield of the buffalo. The most significant change in livestock is reflected by the substantial increase in the number of goats and sheep. The small ruminants could not only be sustained by degraded CPRs, but they also fit better in the changed migration patterns. In the context of the reduced CPRs, the migration of cattle has become more difficult than of small ruminants (Jodha 1985a, 1988b). Thus the sheep and the goat often accused for destroying vegetation in the CPRs, seem to have become more important following the degradation of CPRs rather than vice versa. Broadly similar changes in the composition of livestock have been recorded by other micro-level studies (Brara 1987, Iyengar 1988, Ahuja and Rathore 1988, Blaikie et al. 1986).

6.5 Selective Approach to CPRs

Despite the general neglect of the CPRs the villagers have a selective approach to specific units of different CPRs in the same villages. A detailed enquiry of over 175 units of different CPRs from different villages, revealed the emerging new patterns of CPR management. The term management is defined to cover people's (as against government's) interventions for: (a) area protection, (b) usage regulation, and (c) development or upkeep of CPRs. Based on detailed case histories (covering a period of 30 to 40 years) of 176 CPR units, an inventory of nearly 1,450 events involving people's interventions in CPR matters, as indicated above, was prepared (Jodha 1989a). The distribution of such events (i.e. CPR management events), according to the factors inducing them, is presented in Table 14. The important inferences suggested by the table are as follows:

(i) The bulk of the CPR - unit specific management events are a by-product of other developments, such as factional quarrels in the village, or specific conditions of government grants to the village, or adherence to certain rituals and religious sanctions. For instance if the area of any CPR helps villages to qualify for a certain grant or relief, they try to keep its area intact even without developing it or regulating its use. From this perspective, the management or the future of CPRs is tied to their usability for other purposes rather than their utility as community assets.

(ii) Higher productivity and yield of CPRs play important roles in inducing their better management. This becomes more important when these gains are shared more equally. The productivity - management linkage, offers a useful clue for breaking the vicious circle of "degradation - neglect - degradation" characterising CPRs.

(iii) CPR unit's location (e.g. in the context of a watershed), size, and proximity to village, as well as rituals and religious sanctions affecting specific CPRs, also play positive roles in management of CPRs. Since most of these factors cannot be easily manipulated, they do not provide any operational basis for forward-looking practical policies for CPRs.

(iv) Genuine concern against degradation and misuse of CPRs is an important factor inducing people's action for CPRs. This accounts for a small proportion of management events in the study villages, but offers a potentially viable option for rehabilitation and better management of CPRs. With the involvement of NGOs and enlightened villagers this can be further strengthened.

7. Future Prospects : Whither CPRs?

The evidence and discussion presented above do not suggest bright prospects for CPRs in the dry regions of India. The major factors constraining the present and the future of CPRs as revealed by the discussion above, are recapitulated under Table 15. The table also summarises the factors which justify rehabilitation of CPRs and the possible steps to do so.

7.1 Constraining Framework

According to Table 15, the institutional framework directly related to CPRs is highly constraining. Undeclared regressive State policies, encouraging privatisation and neglect of CPRs, is the primary factor causing rapid decline of CPRs. Both physical and legal-cum-administrative interventions dealing with CPRs, are insensitive to the CPR - perspective. The response of rural people to the changing CPR - situation is dominated by a tendency to grab CPR areas and over-exploit their production potential. Finally, there are neither a users' lobbies nor noise-making media to plead for CPRs.

7.2 Rationalisation (?) of the CPR Decline

Besides the above mentioned factors, a number of circumstances associated with the current position of CPRs are often interpreted to rationalise their decline. The key arguments in this regard are as follows.

