Common Pool Resources in India: Evidence, Significance and New Management Initiatives

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COMMON POOL RESOURCES IN INDIA:
EVIDENCE, SIGNIFICANCE AND NEW MANAGEMENT INITIATIVES

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Introduction

Common pool resources in land, defined as resources to which varying degrees of access by local communities exists, constitute a considerable part of the geographical area of India. Estimates which take account of the varying degree of access provided by the existence of multiple rights to different kinds of land place the figure at about 70 million hectares out of a land area of 328 million hectares. Of this, 25 million hectares are estimated to lie within forest department owned and managed land and the rest on other land, under the jurisdiction of the revenue department and village and other local governing bodies.

Current Indian Scenario

- GNP growth of 4.8 to 5%
- Literacy rate at 65.39%
- Life expectancy at 61.1%
- Proportion of population in poverty 26.1%

The Indian context within which the role of these resources is to be studied is defined by GNP growth at 4.8 to 5%, human development indicators registering some improvement with literacy rates at 65.39% and life expectancy at 61.1 years, and the rate of population growth declining in the decade of 1991-2001. However, poverty still pervades with an estimated 36% in 1993-94 living in poverty. The 1999-2000 figure is stated to be 26.1% but the two are not comparable due to methodological differences. This study addresses the question: do common pool resources have a role to play in this framework, either as safety nets for the rural poor, or as drivers of development?

The Nature of Access

Common Pool Resources are defined in the Indian context as non-exclusive resources to which the rights of use are distributed among a number of owners. These co-owners are generally identified by their membership of some other group such as a village or a tribe or a particular community. Most micro-studies on use and access of common pool resources in India have adopted this as a broad working definition. Common pool resources thus include community pastures and forests, wastelands, common dumping and threshing grounds, watershed drainages, village ponds, rivers and other common pool water bodies.

Common Pool Resources in India defined as non-exclusive resources to which rights of use are distributed among a number of owners: estimated to be 70 million hectares in a land area of 328 million hectares

When common pool resources are identified as resources where varying degrees of access with multiple and often overlapping property rights exist, it becomes essential to define property rights regimes. These can be identified with respect to different categories of land or with reference to the regulation of the resource related economic activity conducted on that land. The rest of this section shall attempt to adopt both these approaches to understand what kinds of regulatory regimes exist.

In legal terms, the forest based common pool resources (including wetlands, surface water and other water bodies in forest areas) provide access by way of property regimes outlined by the government and consisting of:

- Limited rights on reserved forests of specified communities
- Rights as specified in protected and unclassed forests
- The new genre of rights under evolving joint forest management schemes
- Rights on village and panchayat forests

In almost all parts of India today, villagers have extensive legal right of access only on some specific categories of land like `pasture and grazing lands' and 'village forests', which are directly under the jurisdiction of the village or village panchayat. Strictly speaking all other categories of land not under private ownership such as barren or uncultivable land, waste land, land put to non-agricultural uses and forests, belong to the state revenue department or the state forest department. In practice however, the rural population, especially the poor, does depend to a large extent on the goods and services available from these categories of land also. Apart from these, there are systems of customary rights, which support traditional practices, and thereby represent common rights on private property in certain situations such as when private land is lying fallow in between crop rotation cycles.

State governments have had the right to legislate extensively on forests. The nature of the rights and concessions thereby granted has varied extensively across states. For grazing and

fuel-wood collection, for instance, varying degrees of access exists in different states. Grazing for specified numbers of cattle is allowed in some states, rights to timber collection in others. Similarly, collection of non-timber forest products, both for sale and self-use is allowed. All these constitute partially specified property regimes which allow for access.

Approaches to Information Collection and Evidence Obtained

In India, the role of such common pool resources in the context of poverty alleviation and development has been studied by several regional studies using village level data and information sources. Further, for the first time, a country-wide survey conducted by the National Sample Survey Organisation (NSSO), documented the role of common pool resources in the rural economy through a study of 10, 978 villages selected from across the country through a systematic sampling technique. Several complexities with respect to rights and concessions enjoyed by local stakeholders needed to be addressed by this survey.

> Alternative world-views on appropriate methodology for a study of common pool resources exist. Micro-level village studies and survey based macro studies constitute two methods for operationalising these approaches

A pragmatic approach distinguishing between the "de jure" and the "de facto approach to resource ownership and use was adopted to do this. The *de jure* approach was used for collection of data on the *size* of common pool resources. In this approach only those resources which were within the boundary of the village and were formally held (by legal sanction or official assignment) by the village panchayat or a community of the village were treated as common pool resources The second approach, *de facto* approach, was adopted for collecting information on *use* of common pool resources. By this approach common pool resources were extended to include all resources which were in use by the community by convention irrespective of ownership, and even if they were located outside the boundary of the village. The size of common pool resources was therefore based on a stricter *de jure* definition while the "use" data took into account the actual position with regard to access.

Given the different approaches, it is expected that, in matters of detail, the micro-studies provide richer material. Variations in significance across regions also emerge. However, the NSSO report validates some of the results of village based approaches.

In India, the NSSO report validates some of the results of village based approaches:

- That the area of common pool resources varies in approximately the same range from the two sets of data i.e. from a minimum of 1 to 32% of the geographical area in different parts of the country.
- That the average value of collections from common pool resources was highest for the rural poor
- That the level of development of a village (as approximated by size) is inversely related to the extent of use and collection of fuel-wood
- That dependence for rearing livestock is not as high as it is expected

However, evidence from micro studies shows that the richer cultivator households sometimes get higher benefits from common pool resources due to complementarity between agricultural private property assets and the capability to use common pool resources. Other researchers also point out that privatisation of common pool resources tends to redistribute land in favour of the richer households.

With regard to the relative significance of the role of common pool resources as safety nets and as drivers of development, a mixed picture emerges with both aspects emerging as significant in some situations and contexts

Capturing aspects of poverty alleviation, development and common pool resources linkages

The present study uses the factor analysis technique and the NSS data-set to capture aspects of the development-common pool resources linkages. Three aspects are examined:

- the poverty and lack of sufficient means of livelihood and common pool resource linkage,
- the linkage with agricultural output and livestock and,
- the role of developmental impacts such as urbanization and alternative industrial employment.

It is found that the contribution of common pool resources continues to be more in the context of a survival strategy for the rural population. The negative relationship of common pool resources with literacy and the proportions employed in industry, points towards the influences of urbanisation and industrial development as reducing their significance. Of course, certain complementarities in the production process between private and common pool resources would continue – particularly in the agriculturally developed zones, such as

those between fodder and livestock, pumpsets and extraction of groundwater for agriculture. One could then see pockets of intensive complementarity together with a continued safety net role in the larger economy.

Evaluating Recent Policy Initiatives

Given the above diverse roles, the question that arises is: what kinds of policy initiatives need to be in place? We first review some new initiatives taken recently.

Some new initiatives aimed at introducing a more participatory approach to management of land and water in the common and governmental domains have been introduced by the government in the decade of the nineties. Of these Joint Forest Management (JFM) and Watershed Development Guidelines constitute two important steps that saw implementation. Both were aimed at a more holistic natural resource management policy. The JFM originated in the failure of a centrally driven policy in the past and its consistent criticism, coupled with the success of a few peoples' driven initiatives. It was a kind of "centralised decentralisation", constituting a partnership between the forest department and the people through the setting up of committees for forest protection. The resource sharing mechanism aimed at poverty alleviation for local communities and complementary conservation of forests.

Watershed Development Guidelines, on the other hand, was aimed at holistic development of land in a watershed, seen as a possible vehicle for rural development. It was aimed at bringing together the concerns of different agencies owning land in the watershed i.e. the department of forests, the revenue department, private owners, village bodies and communities with rights of access.

In both cases, indifferent success has been reported.

- The ground rules for the formation and operation of forest committees and watershed development teams are often weighed heavily in favour of the respective line departments
- disputes over sharing of the produce have arisen in JFM and in the absence of a legal enactment to protect them, promised sharing of output in return for protection has not been implemented.
- In toto, JFM as implemented does not seem to have improved access of local people to common pool forest resources. Where pre-existing institutional structures have been

ignored, it has even resulted in a deterioration of their status vis-a vis the government departments

- Such initiatives need to be complemented with a policy on land use that prevents continued encroachments by industry and urbanisation.
- With respect to watershed development guidelines as well, large variations exist across states, benefits have been negligible by and large. It constitutes an example of hastening social organisation, which may at times be counter productive.

Unfortunately, the dominant purpose of the JFM strategy seems to continue to be perceived as one of protection and not conservation. In the case of forest resources the department/state continues to be the sole owner with people being involved at best as partners without any ownership rights over the assets concerned. The resource is not at the disposal of the community and the state continues to exercise the right to choose the beneficiaries to whom use rights are to be granted, and also reserves the right to withdraw the benefits extended. Some researchers conclude that JFM has remained more a form of co-opting villagers into the agendas of the stakeholder who is perceived to be the more powerful, within and outside the state. Others argue that the decentralisation implicit in JFM has made no effort to take into account pre-existing traditional institutions of forest management. Another initiative in the context of rural governance, the PESA (Panchayat Extension to Scheduled Areas Act, 1996) is seen as more inclusive of pre-existing tradition and customs of the tribal societies. The main structures of government continue to be perceived as non-transparent and non-participatory, even as they seek to create pockets of devolution.

Some commentators see a regression in such forms of intervention in the context of some regions. Whereas pre-existing structures (such as Van Panchayats in Uttaranchal) gave the status of "right-holders" to local communities, they have now been reduced to the position of " beneficiaries" of JFM. The lesson to be derived seems obvious. In a large country like India, interventions need to take regional variations in existing institutional bases into consideration and not aim at "centralised" drafting of "decentralised participatory governance".

Key Policy Implications of the Present Study

- For an in-depth understanding of the role of common pool resources in the development process, the overall magnitude of these resources needs to be identified and the nature of access of stakeholders to these resources and the dynamics of change in it needs to be understood.
- In India, a recent NSS report augments a large number of village studies to provide information on magnitudes and the underlying dynamics of change
- It is found that common pool resources continue to be important as a survival strategy of the rural poor but pockets of complementarities with development can also be observed
- Learning from the experience of recent policy initiatives, it can be stated that interventions to improve access and influence dynamics of change need to be built on pre-existing institutions of resource management, and be transparent with respect to processes of sharing
- They need to be complemented with a policy on land use that prevents continued encroachments by industrialisation and urbanisation
- And, finally, they need to be designed to provide “level playing fields” for stakeholders with differing endowments of information and power
- Designing interventions to focus on processes that internalise the perception of different stakeholders in resource ownership and management and avoid “centralised decentralisation”.

COMMON POOL RESOURCES IN INDIA:
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INTRODUCTION

This study aims at evaluating the role played by common pool resources in poverty alleviation and development oriented strategies in India as viewed by different stakeholders. The objective is to understand how knowledge about common pool resources has formed the basis of changing policy interventions, understanding however that the link between knowledge and policy formulation is driven by the manner in which policy problems are defined. These definitions and perceptions differ between different policy/decision makers. Furthermore, the methodology of data collection and analysis is another filter through which information reaches the policy maker. Decision or policy makers typically include organs of the state at different levels, pressure groups lobbying for particular resource interests and local communities. They draw on the state of current knowledge to "frame" problems, in this context the role of common pool resources in poverty alleviation and development, and then consider alternative responses to it. Our effort in this paper shall be to study this process and its implications for policy making with respect to common pool resources in India. We shall divide the study into the following sections:

- Background on macro aspects of the Indian economy, in particular changes in poverty levels and growth strategies
- Land ownership, access and management, including the different forms of communal control
- Common pool resources and the poor: alternative approaches to data, information and their implications for accessing appropriate knowledge:
- Key first phase successes (Joint Forest Management (JFM), Watershed Development Guidelines, etc.: a part of an iterative process)
- Dynamics and Complexities of use, access to and regulation of common pool resources, including alternative viewpoints on drivers of change
- New initiatives and their varying success
- Key Issues for Policy

I THE CONTEXT: THE INDIAN ECONOMY

India is a large country with a geographical area of about 328 million hectares and a population of over one billion. An understanding of the broad outlines of the development process in the last fifty years shall help us to see the problem of continued poverty and the role of common pool resources in its alleviation in proper context.

In its initial phases the Indian economy followed a model of centrally planned development, albeit with a significant role for private enterprise. The four decades from the 50s to the 80s were marked by growth based on heavy investments in the public sector. The 1980s also saw a focus on redistributive policies within the economy, preceding the era of liberalization of the 1990s. The macro-economic crisis of 1991, created the background for bringing in substantial changes in the economy. Almost all the areas of the economy have since seen structural reform though the pace is perceived to be slow. Table 1 presents the per capita GNP of India as compared to those of a few developed and developing economies for the year 1999.

Table 1: GNP per capita for 1999

(in $)

Country	*Per capita GNP*	*Per capita GNP in Purchasing Power Parity*
India	450	2,149
USA	30,600	30,600
UK	22,640	20,883
Japan	32,230	24,041
Zimbabwe	520	2,470
Tanzania	240	478
Sri Lanka	820	3,056
Pakistan	470	1,757
Bangladesh	370	1,475

Source: World Development Report 2000/2001. Attacking Poverty, Oxford University Press, New York, 2001.

Table 2 presents the annual growth rate of GNP and per capita NNP, at 1993 – 94 prices, since the planning process was initiated i.e. from 1951-52 onwards. Wide variations in growth rates have been recorded over the years. After 1991-92, the growth rates have been more stable. The GDP growth rate at constant factor cost, decelerated to 4% during 2000-01 according to figures released recently by the government. The advance estimate for 2001-02 is 5.4%. As far as the sectoral real growth rates in GDP (at factor cost) is concerned, recent

figures indicate that the share of the agricultural sector has declined to about 28% while the share of the industrial and service sectors has gone up. The services sector now contributes about 46% of GDP.

Table 2: Annual Growth Rates of GNP and Per capita NNP
(in % at 1993-94 prices)

Year	*Growth Rate of GNP*	*Growth Rate of NNP per capita*
1951-52	2.5	0.7
1961-62	3.0	0.4
1971-72	0.9	
1981-82	5.8	3.8
1982-83	2.6	-0.1
1985-86	4.9	2.6
1988-89	10.1	8.3
1990-91	5.5	3.3
1991-92	1.1	-1.5
1994-95	7.2	5.1
1996-97	8.2	6.3
1998-99	6.4	4.4
1999-2000	6.2	4.4
2000-2001	3.9	1.9

Source: Economic Survey, 2001 and Economic Survey, 2001-2002, Government of India.

Tables 3 and 4 summarize the current scenario in terms of data on human development indicators and demographic change. Although India is a vast country in terms of its geographical size, it is of utmost relevance to remember that it is the only country to have crossed the one billion mark after China, in terms of its population. It has a share of 16.87% of the world's total population. However, as indicated by the recent population census, there are signs of a slow down in the rate of growth of population to 1.93% in the decade of 1991-2001. Indicators of human development such as literacy rates and life expectancy at birth also record some improvement.

Table 3: Human Development Indicators

Life expectancy at birth (1993-97)	61.1 *years*
Literacy rate(2001)	65.38 *percent*
Infant Mortality Rate (1999)	70 *per '000*
Death Rate (1999)	8.7 *per '000*
Birth rate (1999)	26.1 *per '000*

Sources: Economic Survey, Government of India, 2000-2001;
Census of India 2001, Provisional Population Totals,
Registrar General and Census Commissioner, India.

Table 4 : Total Population, Growth Rate and Other Indicators

Total Population	1,027,015,247
Decadal Population Growth: 1991-2001	21.34 %
Average Annual Growth Rate:1991-2001	1.93%
Density of Population (per sq.km)	324
Sex Ratio (females per 1000 males)	933

Source: Census of India 2001, Provisional Population Totals, Registrar General and Census Commissioner, India.

Within this picture of somewhat stable growth with indications of improving development indicators and slow down in rate of growth of population, the debate on the magnitude and nature of poverty continues. Available data on poverty indicates that in the last decade, the proportions below the poverty line have reduced although substantial parts of the population continue to remain in poverty in terms of absolute numbers. Table 5 summarizes data on poverty over the last three decades.

Table 5: Estimates of Poverty
(proportion below poverty line in percent)

Year	*All India*	*Rural*	*Urban*
1973-74	54.9	56.4	49.0
1977-78	51.3	53.1	45.2
1983	44.5	45.7	40.8
1987-88	38.9	39.1	38.2
1993-94	36.0	37.3	32.4
1999-2000*	26.1	27.1	23.6

* This is based on data collection for a 30-day recall period. The figures for 1999-2000 may not be strictly comparable to the earlier estimates because of some changes in the methodology of data collection.
Source: Planning Commission, Economic Survey 2000-2001.

Clearly, large numbers still live in poverty in India, even by this crude indicator. Further, rural poverty is of a larger magnitude, around 27.1% of the rural population even on this reckoning. The significant questions in the context of this study which shall be examined in the next sections are:

- What kind of land laws and tenurial rights determine access to common pool resource land and its usufruct by the poor?
- How do common pool resources contribute to the livelihoods of these people?
- What kind of access to land and to its usufructs do they have?

