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Management Arrangements of the Chaprote Forest and their Implications for Sustainable Development

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INTRODUCTION

This presentation is a more comprehensive version of the paper that has been circulated. The paper examines the terms of access to the resources of the Chaprote forest in the Nagar valley of Northern Pakistan, before and since 1972. In 1972, the Nagar valley became part of the Federally Administered Areas of Pakistan. The political transformation of the regime, was contiguous with changes in the economic situation, which affected local requirements, allocation, and access to natural resources. Our analysis hence, focuses on some of the excesses and inadequacies of regimes being incorporated within a political economy on the one hand, and being subjected to interventions at odds with local potential and former systems of managing and exploiting local resources on the other. Our aim is to make suggestions for better management, conservation and development of forest resources. This exercise includes the concern of environmentalists, among other issues, over conserving finite natural resources, and maintaining a symbiosis between regeneration and depletion of renewable natural resources [Dubois (1976); Rapoport (1978); Sachs (1978, 1980) and Simonis (n.d)].

PHYSICAL FEATURES

Table 1, gives the composition of the Chaprote forest. This is a natural conifer forest. The area under relatively dense cover is estimated to extend over 3.5 square kilometers[1] while about 14.5 square kilometers have a patchy and lower cover[2] [Bass (1987)].

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[1]There has been no stock mapping of the forest by either government or non-government organizations, Exact density of the forest has not therefore been ascertained.

[2]According to the records of the Forest Department the total area under forest cover is estimated to be 9.6 sq. kms.

Table 1

Composition of the Chaprote Forest

S. No.	Altitude in Meters	Local Name	English Equivalent	Botanical Name	Rotation Period/ Yrs	Nature of Wood	% of Stand	Use
	2500 – 3500			**Pine Zone**				
1.		Jrooch	Spruce	Picea Smithiana	120–150	Soft	95%	Timber
2.		Kail	Blue Pine	Pinus Wallichiana	100–170	Soft	4%	Timber
3.		Youn Yeen	Birch	Detula Tiles	150–200	Hard	1%	Fire-wood
4.		Beeyu	Willow	Salix Alba (spp.)	10–20	Hard		Fire-wood
5.		Kasunar	Ash	Sraxinus Xenthozyloides	300–400	Hard		Fire-wood
	2200-2800			**Juniper Zone**				
6.		Chilli	Juniper	Juniperous Macropoda	150–200	Hard	80%	Fire-wood/ Timber
7.		Chilgoza	Pine Nut	Pinus Gerardiana	100–120	Hard	10%	Fire-wood
8.		Hamar	Wild Almonds	Prunus Amygdalus	200–250	Hard	10%	Fire-wood

Fuelwood is the foremost resource of the Forest which is exploited on a regular basis (about twice to three times a week). An average size household of 8.6 persons requires about 20 *maunds* of fuelwood per month. Timber is taken periodically (a few logs to 2-3 trees at a time)[3] particularly for construction of houses and/or pens for livestock, but also occasionally to build shops, bridges, and *Imam baras.*[4] Spruce trees yield the tree paper used to line the roofs of houses. Spruce wood, like that of the Blue Pine, the other soft wood tree, is also used to make ploughs, and is carved into a variety of implements for domestic use (such as spoons, bowls etc.) by the local carpenters. Among resources only nominally and occasionally exploited, on account of their scarcity and the labour required to exploit them, as shown in Table 2 are: medicinal herbs, cumin, mushrooms, and minerals. The exact quantity of these reserves has not been documented in any official or unofficial records.

[3]A medium size tree yields approximately 70 small and 40 large logs on an average. Roughly about 150 logs or 2.3 trees, are therefore, in general, required to construct a house.

[4]Quarters wherein the *Itna Ashari* sect of Muslims, to whom the inhabitants of the Chalt-Chaprote area belong, meet to commemorate their sectarian rites and rituals.

