

CONCEPTUALISING THE COMMONS: POWER AND POLITICS IN A GLOBALISING ECONOMY

Bhaskar Vira*

Department of Geography, University of Cambridge

March 2002

Abstract

The literature on the commons in India has devoted considerable attention to documenting the flows of benefits from such resources. Micro studies as well as a large recent macro survey suggest that these flows form a significant part of local people's resource use patterns, as well as contributing to household income and providing off-season employment opportunities, and spreading risk associated with the use of private resources.

This long-standing interest in the commons has focused primarily on their role in mitigating failures of other resource provisioning systems, as a safety net for those who may not have access to other products and services. However, people increasingly view the commons as a potential source for enhanced livelihood opportunities. In parallel, senior planners in India have argued for a shift in priorities from funding safety net programmes to asset creation. If the mindset of policy makers is beginning to move from the prevention of acute destitution (poverty alleviation) to the promotion of economic and social opportunity (sustainable livelihoods), one needs to consider whether the role of the commons also needs to be reconceptualised.

This paper suggests that dynamic internal and external processes are impacting on the context within which the commons are used and conceptualised in India. While the large rural sector continues to depend on such resources as a safety net, there are also new opportunities emerging due to the development of markets for products and services derived from sustainable commons management (carbon sequestration being just one such example). The paper argues that conflict over the management of such resources is likely to intensify, and that governance issues are likely to become increasingly complex. Focusing on single-use regimes in spatially-limited areas may no longer be viable, and the new context for resource use and management is likely to be one in which a multiplicity of stakeholders are forced to work together for the shared management of resources across a range of spatial scales.

It is important to recognise that these different stakeholders occupy very different positions in local and national political structures. As the relative importance of different common pool resource functions changes, there is likely to be a shift in the locus of control over resources. Such changes may have significant political implications, as existing resource users seek to

* This paper has benefited greatly from discussions with Robert Cassen, Kanchan Chopra, Jane Dyson and Sanjay Kumar, and from feedback at a Workshop on Policy Implications of CPR Knowledge in India, held in Delhi in September 2001. I must also record my gratitude to the late Professor Pravin Visaria, who provided access to the data from the National Sample Survey Organisation. The paper derives from research that has been supported by the Wellcome Trust and the Department for International Development. Funding from the Wellcome Trust was from grant no. 053660, on the project entitled "The Future of India: Population, Environment and Human Development." Funding from the Department for International Development (DFID) was from the Natural Resources Systems Programme Semi-Arid Production System's project R7973, 'Policy Implications of CPR Knowledge in India, Zimbabwe and Tanzania'. The views expressed here in no way represent those of the bodies that have supported this research.

defend their claims against those of other, perhaps newer, claimants. Policy responses to changes in common pool resource-related resource flows cannot ignore the incompatibility of some of these competing uses, and must accept that complex political negotiation and accommodation strategies may be needed in order to reconcile future claims over these resources. By explicitly highlighting these alternative trajectories and their implications for common pool resources, the paper hopes to stimulate debate about future scenarios in this sector in the Indian context.

1. Background

In poor countries, common pool resources make a valuable contribution to the sustainable livelihoods of rural populations. This includes the collection of fuelwood, fodder, crop wastes, cow dung, organic manure, small timber, and other products that are derived from the bark, seeds, flowers and fruit of trees, as well as water for drinking, cooking and irrigation and local fisheries. The existence of imperfect factor markets results in an intimate link between the rural economy and its natural resource base. Inadequate rural employment opportunities, especially in the slack season, imply that the local commons can make substantial contributions to household incomes. Another important function of local common pool resources is as insurance against uncertainty, in the absence of complete contingent markets. Access to such resources serves to pool risks associated with natural disasters and crop failure. Furthermore, for landless populations, access to local common pool resources may be the only available non-human asset.

What makes the issue one of interest for political economy is that common pool resources have other, conflicting, claims upon them. Forests, for instance, have been an important source of raw material in the production process, and support a number of major and minor industries such as saw mills, paper, plywood, match-making, polyfibres, pharmaceuticals and chemicals and oils. In the commercial sector, timber dominates the forest economy, while there is a growing market for non-timber forest produce. Forests also perform vital ecological functions, such as providing stability to soil, water and climatic regimes, and serve as storehouses of biological diversity. In addition, forests are valued as places for recreation and as areas of outstanding natural beauty.

This paper suggests that dynamic internal and external processes are impacting on the context within which the local commons are used (and conceptualised) in India. While the large rural sector continues to depend on such resources as a safety net, there are also new opportunities emerging due to the development of products and services derived from sustainable commons management. Subsistence uses of common pool resources may be affected by changing social, economic and ecological dynamics. For instance, demographic pressures are often seen as important drivers of change. The paper examines the likelihood of such pressures contributing to a change in resource use patterns in India. With economic growth, substitution may occur from 'inferior' subsistence uses towards more 'productive' options. This may require alternative land-use options to be considered, which may impact on the availability of land for subsistence uses. Given the pressures of competing demands, the paper suggests that it is likely that conflict over the management of the local commons will intensify in India, with an associated increase of complexity in governance. The paper hopes to stimulate debate

about alternative conceptualisations and potential uses of common pool resources in the context of rapid economic and social change in India.

The next section sets the stage for the discussion, documenting the current status of common pool resources in India. The data is mainly drawn from a recent large-scale survey of rural households that was conducted by the National Sample Survey Organisation. Section 3 introduces some conceptual ideas, and suggests that the role of common pool resources may need to change from the provision of subsistence and safety nets, towards one that is more supportive of dynamic developmental possibilities. The section discusses ways in which flows of goods and services from common pool resources are associated with India's current land use patterns, and speculates on ways in which these may change in the future. Section 4 introduces population as a specific driver of change, and uses some evidence from the NSSO data to examine the relationship between population and common pool resource use. The analysis also speculates about possible future scenarios disaggregated at the state level. Section 5 examines possible medium term growth scenarios for the Indian economy, and discusses their alternative implications for the use of common pool resources. The paper then briefly discusses political and policy futures, before concluding with some remarks about the likelihood of continuing conflict over the commons in India, both at a conceptual and material level.

2. Current status

Interest in common pool resources in India, both from a policy and a research perspective, dates back at least till the early 1980s. In terms of assessing the status of such resources, Jodha's seminal work from the mid-1980s remains the most extensive village-level study, although a number of micro-level assessments have been conducted subsequently. Since 1999, researchers have had access to a large-scale data set that reports on the current status of common pool resources in the country, based on a survey of 78,990 rural households in 5114 villages conducted by the National Sample Survey Organisation (NSSO, 54th round).