- What alternative methodologies can be used to determine the role of common pool resources as safety nets, as sources of opportunity and of empowerment? How can these methodologies be evaluated?
- What inputs can such a study provide to policy making in developing countries?

II LAND OWNERSHIP AND RIGHTS TO ACCESS

Access to land and its ownership in India can be viewed in a number of alternative ways. Ownership of land is vested in private individuals, the state and its agencies including departments (such as the forest department) and local bodies such as panchayats. Individuals or groups hold in private ownership agricultural land of about 143 million hectares in a total geographic area of 328 million hectares. About 75 million hectares of land is under the legal jurisdiction of the forest department. However, peoples' rights to access exist on some of these lands. Common pool resources in land are estimated by Chopra and Gulati (2001) to be about 70 million hectares in the major states of India. Of this, forest based common pool resources are estimated to be 25.069 million hectares. In other words, about one-thirds of forest owned land is open to different kinds of rights of access and use by village and other local communities. The rest of the common pool resources are under the ownership of local bodies of different kinds and sometimes under private ownership but open to periodic common access.

II.1 What are Common Pool Resources and how is Access Determined?

The term "common property resources" is defined in the literature as “private property for a group”[1]. It subsumes the existence of property regimes or organizational systems circumscribing the nature of rights and responsibilities existing within the group with respect to the resources. The organizational rules could be supported either by legal or conventional authority. However, in common parlance common property resources are often viewed as a category on which ambiguous rights exist. This mis-specification of open access as common property is mainly due to the varying degree of access that now exists on common property as a consequence of the break down of the organizational systems associated with them[2]. In such a situation it is appropriate to distinguish between "common pool resources" which are subject to different degrees of access and "common property resources" which have well

[1] See for such a definition Bromley (1989).

specified property regimes. The estimates and the discussion in this paper refer to common pool resources unless otherwise referred to. In the discussion on legal access and regulatory frameworks which follows later in this section, we use the term "common property regimes".

In actual practice, varying degrees of access to resources always exists. A distinction, for instance, could be made between ownership rights and user rights. In a functional sense, the distinction between these two kinds of rights and the conditions that go with it are clear at the village level. Multiple uses and interrelated rights are the order of the day as any field worker knows. In fact, sets of resources are sometimes characterized by complementarity in use, the linkages between these uses giving rise to common property regimes of differing kinds. Examples are easily found in rural societies in the context of water bodies accessed for different purposes or by different groups of communities. Land situated in different parts of a watershed or a tank bed, can be used by different sets of right-holders at different times of the agricultural year. In parts of Tamilnadu, landowners in the ayacut of a tank have prior right to the water for irrigation over landowners on the tank foreshore, even though the tank is treated as community property[3]. It is common for nomadic communities to possess sheep penning rights on private farmland in parts of Karnataka, Gujarat and other parts of semi-arid India[4]. Similarly, grazing rights on private land are accorded to pastoral communities after the harvesting of the monsoon crop. Institutions formalizing such combinations of common and private property rights continue to thrive as long as it is to the mutual advantage of the stakeholders. In other words, user rights may exist for certain purposes and at certain times. A complex mosaic of property rights regimes is therefore found to exist in different parts of the country.

It may be useful to point out that a large number of such institutional arrangements are the consequence of a continuous interaction between vested interest groups at local levels and it is not correct to surmise that equity plays an important role in their functioning. “Mutual advantage” is often conditioned by existing power structures. Further, changing technology and increasing pressure on land are bound to destabilize these institutions, reflecting as they do local nuances. This process of destabilization results in ambiguity with respect to the

[2] See Iyengar (1999) for such an interpretation. See also Singh (1994) for definitions.
[3] See the exhaustive account of tank management in Tamilnadu in Shah et. al. (1998).
[4] For an excellent documentation, see Cincotta and Panagare (1993).

structure of rights and duties, reinforcing the popularly held notion that common property resources are indeed open access resources.

Common pool resources are defined in the Indian context as non-exclusive resources to which the rights of use are distributed among a number of owners. These co-owners are generally identified by their membership of some other group such as a village or a tribe or a particular community. Most micro-studies on use and access of common pool resources in India have adopted this as a broad working definition. Common pool resources thus include community pastures and forests, wastelands, common dumping and threshing grounds, watershed drainages, village ponds, rivers and other common pool water bodies.

In the context of common pool resources as resources where varying degrees of access with multiple and often overlapping property rights exist, it becomes essential, therefore, to define property rights regimes. These can be identified with respect to different categories of land or with reference to the regulation of the resource related economic activity carried on on that land. The rest of this section shall attempt to adopt both these approaches to understand what kinds of regulatory regimes exist.

II.2 Regulation by Land Ownership Categories: Forest Land

In legal terms, the forest based common pool resources (including wetlands, surface water and other water bodies in forest areas) provide access by way of property regimes outlined by the government and consisting of:

- Limited rights on reserved forests of specified communities
- Rights as specified in protected and unclassed forests
- The new genre of rights under evolving joint forest management schemes
- Rights on village and panchayat forests,

Upto 1980, forests were on the State list and each state had its own set of laws with respect to access to forest land. The position continues to be much the same even though forests are now on the Concurrent list and the centre too can legislate with respect to forests.

The ruling principle of forest management with respect to reserved forests has been "preservation by exclusion". The conflicts and complementarities in the existing land use

patterns have unfortunately not been emphasized to the required degree. The laws are more in the nature of "policing" activities rather than aiming to ensure survival of both the eco-system and the livelihoods of locals dependent on forest products. There is over reliance on a conflict model of enforcement with its stress on criminal liability. Forest dwellers have so far been largely excluded from participating in the legal discussion process (Rosencranz, et.al 1991).

Shrinidhi and Lele (2001) distinguish between four types of regimes in a discussion on forest tenures in the Karnataka Western Ghats – state controlled, privately owned, community-controlled and open-access forest tenure regimes. They observe that the structure of forest tenure is much more complex than the simplistic schemes currently used by government agencies. In a changed social context characterized by high population density and a policy favouring people's participation in management, the existing regimes become untenable. For involving local communities, a reassignment of rights giving adequate access to locals has to also take into consideration the multitude of individual usufruct regime that already exists and could "impede community control" or "lead to greater inequity if ignored".

According to the existing laws on forests, forests in India are classified into three categories as mentioned earlier: Reserved forests, Protected forests and Unclassified forests. Forest land also includes all state owned tracts of land classified as forests under any legal enactment or administered as forest, irrespective of whether or not these are actually under forest. However, this classification excludes areas under social and farm forestry, village forests, Van Panchayat forests [5]and forests owned by individual households.

Reserved forests are constituted under the Indian Forest Act or other laws at the State level. The government owns absolute rights of ownership in reserved forests. The products of the forest are not for use of the local population unless they are specifically permitted to do so by grant of privilege and, thus, usage is not a matter of right. Access to these forests is generally restricted.

Protected forests are also constituted under the Forest Act. However, here the locals are allowed to gather all produce except those items which are specifically prohibited. Apart from

[5] Van panchayat forests are institutions created in some parts of Uttar Pradesh in the early part of the twentieth century. They manage pre-designated forests falling in the neighbourhood of certain communities.

this, certain other privileges are also permitted for the local population. Thus, rights to collection of leaves, firewood, fodder and other minor forest produce, grazing of cattle, etc. are commonly granted to the local population.

Unclassed forests include all other forests. Some of these may also be owned by individuals, village communities and district councils. All village forests are included in this category. User rights are generally defined by law in these forests and vary from forest to forest and across states.

The National Forest Policy (1988) enumerates that among the essentials of forest management provision of sufficient fodder, fuel and pasture, especially in areas adjoining forest, is necessary in order to prevent depletion of the forests beyond the sustainable limit. Further it also states that village and community lands not required for productive uses, should be taken up for the development of tree crops and fodder resources. The revenues generated through such programmes should belong to the panchayats where the lands are vested in them, in all other cases such revenues should be shared by the local communities in order to provide an incentive to them. It also makes special mention of the tribal communities dependent on forests. Although the aims and objectives behind the National Forest Policy are laudable, the policy itself is in the nature of a directional statement. It is left to the States to formulate actual laws and enactments.

To sum, in almost all parts of India today, villagers have extensive legal right of access only on some specific categories of land like `pasture and grazing lands' and 'village forests', which are directly under the jurisdiction of the village or village panchayat. Strictly speaking all other categories of land not under private ownership such as barren or uncultivable land, waste land, land put to non-agricultural uses and forests, belong to the State Revenue Department or the State Forest Department. However, the rural population, especially the poor, does depend to a large extent on the goods and services available from these categories of land. Apart from these, there are systems of customary rights which support traditional practices, and thereby represent common rights on private property in certain situations such as when private land is lying fallow in between crop rotation cycles.

II.3 Rights and Concessions for Cattle Grazing and Fuelwood Collection

As mentioned earlier, State governments have had the right to legislate extensively on forests. The nature of the rights and concessions thereby granted has varied extensively across states. We look at two crucial aspects, grazing and fuelwood collection, in order to illustrate this point. These two aspects have also figured prominently in the literature in discussions relating to poverty and the role of common pool resources in rural economies.

In Andhra Pradesh, the policy of the government is to allow free grazing in all the forests of the state except in areas notified for regeneration. On the other hand, for removal of firewood, no concessions have been granted to the people. In Bihar, on the other hand, both grazing and collection of firewood from the forests have been recognized as rights of right holders. In Himachal Pradesh, grazing rights are permitted to local right holders and concessionists. All landowners have also been given the right to collect dry fallen material from trees, while special concessions have been given to poorer sections for sale of fuelwood. In Karnataka, the policy of the state is to permit free and unrestricted grazing in the forest areas including reserve forests. However, there is no provision for free removal of fuelwood. Instead, firewood is sold at concessional rates by the forest department through its outlets and cooperative societies, or on payment of a license fee by villagers. In Madhya Pradesh, grazing is permitted in forests either free or at concessional or commercial rates subject to the number of cattle owned per family. For other animals, a nominal grazing fee is imposed for grazing only in protected forests. Villagers can also collect free of cost, dead and fallen wood from the forest for their personal consumption or sale. In another semi-arid state, Maharashtra, a grazing policy has been implemented whereby the forest areas have been classified on a functional basis, and the charges are fixed according to the incidence of grazing in terms of cattle units. Grazing in the forest areas has thus been linked to the carrying capacity of the grazing units. Fuelwood is collected free of cost by the villagers. In another arid state i.e. Rajasthan, adivasis have been explicitly allowed to graze their cattle free of charge in notified areas. In Uttar Pradesh, in most of the forest areas right holders and concessionists are allowed to graze their cattle free while at other places they are charged nominal fees. Professional graziers are charged separately. Villagers here have rights concessions to collect and remove fallen firewood, with no limit being set for bonafide use. This right also extends to people living and working in the forest. Finally, in West Bengal, grazing rights have been allowed in reserved and protected forests while local people residing in the forest are allowed

the concession of grazing their cattle in open blocks at normal rates. There are no rights and concessions granted to villagers for removal of firewood. Only privileges and concessions have been granted to forest villagers and tribals. The following Table 6 provides a view of the diversity in the extent of rights and concessions in different parts of the country.

Table 6: Rights for Grazing and Fuelwood

State	*Nature of Rights: Grazing and fuelwood*
Andhra Pradesh	Free grazing except in 'regeneration ' areas No concessions
Bihar	Limited recognition for grazing and fuelwood
Himachal Pradesh	Grazing rights to local right holders and concessionists: all land owners collect dry fallen material; poor get fuelwood at concessional rates
Karnataka	Free and Unrestricted grazing: No removal of fuelwood
Madhya Pradesh	Free or concessional grazing for limited no. of cattle per household
Maharashtra	Concessional Charges according to number of cattle Fuelwood free of cost
Rajasthan	Free grazing for tribal groups
Uttar Pradesh	Free grazing for right and concession-holders: professional graziers charged separately: free removal of fallen fuelwood
West Bengal	Grazing rights in open blocks in reserved and protected forests: no rights for removal of fuelwood

II.4 Rights and Concessions: Minor Forest Products and Timber

With regard to minor forest produce, rights and concessions are more or less uniform throughout India. Generally all forest dwellers have the right to gather minor forest produce for self-consumption and household purposes, and in some cases for sale too.

Rights on timber from the forest vary widely across states. In Andhra Pradesh for example, it is only the tribals who are allowed free removal of timber for meeting their domestic and agricultural needs, even within reserved forests. Similarly in West Bengal, certain rights and concessions are granted only to the Scheduled Castes and Tribes. However, most states, including Andhra Pradesh, Bihar, Karnataka and Uttar Pradesh provide for the supply of limited timber at free or concessional rates especially for purposes of rural housing and for agricultural purposes. In Himachal Pradesh, on the other hand, extensive rights exist on timber for construction of houses for all categories of people, often at extremely nominal rates. In Madhya Pradesh too, the *nistar* concessions on timber were limited in reserve forests but in general the concessions were very liberal in the protected forests of the state.

II.5 Regulation by Land Ownership Categories: Revenue and Panchayat Land

In India, all land is not under private or forest department ownership. As indicated above, some land is under the jurisdiction of the government including the local self-governing units called "panchayats". The panchayats regulate the use of pasture land in general whereas all barren and wasteland, land under non-agricultural use and cultivable waste is classified as revenue land. The exact situation varies from state to state with common pool resources being traditionally governed by the needs of those accessing them. Special forms of management exist in certain states. In the north-east, communal tenures with local control are still dominant and in the Himalayan state of Uttaranchal, special panchayats called "van panchayats" managed the village forests. They were set up in the earlier part of this century and had substantial autonomy in forming rules relating to use, appropriation and regulation. This autonomy was eroded by the 1976 amendments to the Forest law.[6] In the case of most of these lands, formal legislation, as understood in terms of legal statutes or enactments were practically non-existent.

[6] See the discussion in Iyengar and Shukla (1999) and in Singh (1994).

II.6 Regulation of Eco-Systems and Economic Activity on Common Pool Resources

A large variety of economic activity takes place within forests (mining, lumbering, etc.). Water bodies such as tanks, wetlands also are to be found there. Individual states have legislated many laws relating to each of these which now need to be consolidated. These relate to exploitation of raw material for industrial purposes, rules relating to transit and felling of timber, acts for controlling the extraction of non-timber forest produce, etc. Various revenue, tax and land laws impact forestry related activity. Also anomalies exist when revenue land is regulated by the revenue department and panchayat and *gochar* (village grazing) lands by the forest department. Under one kind of Act in Rajasthan, a wealth tax of 50% is imposed on the total annual sale price of produce from agro-forestry for private farmers whereas a 2% tax exists on production for industrial or commercial purposes. This is particularly unacceptable in a state where government policy states that agro-forestry needs to be encouraged.[7]

Similarly, laws need to be formulated for grasslands which do not form a part of a protected area. Another lacunae remains in protecting mangroves falling outside the Coastal Regulation Zone (CRZ) Notification from felling or pollution activities. Neither is there any law regulating human habitation around wetlands, especially those outside the CRZ, and nor are there separate legislation for protecting island ecosystems. One of the recommendations has been to establish an Ecological Science Research Group consisting of independent, professionally competent experts in different branches of science and technology to act as an information bank in order to make more effective regulatory frameworks (WWF-India 1999). The need for generating good quality information on environmental and related matters has also been emphasized as a key input for improvements in natural resource management. It is estimated that there are approximately 200 enactments with provisions relating to environmental protection and related matters. There is a need for consolidating these laws. These need to be reviewed and the conflicts within them resolved (Singh 2000, Chandra Pal 1999). However, it is only since the 1980s that the judiciary has been taking note of substantive aspects of conservation such as the rights of local people over common forest lands.

[7] See Singh (2000) for in depth analysis of such anomalies.

III COMMON POOL RESOURCES AND AGRO-ECOLOGICAL ZONES

With the existence of differentiated systems of rights as explained above, it is difficult to estimate the exact magnitude of common pool resources in the country. Further, their magnitude and significance varies across agro-ecological zones in the country. India has been divided into fifteen agro-climatic units as presented in Appendix 1[8]. These exhibit variations, ranging from river valleys to plateaus and hills with varying climatic conditions. However, data on poverty, population and other socio-economic variables is more easily available by political divisions such as states. We attempt a cross tabulation between states and agro-climatic regions in Appendix 3 to capture the magnitude of variations in agro-climatic conditions in each state of the country and compare with data on rural poverty and population.

This table shows that almost every state in Western and Central India has arid and semi-arid regions. Percentage of rural population below the poverty line is on the higher side for states with large arid and semi-arid regions. However, states with the highest levels of rural poverty i.e. Orissa (49%), Bihar (58.21%), West Bengal (40.80%) and Assam (45.01%) are not arid and semi-arid states. Further, Rajasthan, characterised as extreme arid, semi arid and arid has only 26.46% of its rural population falling below the poverty line.