Table 2

Average Quantity and Market Price of Nominal Resources of Forest Exploited by Different Strata

Economic Strata	Mushroom Quantity/Rate	Tree Paper Quantity/Rate	Cumin Seeds Quantity/Rate	Medicinal Herbs Quantity/Rate
Rich	–	–	–	– –
Middle	.15 Kg Rs 328.8	3.8 Kg Rs 59.6	0.2 Kg Rs 38.4	0.4 Kg Rs 3808
Poor	.054 Kg Rs 78.5	–	0.036 Kg Rs 2.14	– –

The wildlife of the forest can be categorized into edible and inedible as shown in Table 3. This source, for which no record of exact number per species exists either, has never been a reliable source of subsistence for the community.

Table 3

The Wildlife of the Chaprote Forest

Edible	Inedible
Chakor/Ramchakor	Eagles
Dove	Crows
Pigeon	Bear
Duck	Cheetah
Partridge	Jackal
Deer	Fox
Markhor	Wolf
Rabbit	Snake
	Mangoose

At present, a population of roughly 9000 persons exploit the resources of the Chaprote forest. This figure, which is 1.3 percent more than the national average, has been calculated on the basis of the population of the area recorded in the 1981 District Census Report of Gilgit, and the 4.4 percent average annual population growth rate during the inter-censal period of 1971–81.

RIGHTS TO FOREST

The Chaprote village constituted of eight hamlets, scattered over an area of 178 kms. Gohar (1990) is believed to be the oldest village of the Northern Areas. Its settlement, according to the AKRSP reports, dates back 1600 years.

By virtue of their primary settlement in the area, and their physical proximity to the forest, which continues to constitute a fundamental source of sustenance in given ecological conditions, the inhabitants of Chaprote, regardless of ethnicity and/or economic strata, have traditionally been viewed as senior claimants to forest resources, whereas successively distant villages (for instance those of the Chalt area which is about 500 metres lower than Chaprote were obliged to depend, either partially or totally on such resources in their immediate vicinity.

The priority rights of the Chaprote villagers are believed to have been managed through communal council since the first settlements in the area. The Mirs who subsequently established their hegemony in the area, continued to protect these rights. Internal dissensions, as well as subsequent sanctions imposed by the British and Pakistan governments (such as the compulsion to obtain permits for felling wet wood; the use of only bushes and dead wood as fuelwood; the prohibition to light fires in the forest; and the unrestricted hunting of wildlife that was feared as becoming rapidly extinct etc.) were also referred to the Mirs for resolution and implementation. As head of the principality, the Mirs moreover, enjoyed usufruct of the forest and granted access to its resources to their administrative staff, and occasionally to regional aristocrats and functionaries of the State. The State could furthermore take timber for public works, such as bridges (to be built in the vicinity). Thus, a range of individual and collective rights over the usufruct of forest resources were prevalent before, and during the Mir's period.

FOREST MANAGEMENT UNDER GOVERNMENT JURISDICTION

Mirdom was abolished in 1972. The management of the forest was, henceforth, entrusted to the Forest Department of the Government of Pakistan. All villages in the vicinity of the forest were given equal rights to its resources. For the first time, thus, the traditional user group was alienated from the resources of the forest over which it had enjoyed customary rights.

The construction of the Karakorum Highway and expansion of the market system, moreover, encouraged a construction boom. Prices and restrictions on sale of timber however, remained government controlled. As a consequence, a huge black market developed, and, impersonal State management became the cause of a massive and illegal plundering of the forest. Both, the indigenous population (among whom particularly the influential and the affluent) as well as contractors, transporters, and lower-ranking forest officers were guilty of the offence. The former only nominally so, as compared to the unprecedented scale on which timber, not meant for commercial exploitation, was extracted from this

limited resource by private profiteers [Hunzai, (1987)]. According to official estimates, 4000 metric tons of fuelwood and 160,000 cft. of timber was extracted from the Chaprote forest against permits issued during the years 1982–87. The actual amount however, is judged to be manifold this figure. The indigenous population believes the forest to have been reduced to one-fourth the area it covered before the Government takeover in 1972.