The NSSO data set is unique, in that it is the only such comprehensive countrywide study of common pool resources anywhere in the world. However, there are reasons to believe that the enumeration process of such a rapid survey is likely to be less accurate than in-depth long term ethnographic field research. For instance, if illegality is involved in the use of some types of common resources, respondents may be unwilling to reveal such use patterns to enumerators who are unknown. Despite these obvious limitations, the NSSO data allows us to make a systematic assessment of the current status of common pool resources in India in a manner that has not been possible until now. It also provides a very useful baseline against

which one would hope to be able to measure future trends, given that the sampling strategy that is used by the NSSO is comparable across different enumeration rounds.

2.1 Extent of common pool resources

The NSSO data on common pool resources was collected using two different criteria – the *de jure* and the *de facto* methods. The *extent* of common pool resources was estimated on the basis of the legal status of the land (*de jure*), including only those resources that were “within the boundary of the village and were formally (i.e. by legal sanction or official assignment) held by the village panchayat or a community of the village” (NSSO, 1999, p. 8). Information on the extent to which rural households *used* such resources was collected on the basis of actual use patterns (*de facto*), regardless of legal status of the land. This included uses that occur on state (revenue and forest) lands, as well as conventional (often seasonal) uses of private lands.

The data on the extent of resources is reported in Table 1 and Figure 1, and suggests that even by the restrictive *de jure* definition, a substantial proportion (15%) of the total land area is classified as local common pool resources.

Table 1: NSSO estimates of common pool resources in India

Indicator (all India figures)	NSSO estimates
Share of common pool resources in total geographical area	15%
Common pool land resources per household (in ha.)	0.31
Common pool land resources per person (in ha.)	0.06
Reduction in common pool resource land in last 5 years (per 1000 ha.)	19 ha (0.38% p.a.)

Source: NSSO (1999)

Figure 1

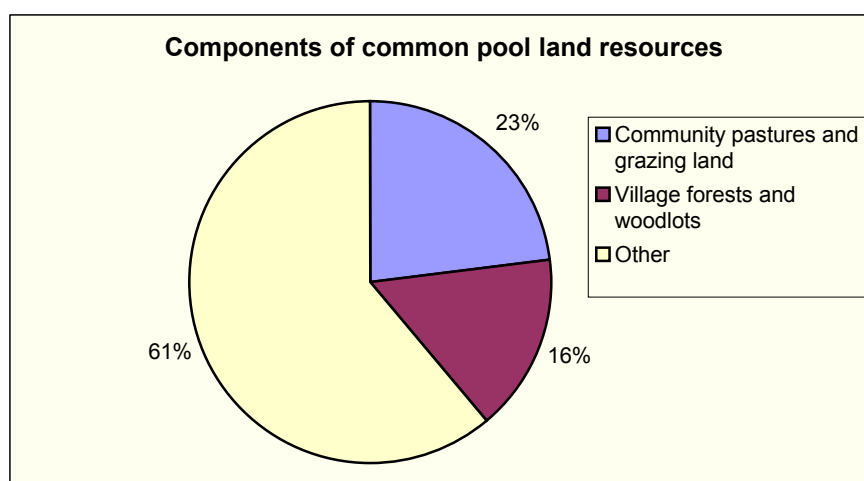


Figure 1 shows that 23% of reported common pool resource land is community pasture and grazing lands,¹ while 16% is village forests and woodlots, and 61% is attributed to the ‘other’ category. ‘Other’ includes the village site, threshing floors, and other barren and waste land. The NSSO report considers this figure (which is equivalent to 9.15% of total geographical area) to be inordinately high (NSSO 1999, p.19). The report suggests that it is possible that some “free access” revenue land was ‘misidentified’ as *de jure* common pool (defined for the survey as land which is under the *legal* control of the village or community).

Given these qualifications, it is instructive to compare the NSSO results with those that have been obtained by other methods. Chopra and Gulati (2001) reclassify India’s Agricultural Land Use Statistics data for 1991 to estimate the extent of common pool resources in 16 major states. Chopra and Gulati (1991) calculate common pool land resources as the sum of private land to which common access may exist, cultivable wastes and fallows other than current, common pastures and grazing land, and protected and unclassed forests. Two series are reported in Table 2, including and excluding forest areas (for purposes of comparison, the series that excludes forests is more useful, since the use of the *de jure* approach for the NSSO study excluded forest areas).

Table 2 – Alternative estimates of common pool land resources (total common pool resource land/total geographical area)

State	NSSO 1998	Chopra & Gulati (1991)	Chopra & Gulati (1991, non-forest)	Jodha (mid 1980s)
Andhra Pradesh	0.09	0.22	0.16	0.11
Assam	0.07	-	-	-
Bihar	0.08	0.30	0.16	-
Gujarat	0.27	0.17	0.14	0.11
Haryana	0.03	0.04	0.009	-
Himachal Pradesh	0.12	0.93	0.29	-
Jammu & Kashmir	-	0.012	0	-
Karnataka	0.10	0.17	0.11	0.16
Kerala	-	0.08	0.05	-
Madhya Pradesh	0.22	0.32	0.15	0.24
Maharashtra	0.11	0.26	0.19	0.15
Nagaland	0.08	-	-	-
Orissa	0.11	0.31	0.09	-
Punjab	0.01	0.07	0.014	-

¹ This is 3.45% of total geographical area and corresponds to a reported figure of 3.65% obtained from Agricultural Land Use Statistics (NSSO, 1999, p.19).

Rajasthan	0.32	0.35	0.34	0.14
Sikkim	0.14	-	-	-
Tamil Nadu	0.12	0.21	0.18	0.10
Tripura	0.01	-	-	-
Uttar Pradesh	0.12	0.13	0.03	-
West Bengal	0.02	0.07	0.01	-

The results of the NSSO and those obtained by Chopra and Gulati are similar for six states (Haryana, Karnataka, Orissa, Punjab, Rajasthan and West Bengal), but are substantially different for eight others (Andhra Pradesh, Bihar, Gujarat, Himachal Pradesh, Madhya Pradesh, Maharashtra, Tamil Nadu and Uttar Pradesh). The broad patterns of both studies, however, suggest that common pool resources are most important for states in the arid and semi-arid zones, and in the Himalayan regions, while the agriculturally-dominated states of the Indo-Gangetic plains have a relatively low proportion of common pool resource land.² Table 2 also reports Jodha's (1986) estimates based on extensive micro-level fieldwork. Interestingly, these are fairly similar to the NSSO data, except for Gujarat and Rajasthan.