Table7**: Characteristics of Arid and Semi-arid Agro-ecological Zones**

	Units	Zone 8	Zone 9	Zone 14
Geographical Area	Million hectares	37.592	33.222	17.580
Rainfall (annual average)	mm.	1030	904	395
Density of population	Persons per sq. km.	136.77	169.28	58.16
Net Sown area per capita	Hectares	0.33	0.385	0.75
Forest Area	%of total area	20.17	11.3	7.28
Irrigated area	% of net sown area	21.2	11.5	6.3
Livestock Density	Animals per hectare of GCA	2.64	1.77	2.32
Sheep and goats	% of livestock	36.41	29.78	72

Note: GCA is gross sown area i.e. net sown area corrected for cropping intensity.

[8] See Planning Commission (1991) Agro-climatic Regional Planning at the state level ARPU Working Paper No.5 .

Further, certain anomalies do exist in the definitions of agro-climatic regions. Sometimes, variations in temperature and normal rainfall within a region are high with the result that regions characterized as semi-arid may have a rather high rainfall. This is apparent from the classification in Table 7 of eighty-nine districts in Western India falling in Zones 8, 9 and 14 as belonging to the arid and semi-arid regions in the country. Together, they cover an area of about 88 million hectares.

Additionally, small parts of other states may also be characterised as arid or semi-arid. A more comprehensive description of arid and semi-arid areas of the country is given in Appendix 5 where these areas are also included. Note, however, that in this more comprehensive coverage as well, large variations in rainfall are to be found.

In general, the arid and semi-arid zones of the country are interspersed with plateau and hill areas, the physiography being characterized by:

(a) Low hill ranges, mounds, narrow valleys with acute soil erosion and excessive run-off,

(b) Undulating topography,

(c) Vast areas of barren and uncultivated land.

These areas have lower population density than the rest of the country. The western dry region in particular has all the characteristics of hot desert namely scanty and erratic rainfall, high evaporation, non-existence of perennial rivers and sparse vegetation. Irrigated areas comprise a smaller part of the sown area than elsewhere and sheep and goats constitute larger proportions of the livestock population than in other agro-ecological zones.

IV METHODOLOGY FOR STUDYING ROLE OF COMMON POOL RESOURCES: ALTERNATIVE WORLD-VIEWS, APPROACHES AND RESULTS

Sections II and III provide pointers to the complexities that characterize the study of common pool resources in India. A complex web of legal and conventional rights and concessions determine access to land and its product. Ground rules vary from region to region. So do the agro-ecological conditions and correspondingly the context in which common pool resources are to be viewed.

Further, approaches to the placement of the commons in the broader economic and social context of communities vary. These differences enrich the discourse in a theoretical context. To illustrate, an argument exists for valuing labour spent by people in the conservation of common pool resources in the same manner as any other labour (Kadekodi 2001). The argument is that the complementarity between common pool resources and other private property makes them important inputs into economic activity. However, a fundamental disequilibrium in the labour market prevents community labour from being recognized as a category similar to economic labour. The author therefore argues for the gap to be bridged by creating institutions which bring common pool resources labour closer to other market labour.

In contrast with the above, Saint (2001) stresses the link between the sacred and the secular in his discussion of the commons. He hypothesises that the existence of common pastures and sacred groves has played a vital role in the continuation of an animal-husbandry based culture of the Western part of India (Rajasthan). The commons constitute, in a sense, a space between the private domain and the rest of the cosmos and are viewed by people as an extension of the community, rather than as an economic resource. The implication in the argument is that analysts should refrain from treating them as a resource only, without focussing on their culture enriching attributes.

Such conceptual differences in the approach to the commons impinge on methodologies that are appropriate for studying their contribution to the generation and sustenance of livelihoods. Furthermore, in-built assumptions in different philosophical approaches need empirical validation. As it happens, social scientists have, for some time now, studied common pool resources in local community contexts. Such studies are rich in detail from economic, social and cultural contexts. However, the generalisability of these findings at national and sub-national levels is always open to question. In the Indian context, the magnitude, role and significance of common pool resources in India's rural economy have been examined using one or more of three methodologies and sources of information specific to them. These are:

- Data and information from micro studies carried out in different parts of India in the last decade or more
- Data obtained from a recent country-wide survey conducted by the National Sample Survey Organization

- Indirect evidence from a reclassification of land use data as also a comparison with remote sensing data

It must however be pointed out that each of these approaches views common pool resources as resources, which contribute to economic well-being and hence assist in augmenting and framing policies for removal of poverty. We postulate that each approach provides different kinds of inputs into policy formulation. The latter itself can be viewed as an iterative process in which new knowledge feeds into policy and the lessons of programmes operationalised in specific contexts throw light on the multiple functioning of societies.

IV.1 A Comprehensive Survey Based Approach

The estimates made by the National Sample Survey Organization as based on the 54th round of the survey, provide a convenient starting point for the discussion. The document (NSSO 1999) relates to common pool resources in the life and economy of the *rural* population of India. The major contribution of the survey is that it provides for the first time in India a comprehensive State and National level database on the size, utilization and contribution of common pool resources. It also provides disaggregated information at the State level in terms of agro-climatic zones.

This study aims primarily at an assessment of the common pool resources in terms of their contribution to the lives of the rural people. Thus, the role of common pool resources in providing biomass fuel, irrigation water, fodder for livestock and other forms of economic sustenance has been the main focus. The results are based on a comprehensive survey conducted to cover 78,990 rural households in 10,978 villages across the country[9]

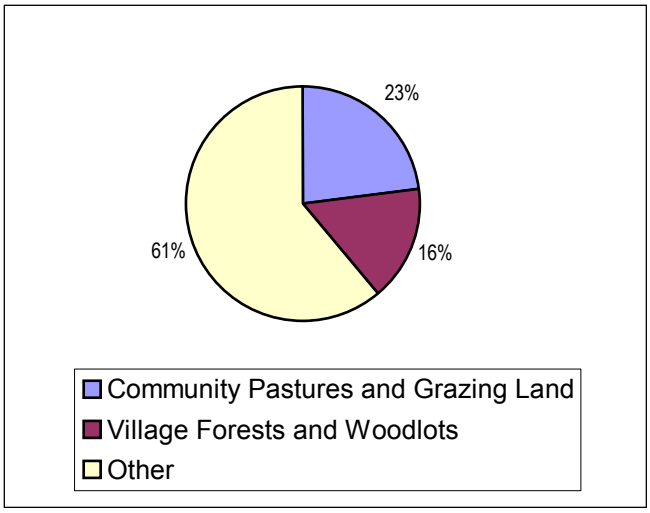
The NSSO defines common property resources as resources that are accessible to and collectively owned/held/managed by an identifiable community and on which no individual has exclusive property rights. The complexities with respect to rights and concessions have been addressed in this survey by distinguishing between the "dejure" and the "de-facto approach to resource ownership and use. The *de jure* approach was used for collection of data on the *size* of common pool resources. In this approach only those resources were treated as common pool resources which were within the boundary of the village and were formally held (by legal sanction or official assignment) by the village panchayat or a community of the

village. The second approach, *de facto* approach, was adopted for collecting information on *use* of common pool resources. By this approach common pool resources were extended to include all resources which were in use by the community by convention irrespective of ownership, and even if they were located outside the boundary of the village. The size of common pool resources was therefore based on a stricter *de jure* definition while the "use" data took into account the actual position with regard to access. Government forests (which have been classified into three categories in India as per their legal status: reserved forests allowing restricted access, protected forests allowing access to locals and unclassed forests (all other) have also been treated in this manner, thereby distinguishing between the conceptual basis for defining size and use.[10] As far as common water sources is concerned, the NSSO considers all sources of water used by a village, whether or not controlled by a community or a local body, which are not held by individual households, as common pool water resources.

IV.2 Summary Findings of the Survey

Table 8 and graphs 1-3 provide some country level summary statistics on common pool resources as estimated by the NSS. It becomes clear from the table that although the *de jure* approach to estimating the size of Common Property Land Resources (CPLR) is restrictive since it excludes all government forests and revenue land which may in practice be used as common property, CPLR form a substantial part of the total geographical area.

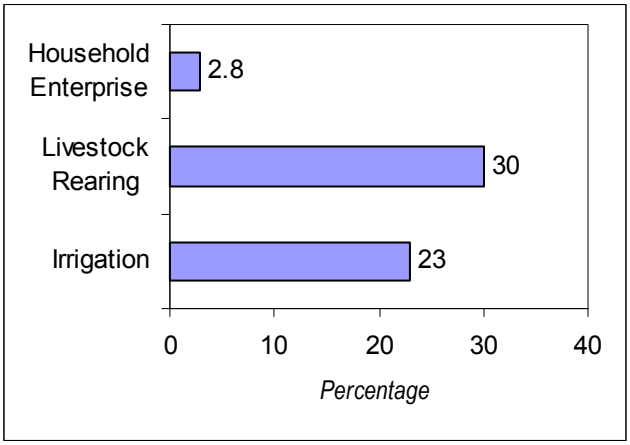
Graph 1: **Components of Common Property Land Resources**



[9] For details of the methodology of the sample selection see Appendix 2.

[10] This distinction in a sense approximates the distinction between ownership and user rights to the resource. It may have been made to avoid legal misspecification in terms of ownership.

Graph 2: **Households Reporting Use of Common Water Resources**



Graph 3**: Percentage of Households using Common Pool Resources for Livestock, Fuelwood and Fodder**

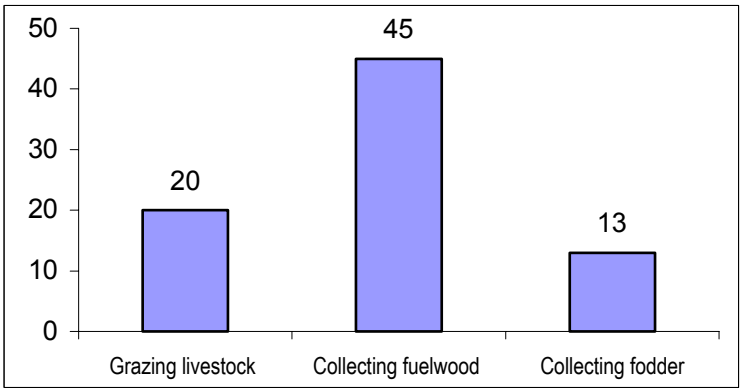


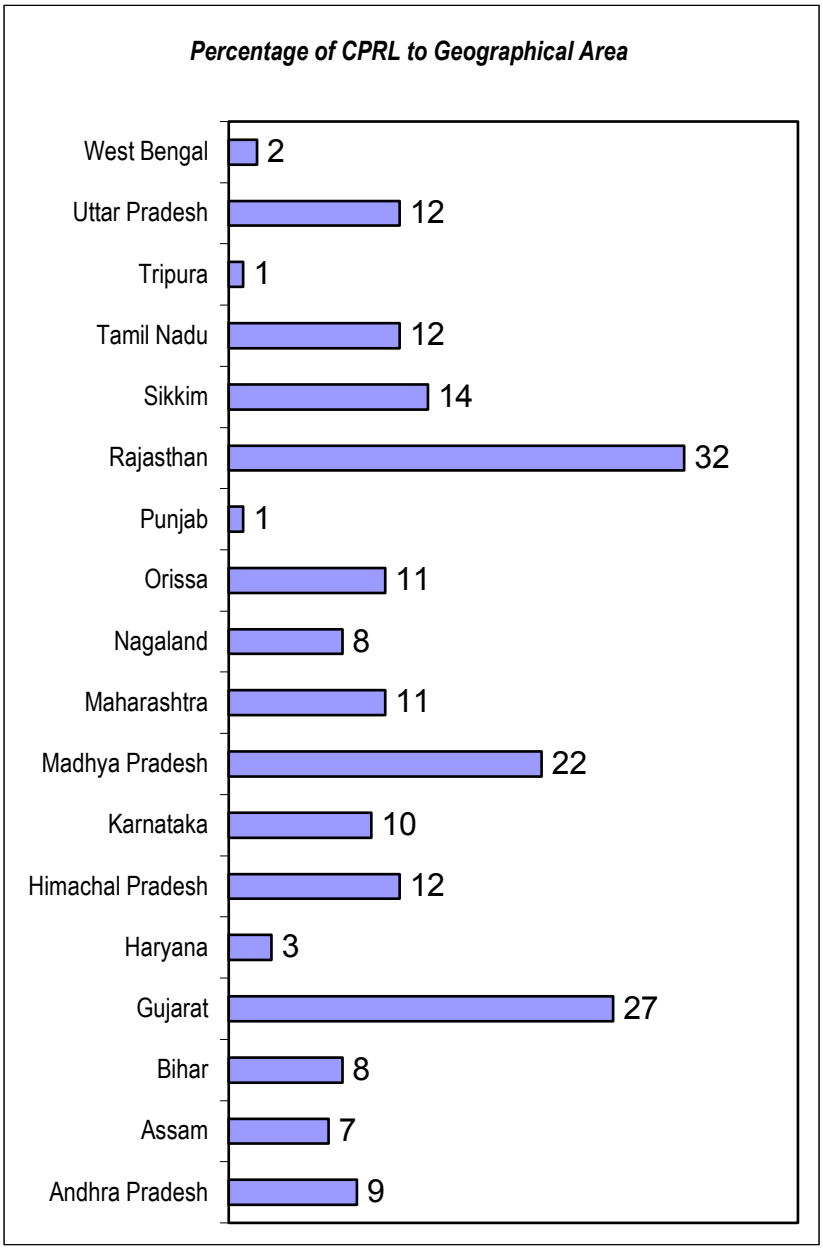
Table 8: **All India Summary Findings from NSSO**

I. Size of Common Property Land Resources (CPLR)	
Percentage of CPLR in total geographical area	15 %
CPLR per household (ha)	0.31
CPLR per capita (ha)	0.06
Reduction in CPLR during last 5 years(per 1000 ha)	19 ha
II. Collections from CPOLR	
Households reporting collection of any material from Common pool resources	48 %
Average value of annual collections per household (Rs)	693
Ratio of average value of collection to average value of consumption expenditure	3.02 %
III. Nature of use of Common pool resources	
Share of fuelwood in value of collection from Common pool resources	58%
Average quantity of fuelwood collected from Common pool resources during 365 days	500 kg
Average quantity of fodder collected from Common pool resources during 365 days	275 kg

IV.2.1 Size of Common Pool Land Resources: Variation Across States

Data on common pool land resources in different states shows that the percentage of common pool land to total geographical area varies from 1 to 32% of geographical area as depicted in Graph 4.

Graph 4: **Availability of Common Pool Land Resource (CPLR) Across States**



It is interesting to note that estimates for 1990-91 arrived at by Chopra and Gulati (2001) on the basis of a reclassification of land use data also arrive at state level estimates ranging from 4 to 35%. The variation in both cases is attributable to the nature of agriculture and related

activity in the agro-climatic zones into which the states fall. The latter study leaves out the north-eastern states since land record data there is sketchy and unreliable. For other states, the estimates are quite comparable. States with large arid and semi-arid zones have more than 25 to 30% of their geographical area under common pool resources whereas states dominated by river valleys with intensive agriculture have a larger area under privately owned land holdings.

From the NSS study, the common pool land availability per household varies considerably across states from a low of 0.01 ha in Tripura to 4.37 ha in Mizoram. In general, the north-eastern hill states, were followed by Rajasthan, Madhya Pradesh and Gujarat in reporting higher per household availability with Tripura, Assam, West Bengal, Punjab, Haryana, Bihar, Kerala, Uttar Pradesh, Tamil Nadu, Andhra Pradesh, Jammu and Kashmir and Manipur reporting low levels of common pool land at less than 0.17 ha per household. Graph 4 shows the percentage distribution of common pool land to geographical land across the major states in India.

IV.2.2 Size of Common Pool Land Resources: Variation across Agro-Climatic Zones

The magnitude and utilization of common pool resource lands depends on the agro-climatic conditions which can vary even within a state. The NSS study divided the country into 15 agro-climatic zones as defined by the Planning Commission (1991) while formulating the eighth plan. These zones cut across state boundaries and the availability of common pool land resources according to agro-climatic zones for each state has been estimated by the NSS. The estimates are also available by category of common pool resource land (i.e. pasture and grazing land, village forests and woodlots, etc.). It was found that the percentage of geographical area considered as common pool resource land varied over a wide range from 1% in the lower Gangetic Plains (LG) to 38% in the Western dry region (TD). The results obtained confirm the findings of micro studies in the different agro-climatic zones.

At the same time the study finds evidence of the depletion of common pool resource land both in terms of size and productivity. Table 9 details the availability and depletion of common pool resource land by agro-climatic zones for all India. These estimates of the rate of depletion are based on the difference between the present area and the area that had existed five years ago, again on the basis of a *de jure* approach. It was found that the area of common

pool resource land in rural India was declining at a quinquennial rate of 1.9%, with the fastest rates of decline being observed in the Middle-Gangetic and Trans-Gangetic zones.