Table 13: Structural Changes in Livestock Population in Response to Decline of CPRs in the Selected Villages in Dry Regions of India^a

State (with no. of villages and sample household)	% Change (+ or -) in the number of animals in 1982-84 compared to 1950-52 ^a			
	Bullock	Cow	Buffalo	Sheep & Goat
Andhra Pradesh (2,38)	-21	-18	+4	+23
Gujarat (4,68)	-30	-26	+20	+19
Karnataka (2,40)	-22	-19	+9	+22
Madhya Pradesh (4,90)	-16	-18	+12	+19
Maharashtra (4,82)	-31	-19	+12	+32
Rajasthan (6,115)	-42 -(63) ^b	-35	+14	+38
Tamil Nadu (2,30)	-19	-14	+9	+21

a. Based on the current status and oral history of animal holdings (in 1950-52) of sample households recorded during the field work during 1982-85. Data for the past adjusted for division of families etc.

b. Figure in parenthesis indicates change in the number of camels in Rajasthan villages.

Table 14: Factors Inducing the Adoption of Management Measures for CPR-units in the Selected Villages in Dry Regions of India^a

Factors underlying the adoption of measures	% distribution, of management events according to the underlying factors			
	Area protection (474) ^b	Usage regulation (423)	Development (532)	Total (1429)
A. CPR-unit related factors				
1. High productivity, visible contribution to private farming	12	12	13	12
2. Location, size, proximity to village	12	9	8	10
3. Usability for seeking government grant	15	5	20	14
B. User related factors				
1. Private stake/control of influentials/groups	5	12	10	8
2. Short-lived provocation against irregularities, encroachments etc.	8	11	-	6
C. By-product of other activities				
1. Factional politics of village	24	25	8	19
2. Rituals/religious sanctions	5	9	3	4
3. Provisions under development/relief programmes	13	7	23	17
D. Genuine/positive factors				
1. Concern against degradation, irregularities; enlightened leadership, NGO-activities	6	10	15	10

a. Source: Case histories of 176 CPR units. See Jodha 1989a for details.

b. Figures in parentheses indicate total number of measures adopted. The percentage distribution of these measures according to the underlying factors is presented in the respective columns.

(a) The 'Efficiency' Argument: In the context of their present depleted state and the process of further degradation, the privatisation of CPRs is suggested as a possible solution for physical rehabilitation and sustained productivity of these resources. This is a part of the of-repeated approach to handle "the tragedy of the commons". Recent evidence from different parts of the world, however, suggests otherwise (Runge 1981, Bromley and Cernea 1989, Repetto and Holmes 1984, Ostrom 1988). There is not sufficient evidence to analyse this issue fully in the context of the dry regions in India. However, the prevailing situation could be described as follows. CPRs in the dry regions largely consists of sub-marginal and fragile land areas. The efficiency of their use should be seen in the context of their use capabilities. Accordingly, their retention under natural vegetation (e.g. through CPR) is an effective approach for their efficient use. However, as Table 16 reveals, in different villages 78 to 96 per cent of these submarginal lands were transferred to annual cropping following their privatisation. Their crop productivity performance (as compared to the prime lands traditionally cropped) is very low. According to Table 16, nearly half of the plots of ex-CPR land had grain yields, which were 50 per cent or less compared to the prime land plots cultivated by the same sets of farmers in the study villages. There are no data to reflect on the productivity of ex-CPR plots prior to their privatisation. Limited evidence based on detailed case studies of plots belonging to selected farmers in the study villages from Rajasthan and Gujarat is

Table 15: Distribution of Privatised CPR plots by their Comparative Production Performance in the Selected Villages of Dry Regions of India^a

State (no of villages and ex-CPR plots)	Proportion of privatised CPR area transferred to annual cropping ^b (%)	%distribution of (i) ex-CPR plots ^c according to their yield as proportion of yield of (ii) - plots traditionally cropped [yield of (ii) = 100]			
		10-25%	25-50%	51-75%	75 + %
Andhra Pradesh (1,65)	96	15	43	25	17
Gujarat (2,90)	82	11	50	20	19
Maharashtra (2,85)	93	17	61	7	15
Madhya Pradesh (2, 98)	78	12	39	19	30

a. Based on plot-wise details collected under ICRISAT's village studies; average of two cropping years (1983 and 1984)

b. This information relates to total CPR land privatised in the village rather than selected ex-CPR plots for which yield was recorded.