The Chopra and Gulati methodology can be applied to data at an all-India level for 1990-91, which was available from the Agricultural Statistics of India, the Agricultural Census, and the State of Forest Report. Table 3 reports the data and the calculations. This allows for a rough estimation of common pool land resources across the country, based on a reclassification of land use data. This procedure suggests that non-forest common pool resources in India in 1990-91 were 48.69 million hectares, which is 14.81% of the total land area, a figure which is remarkably close to the 15% reported by the NSSO survey.

Table 3: Estimation of common pool land resources using land-use data

Land use type	1990-91
1. Total Geographical Area (ASI)	328.73
2. Owned land (AC)	165.51
3. Net sown area (ASI)	143.00
4. Current fallows (ASI)	13.70
5. Private land with common access (2 - 3 - 4)	8.81
6. Cultivable wastes (ASI)	15.00
7. Other fallows (ASI)	9.66
8. Common pastures & grazing land (ASI)	11.40
9. Land under misc. tree crops (ASI)	3.82
10. Non-forest common pool resource (5+6+7+8+9)	48.69
11. As % of total area	14.81%
12. Protected forest (SFR)	23.30
13. Other forest (SFR)	12.21

² Bihar and Uttar Pradesh seem to be exceptions, but this is probably because the data includes the new states of Jharkhand and Uttaranchal respectively, areas that have a higher proportion of common pool resource land.

14. Common pool resource including forests (10+12+13)	84.20
15. As % of total area	25.61

Sources: Agricultural Statistics of India (ASI, 2002); Agricultural Census (AC, 2002); State of Forest Report (SFR, 1991)

The NSSO data reports a quinquennial rate of decline in the area of common pool resources of 1.9%. The largest decline is reported from the Gangetic belt, probably reflecting pressures to bring land under cultivation in these areas. However, evidence from some earlier micro studies has suggested a much more rapid decrease in common pool resource land. For instance, in his study of 14 Karnataka villages, Pasha (1992) reported a decline of 33 percent over a twenty year period. Jodha's (1986) study of 82 villages from seven states in the arid and semi-arid zone during the 1980s reported a decline of between 31% and 55% over a thirty year period.

These differences in the data reflect the different methodologies that have been adopted for estimation, and are not surprising. For instance, some authors have pointed out that land use data may not be a good indicator, since it does not register decline in *actual access* to common lands (Iyengar and Shah, 2001). Despite these differing estimates, the overall pattern from all sources suggests that common pool resources continue to play an important role in many parts of rural India. Furthermore, most studies are in general agreement about the broad orders of magnitude that are involved, from an insignificant amount in some states up to about 35% of the geographical area in others. There is also general agreement that these resources are facing pressures from competing land uses, in some cases affecting their legal extent, but usually impacting more on access and use than on their *de jure* status.

2.2 Use of common pool resources

Table 4 reports data from the NSSO survey on the use of common pool resources. This data was collected on a *de facto* basis, without consideration of the legal status of the land on which common pool resources were located. About half of the surveyed households reported collection from common pool resources, with the major uses being fodder for grazing and fuelwood.

Table 4 – Use of common pool resources

Indicator of use		NSSO
Households reporting collection of any materials from common pool resources		48%
Collections per household	Average value	Rs 693
	As % of consumption expenditure	3.02%
Fodder	Households reporting grazing on common pool resources	20%

	Households possessing livestock	56%
	Households collecting fodder from common pool resources	13%
	Households cultivating fodder on common pool resources	2%
	Average quantity of fodder collected (365 days)	275 kgs
Fuelwood	Households reporting collection of fuelwood from common pool resources	45%
	% of households reporting use of fuelwood	62%
	% of households reporting sale of fuelwood	1%
	Average quantity of fuelwood collected (365 days)	500 kgs
	Average quantity of fuelwood sold (365 days)	24 kgs
	Share of fuelwood in value of collection from common pool resources	58%
Common water resources	% of households utilising for irrigation	20%
	% of households utilising for livestock rearing	23%
	% of households utilising for household enterprise	30%

Source: NSSO (1999)

By comparing the data on fuelwood collection with earlier estimates from the consumption expenditure survey of the NSSO 50th round, the NSSO report (NSSO 1999, pp. 32-3) concludes that roughly half of all fuelwood consumed is collected from common pool resources. This indicates the level of dependence of the rural population on such resources for access to fuelwood. However, the reported figures on fuelwood collection may not be very accurate, since respondents may have been reluctant to reveal their illegal use of government lands. For instance, the data suggests that respondents reported that a little over 40% of fuelwood was collected from sources other than village forest or common land and government forest (Figure 2). These ‘other’ sources are private farmlands, on which free collection is likely to be limited, and wastes and fallows, which are unlikely to produce this amount of fuelwood. Most field research, on the other hand, suggests that there is considerable illegal fuelwood collection from government forests, so the reported figure of 27% from such sources is likely to be an underestimate. Methodologically, this reveals the differences between a rapid survey technique such as that employed by the NSSO and in-depth case study research. This may be especially important when dealing with the complexities of rural common pool resource use, given that some types of use are likely to involve illegality.

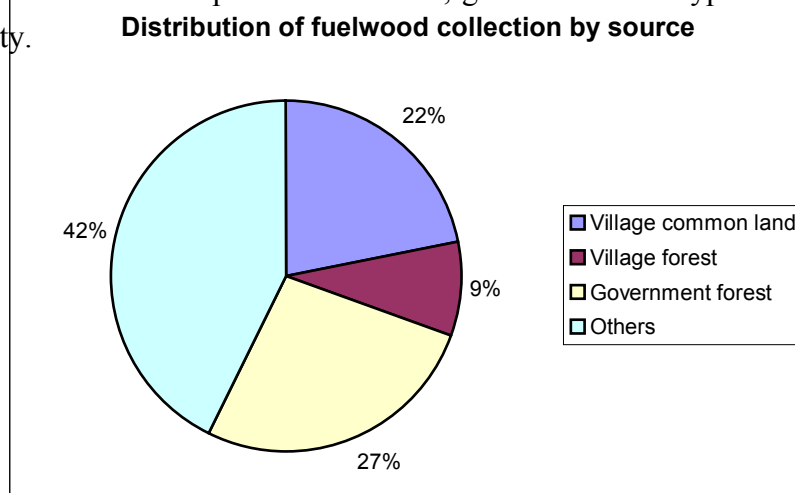


Figure 2

The NSSO figures suggest that common pool resource collections contribute about 3% of total consumption expenditure in the surveyed households, with some variation at the state level (the highest reported figure is from Orissa, 5.59%). Although the survey does not report contributions to household income or employment, some evidence is available from micro-level studies. For instance, in his study of India's drylands, Jodha (1986) had estimated that local commons provided between 18 and 31 days of exclusive employment per adult worker in poor households during the reference year, and that this was marginally higher than employment on their own farms.³ Despite arguing that these were probably substantial underestimates, Jodha also found that incomes from local commons contributed more than a fifth of income from all other sources for the poor (varying between 15% and 23%). Pasha (1992) studied 14 villages in Karnataka and reported that the contribution of common pool resources to rural incomes varied between 6.2% (non-poor households) and 10% (poor households). In their study from West Bengal, Beck and Ghosh (2000) reported a contribution of 12% to household income.

