Common Pool Resources as Development Drivers : A study of NTFPs in Himachal Pradesh, India

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I. The Theoretical Context : Development, CPRs and the Role of Institutions

This study investigates the role of common pool resources (CPRs)² as a source of sustainable rural incomes in the context of opportunities created by the development process such as improved access to markets. Development in the present context is defined as an enhancement of well-being (MEA 2003). The development process thus involves transition from conditions of ill-being to well-being³. Scholars have defined human well-being in different ways (Alkire 2002). Although how well-being is expressed and experienced is context and situation-dependent, and the concept of well-being is both complex and value-laden, research in under developed countries across the world (Narayan et al. 2000) has revealed certain universal constituents and determinants of human well-being. These include the basic material needs for a good life, health, security, good social relations, freedom and choice. The MEA contributes in recognizing ecological security as another equally important aspect of well-being. The freedom and choice aspect of well-being focuses on the capability to achieve that which individuals value doing and being (MEA 2003). The present study adopts this definition of development, and focuses on the contribution of CPRs in enhancing well-being of the communities dependent on them. It seeks to throw light on the web of interactions that exist between three dimensions of

¹ This study constitutes work - in - progress, and, is supported by the South Asia Network for Development & Environmental Economics (SANDEE).

² CPRs are defined here as resources with varying degrees of access on which multiple and often overlapping property rights and regulatory regimes exist. Such rights of access include those defined on different categories of government forests. The de-facto access may be limited to some groups and legitimised either by law or convention, customary rights or traditional practices.

³ The World Development Report 2000/2001 defines poverty as the pronounced deprivation of well-being (World Bank 2001).

well-being – the necessary material for a good life, good social relations, and, freedom and choice.

The study focuses on the use of CPRs by households faced with multiple options. In a dynamic perspective, CPRs can generate surplus to be used for re-investment in physical, social or natural capital. Thus, when such households adopt conservation practices (such as planting of trees for future use), CPRs become development drivers. In the context of the present study, CPRs can contribute to the necessary material for a good life by increasing household incomes through sale of CPR based products. Good social relations are promoted through improvements in gender and family relations and increased social cohesion along with material well-being. The freedom and choice aspects of well-being find expression in the evolution of institutions - institutions that mediate the link between the CPR provisioning service and human well-being.

The definition of institutions being adopted here follows that of North (2000). Institutions are defined as rules that guide how people within societies live, work and interact with each other. Institutions are created ideally to reduce conflicts and uncertainty in society. Institutions can be of two types, either formal (constituting the written or codified rules) or informal (rules governed by social and behavioral norms of the society, family and/or community) (Chopra and Duraiappah forthcoming).⁴

It can be hypothesized that institutional innovations have a primary impact on the necessary material for a good life aspect of well-being. Impacts on good social relations and freedom and choice aspects develop simultaneously as a conjoint process although the evidence may take longer in making its presence felt. The freedom and choice which results, leads to further institutional innovation which in our case contributes to enhancing the CPR services and ensuring further well-being. As Sen (1999) elaborates, institutions not only contribute towards freedom but their roles can be evaluated on the level of freedom they provide.

⁴ Institutions need to be distinguished from organizations. Organizations are defined as the players in the game. These are the agents that play by the rules to win the game. Organizations can include political bodies, economic bodies, social bodies, educational bodies and more recently Non-Governmental Organizations.

Institutions evolve – and this evolutionary process is a social process that gets determined by various factors. It follows that institutional innovation can redefine or widen the individual's ability to achieve what he values doing or being. For instance, in the case of the evolution of the Kangra Women's Co-operative⁵ the impact in terms of improved family and gender relations is evident at this point in time. But, this end result, occurred through a social process that had many constituents. One of these was an institutional innovation. Gender based discriminations within the household in accessing the common household fund became evident when women desired to meet the raw material expenses incurred in processing fruits out of their household funds. This prompted the members of the co-operative to create a new rule about making monthly deposits out of their wages (before taking them home and pooling them into a common household fund) to meet future expenses on raw materials. Over time, this impacted in various ways on improving social relations (increased cohesion, increased respect for women, etc.).