c. Comparison is based on observations generated by the following procedure For each (i) - ex-CPR plots, another (ii) - plot traditionally cropped belonging to the same farmer and put under the same crop was picked up. Grain yield of (i) as proportion of yield of (ii), constituted one observation.

presented in Table 17. The table shows the grain yields of ex-CPR plots fell far short of the yields from traditionally cultivated plots. However, fodder and fuel (biomass) production did increase substantially, in the ex-CPR plots when retained under natural vegetation. An increase of 3 to 4 times in the biomass collected is quite impressive. However, Table 17 also reveals two additional factors associated with the increased bio-mass productivity of ex-CPR plots.

Firstly, the improved production performance is the result of capital investment, protection, and restricted use (indicated by animal units grazed). If the same magnitude of investment and low usage intensity are applied to CPRs, their performance too can be upgraded significantly. This has already been indicated by different studies (Shankarnarayana and Kalla 1985, Oza, 1989).

Secondly, quite obviously, privatisation has restricted the use and access facilities of ex-CPRs to a very small number of animals and households. This raises the basic equity issue, where higher production prospects for a few result in loss of (low productivity) options for many. Moreover, in the context of the limited availability of CPR lands, it will be impossible to help even a small fraction of the rural population by distributing CPR lands to them. Simple calculations showed that, even if the total lands of CPRs are distributed, in 87 per cent of the study villages, not more than 12 to 20 per cent of the poor households can get more than one hectare per family.

(b) The 'Poverty' Argument: Since the decline of CPRs is only a manifestation of the pauperisation process in the country, the solution to the former lies in eradicating rural poverty and land hunger. Without belittling the significance of linkages between poverty and CPR depletion, it should be stated that emphasis on the above argument would mean perpetuating the vicious circle implied by the above mentioned linkages. The solution of poverty does not lie in further impoverishment of CPRs but in their rehabilitation and regulated use.

(c) The 'Inevitability' Argument: As indicated by Figure 1, and confirmed by the experience of the developed countries as well as agriculturally developed pockets within the dry regions of India (Iyengar, 1988), the decline of CPRs is a part of the development process. The transformation of rural areas contributes to erosion of CPRs. However, unless the former also reduces people's direct dependence on the CPRs, their decline would mean depriving the people of various services and products offered by CPRs. Viewed this way, the utility and relevance of CPRs is undiminished in the dry regions of India at their present stage of development.

7.3 Positive Considerations

Apart from the insufficient validity of the above arguments condoning the decline of CPRs, there are other positive considerations supporting the case for CPRs. They relate to functions and services of CPRs as indicated by Tables 1, 2, 3, and 4.

Accordingly, (a) the ecological imperatives of the natural resource base of the dry regions, (b) the CPR-PPR complementarities, and (c) the sustenance needs of rural poor, are important concerns which should be central to any approach to CPRs.

(a) Ecological Imperatives: Both the heterogeneity of the land resources and the highly variable climatic conditions call for diversified resource use and keeping sub-marginal fragile lands under low - intensity uses (e.g. natural vegetation as against annual cropping). The provision of CPRs help satisfy the above requirements. The same goal can be achieved if privatised CPRs are retained under natural vegetation. However, as shown by Table 16, where 78 to 96 of submarginal lands are shifted to crops following their privatisation, the PPRs performing the CPR's ecological function does not seem likely.

(b) CPR-PPR Complementarity: CPRs (due to the different production cycle of their natural vegetation), have input needs and output flows which are qualitatively and temporally different from those of the PPR - based crop-farming. This forms the basis of complementarities of production systems based on CPRs and PPRs (Table 4). To the extent natural vegetation on CPRs facilitates the above complementarities, keeping part of private lands under natural vegetation can perform this function. But it is not the natural vegetation alone, but accessibility to it, which is responsible for CPRs serving as a cushion when PPRs fail to meet the needs (Table 17). In such a situation, there are no ready alternatives to CPRs, for maintaining and strengthening the PPR-CPR type complementarities and ensuring the associated benefits, especially in the high risk environment of dry tropical areas.