As with the data on the extent of common pool resource land, the figures for common pool resource use demonstrate the continuing importance of such resources for rural India. There are differing estimates, especially between the figures in the NSSO survey and those reported in some micro studies. However, there is no disagreement about the overall contribution that common pool resources make, and their continuing relevance to rural livelihoods. Furthermore, it is important to appreciate the importance of the NSSO data set as the first systematic attempt to quantify the contribution of common pool resources on a countrywide scale, and to recognise that this provides a good baseline against which to measure future trends. The existence of such a data set, however, does not undermine the value of long-term micro-level field research. It is important to see the large-scale survey and the in-depth case study as complementary methods of data collection, each providing insights into the current status of common pool resources in the country.

3. Conceptual issues

The literature on common pool resources in India has devoted considerable attention to documenting their role in the rural household economy. The review of data from micro studies as well as from the recent NSSO survey confirms that these flows continue to form a significant part of local people's resource use patterns. However, most research on common

³ Jodha (1986) defines "poor" households as those that are landless or own less than two hectares of dryland equivalent.

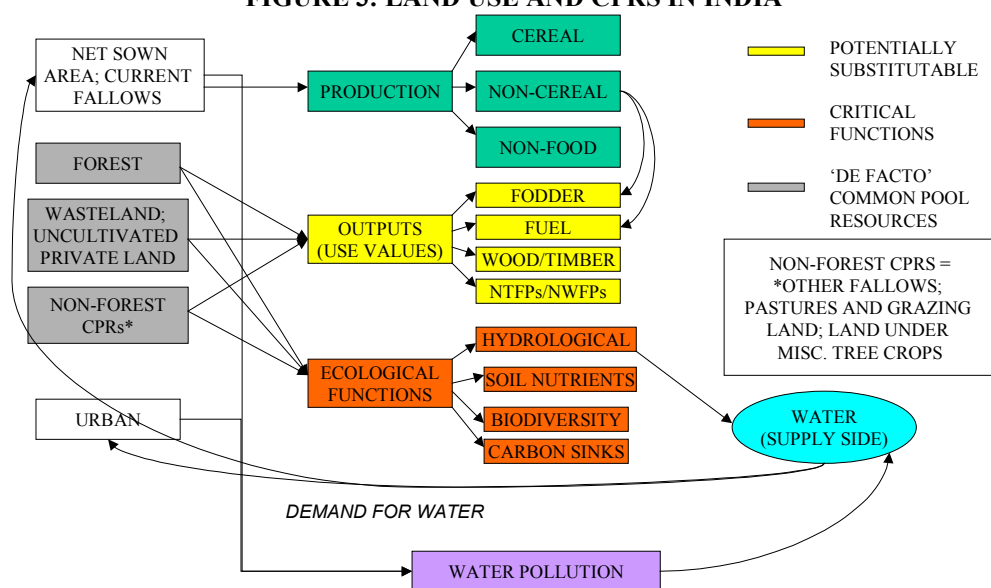
pool resources has focused primarily on their role in mitigating failures of other resource provisioning systems, on their safety net functions for those who may not have access to products and services through alternative mechanisms. As they provide for the subsistence needs of asset poor individuals and groups, common pool resources are seen to be important for poverty alleviation.

This is a negative, or defensive, view of the contribution that common pool resources make to the developmental process. In such a perspective, common pool resources are useful because they prevent people from falling further into deprivation. If this is true, such resources may be expected to become less important with higher levels of development. However, a more positive approach to development requires a shift in focus towards providing people the means with which to lead better lives. Senior planners in India have recently argued for a shift in developmental priorities from funding safety net programmes to asset creation (Saxena, 2001).⁴ If the mindset of policy makers is beginning to move from the prevention of acute destitution (poverty alleviation) to the promotion of economic and social opportunity (sustainable livelihoods), one needs to consider whether the role of common pool resources also needs to be reconceptualised. Common pool resources need to be seen not only as a safety net, but also in terms of their contribution to positive opportunities for social and economic development.

Figure 3 attempts to stimulate some conceptual thinking on this issue, based on a description of India's major land-use categories. Common pool resource flows are highlighted, drawing on evidence that suggests that such use occurs on forest land, wastelands and uncultivated private lands, as well as fallows, pastures and grazing lands and lands under miscellaneous tree crops ('non-forest common pool resources'). The figure also distinguishes between outputs from common pool resources (goods/use values) and their service functions (primarily ecological functions).

⁴ Current donor interest in the promotion of sustainable livelihoods (as opposed to poverty alleviation) can be seen as a reflection of this move from 'negative' to 'positive' developmentalism.

FIGURE 3: LAND USE AND CPRS IN INDIA



3.1. Outputs from common pool resources

A shift towards a more positive view of the development process does not necessarily dilute the emphasis on common pool resources as providers of specific products that overlap with household production and consumption strategies. What may need to change, however, is the manner in which such consumptive use is conceptualised. Harvesting of resources for self-consumption is sometimes seen as a more ‘legitimate’ demand than their production for sale in markets. For instance, India’s 1988 Forest Policy Resolution suggests that “rights and concessions from forests should primarily be for the *bonafide use* of the communities living within and around forest areas, specially the tribals” (GOI, 1988, emphasis added). The language implies a distinction between such uses and other resource uses that cater to the needs of more distant consumers. The ‘domestic requirements’ of tribals and the poor are highlighted by the resolution as the first charge on forest produce, but it is not clear whether these domestic requirements extend to the use of forest produce as a source of sustainable rural incomes.

However, resource gatherers and users who optimise their allocation of labour and other inputs in the production process may wish to generate marketable surpluses from common pool resource-based activity. As long as such activity does not exceed the ecological limits of the resource base, it may be unnecessary to make a distinction between subsistence uses and the production of goods for the market.⁵ If common pool resources are understood as part of

⁵ It could be argued that allowing production for the market itself creates incentives to over-exploit resources, thus exceeding ecological limits. However, there is no evidence that conclusively demonstrates that the introduction of markets for specific resources is necessarily associated with their subsequent over-exploitation.

rural household production systems, their contribution to domestic consumption (subsistence) and towards income generation should not be seen as fundamentally very different.