II. The Empirical Context : The Development Driver Role of CPRs

In examining the possible "development driver"⁶ role of CPRs, the study pertains to situations in which households choose to spend time on collection from the commons for sale and value addition as an income enhancing activity in its own right, as distinct from its role as a safety net in times of distress and/or its role as a provider of agricultural inputs⁷. It would be realistic to assume that all rural households who have access to CPRs in varying degrees would consider the options for generating marketable surpluses from CPR based activity, in arriving at decisions on optimal allocation of labour to maximise incomes⁸. The motivation for management of the

⁵ More details are provided in the section on description of study area.

⁶ The "Development driver" role of CPRs is conceptualised in terms of situations where it sets off a trigger mechanism for generating surplus for investment purposes. The sale of CPR based products for reasons of survival or subsistence is a coping or safety nets strategy – a sort of primary driver. Similarly, situations where CPRs decrease vulnerability through collections for distress sales are also not included in this role as development drivers.

⁷ Byron and Arnold (1999) in their attempt to deconstruct the term "forest-dependent people" distinguish between two crude categories as, those who choose to generate their livelihoods from forests because it is an attractive, viable option and, those for whom forest dependency is a livelihood of last resort – a symptom of their limited options and /or poverty – which they will abandon as soon as any plausible better option emerges.

⁸ A parallel can be drawn in evidence from South Africa which shows that allowing local people to utilize wildlife as a renewable resource may trigger incentives to carefully manage wildlife as a valuable asset and to allocate scarce land to its survival. Bulte and Horan (2003) identify situations in which a "little pull" can encourage conservation and increase economic well being by creating backward and forward linkages in the wildlife sector that promote economic expansion, when faced with imperfect labour markets and perfectly elastic demand for wildlife commodities.

commons would correspondingly be dependent on the returns and the uses to which the commons are put. The availability of markets and the incentive structures for CPR based products and, the ecological limits of the resource base would determine the extent to which CPRs could act as sources of sustainable income⁹.

Recent research based on secondary data (Chopra and Dasgupta 2003), reveals that the evidence on livelihood strategies and the role of common pool resources has been a mixed one, when considered in conjunction with the overall state of development within the component states of the Indian economy. In certain pockets of the country, CPRs are providing the basis of income generation for households with multiple options, quite distinct from their role as providers of subsistence incomes. This points towards the possibility of a new role for CPRs in the context of market oriented development, a role that has significant implications for the paradigm of development with (and through) conservation¹⁰.

It can be argued that if people view the commons increasingly as a potential source for enhanced well-being, their role needs to be reconceptualised. Changes in the importance of different CPR functions, could lead to different kinds of shifts in the control, governance and conflicts over these resources. However, so far, the literature has not focussed on these aspects of changing perspectives on the role of CPRs (Vira 2002).

In the Indian context, it could be argued that collection of non-timber forest products (NTFPs), is more market driven than collections of fodder and fuelwood. However, at present there are no regulations on extraction for most NTFPs including locations with joint forest management and community forest management programmes. This could have harmful consequences in terms of

 $^{^{9}}$ There are evolutionary stages of institution building that go hand in hand with the notion of development drivers. The primary driver role when CPRs provide for subsistence needs, is essentially individual or household based. For instance, historically, forest dwellers always treated this as an individual matter (collection of fuelwood, fodder for the household). However, many communities have rules to collect and protect and use common resources. When the focus shifts to use of resources with a dynamic perspective, it leads to the notion of surplus creation – a development driver role for the CPR. The evolution of institutions in addressing these roles need not be exclusive from one another (Kadekodi, 2003).

¹⁰ The net effect of markets on conservation depends on the relative effects of forces such as the type of forest products, local circumstances with respect to markets, institutional rules and infrastructure, attitudes and perceptions of people, opportunity costs of interaction and level of co-operation as pointed out by Demmer and Overman (2001) in a discussion on the traditional understanding on market integration and conservation.

over-extraction and long-term sustainability (Ravindranath, et al. 2000). Alternatively, improving access to markets, and higher returns from NTFP based sales, could provide the motivating factor for better preservation of the forest. There is room for investigating into whether market linkages promote conservation in this context and how. Institutions that promote access and the returns to collection in a manner consistent with conservation, become an important part of the picture.