Table 9: **Availability and Depletion of Common Pool Land Resources by Agro-Climatic Zones**

Agro-Climatic Zone	*% of common pool Land to geog.area*	*Reduction in common pool Land (per 100ha)**
Lower Gangetic Plains (LG)	1	2.6
Upper Gangetic Plains (UG)	2	2.8
Middle Gangetic Plains (MG)	8	7.2
Trans-Gangetic Plains (TG)	5	7.1
All Islands (Isl)	9	0.5
East Cost Plains and Hills (EG)	12	1.3
Western Coast Plains and Hills (WC)	10	0
Eastern Himalayas and Brahmaputra Valley (Ehm)	5	2.3
Southern Plateau and Hills (DP)	9	4.3
Western Plateau and Hills (WHg)	10	1.3
Eastern Plateau and Hills (Ehg)	19	5.0
Western Himalayan (WHm)	33	0.2
Central Plateau and Hills (CHg)	20	1.5
Gujarat Coast Plains and Hills (GC)	27	0.1
Western Dry Region (TD)	38	0.2
India	15	1.9

* This column gives the percentage reduction in CPLR during the five years preceding the survey.

It is to be noted that the three agro-climatic regions designated as constituting the arid and semi-arid zone of India have large percentages of geographical area as common pool resources. The Western dry region has 38%, the Western Plateau and hills 10% and the Central plateau and hills 20%. In addition, the Gujarat coast and Hills and the Western Himalayan region report high percentages. On average, it is significant to note that even on a de jure basis, 15% of India's geographical area is designated as common pool resources.

IV.2.3 Dependence On Common Pool Resources

In estimating the contribution of common pool resources to the economy, a *de facto* approach was used by the NSSO survey. Thus all land and water resources (including government forests) being used as common property were included while arriving at the benefits accruing from common pool resources. Data on collection of fuelwood, fodder, manure, weeds, grass, edibles, and medicinal herbs were gathered from the sample households. The contribution of common pool land resources to private farming through provision of irrigation water, raw materials, manure, and common pastures for grazing was also taken into account. It was found

that while 48% of the households reported collection of some material from common pool resources, the average value of annual collections per household was Rs. 693, which amounted on an average to 3.02% of a rural household's consumption expenditure. While graph 2 shows the dependence on common water resources, graph 3 makes it evident that grazing of livestock, and collection of fuelwood and fodder continue to be two important aspects of common pool resources contributions to the rural economy.

The NSS survey reports that the average quantity of fuelwood *collected* during 365 days per household is 500kgs. This figure appears to be a rather low estimate on first glance when compared to the findings of most micro-level studies. However, the report throws light on the matter in terms of the findings of the earlier NSS 50th round data and verifies that the current set of estimates corroborates the findings of the earlier report.[11]

The consumption expenditure survey of the NSS 50th round collected data on the quantity and value of firewood and chips consumed during a 30-day period. Based on this data, it was found that monthly per household consumption of firewood and chips works out at almost 85 kgs per household and an annual consumption of 1015 kgs. These 85 kgs are further categorized as: 11 Kgs are purchased, 28 kgs are from households' own sources and 46 kgs are from collections. Thus, according to the estimates derived by the NSS 50th round, these 46 kgs give an annual collection figure of 555 kgs per household, which in turn is comparable to the 54th round estimates of 500 kgs per household as collected from common pool resources. To reiterate, "about 55% of the household's needs for firewood and chips are met from those collected free, most of which can be assumed to come from common pool resources".

The data also reveals that the average value of collections from common pool resources is highest for rural labour households. This substantiates the theory that the rural poor depend substantially on the materials from common pool resources for their sustenance. Table 10 details the value of collections by category of households.

[11] See Appendix 4 for a comparison of the results from the two rounds of the NSSO.

Table 10 : **Value of Collections by Category of Households**

Category of households	*Percentage distribution by material-category*			*Value of collection (Rs/ household)*
	Fuelwood	Fodder	Other	
Rural labour*	61	25	14	777
Land possessed less than 0.20 ha	47	21	32	588
Land possessed 0.20 – 0.50 ha	57	27	16	749
Land possessed 0.50 – 1.00 ha	53	29	18	679
Land possessed 1.00 or more ha	59	26	15	593
All except rural labour	54	26	20	630
All households	58	25	17	693

* Rural labour households are defined as households with the largest share of household income coming from wage paid manual labour and are not included in any of the other categories defined in this table.

The study uses the population size-class of villages as a proxy for the level of development of a village. By this criterion, it was found that the smaller the population of a village, the more extensive is its use and collection of fuelwood, implying that the level of development of a village is an underlying factor that influences the extent of use and collection of fuelwood. Thus the dependence on fuelwood as a source of energy tends to be higher in less populated villages as demonstrated in table 11 below. Additionally, these villages are more likely to be located closer to forests and in hilly terrain.

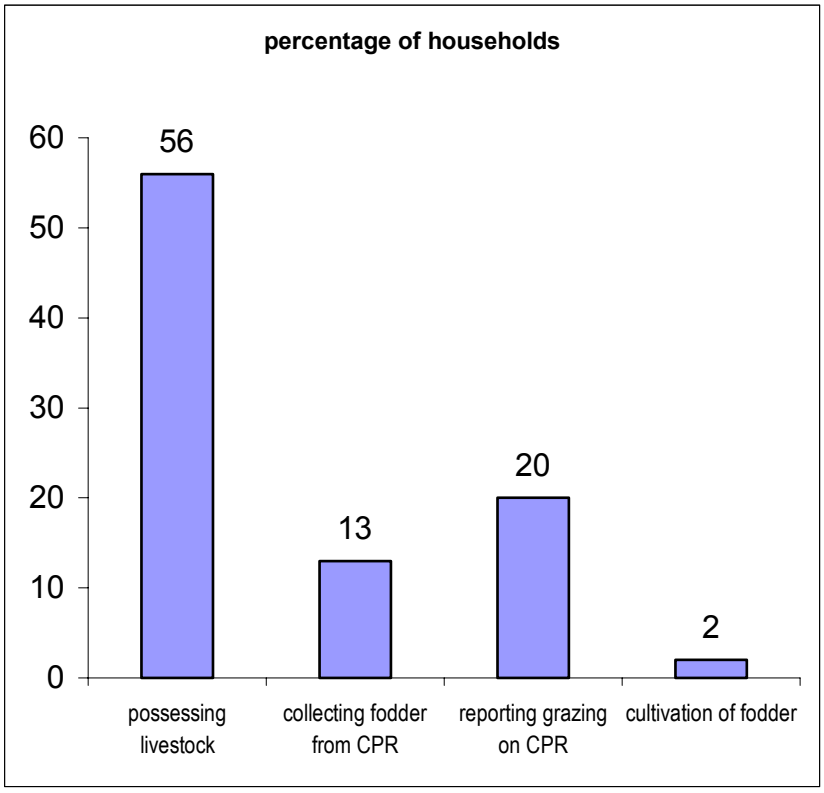
Table 11: **Fuelwood from Common Pool Resources by Population Size-class of Villages**

Population size-class of villages	*Percentage of households reporting fuelwood -*	
	Use	*Collection from Common pool resources*
Less than 100	93	88
100 – 200	78	71
201 – 600	66	53
601 – 1200	64	48
1201 – 2000	61	45
2001 – 5000	60	41
5001 & above	55	37
All	62	45

It is said that rural India depends significantly on common pool resources for rearing of livestock. Village forests, common grazing land, village site and threshing floor, barren and waste land are generally used for this purpose. The situation as per the NSS data is summarized in graph 5 below. According to the estimates made by the study, the average quantity of fodder collected from common pool resources amounts to 275 kgs (per rural household). While there are substantial inter-state variations in the extent of use of common pool resources for rearing livestock, it is evident that accessibility to common pool resources

does not necessarily imply a high degree of dependence on common pool resources for rearing livestock. In terms of category of households, it was found that large land owning households (1 ha or more) do not depend greatly on common pool resources for rearing livestock. However, for smaller land holdings possession of livestock is positively associated with possession of land. Analysis by population size class of villages reveals that once again the percentage of households using common pool resources for grazing of livestock and collection of fodder is inversely related to the population size-class.

Graph 5 : **Dependence on Common Pool Resources for Livestock Rearing**



IV.2.4 Common Pool Water Resources: Nature of Dependence

There are several types of water sources which are generally available to a village in rural India. Among these sources, all those sources which are not held by individual households are treated as *common water resources* by the NSS study, and this was the definition used for arriving at the availability of water to a village. However, in calculating usage data, even privately held water resources being used as common property by the villagers was included in defining common pool water resources.

Table 12 uses village level data in presenting the percentage distribution of households by availability of community and government water resources, according to the agro-climatic zones. Government water resources include tanks, ponds and lakes under the direct control of the Public Works Department or Minor Irrigation Department and all those located on unassessed revenue land or land under the forest department. Thus, 52% of the rural households resided in villages with at least one common source of water meant for non-domestic use. While community water resources were available to about 38% of the households, government water resources were available to 24%. The availability and presence of local management of common pool water resources vary widely over the agro-climatic zones[12].

Table 12: **Percentage Distribution of Households by Availability of Water Resources**

Agro-climatic zone	*Villages with source belonging to:*		
	Community only	*Govt. only*	*Both*
Lower Gangetic Plains (LG)	14	12	4
Upper Gangetic Plains (UG)	31	8	11
Middle Gangetic Plains (MG)	25	13	7
Trans-Gangetic Plains (TG)	33	9	4
All Islands (Isl)	15	11	13
East Cost Plains & Hills (EG)	38	18	23
West Coast Plains & Hills (WC)	26	15	12
Eastern Himalayas & Brahmaputra Valley (Ehm)	22	9	4
Southern Plateau & Hills (DP)	32	21	16
Western Plateau & Hills (WHg)	14	21	7
Eastern Plateau & Hills (Ehg)	45	12	12
Western Himalayas (WHm)	11	13	5
Central Plateau & Hills (CHg)	22	15	7
Gujarat Coast Plains & Hills (GC)	29	12	12
Western Dry Region (TD)	41	14	2
India	28	14	10

The extent of different (non-domestic) uses of water resources (other than those self-owned) is an indicator of the role of common pool water resources in the economy of the rural poor. Graph 6 illustrates the dependence on such resources.

Table 13 reports the percentage of households reporting use of water resources not owned by them for irrigation and livestock rearing, since these are the two main components as seen in graph 6, separately for each category of households. The percentage of households using

[12] In India today, there are several examples of community-controlled exploitation of groundwater, such as through formation of water users' associations, or through community action, as in the case of the revival of the

water is lower for rural labour households than the category of all other households, for both irrigation and livestock rearing. For the category of other households, it is found that the percentage of households using water resources for irrigation decreases as the land holding size increases, but for livestock rearing the inverse holds true.

Graph 6 : **Use of Common Pool Water Resources by Rural Households**

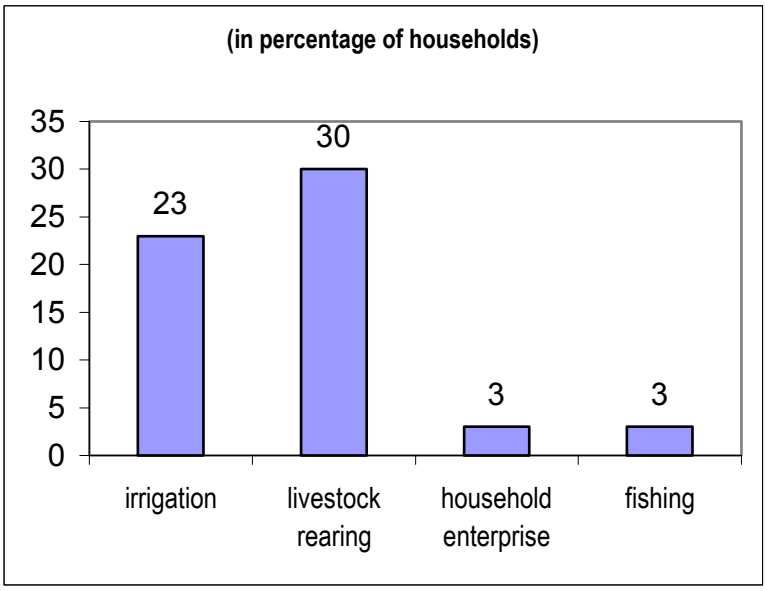


Table 13 : **Use of Water Resources for Irrigation and Livestock Rearing**
(in percentage of households)

Category of households	*Irrigation*	*Livestock Rearing*
Rural labour	14	24
Land possessed less than 0.20 ha	8	12
Land possessed 0.20 – 0.50 ha	46	34
Land possessed 0.50 – 1.00 ha	43	42
Land possessed 1.00 or more ha	33	47
All except rural labour	30	34
All households	23	30

V EVIDENCE FROM MICRO-STUDIES

Several micro-studies have documented the size, status and utilization of common pool resources in different parts of the country. The decline in common pool resources has been an area of particular interest to most researchers. While common land can be depleted in terms of both decline in area and decline in physical productivity, the decline in area has been much

check dam system in a certain part of Rajasthan.

better documented in the past, such as through records on village land use. Jodha's study of 82 villages from seven states in the dry regions in India (1986 and1997) found that between 1950-52 and 1982-84, common pool land resource as a percentage of total village area declined by 31% in some states and by a high of 55% in others. The states studied by Jodha were Andhra Pradesh, Gujarat, Maharashtra, Karnataka, Madhya Pradesh, Rajasthan and Tamil Nadu. According to another study (Pasha 1992), the area under common pool resources has declined by about 33 percent over a period of 20 years. The decline in terms of both area and quality were marked in the arid zones (Jodha 1985). Changes in the institutional arrangements, including the legal status, underlying these resources have been identified as a major causal factor behind this decline (Jodha 1997, Pasha 1992, Iyengar and Shukla 1999, CWS 2001). Other studies (Chopra et al 1989 and 1991) used secondary data on land use to establish that the size of common pool land resources (including forests) had reduced by 4% in Maharashtra and by 30% in Haryana in the period from 1970-71 and 1986-87. On similar lines, a recent study in Andhra Pradesh (CWS 2001) locates rapid decline in terms of both quantity and quality of village common lands between the 1970s till date, ranging from a decline of 20% to 65% of the original size of the village commons in the early 1970s. Qualitative decline is measured in terms of the loss in vegetation and available species in this study.

The two main factors that have been held responsible by several studies for the privatization of what was earlier common land are

- Encroachments by rural households and
- Government policies on redistribution of land among poor households for purposes of housing and cultivation.

Apart from problems regarding the size of the holdings distributed among different socio-economic groups, it has also been argued that the 27 to 45% of the poor households receiving land disposed it of because they lacked the complementary resources needed to develop and cultivate it. Similarly evidence on the inability of the poor to put land under productive use has been noted by others such as Iyengar and Shukla (1989), largely due to the lack of technical skills, guidance and inputs. Hence, they conclude that in the case of conversion of open access wastelands into common pool resources, some property rights regimes would need to be defined. Further, privatization of common pool resources could succeed as a

solution for regeneration of common pool resources and as a source of livelihood for the poor, if the necessary techno-economic inputs could also be supplied to those poor who are granted such common pool resources for private cultivation. In a related context, Chopra and Gulati (2001) argue that institutional change towards collective management of appropriately scaled units, can positively influence the productivity of natural resources by creating well-defined property rights, thereby mitigating poverty in rural areas.

Alongside land reforms, the imposition of village level democratic institutions replacing traditional formal and informal arrangements for regulating common pool resources has also been held responsible for making the poor worse-off in terms of access to common pool resources. According to one study, 50 to 80% of the privatized common pool land resources went to people who already had relatively more land (Jodha 2000). Thus, despite the underlying concern to help the poor the privatization of common pool resources failed to achieve the desired equity objectives as far as land reforms were concerned. In a related context, evidence from Andhra Pradesh shows that the break-down of traditional management systems has had adverse implications for the proper maintenance of village common pool resources (CWS 2001).

The lack of clear perceptions and institutional arrangements to enforce new initiatives has also been held responsible for the low impact of schemes taken up under the social forestry programme (Jodha 2000). The limitations placed on collection of land and water-based common pool resources due to intensive agricultural development programmes have also been documented elsewhere (Beck and Ghosh 2000). On the other hand it has also been argued by some that the modernization of rural economies inevitably leads to the decline and erosion of common pool resources and their management practices (Iyengar 1988).