Looking ahead, as the rural economy becomes further integrated into the market, common pool resources may become increasingly valued as a source of income for rural households. As resource users shift away from subsistence-dominated activities and self-consumption, the generation of surpluses for sale in the market is likely to become more important. Associated with such a shift are likely to be significant changes in control over such resources, and decisions over their use. For instance, much anecdotal evidence suggests that once a resource acquires market value, it becomes subject to capture by more powerful agents (especially men, and rural elites).

There may be limits to the extent to which one can expect common pool resources to provide a long-term source of sustainable rural incomes. Outputs from common pool resources are valuable as long as there remains a buoyant market for them. Extrapolation of cases of successful market based exploitation of common pool resources may not always be appropriate, since the wider adoption of such strategies may create a glut in the market and depress prices (as with eucalyptus farming in north-west India in the 1980s – Saxena, 1994). Furthermore, the demand for such products may also suffer because of the increased availability of substitutes, or because common pool resource-use itself is considered an ‘inferior’ form of consumption. Other products may then eventually replace products from common pool resources. For instance, fuelwood and animal dung as sources of domestic energy are often seen as more ‘primitive’ than modern stoves that use kerosene and gas. In this sense, one must recognise that the flows of goods from common pool resources may be currently valuable, but are *potentially substitutable* by other goods. Thus, it is important to look at market conditions and opportunities quite closely when projecting forward from current resource use trends.

3.2. Services from common pool resources

Common pool resources also provide important services, playing a role in regulating the hydrological cycle, contributing to soil fertility through nutrient cycling, helping conserve biodiversity, as well as serving as sinks for greenhouse gases. There is a spatial dimension to these service functions: some benefits may be local, as in the supply of irrigation and nutrients to local agriculture (Kumar 2001); others may benefit resource users downstream,

Under appropriate regulatory systems, resource exploitation to generate marketable surpluses can be ecologically sustainable. Equally, subsistence-oriented systems have been known to result in overuse and resource degradation.

such as the impact of land use on water availability in a catchment (Nathan and Kelkar 2001); while some functions may be global, such as biodiversity benefits or carbon sinks.

Resource management issues become considerably more complex, since 'internalisation' of such externalities would require the creation of a system of financial transfers between (downstream) beneficiaries and those whose local resource use practices ensure the continued flow of these services. Schemes such as the farm management programme in upstate New York, which was initiated due to concern over water quality in New York city (Gandy 1997), suggest that partnerships between regulators, upstream resource users and downstream beneficiaries may well provide a way of managing resources in order to capture some of these ecological service functions.

What is distinctive about the service functions from common pool resources is that, in many cases, there are no alternatives, or the alternatives are not cheap. For instance, in the New York example, filtration of water for urban supplies was seen to be considerably more expensive than adaptation of upstream resource use practices. If there are no easy substitutes, these ecosystem functions are vital and irreplaceable, as captured by the notion of 'critical' natural capital. Looking ahead, if other goods increasingly substitute for outputs from common pool resources, the primary reason to maintain such resources may be to protect and manage their ecosystem and ecological functions. Such arrangements are likely to demand increasingly complex negotiation between those who represent the resource interests of local users and those who are affected by the externalities (positive and negative) of specific resource use practices.

Given their linkages with production and consumption systems, the dynamics of common pool resources cannot be studied in isolation from other processes that are affecting the economy. For instance, Figure 3 shows how other land uses affect service functions of common pool resources, most importantly in the regulation of the hydrological cycle. Fertiliser and pesticide use associated with agriculture has impacts on water quality, as does domestic and industrial water pollution from urban centres. Demand for water is determined to a very large extent by agricultural needs as well as the needs of urban consumers. Watershed management strategies, which incorporate specific types of common pool resource use, may need to adapt to these pressures on the demand and supply of water. Management systems for these resources need to recognise these wider linkages, and to create suitable frameworks within which the interests of diverse stakeholders can be accommodated.

Patterns of resource use may be impacted by factors that are operating at a much broader level, such as overall economic growth rates (leading to changes in demand for common pool resources); shifts in the structure of production (from the primary to the tertiary sector); as well as new research that results in the identification of new products and exploitation possibilities. Demographic factors may be particularly important: overall population growth is likely to affect demand for common pool resources, but the structure of this growth may also be relevant. Increases in rural-urban migration are likely to alter the nature of consumption demand for common pool resource-products, but would also change the availability of rural labour, which may have an impact on household production strategies. The incidence of poverty is also likely to be an important factor, since most estimates suggest that the rural poor, especially the landless, disproportionately use common pool resources. Sections 4 and 5 consider the impact of some emerging social and economic pressures on the way in which common pool resources are likely to be conceptualised and utilised in India in the future.

4. Futures - demographic pressures and common pool resources

Population pressures are frequently seen to be an important factor behind the reduced availability and use of common pool resources, especially for the rural poor (Beck and Ghosh, 2000). The NSSO data provides some insight into the extent to which population has an impact on common pool resource use. The data also allows for some inter-state comparisons on the potential pressures on such resources.

Tables 5 and 6 report data on the use of fuelwood and fodder resources, broken down by village size. The smallest villages report the greatest dependence on common pool resources, and there is a clear negative relationship between village size and extent of fuelwood use, collection, as well as grazing and fodder collection. While dependence for fuelwood is significant even in larger villages, grazing on common pool resources appears to hit some sort of lower ‘threshold’ in villages in size classes above 200. One explanation may be that this threshold reflects the carrying capacity of village common lands for supporting grazing, and that this forces livestock owners to depend on a greater use of private fodder resources in larger villages. There are few such alternatives available for rural energy supplies, so fuelwood use is high, even though reported collections from common pool resources do drop slightly in larger villages.

The data allows us to speculate on two types of pressures that may be affecting common pool resources, operating on the demand and supply sides. On the demand side, if there are substitutes available, one may expect common pool resource use to decline as alternative

consumption possibilities emerge. Assuming that the larger villages indicate a higher level of development, they are likely to have more alternative sources of fuel and fodder, reducing use because of greater substitution possibilities. On the supply side, a higher population may exert greater pressure on the resource. According to this hypothesis, the data from the larger villages reflects the fact that they probably have too large a human and livestock population to sustain widespread access to and use of common resources, reflected also in the much lower availability of common land per household in such villages.