Description of study site

In investigating on the above mentioned aspects, an empirical analysis of household and village level data from Kangra district of Himachal Pradesh was conducted. This state is among the better performing states in India, in terms of achievements in gender equality, decline in poverty and access to safe water and shelter. The legally classified forest area in Kangra district is 49% of the total area.

The food processing project in the Changar belt of Kangra district has been advocated as a success story in improving rural livelihoods along with environmental conservation for the region (Ahal 1996, 2003). The region is located in the lower belt (1000 - 2000 m above sea level) with drier forests. Local women collect, process and market fruits in the form of products such as pickles, chutneys and candies. At present, women from 22 villages are members of this processing and marketing co-operative, called "Samridhi". Collections are mostly from government (protected) forests and in recent times increasingly from trees planted on private lands as well, as farmers view the planting of trees and sales of the fruits to the production centres of Samridhi as an income earning opportunity. Some smaller amounts of collection also take place from common lands around villages, which are essentially revenue lands. The fruits being collected include: mango (Magnifera indica), nimbu, bamboo, amla (Embelica officinalis), harar (Terminalia chebula), gal – gal, Dhiun (Artocarpus chapalasa). The average landholding size is 0.74 ha and most households possess some livestock (Sircar 2002).

In all there are 22 villages which are differentiated in terms of caste composition, literacy levels and wealth/income status. Census sources were also consulted for obtaining data on these villages¹¹. A total of 500 households were sampled in a proportionate manner from across the villages. While all the households which had members in the co-operative were selected (a total of 188 households), the non-member households in the village were selected by random sampling method. The sampling procedure thus selected households which vary in their characteristics with regard to access to CPR, access to markets, access to institutions, and nature of dependence on the CPR. The dataset contains households that do not collect, households that collect and do not sell, households that sell to individual traders and households that sell to the co-operative or are its members.

III. Research hypotheses and Discussion

The following empirically verifiable hypotheses were identified for the study:

<u>Hypothesis 1</u> "CPRs can sustain value added economic/commercial activities through reinvestment of surplus at the local level"

<u>Hypothesis 2</u> "When CPRs support long term income generating activities institutions evolve to support income flows, such that there is conservation of the resource"

The study focuses on rural households that do not necessarily depend on CPRs in a major way for meeting their subsistence needs or as inputs to agriculture. However, they do have access to certain products (primarily forest based non – timber forest products) which they opt to harness when they find it "profitable" to do so.

An increase in the share of value-added for the locals (collecting households), wherein the locals are able to capture some of the benefits from value-addition activities implies that the returns per unit time spent on collection of the product increases for the local household. Economic theory provides for alternative routes by which net welfare gains could accrue to the economy through such local value-addition activities. Value-addition at the local level to the extent that it represents reduced transaction costs or a move towards more optimum rents implies a welfare improvement. The case for welfare improvements also rests on the ground that one could expect

¹¹ A summary of the data is presented in the Appendix

benefits over time from the learning process involved in local entrepreneurial activity. From the point of view of preservation of the resource, it is also likely that the implicit discount rate could be higher for outsiders (as buyers), than for the local community.

Economics, provides us with theory on household decision-making with regard to labour allocation, as a measure of the profitability of undertaking such NTFP activity, in terms of the returns (price) per unit time on NTFP activity relative to other activity or leisure. More simply, in terms of the opportunity cost. Thus, one could econometrically model household decisions to participate in such activity, and explore the determinants of such decisions. There are few studies that have attempted to integrate external, social, institutional and physical environment in a statistically and methodologically sound manner in understanding rural households which face options in decisions regarding CPR utilisation. Such households may or may not be producer – consumer households for agricultural commodities.

There is a large amount of literature that focuses on the impacts of population pressures and market pressures on resource systems. However, the conclusions have been quite polarized with regard to the role of population in resource management in particular. While, with regard to market pressures, there is wider agreement that increasing integration with markets usually has an adverse impact on the management of CPRs, with roads playing a catalytical role in the process by integrating distant resource users with local resource systems (Chomitz 1995, Agrawal 2001). The familiar fall-out of the process, has been degradation of the natural resource without sustainable increases in local incomes. Agarwal and Yadama (1997) in a study of 275 forest dependent communities in the Kumaon Himalaya in India, points out that "the impact of markets is always mediated by institutions that are not the direct or linear result of particular levels of demand or the balance between demand and supply," However, this reckoning is used to suggest the influence of institutions in making rural users forego cash incomes from sale of forest products. This is in line with the idea that subsistence users are likely to increase their harvesting levels as they now exploit resources for cash incomes as well. The important point in the context of the present study, is that, we are now seeking to understand and document evidence on integration, when households are not subsistence users. This is an area of study which has been empirically less researched in the Indian context. It lends itself to exploration

through econometric modelling. One could model household decisions within a multinomial logit framework, for instance, distinguishing between types of households with regard to purpose of collection (households that collect for sale; households that collect for self-consumption, households that do not collect) as well as type of collections.