In assessing the extent of access the rural poor have to common pool resources, Pasha (1992) studied 14 villages in Karnataka. His findings are in the same direction as Jodha's, with the percentage decline in common pool land resources being 23.7% for these 14 villages by 1989-90. However, even then common pool resources continue to contribute substantially to the total requirements of fodder and fuelwood for these rural families in a detailed study of three villages. This is contrary to the belief that as development takes place, along with a reduction in common pool resources, rural households adopt alternative fuels such as biogas, electricity

and kerosene and depend less on fuelwood. Defining the poor as landless households and marginal farmers with less than 2 acres of standardized land holdings, he distinguishes between the poor and the non-poor households. He finds that 10% and 6.2% of the gross income of poor and non-poor households respectively come from common pool resources. However, in absolute terms the non-poor were found to get more benefits than the poor from common pool resources. The per household gross income from common pool resources for the richer households was found to be double that for the poor households. Considering three alternative strategies for increasing the access of the poor to common pool resources, through grant of common pool land resources exclusively to the poor for cultivation, the tree-patta system and the regeneration of common pool resources as common village woods for use by all villagers, the author concludes that the last appears to be the most favourable option. Jodha (1997) stresses further on the need for effective user groups to maintain such common pool resources.

On similar lines, Singh et al (1996) studied eight villages in the state of Punjab. They too reported that the common lands were relatively mismanaged and had lower productivity and suffered from encroachment problems. The utilization of common pool resources was found to be directly related to the ownership of private property resources such as private land and livestock. In the Kandi area, the common pool resources contributed 27.3% of the total gross income of the landless and 22% of the income for the cultivating households. However, similar to Pasha's findings, the per annum income from common pool resources for the landless household was Rs. 3,669 while it was higher at Rs. 5169 for the cultivator household. In particular, Singh et al note the use of common water resources for irrigation by cultivator households, thereby adding to the land productivity. Once again, the authors stress on the need for effective people's participation in preventing over-exploitation of the common pool resources by the better off and in protecting the forests in particular. The need to focus on the important role of common pool resources in reducing income disparities in the rural areas and as buffers when agriculture or other sources of livelihood fail has been noted by different authors (CWS 2001).

It is thus important to study the links between private property resources and common property resources in the context of not only the direct production relationship but also in terms of the maintenance of common pool resources for livelihood sustenance over

generations. According to one study (Kadekodi and Perwaiz 1998) highlighting the complementarity between the two types of resources, the estimated correlation coefficient between CPR and PPR is 0.8.

Another seven village study across agro-climatic zones was conducted between 1993 and 1996 in West Bengal. Common pool resources were found to add about 12% to the household income of poor rural households (Beck and Ghosh 2000). This figure can be compared to Jodha's 1986 study of seven states where common pool resources were found to add between 15 and 23% to poor people's income and had an important role to play in improving village equity historically, but unfortunately poor people were losing access in more recent times. Although the composition of common pool resources accessed by the poor differed across agro-climatic zones, common pool resources continued as being crucial resources for the poor on one hand. While, on the other the study locates evidence for the systematic exclusion of the poor from access to common pool resources. Jodha (1986) had noted that the productivity of common property land resources was declining while, income from such resources ranged between Rs. 530 and Rs. 830 per annum per household during the early 1980s. Similar evidence on the declining productivity of common pool land resources was also located in Gujarat (Iyengar and Shukla 1999).

VI A COMPARISON AND A CONCLUSION: MICRO STUDIES AND THE COUNTRY WIDE SURVEY BY NSSO

The NSS provides estimates for the contribution of common pool resources to the rural economies at the state level, in terms of the access and utilization of common pool resources, especially fuelwood. It is of interest to compare these findings with the evidence gathered by micro-studies in a few states of India. We select four such states – Punjab, Karnataka, West Bengal and Gujarat. Table 14 summarises findings from the micro studies while Table 15 presents similar findings from the NSS data for these four states.

The NSSO study is based on a substantially larger sample as noted above. However, the proportion of common pool land resources area in total geographical area falls in the same range as reported from the micro-studies. On average, the NSSO reports lower percentages for the value of collection to consumption expenditure. Further in qualitative terms, the

relative dependence of the poor is more than of the non-poor. And this is corroborated by the NSS. Further, the country wide survey also corroborates the more critical dependence of the poor on common pool land resources for fuelwood in almost all parts of the country.

Table 14: **Evidence from Micro Studies on Access and Utilisation for Major States**

State	*Gujarat*	*Karnataka*	*Punjab*	*West Bengal*
Period of Study	1996	1989-90	1990/91-92/93	1994 – 96
Author/s	Iyengar and Shukla (1999)	Pasha (1992)	Singh, et.al (1996)	Beck and Ghosh (2000)
Region/Ecosystem	-	Across diverse Agro-climatic zones	Dasuya-Langerpur Watershed/ Kandi region	Across major agro-ecologic-al zones
Sample size (no. of villages)	15	3	8	7
Sample size (no. of households)	-	Poor 51 Non-poor 89	Landless 52 Cultivating 147	Poor 313 Non-poor 162
Proportion of CPLR to total area	-	36.6%	34%	-
Contribution of Common pool resources to gross annual income -Poor/landless -Non-poor/ Cultivating	1.1-22.1% 0.1-11.4% *	10% 6.2%	27.3% 22 %	12% 0.13% - 5.62%
Annual consumption from CPOLR (Kgs/ household) Fuelwood Fodder	-	2566 9632	397 1387	–

* This gives the share in consumption expenditure for the state

It is interesting that although these studies have been conducted during the 1990s, the results on contribution to gross income are comparable and along the same lines as in Jodha's (1986) landmark study of 80 villages in 21 arid and semi-arid districts spread over 7 states in India. Jodha found that the proportion of income from common pool resources to gross income for poor households was between 9 and 13%.

Table 15: **Evidence from NSSO on Access and Utilisation for Major States**

State	*Gujarat*	*Karnataka*	*Punjab*	*West Bengal*
Sample size (no. of households)	2939	3152	2533	5312
Proportion of CPOLR to total area	27%	10%	1%	2%
Ratio of the value of collection to consumption expenditure	2.77%	2.90%	2.76%	2.09%
Annual consumption of Fuelwood* from CPOLR(Kgs/ household)	877 (483)	1446 (484)	841 (550)	742 (324)

Note: The figures state the average quantity consumed as per derivations based on the NSS 50th round while the figures in brackets state the average quantity collected as per the NSS 54th round.

It is important to understand that the two approaches to the study of common pool resources are complementary. They help to throw light on different aspects of the study of the commons. Large data sets are of use in determining drivers of development and pressures on land and related assets. To complement such study of the overarching issues, we need in-depth views of governance in relation to the social construction of resources and their meaning. In depth studies are also called for in understanding the impact of decentralization and devolution of power. Policy making needs to use both these sets of knowledge in an iterative mode in order to keep in touch with peoples' aspirations and impact their well-being levels.

VII DYNAMICS: COMMON POOL RESOURCES AS SAFETY NETS OR DRIVERS OF DEVELOPMENT: SOME INFERENCES FROM MACRO SURVEY BASED DATA

Policy formulation requires that some parts of the dynamics of the development process be amenable to generalization. It is in this context that large sets of data collected using standard techniques have a role to play. Studies rooted in different regions have suggested that common pool resources play diverse roles in relation to rural livelihoods. The literature has consequently drawn attention to two aspects of the relevance of common pool resources:

- the role of common pool resources in supplementing rural livelihoods and acting as safety nets specially in times of agricultural crises. This can be alternatively characterised as the

"substitution" between common pool land resources based means of livelihood and the other primary source of rural livelihood, i.e. agricultural income.

- the second aspect which has also drawn considerable attention in the literature is the complementarity between agricultural output and the use of common pool resources as inputs to agriculture. A large part of agricultural inputs such as fodder, grazing grounds and irrigation water are made available through the conservation of common pool resources. By this contention, there should exist a complementarity between development, in particular agricultural development and the conservation of common pool resources

This section attempts a state-level analysis of some of the issues using the NSSO data set. The purpose is to explore the linkages between common pool resources and their determinants, and the strength of these relationships.

Table 16 gives the descriptive statistics on the variables that have been used in the analysis, for 24 states. For present purposes, common pool land resource availability is defined as availability per hectare of geographical land. The mean and standard deviation of common pool land resources as a percentage to geographical area across 24 states is 11.22 and 8.45 respectively.

Table 16: Variables for Factor Analysis

Variable description	*Code*	*Mean*	*Std. Dev.*
Per capita Agricultural GDP (Rs)	Agripc	2147.62	1068.17
Rural Poverty (%)	Rpov	36.79	11.32
Proportion of Rural Population in Total(%)	Popcent	76.84	9.70
Literacy Rate (percent literates)	Literacy	50.27	13.26
Density of Rural Population (per sq.km)	Density	216.27	164.35
Proportion Employed in Industry (%)	Indprop	19.33	25.16
Livestock (per unit of net sown area)	Livensa	0.0046	0.0026

The variables listed in Table 16 were considered for the factor analysis, in an attempt to capture different influences on common pool resources. More specifically, it is important to highlight that the NSSO data deals primarily with land based common pool resources and

hence, the analysis has to be done accordingly. Broadly three categories of variables were identified for the analysis. These sought to capture the three important factors:

- the influence of poverty and lack of sufficient means of livelihood,
- the linkage with agricultural output and livestock and,
- the role of developmental impacts such as urbanization and alternative industrial employment.

Table 17 reports the detailed findings of the factor analysis with respect to the above mentioned variables, in order to identify the key factors and the directions in which they influence common pool resources at the state-level. The results presented in table 17 are based on the orthogonal (varimax) rotation. The eigen values obtained revealed that three factors could be considered for the analysis, while two factors were sufficient for explaining 90% of the variation, with the first factor explaining 65% of the variation. For purposes of analysis, we focus on the first set of factor loadings since there has been considerable debate in the literature on the relevance of interpretation of subsequent loadings. It maybe noted that following standard norms, the results are acceptable in as much as the uniqueness is within 0.5, thus the communality characteristic is satisfactory.

Table 17: Results from Factor Analysis

Variable	*Rotated Factor Loadings*	*Uniqueness*
Agripc	-0.13661	0.44012
Rpov	0.61634	0.20027
Popcent	0.72020	0.42840
Literacy	-0.39140	0.36299
Density	0.29212	0.24182
Indprop	-0.34215	0.50938
Livensa	0.75304	0.24219

The factor loadings in Table 17 seem to point towards certain directions. Considering the per capita agricultural GDP as an indicator of the agricultural development of the state, the negative loading on this variable and the positive and relatively high loading on poverty, indicates that the safety net influence of common pool resources still reigns supreme. The

positive and relatively high loading on livestock as a proportion of net sown area also points in the same direction. The positive loadings on population density and proportion of rural population also add to the substitution argument.

Thus, the contribution of common pool resources continues to be more in the context of a survival strategy for the rural population. The negative loadings on literacy and the proportions employed in industry, point towards the influences of urbanisation and industrial development on common pool resources. With development, the pointers seem to be towards a reduction of the dependence on common pool resources, quite beyond both the hypothesis of dependence on the basis of either livelihood based survival strategies or complementarities in agricultural production. Of course, certain complementarities in the production process between private and common pool resources would continue – particularly in the agriculturally developed zones, such as those between fodder and livestock, pumpsets and extraction of groundwater for agriculture.

The extent of mechanisation in agriculture is a case for illustration. The extent of mechanisation of agriculture would determine the interpretation of the high loading on livestock. Thus, in a less mechanised agriculture one would expect a tendency to have complementarity in the production relations. However, increasing mechanisation reduces the requirement for cattle, thus having implications for the complementarity argument. As mechanisation proceeds, as a fall out of development, complementarities could get diminished. Thus, one would expect to see pockets of intensive complementarity, (say linking groundwater with increased agricultural productivity), alongside large regions of reduced complementarity.

Thus, the analysis indicates that long term implications for the breakdown of the survival strategy and collective interest in defining the status of common pool resources needs to be taken into account. The preliminary statistical analysis indicates, that even given the present state of development in India, which is in fact quite differentiated across the component states, there is a need to focus on common pool resources beyond the evidence so far provided by the micro studies.

The role of population pressure as a driver of change has been studied using different approaches. Jodha (1985 and 1986) maintained that government land redistribution policies had an adverse impact on the magnitude and role of CPRs. His conclusions were based on village level studies in arid and semi-arid India. Vira (2001) revisits the population pressure and common pool resources issue. He builds an index of common pool resources dependence from the NSSO (1998) data and finds that the index is high for some states postulated to have high population growth rates in the future. He concludes that pressures are likely to be high in these states. While this hypothesis needs further exploration, the existence of encroachments on common pool resourcess constitutes an alternative indicator of pressures on common pool resources. Iyengar and Shah (2001) refer to encroachments by fast developing industry but these could in other situations be due to agricultural expansion. Evidence of such encroachments is extensively documented in the literature, at times it is argued that the investment that accompanies it results in an increased agricultural productivity. However, it remains to be asked: what impact does this fragmentation of this common pool resource and the altered nature of vegetative cover have on eco-system functions and downstream (often urban) supply of resources such as water.

It becomes evident from the existing literature that among issues that have been neglected in the literature and policy on common pool resources is their role as providers of eco-system services to downstream rural and urban areas. These large tracts of land, estimated to be about 70 million hectares have a role to perform in providing water, enriched soil and carbon sequestration. What are the appropriate management regimes in that context? The literature has not studied it in depth. Existing literature on common pool resources in India is overwhelmingly preoccupied with their role in providing insurance for the rural poor and livelihood creating inputs for both the land-owning and landless classes in rural areas. It is forgotten that large parts of common pool resources are also the catchments providing water to urban areas. With increasing urbanisation, and a looming water crisis in most cities, the economic costs of ignoring management of these common pool resources are huge. This is a direction that needs to be explored in further work in this area. This aspect assumes greater importance in the context of a developing economy where one would expect to see rapid changes in the attitudes towards common pool resources and the associated management regimes with rapid urbanization and the opening up of alternative means of livelihood to rural population. While this is not an attempt to undermine the role played by common pool

resources in sustaining rural livelihoods, the fact remains to be explored as to whether different states in India are doing differently with regard to common pool resources, depending on their developmental status.

VIII NEW POLICY INITIATIVES AND AN EVALUATION

Some new initiatives aimed at introducing a more participatory approach to management of land and water in the common and governmental domains have been initiated in the nineties. These are the outcome of:

- the national and international focus on issues relating to the environment
- the failure of centralised and departmentally driven policy in the past and its persistent criticism in the literature: it is significant that the major inputs into these policy changes came from studies conducted in different parts of the country.

The more significant among them, which impact the management of common pool resources and aim at introducing new management regimes for them are:

- Joint Forest Management (JFM) introduced through a departmental notification in 1990 and now extended to twenty six states
- Eco-development: introduced on the periphery of protected areas as a measure for reducing anthropogenic pressures on them
- New Guidelines for Watershed Development introduced and implemented in 1994.

VIII. 1 Joint Forest Management and its Implementation

Joint forest management (JFM) emerged as a concept in the late seventies and eighties as a consequence of the experimental management of forest tracts undertaken by individuals (located in or outside government) in collaboration with the people. Two instances of success often quoted are of Arabari in West Bengal and Sukhomajri in Haryana. Intensive study of these initial successes and the revised National Forest Policy 1988 were together instrumental in introducing the concept of participatory forest management at a national level in India. JFM depends on the formation of local village-level institutions to undertake protection activities mostly on state-owned degraded forest land. Today, 11-13% of the country's forest lands are ostensibly under some variant of the JFM programme.

The JFM strategy thus, has evolved more as a failure of policing activities and the consequent need for involving local people in the management of forest resources. This also becomes clear from the very fact that the initial experiments have covered mostly the degraded and protected forests only. The department has not entered into partnerships that would convert good forest stands into common pool resources. Such a situation cannot be interpreted in the same manner as evolution of codes of conduct by communities for the use of collectively owned common pool resources. Decentralisation of the regulatory mechanism by involving locals on the terms of the state department, is basically an unequal partnership born out of the failure of the state to implement a more centralised regulatory policy (Iyengar and Shukla 1999).

A departmental order from the Ministry of Environment and Forests (MOEF) issued in June 1990 formalised the establishment of joint forest management committees in the states and by the end of the nineties about twenty states had initiated differing forms of joint forest management. The committees outline the role to be played by people in the protection of forests and the return to accrue to them from the incremental output. It was claimed by a Committee of the Ministry of Environment and Forests that about 11 million hectares of land is under joint forest management. In February 2000, the Ministry of Environment and Forests issued a fresh set of guidelines for JFM implementation based on the experiences of the last decade.

Unfortunately, the dominant purpose of the JFM strategy seems to continue to be perceived as one of protection and not conservation. In the case of forest resources the department /state continues to be the sole owner with people being involved at best as partners without any ownership rights over the assets concerned. The resource is not at the disposal of the community and the state continues to exercise the right to choose the beneficiaries to whom use rights are to be granted, and also reserves the right to withdraw the benefits extended (Iyengar and Shukla 1999). Sundar and Jeffery (2001) conclude that JFM has remained more a form of co-opting villagers into the agendas of the stakeholder who is perceived to be the more powerful, within and outside the state. Sundar (2001) argues that the decentralisation implicit in JFM has made no effort to take into account pre-existing traditional institutions of forest management. Another initiative in the context of rural governance, the PESA (Panchayat Extension to Scheduled Areas Act, 1996) is seen by her as more inclusive of pre-

existing tradition and customs of the tribal societies. She concludes that the main structures of government continue to be perceived as non-transparent and non-participatory, even as they seek to create pockets of devolution.