Table 5 – Fuelwood use by size of village

Size of village (1991)	% of all households	Common land/household	% of households reporting		
			Fuelwood collection	Fuelwood use	Fuelwood sale
< 100	1.4%	6.28	87.7%	93.7%	8.0%
101-200	1.1%	0.56	71.3%	78.9%	0.6%
201-600	11.2%	0.55	52.8%	66.5%	2.3%
601-1200	19.7%	0.31	48.4%	64.9%	1.3%
1201-2000	19.6%	0.19	44.8%	61.7%	0.9%
2001-5000	32.3%	0.15	40.8%	60.9%	0.6%
5000 +	14.7%	0.09	37.0%	55.3%	0.3%
All	100%	0.31	44.8%	62.3%	1.1%

Source: NSSO (1999)

Table 6 – Access to grazing/fodder by size of village

Size of village (1991)	% of households	Common land/household	% of households reporting grazing on CPRs	% of households possessing livestock reporting use of CPR for fodder	
				Collection	Cultivation
< 100	1.4%	6.28	72.7%	68.6%	0.8%
101-200	1.1%	0.56	41.5%	29.1%	1.2%
201-600	11.2%	0.55	28.6%	20.9%	3.2%
601-1200	19.7%	0.31	26.2%	21.0%	3.2%
1201-2000	19.6%	0.19	19.7%	20.1%	4.7%
2001-5000	32.3%	0.15	14.2%	22.8%	3.0%
5000 +	14.7%	0.09	9.9%	23.5%	3.2%
All	100%	0.31	19.7%	22.7%	3.4%

Source: NSSO (1999)

Looking to the future, it is difficult to make any sensible projections about the impact of increasing human populations (and associated livestock) without taking into account shifts in demand (due to preferences or substitution possibilities) and supply (because of resource depletion or regeneration). Furthermore, there is considerable variation in availability and use of common pool resources at the state level, so an aggregate projection at the national level is somewhat meaningless.

In order to investigate differences that operate at the state level, an index of common pool resource dependence was constructed from the NSSO data. The index was constructed using data on five indicators: common pool resource availability per household; reported value of collection as a proportion of consumption expenditure; percentage of households reporting fuelwood collection; percentage of households possessing livestock and reporting grazing; and percentage of households collecting fodder. Each indicator was normalised using national averages, and these were then aggregated. The procedure yields an index of common pool resource dependence relative to national average, where the national average is 1. Data refers to 14 major states, and was unavailable for Himachal Pradesh and Jammu and Kashmir. Data for Uttar Pradesh, Madhya Pradesh and Bihar refers to undivided states (i.e, including Uttaranchal, Chhatisgarh and Jharkhand, respectively).

Figure 4 – Common pool resource dependence and population growth

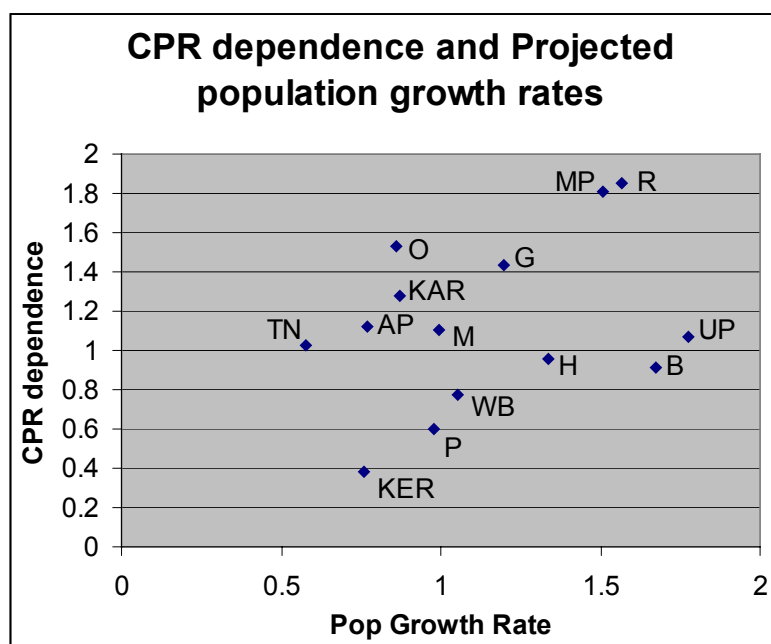


Figure 4 shows a plot of this index of common pool resource dependence against projections of population growth for 2001-26 at the state-level done by Dyson (2001). Rajasthan, Madhya Pradesh, Orissa, Gujarat, Karnataka, Andhra Pradesh, Maharashtra, Uttar Pradesh and Tamil Nadu report an above average dependence on common pool resources. Of these, Rajasthan, Madhya Pradesh and Uttar Pradesh are projected to experience very rapid rates of population increase, and this is likely to add to pressures on common pool resources. Gujarat has a high common pool resource dependence index, and is projected to experience moderately fast population growth, so is also likely to face pressure on common pool resources. Although common pool resource dependence is high in Orissa, Karnataka, Andhra Pradesh, Maharashtra and Tamil Nadu, these states are projected to experience less significant demographic pressures on common pool resources. Demographic pressure is projected to be high in Bihar and Haryana, but these states have a moderate level of common pool resource dependence. West Bengal, Punjab and Kerala report relatively low common pool resource dependence, and are not projected to experience rapid population growth.

Table 7 summarises these results, and divides states into four broad categories on the basis of these indicators and population projections. The states that appear to have the highest levels of common pool resource dependence coupled with high rates of population growth are Rajasthan, Madhya Pradesh, Uttar Pradesh and Gujarat. Assuming that the high dependence figure for Uttar Pradesh reflects usage in the hill districts which now belong to the new state of Uttaranchal, pressures in the rest of the state may not be significant, despite expected rapid rates of population growth. Rajasthan, Madhya Pradesh and Gujarat, on the other hand, may

face significant challenges, unless alternative consumption patterns emerge and/or supplies of common pool resources can be augmented.

Table 7: Common pool resource dependence and demographic pressures

	High CPR dependence	Moderate/low CPR dependence
High population growth	Rajasthan Madhya Pradesh Uttar Pradesh Gujarat	Bihar Haryana
Moderate/low population growth	Orissa Karnataka Andhra Pradesh Maharashtra Tamil Nadu	West Bengal Punjab Kerala

5. Growth, distribution and common pool resource futures

Medium term projections for the Indian economy vary in their optimism regarding growth rates,⁶ but any predictions relating to the future of common pool resources must be placed in this overall context. Table 8 examines the prospects for common pool resource use under a variety of alternative growth scenarios: low refers to a deceleration from current growth rates (i.e. below 5%), moderate refers to the average rates experienced through the 1990s (5-8%); while high refers to a significant acceleration in growth (8% and above). A further distinction is made between a high growth outcome where the benefits are widely shared across the population, and one associated with high levels of poverty.⁷

Table 8 – Common pool resource futures

Growth scenario		Outputs		Ecological Services		Bio-diversity	Sinks	Rural emp.	Risk
		Subs	Cash	Agri.	Urban				
High	Shared	√	√√	√	√√√	√√√	√√√	√	√
	Unequal	√√	√√	√√	√√	√√	√√	√√	√
Moderate		√√	√√	√√	√	√	√	√√	√
Low		√√√	√√√	√√	√	√	√	√√√	√√√

⁶ For instance, recent official pronouncements have revised estimates from an optimistic 8% per annum to 6%; some external observers, including international credit rating agencies, are even less optimistic about the ability of the Indian economy to sustain current rates of growth. The Planning Commission has adopted a target growth rate of 8% over the Tenth Five Year Plan period (2002-7), but recognises the need for considerable economic and political reform in order to achieve this rate (GOI, 2001). Acharya (2002) estimates growth over the next five years to vary between 4% and 6% per annum, probably averaging 5% over the period.