(c) Sustenance of the Rural Poor: The more pressing requirement of the day is contribution of CPRs towards the sustenance of the rural poor having not many alternative options (Table 3). Notwithstanding a number of measures initiated to help the rural poor, there are not many programmes which can match CPRs in helping them (Jodha 1986). Enhanced productivity and their regulated use can go a long way in raising CPR contributions to the rural poor. The cost of abolishing CPRs, in terms of foregone opportunities for collective gains to the poor, would be too high to be compensated by other means.

7.4 Future Prospects - Obstacles and Hopes

The future prospects of CPRs are closely linked to an appreciation of their contributions, and changes in the public approach to strengthen them. Some areas requiring immediate attention are indicated below.

Table 16: Impact of Privatisation on Biomass Productivity of CPR Plots in the Selected Villages in Dry Regions of India.

Details	Production performance of plots ^f			
	CPR Plots	Ex-CPR plots		Traditionally cropped plots
		Kept under natural vegetation	Put under crops	
Plot (no)	6(8) ^a	4(5)	12(16)	13(16)
Capital investment ^b (Rs/ha)	Nil	300 (428)	1200 (1530)	300 (700)
Fodder/fuel collection (cartload/ha) ^c	2(3)	8(10)	-	-
Animal units grazed (no/ha, per days) ^d	46(34)	7(11)	-	-
Grain production ^e (kg/ha)	-	-	168 (203)	425 (519)
Beneficiary households (no)	112(81)	8(10)	6(7)	6(7)

a. Based on case studies of selected plots in one village each in Rajasthan and Gujarat. Figures for the latter are put inside parentheses. Average for two cropping years (1983 and 1984).

b. Expenditure on permanent improvements, e.g. fencing, ridging, trenching during the last five years.

c. A cart load of biomass weighing approximately 5 quintals

d. During four months of the rainy season.

e. Pearl millet (bajra) yield (kg/ha)

f. Areas of plots ranged between one to six hectares. Plots under Col. 2 to 4 had similar soil conditions. Plots under col. 3 to 5 belonged to the same farmers.

Table 17: Factors Influencing the Future Prospects of CPRs in Dry Regions of India

Constraining framework for CPRs	Imperatives supporting rehabilitation of CPRs	Future of CPRs: Possible options and dilemma
<ul style="list-style-type: none"> Undeclared, regressive state policy towards CPRs (privatisation, lack of management) 	<ul style="list-style-type: none"> Ecological and long term sustainability concerns (i.e. required resource use systems in regions with sub-marginal lands and high climatic variability) 	<ul style="list-style-type: none"> Positive policies restricting further reduction in CPR area (obstacles : new social culture, collective indifference and land grabbing)
<ul style="list-style-type: none"> People's response: land grabbing, over-exploitation and indifference to CPRs 	<ul style="list-style-type: none"> Complementarity of CPR and PPR-based farming systems (i.e. due to non-covariability of input needs and product flows and narrow and unstable base of private crop-farming) 	<ul style="list-style-type: none"> High investment needs for high productivity (obstacles: long gestation period, invisibility of gains by narrow cost - benefit norms)
<ul style="list-style-type: none"> Negative side-effects of development/transformation processes (commercialisation etc.). 	<ul style="list-style-type: none"> Sustenance of rural poor (through product supply, employment and income generation etc.) 	<ul style="list-style-type: none"> Rehabilitation and sustaining of CPRs as high-productivity community assets (technology with focus on diversification and user perspective; management by user groups based on equal stake and equal share in gains)
<ul style="list-style-type: none"> CPRs made open access resources, conducive to tragedy of commons. 		

(a) Positive CPR - Policies: Positive policies restricting the further decline of CPR areas should be the major component of approach to CPR development. However, besides the policy-makers' high propensity for populist programmes, the other key obstacles to the change (especially at implementation level) would be: (i) persistent lack of the CPR - perspective on the part of the functionaries dealing with the community" resources, (ii) the emerging "social culture", which has generated collective indifference to CPRs and strengthened individual tendencies to grab or over-exploit them. Promotion of user groups could be a solution to this.