Some commentators such as Sarin (2001) see a regression in such forms of intervention. In regions where pre-existing structures (such as Van Panchayats) gave the status of "right-holders" to local communities, they have now been reduced to the position of " beneficiaries" of JFM. The lesson to be derived seems obvious and has been repeated often. In a large country like India, interventions need to take regional variations in existing institutional bases into consideration and not aim at "centralised" drafting of "decentralised participatory governance".

The role of NGO's has been another contentious issue in the debate on JFM. NGO's and activists have been assigned a limited role in government policies although their criticality in promoting trust and understanding between public administration and people's organisations is a well-recognised fact. The Society for Promotion of Wastelands Development, the Ford Foundation and the World-wide Fund for Nature (India) have been important contributors, apart from other state and local level NGOs.

While the debate on the success or otherwise of the JFM till date continues, some observations are interesting to note. While Kadekodi (1997) advocates the success of JFM on the basis of a few experiments in West Bengal and Orissa, others like Singh (1994) speak of the necessity of political will as a precondition for the repeat of success stories such as those in West Bengal. Vijay Laxmi and Parikh (1997) on the other hand, point out the role of institutional problems in hindering the success of the JFM. Kapoor and Saigal (2001) talk of the need for establishing the right linkages between Forest Protection committees and the Panchayati Raj institutions in this context. In an evaluation of the Western Ghats forestry and Environmental Project in Karnataka (Saxena and Sarin 1999), too identify three main issues requiring attention: the neglect of non-degraded natural forests, the non-sustainability of village forest committees under the existing structure and the limited scope for institutional change. Places such as Dewas and Harda in Madhya Pradesh where JFM was introduced with great expectations, have also been the focus of the debate. In both these places, several individual researchers have expressed dissatisfaction with the actual implementation of the

JFM, especially in terms of its failure to ensure equity. Harda is also quoted by some as one of the best initial experiments with JFM. Borgyoary (2001) points out that although there are obvious benefits of participatory management, the emerging problems of decentralised management within the JFM structure, such as equitable distribution, benefit sharing, gender issues, etc. need attention.

Vira (1999) comments that JFM involves the scaling–up of traditional community-based regimes and is to be perceived as being analytically distinct from the nationalisation of forest resources which would typically exclude local resource users by creating a bureaucratic system of state management. Ideally, under such circumstances, the state should provide strategic support to the traditional local system of forest management. He also argues that community based regimes are not necessarily successful especially when faced with situation of new stress such as those created by ecological change, increasing population and changing legal and institutional support structures.

Another recent policy initiative termed "Eco-development in the vicinity of protected areas" was also aimed at reducing anthropogenic pressures on such areas. Villages located in and around protected areas were rehabilitated outside and given incentives in the form of access to education and other economic benefits. The aim of the policy was to integrate forest communities into the mainstream of economic and social development. While detailed evaluations of this initiative still remain to be made, it is clear that alternative employment generation can only come in the medium and long run and must depend on a match between capabilities created and demand for them. Meanwhile, policy has to ensure that some form of traditional means of survival continues.

Another pressure observed is encroachment by industry in fast developing regions of the country. Iyengar and Shah (2001) report instances of encroachment on common pool resources due to industrialisation and urbanisation. These are usually on revenue and panchayat land and a comprehensive land use policy needs to be put in place to see that such trends do not create a dent in the benefits arising out of the new initiatives.

To sum up, the following aspects of the new initiatives on forest management and eco-development deserve comment:

- A large part of this form of management is on protected forests of the degraded variety though a special committee set up by the MOEF recommended that it be extended to all forest areas within five kilometres of a habitation.
- The ground rules for the formation and operation of these committees are often weighed heavily in favour of the forest department with its officials often having the right to dissolve the committee
- Often, disputes over sharing of the produce have arisen and in the absence of a legal enactment to protect them, promised sharing of output in return for protection has not been implemented.
- In toto, JFM as implemented does not seem to have improved access of local people to common pool forest resources. Where pre-existing institutional structures have been ignored, it has even resulted in a deterioration of their status vis-a vis the government departments
- Such initiatives need to be complemented with a policy on land use that prevents continued encroachments by industry and urbanisation.

VIII.2 Watershed Development Guidelines

Another policy initiative aimed at introducing a measure of local level participation in the management of common pool resources was the "Guidelines for Watershed Development" issued by the Ministry of Rural Areas and Employment in respect of schemes under its mandate (GoI 1994). These guidelines provided for setting up of watershed development teams (WDTs) and for entry-point activities, training programmes and community organization. Funds were set apart for such organisational activity prior to the initiation of investment activity in watersheds which was to take up 75% of the total amount allotted. Structure to support participation was set up.

Although substantial budgetary provisions for the “National Watershed Development Programme for Rainfed Areas” were made from 1990 onwards, for rehabilitating micro-watersheds, the focus remained on delivery of technical inputs on agricultural land, without linking these with uncultivated lands. They also had inadequate people’s participation. The role of institutional constraints in planning, organisation and management, along with limited land-user participation in planning and implementation had often been cited as the primary reason for the low success of watershed programmes in the past (Saxena 1999).

The new guidelines on watershed development which came into effect from April 1, 1995, aimed to take care of these shortcomings. These provided for the development of an entire compact watershed, taking into consideration the land capability, site conditions and needs of the local people. Subsequently, the Department of Land Resources was set up in 1999 to enable people to prevent, arrest and reverse degradation of life support systems, particularly land and water, so as to produce biomass in a sustainable and equitable manner. Thus, watershed management was seen as a vehicle for rural development, bringing together the concerns of watershed land under different agencies such as – the department of forests, revenue department, privately owned land and some common lands in the villages comprising the watershed.

Large variations exist in the interpretation and implementation of these guidelines among different states. While some features are common to all states, others allow for flexibility and can be adapted to meet local requirements. Among the basic guidelines, administrative arrangements regarding programme planning and implementation by district rural development agencies and zilla parishads, the appointment of implementing agencies and the setting up of watershed development teams has been detailed. Financial provisions regarding the flow of funds, including people's participation through voluntary contributions and contributions through labour, raw materials, etc. have also been provided for. A fund for future maintenance and operations of community assets has also been provided. The guidelines also provide a detailed process for ensuring community participation since this is perceived to be a key component for the success of the watershed programme. An organisational structure at the village level is also to be developed in a participatory manner wherein all the resources within the watershed development programme can be adequately taken care off in an integrated manner.

Some but indifferent success is reported so far. Kerr et al (1998) concluded that the benefits of watershed development have been negligible by and large except in a few success stories where participatory approaches played a significant role. Chopra (1998) and Landell-Mills (1998) have obtained inconclusive evidence while focussing on the economic returns from watershed development. As stated by Kolavilli (1999), social organization cannot be

hastened. Time is of the essence in creating awareness. As experimentation proceeds, some of these issues shall resolve themselves.

In sum, the field experience seems to indicate that large scale replication from the top of initiatives requiring intensive inputs of human and social capital for developing new institutions may be counter productive. Policy needs to be devised taking account of the existing organisational capacity and initial resource endowment of different stakeholders in common pool resources and, must have built in incentives for its augmentation. Large-scale replication based on top-down intervention can be distorted with unprecedented consequences. Simultaneously, ground reality is changing. New evidence suggests the need for initiatives for maintaining the ecological system arising out of factors other than the immediate felt needs of sustainable livelihoods. Changing attitudes and perceptions on livelihoods could affect the ecological status of common pool resources, quite beyond the conclusions emerging from an analysis restricted to the intergenerational livelihood argument.

IX KEY ISSUES AND PROCESSES OF POLICY FORMULATION

Appropriate policy formulation with respect to common pool resources requires an empirical understanding of drivers and processes determining the diverse roles that they play. These roles as exemplified above relate to provision of livelihoods in the context of poverty alleviation, of market related opportunities for asset and income creation and of sources of empowerment in the socio-political context. The above view of common pool resources is driven by the world-view which attempts to integrate them into changing socio-economic reality, while acknowledging the role that different stakeholders play in the process of policy making. To illustrate some of the ramifications of policy making processes, we review the linkages between the emergence of different perceptions of empirical reality and its impact on policy-making with respect to common pool resources in India.

The first phase of in-depth regional studies on common pool resources led to an understanding of their role in supporting the livelihoods of the rural poor. These studies also pointed towards the failure of centralised management and control of these resources calling for decentralisation. An echo in some policy making circles resulted in new initiatives, again

from the regional and central policy makers, to decentralise within the possibilities provided by new amendments in the constitution and new directions of state policy.

Meanwhile, the need for new knowledge on the drivers and dynamics of common pool resources was felt. It was felt that the links of these resources and communities depending on them with the larger economy needed to be known in the interest of policy formulation from the larger perspective. The large macro level survey and identification of the dynamics driving common pool resource management and use constitute attempts in this direction. This provides policy makers at all levels with an overarching view of the larger empirical reality to complement the details available from in-depth case studies

A series of studies evaluating the new policy initiatives are now available and have been reviewed in the paper. The over-riding conclusion from a large number of them seems to be that this centralised policy direction, well-meaning though it may have been, did not leave space for regional differences in institutions and stake-holders perspectives. Such an understanding provides the following pointers towards the setting up of possible processes of policy making:

- All knowledge of empirical reality must come to policy- makers through the cognitive filter of those who provide it. These providers of knowledge or information may be the local communities, whose perceptions shall be empirically correct in so far as current linkages with livelihoods are concerned. However, there may be diverse stakeholders within communities and they may differ in approach, links with outside communities, knowledge and literacy levels and hence perceptions. Knowledge may be provided by NGOs and researchers working with communities or by government departments functioning within their jurisdiction. Each of these will bring to the process their own ways of perceiving reality.
- An alternative approach to empirical reality is provided by statistical evidence based on large scale surveys. The use of sampling techniques and statistical procedures makes it possible to identify underlying dynamics and focus on the drivers of change from a macro perspective in this approach. However, details essential to appropriate policy making are at times lost.

In this context, it seems appropriate to indicate steps in a process of policy formulation that ensure that diverse perceptions are brought to bear on policy-making. A significant part of this process is ensuring that a range of stake-holders interact with policy makers at different administrative levels in the policy making process. For, in the final analysis, policy, in particular where it impinges on local resource use, cannot be left to one set of policy makers. An inter-action between viewpoints of different stakeholders and decision makers at different levels of policy making is of the essence. The two questions that need to be addressed and responded to simultaneously are:

- "Who makes policy?"
- "What kind of knowledge is brought to the policy makers?"

In both contexts, a multiplicity of scales, perceptions and cognitive filters shall go a long way in ensuring that good decisions are taken.

Finally, policy-making and creation of new knowledge must necessarily be parts of an iterative process with one feeding into the other at different points of time. Such set-ups shall also ensure that the process throws up new theoretical understanding of the issues at stake.

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APPENDICES

Appendix 1: Agroclimatic Zones of India

Agro-Climatic Zone
Lower Gangetic Plains (LG)
Upper Gangetic Plains (UG)
Middle Gangetic Plains (MG)
Trans-Gangetic Plains (TG)
All Islands (Isl)
East Cost Plains and Hills (EG)
Western Coast Plains and Hills (WC)
Eastern Himalayas and Brahmaputra Valley (Ehm)
Southern Plateau and Hills (DP)
Western Plateau and Hills (WHg)
Eastern Plateau and Hills (EHg)
Western Himalayan (WHm)
Central Plateau and Hills (CHg)
Gujarat Coast Plains and Hills (GC)
Western Dry Region (TD)
India

Appendix 2: Methodology for the NSSO Survey of Common pool resources in India

A stratified multi-stage sampling design was adopted for the survey. The first stage units for the sampling were census villages while the ultimate stage units were the households that were to be surveyed. The survey period was January – June 1998. In all 10,978 villages were planned to be surveyed of which, 5242 were allocated to the Central sample and the rest to the State sample. The former was surveyed mainly by the NSSO field staff while the latter was surveyed by State agencies. For purposes of the present discussion, the focus is only on rural areas and is therefore based on the data collected from villages in the Central sample only. The main schedules used in the 54th round were schedule 1 on consumer expenditure, schedule 3.3 on village facilities and common property resources, and schedule 31 which related to Cultivation Practices and Common Property Resources apart from other heads. For schedule 31, 16 households were planned to be surveyed in each village and in all 78,990 rural households were surveyed for the study.

The list of census villages of the 1991 population census for each state formed the sampling frame. From these list of villages, three strata were initially identified by identifying villages with no population, very small population (range 1 – 50) and very high population (more than 15000). The remaining villages were subsequently considered for the formation of the general strata. The total All India sample of 5242 villages for the Central sample was allocated to the different states in proportion to their investigator strength. Whereas for villages with a very small or no population the sample size allocated ranged between 2 to 6 villages, the number of villages for stratum 3 with high population was either 2 or 4, depending on whether the number of such villages in the stratum was less than 20 or more. The remaining sample was allocated to the general strata in each state in proportion to their population.

For selecting households, all the households of a sample village were first classified into three strata. These were households engaged in free collection (other than fuelwood and marine fishing), households possessing land less than 0.40 ha and all the rest formed strata 3. As mentioned earlier, for schedule 31 a sample of 16 households from each selected village was surveyed. The 16 households selected from such a sample village, were allocated among these three household strata in proportion to the number of households in each sampling frame subject to a minimum allocation of 4,2 and 2 households respectively in strata 1, 2 and 3. The

sampled households were selected by circular systematic sampling with random starts in each stratum.

It becomes fairly obvious from the above brief description of the sampling procedure that the sampling was done in a comprehensive and unbiased manner, keeping in view the need to develop a dataset that would accurately reflect the state-level macro picture. It is of interest to see how far these overall state and all India level estimates on contribution of Common Property Resources compare with the evidence gathered by micro studies conducted in different states of India.

Appendix 3: Poverty and Common Pool Resources

The Planning Commission (1991) detailed the agro-climatic variations within different states in the economy. The table below summarises data on certain state-wise characteristics, in an attempt to throw further light on the linkages between agro-climatic variations and the situation with regard to poverty in the economy.

State-wise Agro-climatic Variations and Rural Poverty

State	Population (million) (1981)	Rural Poverty (%) (1983-84)	Rural Poverty (%) (1993-94)*	Climatic Variations	Rainfall Range (mm)
Andhra Pradesh	53.55	39.0	15.92	Arid, Semi-arid, Sub-humid	576 – 1054
Assam	19.9	22.9	45.01	Per humid, Humid	1840 – 3528
Bihar	69.19	51.0	58.21	Dry, Moist sub humid, Sub humid	1103-1404
Gujarat	34.09	28.0	22.18	Arid, Semi-arid, Dry sub humid	340 – 1793
Haryana	12.9	15.5	28.02	Extreme arid, Arid, Semi-arid, Dry sub humid	320 – 891
Himachal Pradesh	4.28	25.0	30.34	Dry temperate, Humid sub temperate	800 – 1300
Karnataka	37.14	37.0	29.88	Arid, Semi arid, Per humid	684 – 3300
Kerala	25.45	26.5	25.76	Humid, Per humid	2392 – 3000
Madhya Pradesh	52.18	50.0	40.64	Dry sub humid, Moist sub humid, Semi arid	670 – 1570
Maharashtra	62.78	42.0	37.93	Dry sub humid, Semi arid, Humid, Per humid	602 – 3640
Orissa	26.37	45.0	49.72	Dry sub humid, Moist sub humid	1128 – 1436
Punjab	16.79	11.0	11.95	Arid, Semi-arid, Sub humid	375 – 1150
Rajasthan	34.26	37.0	26.46	Extreme arid, Semi arid, Arid	550 – 874
Tamil Nadu	48.41	44.04	32.48	Semi arid, Dry sub humid, Per humid	780 – 3127
Uttar Pradesh	110.86	46.05	42.28	Dry arid, Semi-arid, Dry sub humid, Moist sub humid, Humid	721 – 1675
West Bengal	54.58	40.0	40.80	Humid, Per humid	1264 – 2809

Source: Planning Commission, 1991. "Agro-Climatic Regional Planning at State Level – Profiles, Issues, Strategies & Programmes." ARPU Working Paper No. 5. July, India.

* These figures are based on the estimates of the modified expert group as reported by the CSO, GOI.