⁷ Evidence suggests that the rate at which rural poverty has been declining in India has slowed down in the late 1990s, and that the absolute number of the rural poor may be increasing, despite overall growth rates in excess of 5-6% per annum (Saxena, 2001)

As suggested in the earlier discussion, common pool resources are seen as contributing to the production of specific outputs (for subsistence and/or for the market), providing services (ecological, for agriculture and/or the urban sector; biodiversity and carbon sinks), as well as providing rural employment and risk spreading for rural resource users. The table speculates about the relative importance of these functions under different growth scenarios. The baseline for the comparison is the moderate growth outcome, which describes current trends in the Indian economy. The number of checks in each box indicates the intensity of likely future uses compared to the baseline. The likely extent of conflict over common pool resources is indicated both by the number of uses that each outcome is associated with, as well as the intensity of each of these uses.

5.1 Present trends (moderate growth)

Common pool resources currently are valued primarily for their contributions to the rural economy, dominated by the output of goods (for subsistence, and increasingly for the market), contributions to rural employment, and the provision of local ecological services to farmers. There is recognition of the role of such resources in maintaining catchments for urban water supplies, preserving biodiversity and for their risk-spreading functions, and increasingly, for their potential role as carbon sinks, but these are currently under-emphasised. With moderate growth, there is unlikely to be a substantial shift in the relative emphasis of these functions, although there may well be increasing pressures on common pool resources as the scale of these demands increases with economic growth and population increase.

5.2 Acceleration (high growth)

If growth rates increase significantly in the medium term, and the benefits ‘trickle down’ to the poorest, one may expect a shift in the rural sector away from subsistence activity and towards a greater engagement with markets. Common pool resource outputs that are associated with a dynamic market would continue to be important, but subsistence uses and contributions to rural employment may decline relatively. Service functions would become more important, and may dominate planning perspectives for common pool resource management. Given a likely structural shift away from the agricultural sector, one may anticipate a reduced emphasis on local ecological services for agriculture and a shift towards services that have downstream urban and regional/global benefits (i.e. a ‘scaling up’ of the service functions towards more diffuse or distant beneficiaries). Such shifts in common pool resource functions may even occur without significant levels of conflict, as the new uses could be accommodated due to declining demands from the rural and subsistence sectors.

If growth is unequal and the incidence of poverty remains high, however, one may find that the safety net functions (subsistence goods, rural employment) remain significant for those who are left out from the benefits of economic prosperity. This may be accompanied by increasing interest in ecological and other services for downstream benefits, as well as in the market-potential of common pool resource-based products as a contribution to economic growth. In such a scenario, there is likely to be considerable conflict between the continuing need for defensive safety net functions that benefit the poor and the rural sector, and the emergent functions that common pool resources perform in the context of a dynamic and rapidly growing mainstream market economy.

5.3 Deceleration (low growth)

If growth rates decline significantly, rural populations are likely to become even more dependent on common pool resources (especially given the lack of alternative land-based resources). Safety net functions are likely to dominate planning for, and the management of, common pool resources, focusing on the needs of an increasingly vulnerable rural population. Managing common pool resources for their service functions, while ecologically critical, may be practically impossible because of the immediacy of demands upon common pool resources by local resource users and the agricultural sector. If these functions were seen to be important for long-term national or global ecological sustainability, it would be necessary to reconcile the conflict between these demands. For instance, mechanisms may need to be developed to provide alternative consumption possibilities for the poor, or to offer them suitable and acceptable compensation, so that local rural resource users are not made to suffer in order to ensure the continued flow of such service functions.

6. Political futures

What this discussion of alternative common pool resource futures does not adequately capture is the political dimensions of access to resources. The conflict between local values and the production of goods and downstream benefits, such as urban water supplies and other ecological services, has a spatial dimension, since resource users and other potential beneficiaries may be quite far apart. Recent policy initiatives for common pool resources in India, such as Joint Forest Management and Guidelines for Integrated Watershed Development, have emphasised decentralisation and management of common pool resources by local communities. However, an increase in the relative importance of downstream service functions may re-introduce the resource interests of distant, non-local, stakeholders into management systems. For instance, the benefits of using land resources as carbon sinks may

impact on a diffuse global community (and perhaps even unborn future generations) stakeholders that are quite far from the local resource users who may have to adapt their land management practices.

It is important to recognise that these different stakeholders occupy very different positions in local and national political structures. Shifts in the relative importance of different common pool resource functions are likely to be intimately linked to shifts in the locus of control over resources. Any change, whether conceptual or material, is likely to have significant political implications, as existing resource users seek to defend their claims against those of other, perhaps newer, claimants. Policy perspectives on such changes will have to recognise the incompatibility of some of these competing uses. Consequently, complex political negotiation and accommodation strategies may be needed in order to reconcile future claims over the management of common pool resources.

7. Policy futures

Policies towards common pool resources are likely to reflect ideological and organisational principles that govern wider economic processes. Current policies towards the Indian economy are dominated by objectives that emphasise ‘sound’ micro- and macroeconomic management, and include, among others, the liberalisation of markets, export promotion, the reduction of ‘wasteful’ public expenditure, and managing the monetary sector (interest and exchange rates). There is growing consensus on the desirability of these policies, driven in part by external pressures, but also increasingly due to their adoption by national policymakers as aspects of basic economic governance. The reform process is associated with a shrinking role for the state and a greater emphasis on private enterprise.

The impacts of liberalisation on the natural resource and common pool resource sector, however, are ambiguous. In the case of forests, for instance, proposals for the greater involvement of the private sector in regenerating degraded lands have been put forward, but have also been successfully resisted at the highest levels of policy making. Guidelines for Joint Forest Management and Integrated Watershed Development Programmes emphasise the need for managing such resources in partnership with collective organisations that represent local interests. At the same time, specific industries (especially mining) have been pushing for the easing of regulations regarding their ability to operate in scheduled (tribal) areas, as well as the lifting of restrictions on the transfer of land to non-tribals. There appear to be contradictory processes at work, simultaneously pushing for a celebration of the collective and communities (in the case of decentralised natural resource management), as well as the market and individuals (in the case of greater private sector involvement).