(b) Investment Needs: For sustained and effective contribution of CPRs, increase in their productivity is essential. This requires rapid regeneration (through protection and regulated use) and provision of substantial investments into CPRs. The key obstacles to higher resource investment in CPRs may include: (i) absence of a fiscal tradition to patronise community resources; (ii) long gestation periods and a complex of transaction costs associated with resource allocation to CPRs; and (iii) invisibility of the gains. The solution to these problems may lie in deliberate decisions on resource transfer to CPRs and widening of the narrow focus of investment norms. Furthermore, the increased pressure of users following the improvement in CPR is another possibility which unless checked, can reinitiate the process of resource degradation.

(c) Technology Focus: The rehabilitation of CPRs as productive social assets need a new technological focus in terms of species, inputs, and technical methods of resource management. Besides productivity, the diversity and the usability of the products need emphasis. The key obstacles to this possibility are: (i) persistent gaps between the perspectives of the technologist and the resource users; (ii) the inability to screen available resource - centred technologies for their institutional acceptability; and (iii) frequent high priority to commercial considerations while designing technologies for community lands (as in the case of social forestry programmes).

(d) Management and Regulation: In a way the rehabilitation of CPRs is less of an investment-cum-technological problem and more of a resource management problem. The impacts of investment and technology may prove short-lived

unless the management and usage aspects of CPRs are effectively handled. In most areas, even natural regeneration itself can make CPRs more productive, provided the regeneration is permitted, through controlled and regulated use of resources. However, this cannot happen unless the CPRs are reconvered from "open access resources" to "common property resources". In operational terms this would mean the re-establishment and enforcement of usage regulations and user-obligations towards CPRs.

(e) User Groups (?): The institutional arrangement to fulfil such requirements can take the form of CPR-user groups (Chambers et al. 1989). There are no unique models to pattern such groupings in dry areas. However, some key features of prospective CPR-user groups could be stated. The choice of the key characteristics of CPR-user groups can be based on some understanding of traditional forms of rural cooperation, a few insights revealed by emerging patterns of CPR management (Table 14), and the experience of a number of successful initiatives tried for management of community resources in different parts of the country (Mishra and Sarin 1987, Chopra et. al. 1990, Shah 1987, Odell 1982, Agarwal and Narain 1990, Poffenberger 1990).

(i) The first and foremost attribute of CPR - user groups should be equity of access and benefits from the CPR for all members.

(ii) CPR-user groups should have legal sanction, but they should be outside the control of formal institutions like village panchayats, the government Revenue department, etc.

(iii) Depending on the type of the CPR and the village-specific circumstances, membership of the group may comprise the whole village community or specific occupational groupings.

(iv) The preconditions for membership of the group (besides being residents of the village and users of the CPR) should include a binding commitment to user obligations and usage regulations.

(v) To ensure stability of user-groups flexibility in respect of exit and entry of members may be allowed, with no right to break the group.

(vi) The provision of CPR - user groups can be viewed as an intermediate arrangement in between complete privatisation and the current communal usage system (implying an open access resource regime). The arrangements, however, should relate to access and usages, without any claim to the resource itself.

(vii) Except for incorporation of the broad features like the above, CPR-user groups need not have a uniform pattern all over the dry regions or even throughout a single State. Depending on the type of CPR and the village specific circumstances, the pattern may vary and evolve.

In the context of some dominant features of the current situation, these suggestions may sound Utopian. The two relevant features which have emerged as by-products of the recent development history of India, and which may obstruct the growth of user groups are : (i) the ever-increasing tendency of the State to expropriate the initiatives and activities which belong to people; (ii) the increased internal differentiation of rural communities and its impacts on the operation of village-level initiatives. However, despite such potential obstructions, the success of recent initiatives in the management of community resources by user groups and NGOs do inspire some hope.

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