Appendix 4: A Comparison of Results from NSSO 50th round (Consumption and Collection of Fuelwood) with 54th round (Dependence on Common Pool Resources)

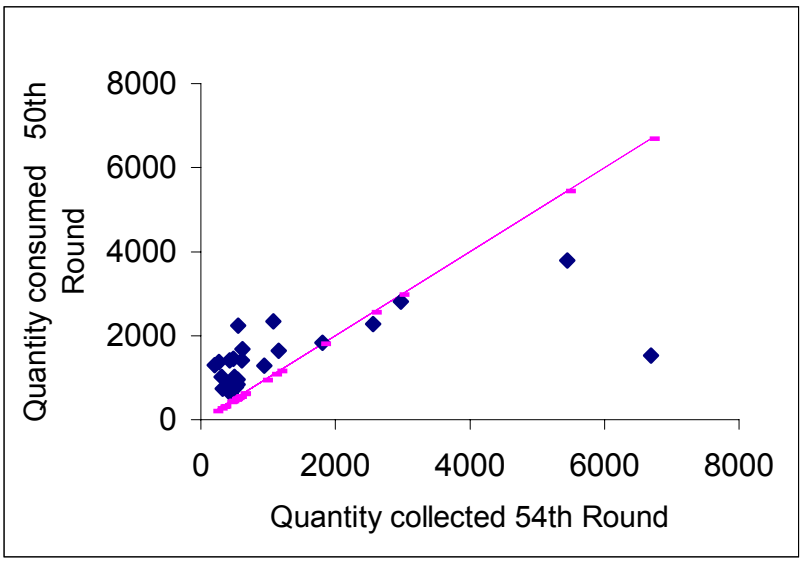
Statewise Estimates of Consumption and Collection of Fuelwood

State	Percentage households using fuelwood *in* -		Percentage households reporting collection 54th Round	Average Quantity Collected (*in Kgs*) 54th Round	Average Quantity Consumed (*in Kgs*) 54th Round
	54th Rd (1998)	50th Rd (1993-94)			
Andhra Pradesh	81	94	59	545	950
Arunachal Pradesh	85	96	82	5448	3786
Assam	60	97	44	614	1411
Bihar	58	70	41	446	623
Gujarat	73	83	55	483	877
Haryana	41	90	27	306	1013
Himachal Pradesh	59	91	56	1080	2346
Jammu & Kashmir	51	89	33	553	2234
Karnataka	79	96	53	484	1446
Kerala	53	95	13	204	1301
Madhya Pradesh	76	96	56	621	1673
Maharashtra	67	82	59	522	776
Manipur	75	96	40	1157	1635
Meghalaya	93	94	86	2558	2282
Mizoram	98	99	97	6688	1532
Nagaland	98	99	67	2972	2816
Orissa	75	91	62	944	1290
Punjab	69	74	24	550	841
Rajasthan	34	94	21	267	1368
Sikkim	69	74	53	1805	1832
Tamil Nadu	70	93	61	497	816
Tripura	51	97	31	427	1417
Uttar Pradesh	51	88	33	416	813
West Bengal	51	73	38	324	742
India	62	87	45	500	1015

The table above serves to highlight the point further by comparing the estimates of consumption with those of collection of fuelwood in different states. The average quantity of annual consumption from the 50th round and the average quantity of annual collection from the 54th round reveal a distinct positive relationship except for the state of Mizoram. Considering the ratio between the quantity collected and quantity consumed (although these are not strictly comparable as they relate to different time points) as an indicator of the level of dependence on common pool resources for supply of fuelwood, it was found that the level of dependence varies little across the states except for the north-eastern states of Mizoram,

Nagaland, Meghalaya and Arunachal Pradesh. The scatter diagram below illustrates this graphically.

Collection and Consumption of Fuelwood at State-level (*in Kgs*)



Appendix 5: Climatic Zones, Rainfall and Poverty for States with Low Rainfall

State	Climate	Districts	Rainfall (mm)	Rural Poverty (%)
Andhra Pradesh	1. Sub-humid	Srikakulam, Vijaynagram, Vishakhapatnam	991	33.2
	2. Semi-arid to Sub-humid	East Godavri, West Godavri, Krishna, Guntur, Prakasam	940	33.2
	3. Semi-arid to sub humid	Nellore	1054	NA
	4. Semi-arid Arid	Chittor, Cuddapah, Kurnool Anantpur	703 576	45.6
	5. Semi-arid	Mehaboobnagar, Nalgonda, Ranga Reddy, Hyderabad	819	36.4
	6. Semi-arid	Medak, Warangal, Khammam, Nizamabad, Adila-bad, Karimnagar	998	36.4
Gujarat	1. Semi arid, dry sub-humid	Dangs, Bulsar	1793	38.3
	2. Semi-arid, dry sub humid	Surat, Bharuch	974	34.2
	3. Semi-arid	Baroda, Kheda, Panchmahals	904	34.2
	4. Arid to semi-arid	Ahmedabad, Gandhinagar, Mehsana, Sabarkantha, Banaskantha	735	34.7
	5. Arid	Kutch	340	NA
	6. Semi-arid	Amreli, Bhavnagar, Jamnagar, Rajkot, Surendranagar	537	17.7
	7. Dry sub humid	Junagadh	844	14.9
Haryana	1. Semi-arid to dry sub humid	Ambala	891	15.7
	2. Semi-arid to dry sub humid	Kurukshetra, Karnal, Zind, Sonepat, Rohtak, Faridabad, Gurgaon	561	15.4
	3. Arid and extreme arid	Mahendragarh, Bhiwani, Hissar, Sirsa	320	NA
Karnataka	1. Arid to Semi-arid	Belgaum, Bellary, Bidar, Bijapur, Dharvad, Gulbarga, Raichur	688	45.3
	2. Semi-arid	Bangalore, Chitradurg, Kolar, Tumkur	684	45.6
	3. Semi-arid	Mandya, Mysore, Hassan	720	47.0
	4. Per humid Semi-arid to Per humid	Uttar Kannada, Dakshin Kannada Chickmagalur, Kodagu, Shimoga	3300 2040	23.5 28.2

State	Climate	Districts	Rainfall (mm)	Rural Poverty (%)
Madhya Pradesh	1. Dry Sub humid	Durg, Bilaspur, Balaghat, Raipur, Rajnandgaon	1271	51.4
	2. Moist subhumid to dry sub humid	Riyadh, Surgical, Shadow	1436	55.8
	3. Moist subhumid to dry subhumid	Bastar	1338	58.1
	4. Dry subhumid	Chhatarpur, Datia, Tikamgardh	700	34.3
	5. Moist subhumid	Mandla	1570	61.0
	6. Dry subhumid	Jabalpur, Panna, Satna, Rewa, Sidhi, Seoni	1100	61.0
	7. Dry subhumid	Bhopal, Damoh, Raisen, Sagar, Sehore, Vidisha	1130	45.8
	8. Dry subhumid	Betul, Chhindwara, Narsingpur	1220	45.8
	9. Dry subhumid	Hoshangabad	1300	45.8
	10. Semi-arid	Morena, Bhind, Gwalior, Guna, Shivpuri	670	36.5
	11. Semi-arid	Jhabua	988	35.9
	12. Semi-arid	Indore, Dhar, Ujjain, Ratlam, Dewas, Mandsaur, Rajgadh, Shajapur, Khandwa, Khargone	874	48.9
Maharashtra	1. Dry subhumid	Bhandara, Chandrapur, Gadhchiroli	1271	51.4
	2. Semi-arid	Kolhapur, Nasik, Pune, Satara	988	5.9
	3. Semi-arid	Ahmednagar, Dhule, Sangli, Solapur	602	38.2
	4. Semi-arid	Akola, Amravati, Aurangabad, Bid, Buldana, Jalgaon, Jalna, Latur, Osmanabad, Parbhani	874	48.9
	5. Semi-arid to dry subhumid	Nagpur, Nanded, Wardha, Yawatmal	1040	48.9
	6. Humid to per humid	Greater Bombay, Raigad, Ratnagiri, Sindhudurg, Thane	3640	23.5
Punjab	1. Sub humid	Gurdaspur, Hoshiarpur, Ropad	1150	15.7
	2. Semi-arid	Amritsar, Jallandar, Ludhiana, Patiala, Kapurthala	650	15.4
	3. Arid	Bhatinda, Ferozpur, Faridkot, Sangrur	375	NA
Rajasthan	1. Arid	Ganganagar	360	NA
	2. Semi-arid	Banswara, Dungarpur, Pali, Sirohi, Bhilwara, Udaipur, Chittorgarh	550	61
	3. Semi-arid(drier half)	Bundi, Kota, Ajmer, Tonk, Jaipur, Alwar, Bharatpur, S. madhopur, Dholpur	550	42
	4. Semi-arid (wetter half)	Jhalawar	874	49
	5. Arid to Extreme arid	Barmer, Bikaner, Churu, Jaisalmer, Jalore, Jhunjhunu, Jodhpur, Nagore, Sikar	395	*

State	Climate	Districts	Rainfall (mm)	Rural Poverty (%)
Tamil Nadu	1. Semi-arid	Dharmapuri	865	47
	2. Semi arid to dry sub humid	Coimbatore, Madurai, Tiruchirapalli	841	45
	3. Semi-arid	Chengalpattu, Madras, North Arcot, South Arcot	1036	46
	4. Semi arid to dry subhumid	Thanjavur	1113	48
	5. Semi arid	Kamarajar, Ramnathpuram, Tirunelveli, P.M. Ligam	780	48
	6. Dry sub humid and per humid	Kanyakumari	3127	28
	7. Per humid	Nilgiri	2226	28
Uttar Pradesh	1. Humid	Dehradun, Chamoli, Uttar Kashi, Tehri, Pauri, Pithorgarh, Almora, Nainital	1675	NA
	2. Moist subhumid to dry subhumid	Bahraich, Basti, Deoria, Gonda, Gorakhpur	1214	51.7
	3. Dry subhumid to moist subhumid	Azamgarh, Ballia, Faizabad, Gazipur, Jaunpur, Varanasi	1025	51.7
	4. Dry subhumid to moist subhumid	Mirzapur	1134	51.7
	5. Dry subhumid to semi-arid	Allahabad, Fatehpur, Rae Bareily, Lucknow, Hardoi, Sitapur, Kheri, Pilibhit, Pratapgarh, Sultanpur, Bara Banki	979	54.8
	6. Dry subhumid to semi-arid	Bareily, Bijnor, Bulandshahr, Ghaziabad, Meerut, Moradabad, Rampur, Saharanpur, Sahjanpur, Muzaffarpur	907	54.8
	7. Semi-arid	Badaun, Agra, Ferozabad, Aligarh, Mathura, Mainpuri, Etah, Etawah, Kanpur, Farrukhabad	721	35.2
	8. Dry sub humid to dry arid	Jalaun, Jhansi, Hamirpur, Banda, Lalitpur	902	68.8

Source: Agro-Climatic Regional Planning at State Level – Profiles, Issues, Strategies & Programmes. ARPU Working Paper No. 5, Agro - Climatic Regional Planning Unit, Planning Commission, Ahmedabad, India, July 1991.

Appendix 6:
Policy Implications of CPR Knowledge in India

Report on a workshop held at the
Institute of Economic Growth, Delhi, India

September 14th 2001.

This workshop was organized jointly by the Institute of Economic Growth and the University of Cambridge, as part of an ongoing project funded by UK Department for International Development (DFID). The views expressed are not necessarily those of DFID.

Appendix 6:
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ANNEXURE

POLICY IMPLICATIONS OF CPR KNOWLEDGE IN INDIA

Report of Workshop held on September 14, 2001 at the Institute of Economic Growth, Delhi 110007

1. Background

The project entitled "Policy Implications of Present Knowledge on Common Pool Resources" focuses on multiple-use common pool resources under consumptive pressures from local, regional, national and international stakeholders. Regimes for managing them are faced with the challenge of reconciling the conflicting claims of users. Additionally, when such claims are articulated and expressed in a situation, macro policy interventions may result in wiping out small gains achieved. In its earlier phases, the project had examined the situation in different countries to ask whether common pool resources were relevant to sustainable livelihoods in the context where markets and globalisation dominate development. It had also addressed the issue of lessons derived by policy makers from existing studies.

In that phase, it had been concluded that a large number of micro studies existed in India and a new macro data set was also available. New initiatives in devolution of power and resource management have emerged in the nineties. These needed to be looked at in the context of the following central themes that emerged in a comparative study of the three countries:

- Exchange value of common pool resources: do they constitute safety nets or can they be drivers of development
- The role of land tenure and local governance
- Empowerment, policy options and local governance: the links

2. Aims of the Workshop

A number of papers were commissioned to highlight aspects of existing work in India on common pool resources to see what light it threw on the issues identified above. It was also proposed

- To identify policy inputs from useful case studies
- To critically evaluate both success and failure stories of the past
- Highlight under-researched areas

3. Papers Presented

Eleven papers focusing on aspects of common pool resources were circulated. Eight presentations were made and a considerable amount of time spent on discussions keeping in view the different professional backgrounds of the participants.

Following papers were presented:

1. Bhaskar Vira, *"Looking Ahead-CPR futures in India."*
2. Kanchan Chopra and Purnamita Dasgupta, *"Common Pool Resources in India: New Evidence and New Initiatives."*
3. G. Bhaskara Rao, *"Common Pool Resources: Issues in management"*
4. Sushil Sehgal, *"Joint Forest Management: A Decade and Beyond"*
5. Sudershan Iyengar and Amita Shah, *"CPR in a Rapidly Developing Economy: Perspectives from Gujarat"*
6. Madhu Sarin, "*Supply versus Demand Driven Community Forest Management"*
7. K N Ninan & Jeena, T.S., "*User Knowledge and State Regulation of Common Property Resources: Experience of Estuarine Fisheries Management in Kerala."*
8. Nandini Sundar, *"A Sociological Perspective on Devolution in Natural Resource Management."*
9. Kishore Saint, *"Sacred Groves as Commons: The Sacred and Secular in People's Domain"*
10. Gopal K. Kadekodi, *"Valuing Community Labour: Why not?"*
11. Neema Pathak and Ashihsh Kothari, *"Community-based Natural Resources Management and its Implications for Governance: Some Thoughts"*

4. Issues and Highlights of the discussion

The first two papers set up a conceptual structure for common pool resources, focusing on possible roles as development drivers and safety nets. Vira's paper put these issues in the context of land-use of differing kinds in India whereas Chopra and Dasgupta's paper hypothesized that a complementarity-cum-substitution relationship with development could be postulated. A preliminary statistical analysis of the new data set from National Sample Survey Organisation (NSSO 1999) was attempted in different ways in the two papers. This led to some discussion on the appropriateness of large scale sample surveys as modes for data collection. This is an area that could be explored further.

The role of appropriate institutions in ensuring the success of any managerial strategy for the common pool resources emerged as a major issue. Participants highlighted the contributions of the Gramdaan movement and the criticality of the Panchayati Raj Institutions (PRIs) in this context. (Bhaskar Rao, N. Sundar). PRIs, given their motivation of achieving integrated development of all resources, can assume ownership of common pool resources and can be particularly effective in protecting the interests of the disadvantaged sections keeping local priorities in mind. Similarly, the Gramsabha has a wide range of powers and can assume full ownership and control on common pool resources in the village. In the related context of incentives for people to protect forests, it was also argued that all entitlements to common pool resource products should be transferred to local communities.

In the context of legal institutional support the role of Provisions of the Panchayats (Extension of the Scheduled Areas) Act, (PESA1996) was highlighted (N. Sundar, Bhaskar Rao, Sareen). This represents a potentially more extensive form of devolution which made the Gramsabha competent to safeguard and preserve the traditions and customs of the local people, including their community resources. Unfortunately, the full implications and consequences of PESA are yet to be understood completely.

The need for effective and accessible dispute resolution mechanisms was also highlighted (Sareen). The importance of legal reforms was highlighted in the debate on formal devolution versus direct state intervention as the most desirable tool of democratic governance (Sundar). The point was made for making the main structures of government itself more participatory for effective participatory development.

While critically evaluating the role of Joint Forest Management (JFM) in the forestry sector, a research question that emerged was the role of the previously existing institutions in a particular locality, where JFM was being super-imposed as a managerial strategy (Sehgal). Would it be justified to expand JFM at the cost of existing institutions in certain states where alternative institutions already have a presence? How would one reconcile the two management systems?

On a somewhat different vein, it was also felt that the basic understanding of the commons and the relationship of the commons with the community was inadequate in as much as the definitions of common pool resources used in economics, tended to ignore the way the community itself defines its commons. The commons needed to be understood as a "common body of the community" (Saint). This question of definition is important since it is around this definition that the identity of the indigenous community and its relationship to the commons has to be understood. Thus, the commons become a resource only when the community encloses them. For instance, the notion of Gramdaan inculcates the concept of a community defining itself. It was also recognised that in understanding how communities define themselves with regard to their common pool resources, it was necessary to conduct in-depth research on an extensive basis, covering large numbers of indigenous local communities.

A fall-out of the recognition of the importance of the community's perceptions of the commons is the importance of taking into account the people's knowledge systems in order to have effective policy prescriptions. The research issue then arises as to whether there is an effective basis in sociology for community management corresponding to the concept of state management of natural resources? At the same time it is also to be recognised that traditional systems may not always be democratic or good in terms of ensuring equity (Sareen, Sundar).