At a fundamental level, these two agendas are mutually incompatible. Supporters of decentralised natural resource management associate such strategies with ensuring access to the poorest, and with empowering groups that have historically been excluded from access to decision making; there is an agenda of radical rural reform behind such proposals. The proponents of economic liberalisation see no such need for radical rural restructuring. Indeed, they are likely to reject such decentralisation strategies if they are seen to be incompatible with the push towards higher economic growth rates, or to pose a significant threat to the power of established interests.

Although there appears to be a basic disjuncture between the collective ethos implied by moves towards decentralised governance of common pool resources, and the individualistic emphasis that is dominant in many other sectors of the Indian economy, these processes also share some similarities. The motivation for reform in both cases is a perception that the state and its functionaries are incapable of managing resources (in the case of the rural commons) and economic activity (in the case of liberalisation), and that these functions need to be minimised. The minimal state, reduced to its basic regulatory functions, is compatible both with community-based natural resource management and with privatisation. To this extent, the broader neo-liberal agenda that dominates Indian economic reform strategies does not appear to be significantly threatened by the collectivisation and decentralisation of resource use that has been emphasised by recent initiatives towards the common pool resource sector.

8. Concluding remarks

This paper has provided some evidence that common pool resources continue to play an important and increasingly complex role in the Indian economy. It has argued that products and services that are derived from such resources will depend on social and economic changes, but also importantly on policy choices and the nature of political negotiation that takes place between key stakeholders in this sector. Patterns of resource use are inextricably linked with a complex set of wider economic, political and social factors, so any precise prediction about the nature of future common pool resource use is foolhardy.

In most of the scenarios that have been explored in this paper, current uses of common pool resources continue to be important, while new uses or the intensification of existing uses add to the pressure on such resources. Two factors that have been discussed here are population pressures, and alternative land-use options. This discussion suggests that conflict over the management of common pool resources is likely to intensify. Given the multiplicity of uses that are associated with common pool resources, the multiple constituencies that derive

benefits from such resources, and the plurality of policy objectives that are pursued through these resources, decision makers are likely to be forced to make difficult choices about the types of uses that can be accommodated and those which have to be denied access. Specific outcomes are likely to be associated with negative impacts on some constituencies, and the politics of resource access and use may be critical in determining actual 'futures'.

This paper has highlighted the need to examine the common pool resource sector in the context of wider economic policy reform processes in the Indian economy. What these policy processes share is a critical re-examination of the role and functions of the state in the context of resource allocation and use, and the need to include a wider set of actors in the process of decision making. There are crucial differences, however, with one vision of the future pointing towards a rapidly expanding and individualised market-based economy, while the other envisions a decentralised system of local governance with a strong emphasis on collective institutions and values. Ideologically, these alternative futures represent opposite ends of the political spectrum, and it remains to be seen whether the basic differences between these reform agendas can be reconciled.

At a more fundamental level, the paper has argued that the very nature of common pool resources and their linkages with development may need to be reconceptualised in the light of emerging national and global pressures. A singular focus on the safety net functions of common pool resources may be myopic given the potential for common pool resources to contribute to more positive developmental futures. It is hoped that the preliminary speculations about changing roles for common pool resources in the Indian economy that have been presented here will stimulate wider debate about these issues.

References

AC (2002) "Distribution of Operational Holdings: All India", Agricultural Census Division, Ministry of Agriculture, New Delhi. Accessed on the internet (13 March 2002) at <http://agricoop.nic.in/statistics/hold1.htm>.

Acharya, S. (2002) "India's Medium Term Growth Prospects," typescript. Internal project discussion document for a research project funded by the Wellcome Trust (grant no. 053660) – "The Future of India: Population, Environment and Human Development."

ASI (2002) "Distribution of Agricultural Land by Different Usages in India from 1950-51 to 1997-98," Agricultural Statistics at a Glance, Ministry of Agriculture, New Delhi. Accessed on the internet (13 March 2002) at <http://agricoop.nic.in/statistics/land1.htm>.

Beck, T. and M. G. Ghosh (2000) "Common Property Resources and the Poor: Findings from West Bengal," *Economic and Political Weekly*, 35(3), 147- 53.

Chopra, K. and S. C. Gulati (2001) *Migration, Common Property Resources and Environmental Degradation: Interlinkages in India's Arid and Semi-Arid Regions*, New Delhi, Sage.

Dyson, T. (2001) "India's Population: The Future," typescript, London School of Economics, June 2001. Output for a research project funded by the Wellcome Trust (grant no. 053660) – "The Future of India: Population, Environment and Human Development."

Gandy, M. (1997) "The Making of a Regulatory Crisis: Restructuring New York City's Water Supply," *Transactions of the Institute of British Geographers*, 22, 338-58.

GOI (1988) *National Forest Policy Resolution*, Ministry of Environment and Forests, Government of India.

GOI (2001) *Approach Paper to the Tenth Five Year Plan (2002-7)*, Planning Commission, Government of India.

Iyengar, S. and A. Shah (2001) "CPR in a Rapidly Developing Economy: Perspectives from Gujarat," Paper presented at a workshop on "Policy Implications of CPR Knowledge with respect to Common Pool Resources in India", Institute of Economic Growth, Delhi.

Jodha, N. S. (1986) Common Property Resources and Rural Poor in Dry Regions of India. *Economic and Political Weekly*. 31(27), 1169-81.

Kumar, S. (2001) "Indigenous Communities' Knowledge of Local Ecological Services," *Economic and Political Weekly*, 36 (30), 2859-69.

Nathan, D. and G. Kelkar (2001) "Case for Local Forest Management: Environmental Services, Internalisation of Costs and Markets," *Economic and Political Weekly*, 36 (30), 2835-45.

NSSO (1999) *Common Property Resources in India*, Results of the NSSO 54th Round, January-June 1998, Report No. 452(54/31/4), National Sample Survey Organisation, Government of India.

Pasha, S. A. (1992) "Common Pool Resources and the Rural Poor: A Micro Level Analysis," *Economic and Political Weekly*. 27(46), 2499–503.

Saxena, N. C. (1994) *India's Eucalyptus Craze: The God that Failed*, New Delhi, Sage.

Saxena, N. C. (2001) "How have the Poor Done? Mid-Term Review of India's Ninth Five-Year Plan," *ODI Natural Resource Perspectives Number 66*, London, Overseas Development Institute.

SFR (1991) *The State of Forest Report 1991*, Dehra Dun, Forest Survey of India (latest survey available on the internet at <http://envfor.nic.in/fsi/sfr99/sfr.html>).