As Agrawal (2001) points out, in discussing the attention paid to local factors in understanding the role of CPRs and their governance structures, "the attention to the locality in preference to the context within which localities are shaped and produced has thus prevented the emergence of a better understanding of how factors such as population, market demand and state policies interact with local institutional arrangements and resource systems." The relevance of the present study in situating households within larger contexts, such as the overall state of development, particularly with regard to infrastructure, would thus add an important dimension to the understanding on the subject. The contextual variables (say roads, marketing facilities) would be expected to impact upon local household level variables in an empirical analysis.

Hypothesis 1 addresses the possibility of NTFP based activity generating surpluses for rural households, surpluses which can be interpreted in terms of CPRs becoming sources of reinvestible surpluses and hence sustained incomes. Ideally time series data if available on all the relevant variables would have been the ideal dataset to test this hypothesis. However, in the absence of reliable time series data on most variables, one is left mostly with cross sectional data.

The phrase to be stressed in this hypothesis is "reinvestment of surplus at the local level." Surplus can be created in two senses. Firstly, there can be surplus creation defined at the household level, as reflected in an increase in incomes. Savings from this additional income, may be invested by the household in either furthering local CPR based activities or in non-local or non-CPR activity¹²– for instance in increasing *human capital*, increased financial assets, or even better nutrition (or other consumption related expenditure). Understanding the determinants of the proportion of income which is spent on consumption and that which is invested as savings

¹² Investments in non-cpr based activity also contribute to human well-being - for instance in the form of investment in a child's education.

(for the future) at the household level, would be an interesting exercise in itself and could be explored statistically.

In the study area, investments at the household level have taken place in *natural capital* as well. Rural households are planting trees on spare farmlands and during fallow periods. The households comprise both those which are members of the village production centres which are a part of the co-operative, as well as non-member households. Private farmers are also opting for selling of products from fruit trees to the production centres instead of cutting them down as fuelwood. One possibility could be to look at the options here (Schatzki, 2003, Place and Otsuka, 2001). Thus, the decision on tree-planting is modelled in this study. A number of independent explanatory variables could be affecting this decision ; for example: farm size, trends in agricultural revenues, uncertainty in these revenues, tree based revenues, uncertainty in these revenues, irrigation, conservation practices, land quality, population density, membership in institution promoting tree-based revenues, etc.

The second sense in which surplus is considered deals with the investment of surplus for furthering value-addition activities related to the NTFP. This refers to the surplus being created at the organisation, (the apex centre), where the final decisions are taken regarding re-investment of surplus. This involves a study of the trends in profits and investments made by the co-operative over the last few years since its inception. Investments in *physical capital* (land, equipment); expanding production capacity and marketing, the growth in members, sales and profits would be explored. The co-operative also makes investments in *human capital*, (literacy, social empowerment) which impact on the development of society. A ranking of the extent of participation in co-operative activities (both at the village production centres and the apex) is attempted¹³. Subsequently, the degree of participation is related to a set of determinants. Thus the improvements in social relations aspect of well-being is sought to be analysed..

¹³ It maybe difficult to get reliable data on the degree of participation in this manner. The typology is presented in Appendix 3. I would welcome alternative suggestions on how this aspect could be empirically explored.

Thus, the study explores the links between CPR surpluses and investments in physical, natural and human capital by using a mix of quantitative and qualitative techniques.

Hypothesis 2 elaborates on the role of the institution in ensuring the sustainability of incomes. Institutions can be defined in the present context as sets of rules and norms that shape interactions of humans with others and nature (Agrawal and Gibson, 1999). Everyday performances of individuals around conservation goals possess the potential to reshape such formal and informal institutions. Following Agrawal and Gibson (1999) if we understand institutions as provisional agreements on how to accomplish tasks, the co-operative is a representation of an institution that helps to congeal the behaviour of several actors along particular courses.