Land use policies were also a major focus of interest (Sareen, Saint). The limitations of the Forest Conservation Act in not taking into account ground realities, led to a discussion on the need for recognising optimal land use patterns. What land can and should be used for and what land cannot and should not be used for needs to be clearly understood (Sareen). It was felt that a historical perspective could improve the understanding of the uses of different kinds of land, particularly the commons, in the context of better land management policies. Particular mention may be made of the policy to include village forest lands and commons as part of the national forest management programmes. Rational land use as an integral part of the forest management framework could contribute to preservation of local commons in a

sustainable manner. For instance, natural grasslands and pastures should not be targeted for tree plantations while those already planted with pine could be restored (Sareen).

The Forest Act was also discussed. Many state government have expressed the need to scrap the Act on the assumption that it was inadequate and inappropriate. This begs the question of what alternative should be employed. Since the Act did manage to prevent diversion of land for other uses to a large extent, suitable alternatives have to be first designed (Sehgal).

Apart from the appropriateness of defining lands for Joint Forest Management, the critical importance of land use policies in maintaining common pool resources came up in the context of Gujarat, a rapidly industrialising state. Land acquisition, for meeting the demands of industrialisation and urbanisation adversely affects common pool resources, and their role in supporting livelihoods (Iyengar and Shah). The fall-out for policy implications is that a rational land-use policy must assess the actual requirements for land in a changing urban context and identify priority areas such as development of pastures. If acquisition of land is necessary for industry or urbanisation purposes, the processes have to be more open, with fewer illegal encroachments. In reducing encroachments, the role of participatory institutions has to be highlighted. The need for integrating land and water use policies, as an integral part of developing and maintaining common pool resources for sustainable livelihood was stressed upon.

5. Summary of Discussion

The workshop discussed at length the three primary themes of the project identified at the July workshop. These were centred around:

- usefulness of large-scale survey methods in identifying roles of common pool resources
- institutions, old and new in management of common pool resources and their implications
- impact of central imposition of devolution in the presence of preexisting institutional forms
- the community's own perceptions of common pool resources and the question of whether they are different from how structured social science, in particular economics views them.

The workshop did not discuss in any depth the role of common pool resources as development drivers. This was probably due to the absence of a significant amount of work in this area. It could be identified as an under researched topic.

Annex: PROGRAMME

Workshop on Policy Implications of Knowledge on CPR Management
DFID Project in collaboration with the University of Cambridge, UK

Date: September 14, 2001
Venue: V.K.R.V. Rao Room, Ist Floor,
Institute of Economic Growth

Session I:

Inaugural Session	**10.00 a.m to 11.15 a.m**
Welcome & Opening Remarks	B.B. Bhattacharya, Director, Institute of Economic Growth (IEG)

Chairperson: N.C. Saxena, Secretary, Planning Commission, Government of India

Introductory Remarks:	Chairperson
Introduction to the Project and the Workshop	Kanchan Chopra, IEG
1. CPR's Changing Perspectives	Bhaskar Vira, University of Cambridge, UK
2. CPRs in India: Evidence and New Initiatives	Purnamita Dasgupta, IEG

Discussion: 25 mins

Tea Break 11.15 a.m to 11.45 a.m

Session II:

CPR Management **11.45 a.m to 1.00 p.m**

Chairperson: Bina Agarwal, Professor, Institute of Economic Growth

Introductory Remarks:		Chairperson
1.	Common Property Resources: Issues in Management	G. Bhaskar Rao, Society for Promotion of Wasteland Development, Hyderabad
2.	Lessons from Joint Forest Management	Sushil Sehgal Winrock Foundation, New Delhi

Discussion: 30 mins

Lunch Break: 1.00 p.m to 2.00 p.m

Session III:

CPRs and Development: Focus on Regional Experience **2.00 p.m to 3.15 p.m**

Chairperson: Ramaswamy Iyer, Formerly Secretary, Water Resources, Government of India

Introductory Remarks		Chairperson
1.	CPRs in a Rapidly Developing Economy: Perspectives from Guajrat	Sudershan Iyengar and Amita Shah Gujarat Institute of Development Research, Ahmedabad,
2.	Supply Versus Demand Driven Community Forest Management	Madhu Sarin, Consultant, Chandigarh

Discussion: 30 mins

Session IV:

Governance of CPRs and Devolution of Power **3.45 p.m to 4.45 p.m**

Chairperson: Gopal Kadekodi, Centre for Multi Disciplinary Research, Dharwar

Introductory Remarks		Chairperson
1.	User Knowledge and State Regulation of CPR Use: Fisheries Management in Kerala	K.N. Ninan & T.S. Jeena Institute for Social and Economic Change, Bangalore
2.	Lessons from the Field: A Sociological Perspective on Devolution of Power	Nandini Sundar, IEG
3*.	Community-based Natural Resource Management & its Implications for Governance: Some Thoughts	Neema Pathak & Ashish Kothari Kalpavrikhsha, Pune

Discussion: 10 mins

Plenary Session
Chairperson: Gopal Kadekodi, Centre for Multi-Disciplinary Research, Dharwar

General Discussion 4.45 p.m - 5.30 p.m

* Paper could not be presented due to unanticipated circumstances (although it was submitted in advance)

Appendix 7

"Shared Visions, Shared Futures?

Donors, Natural Resources and Rural Livelihoods"

Report on Workshop held at the India Habitat Centre,

New Delhi, India

December 14, 2001

This workshop was organised jointly by the University of Cambridge, UK and IEG, Delhi, as part of an ongoing project funded by UK Department for International Development (DFID). The views expressed are not necessarily those of DFID.

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1. BACKGROUND TO THE WORKSHOP

This workshop was held as part of a one year research project funded by the UK Department for International Development (DFID). The project aims to explore the policy implications of current knowledge concerning common property regimes and common pool resources (CPRs) in India, Tanzania and Zimbabwe. The project (code R7973) falls under the Semi-arid Production Systems (SAPS) section of the Natural Resources Systems Programme (NRSP). The call for the project derived from the need to establish a common framework for the analysis of CPR issues and to fill the perceived gap between the extensive theoretical literature on CPRs and field level policy interventions. The project team consists of teams in each of the target countries, at the Institute of Economic Growth, University of Delhi, India, the University of Dar es Salaam, Tanzania, and the Centre of Applied Social Sciences, University of Zimbabwe, Zimbabwe. A UK team is also based at the University of Cambridge.

One of the key tasks for the project is to communicate with key stakeholders in natural resource management about policy matters in the target countries. Apart from meetings with particular individuals, the principal means of communication was via a series of targeted workshops in each country. As part of this process in the Indian context, the first workshop was held at the Institute of Economic Growth in September, 2001. This was targeted at the Indian academic, NGO and governmental sectors.

The second workshop was held with another key set of stakeholders, the international donor community in Delhi. The workshop was held in Delhi on December 14, for donors working in the broad field of Natural Resources and Rural Livelihoods. Given the disjuncture between research projects, like ours, and on-going donor programmes on the ground, the workshop aimed to provide a forum to discuss the policy implications of current CPR knowledge from the donor perspective.

In September 2001, prior to the workshop, Jane Dyson, from University of Cambridge, conducted interviews with individuals and groups from seventeen bilateral and multilateral donor agencies and international NGOs working in the field of CPRs (or natural resources and rural livelihoods more broadly). These discussions provided insights into the type of work undertaken by these agencies, and their perceived problems, needs and priorities. An understanding of these issues helped plan the workshop by being able to respond to the contemporary concerns of these key stakeholders. Whilst it had not been possible to meet with representatives from government ministries, key members of relevant ministries were also invited to the workshop.

2. OBJECTIVE OF THE WORKSHOP

The objectives of the workshop were

a) to receive feedback from the donors, NGOs and government representatives regarding the project's work in progress,
b) to facilitate dialogue amongst donor agencies to i) gain an understanding of the key concerns of agencies implementing NRM programmes and ii) raise important under-researched areas (specifically the change and dynamics in the natural resources sector, and political mobilisation and its interface with poverty/natural resources/livelihoods)

3. WORKSHOP PROCESS

The workshop was opened at 10.00am by Jane Dyson, from the University of Cambridge. She welcomed the participants, thanked them for coming, and explained the programme for the workshop. Session I comprised of two short presentations given by members of the project team. The first was given by Bhaskar Vira to explain the NRSP goals, the aims of this project in particular, and outline the aims of the workshop. The second presentation was given by Professor Kanchan Chopra with a brief summary of the India paper. These presentations were followed by time for questions. Session II comprised of two key note presentations (each no longer than 10 minutes) given by Sushil Saigal, from Winrock International, India, and by Venkata Ramana, from UNDP, New Delhi. These presentations were designed to flag up questions and under-researched areas to act as foci for a longer period for questions and open discussion in Session III.

4. HIGHLIGHTS FROM THE CPR PROJECT (SESSION 1)

Brief summaries of the presentations given by Bhaskar Vira and Kanchan Chopra are outlined below.

4.1 Shared Visions, Shared Futures? Background and Context. *Bhaskar Vira, University of Cambridge*

Bhaskar Vira made the following points

- Natural resource management has become pro-poor. This is illustrated by the focus on poverty reduction at both the national level (eg the approach paper to the Tenth Plan seeks to reduce the poverty ratio by 10% by 2012) and international level (with the commitment to halve poverty by 2015). This is also increasing recognition of the overlap between rural livelihoods and natural resources as **safety nets** in extreme circumstances, as sources of (market) **opportunity**, and of (political) **empowerment.**

- The purpose of NRSP was to deliver new knowledge that enables poor people who are largely dependent on the NR base to improve their livelihoods. It seeks to understand livelihood systems, current management strageies and develop and promote improved prop-poor management strategies.

- The current project has two major components; in-country work, and synthesis and theoretical development. The in-country work consists of developing the knowledge base, exploring future options, and dialogue and dissemination amongst key stakeholders.

- Key issues in the understanding of NRM were outlined. These included: the defining of the problem, acknowledging that understanding and priorities may not be shared by principal stakeholders, response options may not be targeted at the same beneficiaries, open and collaborative dialogue and local ownership is needed.

- Stages in the defining of problems were identified. These include drawing on i) empirical knowledge of change and dynamics (i.e. what are the key forces driving change, who are they impacting on and what are the current and potential resource uses?), ii) theoretical understanding of what bodies of literature are relevant, and iii) the policy context and priorities (who are the intended beneficiaries and what are the priorities for action?)

- Issues concerning the implementation of NRM initiatives were highlighted. These concerned i) dialogue among key stakeholders to promote 'ownership' of strategies, ii) testing the impacts of planned action and future NR possibilities, especially on the poor, and iii) learning from the implications of on-going political processes (decentralisation, panchayats, right to information) and the experience of past and present interventions, especially in the context of poverty alleviation and the NR sector (JFM, watersheds).

4.2 Common Pool Resources in India: New Evidence and New Initiatives, *Kanchan Chopra, Institute of Economic Growth, Delhi.*

Kanchan Chopra then presented a brief summary of the India paper. She hypothesized that a complementarity-cum-substitution relationship of common pool resources with development could be postulated. A preliminary statistical analysis of the new data set from National Sample Survey Organisation (NSSO 1999) was attempted to explore this hypothesis further. The appropriateness of large scale sample surveys as modes for data collection, in particular in the context of resources where the nature of access needed to be determined after close participant observation was commented on. It was agreed that this constituted an area that could be explored further, in particular as policy formulation also needed generalisable research results at regional levels.

4.3 Discussion

The participants were invited to respond to the presentations. Discussions centred around the following issues:

- The creation of new knowledge. For whom is one producing knowledge, given that different actors need different information
- What is the evidence for a decline in the dependence on CPRs as development increases?
- What are the similarities and differences between the three countries?
- The need to move away form a sectoral approach in managing NR.

5. KEY NOTE PRESENTATIONS (SESSION II)

The second session began with two key note presentations by Venkata Ramana (UNDP) and Sushil Saigal (Winrock). These aimed to flag up under-researched areas to focus subsequent discussion. The presentations are outlined below, and the major discussion themes are summarised.

5.1 Natural Resource Management Issues and opportunities, *Venkata Ramana, UNDP, New Delhi*

Venkata Ramana focused his talk around the link between NRM and Sustainable Development, asking whether this link had been sufficiently well explored. He pointed to the implication of globalisation in the relationship between NR use and sustainable development, and highlighted how changing socio-economic paradigms may affect the link.
He then drew attention to institutional issues, highlighting the need to review past efforts before moving forward. He also called for the need for a new policy or institutional framework for dealing with ecosystem services, and suggested how public-private partnerships may be a potential solution.

Finally, he touched on some remaining emerging issues:

- the need to converge global conventions, such as those on biodiversity, climate change, and desertification
- Sinks and CDM
- Millennium Development Goals
- World Summit on Sustainable Development (water and energy as main themes)
- Lastly, at the core of all of these concerns should be livelihood issues (eg conservation vs. communities or conservation and communities)

5.2 Decentralisation, Grassroots action and natural resource management, *Sushil Saigal, Resource Unit for Participatory Forestry, Winrock International India*

Sushil Sehgal began by outlining the paradigm shift within NRM, in which there has been increasing policy acceptance that decentralised management of natural resources improves the resource as well as livelihoods. This was illustrated with various policy acts, including the 73rd amendment, PESA, 1996, the National Forest Policy (differences between 1952 and 1988), and recent progress in terms of panchayati raj institutions and JFM.
Despite this, there were several major issues which needed further research and debate. He briefly expanded on two of these, and listed some remaining questions.

1. Panchayati Raj institutions vs user groups

- 29 subjects under PRIs include: agriculture; land improvement and soil conservation; minor irrigation, water management and watershed development; fisheries; social forestry and farm forestry; minor forest produce; fuel and fodder

- Arguments For: Statutory bodies with constitutional mandate, democratic, greater reach in political and bureaucratic structures, lesser bureaucratic control, development funds, integrated planning
- Arguments against: Politicisation (conflicts), mismatch with resource boundary, patronage rather than participation, inadequate capacity
- Some ways forward: User Group a subcommittee of Panchayat, User Group head represented in Panchayat and vice versa

2. Recognising community initiatives:
- Evidence of significant scale of local community initiatives in NRM and conservation (sacred groves & tanks, SIFPGs in Orissa/Jharkhand, coastal resources, orans, etc.)
- Diversity of institutions and approaches
- Challenge of recognising and empowering without destroying through centralised, uniform models
- Existing legal spaces: village forests under Indian Forest Act, ESAs and CRZs under Environment Act, PESA, Gramdan Act, etc.

3. Other issues:
- Are too many funds being pumped in a short period through externally assisted projects? What is the optimum funding/intervention level? (e.g. entry point activities in TN)
- Has PESA really empowered communities in scheduled areas? (e.g. ownership of NTFPs - definition of ownership and NTFP, boundary, monopolies)
- Why has fiscal and administrative decentralisation not kept pace with political decentralisation?
- Is direct funding, through the by passing of state governments, desirable? (e.g. Forest Development Agencies/ DRDA monitoring)
- Can decentralisation work without a strong centre?
- What should be the correct stand on the issue of "encroachments"?
- Is there a role for private sector in NRM?
- Is there an ideal institutional structure that promotes true decentralisation and sustainability? (e.g. Gram Sabha/ common funds, assets, etc./ tenurial security/ transparency)
- Will exclusive community management (as against joint management) work? Can we learn some lessons from the North-East?
- Is there a need for greater consultation between different stakeholders? (campaigns, protests, etc.)

6. OPEN DISCUSSION (SESSION III)

The remainder of the workshop was thrown open for open dialogue. The following issues were discussed:

- How can we provide incentives to strengthen the linkages between sustainable development and NRM? Furthermore, how can we provide incentives to policy makers to provide those incentives?

- The concept of CPRs could be broadened, to include, for example, indigenous knowledge.

- Issues regarding the scales of policy. We should be earmarking micro level policy and ways of implementing it.

- The importance of incorporating a broader framework of human welfare and well being into policies about NRM.

- Is decentralisation possible with a weak centre? What is the minimal level of power maintained by the centre that would not inhibit power being transferred to the periphery?

- The importance of looking at the transaction costs versus the incentives. What are the shifting terms of trade versus the alternatives? Do relative returns suggest a shift away from NR protection?

- Problems of overfunding and direct funding. Can villages absorb such massive funds? There is a greater need for capacity building.

- Panchayati raj institutions versus user groups. This included giving user groups legal status (drawing on the example of the disempowerment of people through JFM, because of problems over boundary definitions, for example.)

- How should we be dealing with encroachments? In particular, how should we deal with encroachments when they are being made by the very poor, or by a local elite?

- All donor initiatives tend to be 'pilot projects', since there is no sharing of information or learning of lessons, and hence no replication of successes/avoidance of failures.

- The need for work to understand how policy reached the grassroots. Suggested that policy should be seen as a stepwise progression, with capacity building to aid the progression from one step to the next.

- The need for donors to collaborate and learn from each other.

7. CONCLUDING REMARKS

The workshop participants were thanked for useful contributions and comments. They were urged to stay in touch and were assured that they would receive any outputs from the project. Participants remained for informal discussions over a meal.

ANNEX: LIST OF PARTICIPANTS

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