The hypothesis states that built into this state of CPRs as development drivers is a mechanism for conserving CPRs. Institutions get created and evolve when there is probability of sufficient income from CPRs. In other words, an incentive to preserve the resource stock for ensuring future supplies is created if income to the household from the resource can be increased, in a sustainable manner. This obviously raises the important issue of the rules for managing both the CPR and the CPR based activity. Thus, there is essentially a two way relationship between economic sustainability and ecological sustainability.

This hypothesis is looked at in two ways. Firstly, a qualitative analysis of the evolution of the cooperative and its rules is be done using the substantial documentation available for the Kangra co-operative and its impacts on conservation. Questions of expansion, replication, equity, size of the resource base and even collateral damages that may occur to other groups of people due to activities by the co-operative members are considered.

An exploration of the hypothesis will involve the process documentation of the evolution of the co-operative. This story of the evolution of the co-operative would provide insights on the interlinkages between different causal factors that impinge on the management of institutions that involve NTFP based activity. The effectiveness of the institution in making rules about the use, management and conservation of resources; implementation of the rules and; resolution of

disputes that occur in the process of implementation, would throw light on the exercise of authority and control by local actors in managing resources (including incomes and conservation) effectively.

Secondly, statistical techniques would be applied in understanding the critical enabling conditions for sustainability of institutions by considering data on each village production unit. Agrawal (2001) lists a set of factors that have been considered to be important for achieving institutional sustainability (or durability) on the commons by different scholars.

These include resource system characteristics, group characteristics, institutional arrangements and external environment factors. Data has been collected on a set of relevant factors for the 22 village centres which are run and managed independently by the women of these centres, subject to the overall rules of the apex centre.

One possible model for econometrically explaining co-operation is as follows:

Co-operation = f (institutional factors, market variables, socio-economic characteristics, cooperation, resource characteristics)

Where,

- level of co-operation is measured by the labour contribution (hours worked) at the cooperative annually;
- institutional variables (at each WPG) regularity of meetings, financial surpluses, frequency of election of office-bearers, extent of rule-breaking, frequency of conflicts, monitoring arrangements
- socio-economic characteristics would include the usual ones, and also dummies for village group characteristics such as ethnic or caste composition
- market variables distance form forest/collection point; distance from road, forest area per household, wages earned from NTFP activity, alternate sources of employment, time spent in different activities (farm, NTFP), presence of middlemen in the village, presence of alternative institution to trader, changes in relative prices of farm and NTFP products, transport costs.

 Resource characteristics – NTFP products, fuelwood collection, grass/ fodder collection, share of NTFP income in total income, size of forest / trees available, distances travelled for collection.

It is proposed to test the direction of causality and the strength of these relationships. There is need to examine whether the causal linkages which have been established in the existing literature hold true for this specific group of non –subsistence level households as well.

It is to be noted that this is work in progress, and the main thrust of this paper is to report on the methodology used in the study for empirically capturing the different aspects of CPR based activity as contribution to "development".

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Appendix : Data on Samridhi villages

Name of	Total	Number of	Percentage of	Percentage of
village	Population	households	Schedule castes	Literates
Baun	76	14	-	52.63
Dhati	152	26	45.39	53.29
Samba	178	29	26.97	62.92
Kauna	233	47	43.35	56.65
Droh	551	108	14.70	69.69
Raura	294	53	6.80	60.54
Chander	260	51	32.31	65.77
Dehan	235	42	-	52.34
Daglehr	36	7	47.22	63.89
Kosri	577	127	51.82	62.56
Ropri (A)	430	80	97.91	50.00
Ropri (B)	97	21	7.22	63.92
Tambar	225	39	6.67	48.00
Theru (A)	272	62	98.53	49.26
Theru (B)	379	73	79.68	57.78
Trind	591	105	7.95	60.24

Population and social characteristics of the villages having Samridhi production centres

Source: Census of India (1991): District Census Handbook (Kangra), Series-9, Part XII- A&B, 'Village primary census abstract', pp. 617-1363, Director of Census Operations, Himachal Pradesh