THE INDIGENOUS SYSTEM OF FOREST MANAGEMENT

In reaction to the rapidly depleting forest under government management, the senior and secondary traditional user groups of the Chaprote and Chalt villages, organized and *Islahi Committee Baraye Tahaffuz-e-Junglaat* (or Reform Committee for the Conservation of Forest) in order to press the government authorities to grant them control of the forest in exercise of their traditional rights. After a struggle of almost two years, the Deputy Commissioner decided to transfer control of the forest to the *Islahi Committee,* in recognition of the illegal depletion of the forest under government management and suspected embezzlement by the Forest Department, of funds allocated for regeneration. The transfer however, is a temporary arrangement, and the issue remains to be resolved in accordance with the law.

On the basis of the rights to forest in the Chalt-Chaprote area under different regimes, we may now comment upon the social logic of different arrangements and identify the criteria for measuring the effectiveness of management systems.

THE EFFECTIVENESS OF MANAGEMENT SYSTEMS

Fisher *et al.* (1990), identifies two components as determining effectiveness in resource management, namely: production and sustainability. With reference to the first component, he distinguishes between commercial and community forestry. In community forestry, efficiency is measurable by the increase in the produce of resources consumed domestically, while the production of optimum biomass for marketing, is a measure of efficiency in commercial forestry. Sustainability on the other hand in defined by the health of forest (indicated by the stock in various stages of regeneration) and its relation to utilization. Beyond maintaining a balance between regeneration and utilization, sustainability of a system, we contend, should also be measured by the correspondence, or otherwise, of accompanying relations of production which would support and ensure operation and long-term viability of the system.

THE EFFECTIVENESS OF LOCAL MANAGEMENT SYSTEMS

Traditional systems have established their effectiveness by involving participation of the community in managing local resources, and the subsistence, whether direct or indirect, of all sections of the society, the weak as well as the strong, that they ensure.

These interpersonal face to face relations, being dynamic and socially logical are able to perpetuate, with necessary modifications in subsequent contexts see Dani *et al.* (1987) and Gilmour (1987). Instead of replacing traditional use patterns by an impersonal monolithic management system, these patterns should be allowed to strengthen in view of the positive effects they have in managing the use and distribution of natural resources.

CONSIDERATIONS FOR EFFECTIVE MANAGEMENT OF THE CHAPROTE FOREST

The population of the Chalt-Chaprote area, we have noted, is increasing at the rapid average annual growth rate of 4.4 percent. The growing population is accompanied by change in the social structure and intra- and inter-household economic strategies as a result of the community's incorporation within a national political framework, and a market economy. The potentials for developing both communal and commercial forestry have consequently become relevant. Communal forestry however, we recommend, should take precedence over commercial forestry, in order to attribute priority to the subsistence needs of the local population and to ensure a logical continuity of the former system.

(a) Communal Forestry

With respect to communal forestry we may note that although the forest has undergone massive depletion in recent years, and Blue Pine constitutes only 4 percent of the stand, yet Spruce and Blue Pine are not only used in construction (which is becoming increasingly widespread) but are also used in the fabrication of agricultural and domestic implements. About thirty wet wood trees (which take an average of 100–200 years to grow under natural conditions) are felled annually for the purpose. A catering to local needs therefore means, not only giving priority to replacing the stock of Spruce but also expanding the stock of Blue Pine. In addition, the exploitation of Blue Pine needs to be suspended until such time as its stock has reached a sustainable level.

The availability of kerosene oil and the possibilities of supplying gas as an

alternative source of fuel, should be worked out on the basis of the extent of the depletion suffered by fuelwood trees under government management on the one hand, and the motivations by different socio-economic strata of the community, to adopt the use of alternative sources, in terms of availability of cash and the willingness, or otherwise, to continue to invest domestic labour for the exploitation of fuelwood, when other options for investing the same time and energy present themselves, under changing socio-economic conditions, on the other. The supply of alternative sources of fuel would not only release the pressure on domestic labour, but also the pressure on fuelwood consumption, which, at present, is as much as 500 tons every month.

Attention may furthermore be paid to making appropriate technology available for increasing the produce, extraction, and processing of the nominally exploited resources of the forest, such as, medicinal herbs, cumin, mushrooms, minerals etc. and the development of a market infrastructure for the sale of industrialized products. With due attention to maintaining a balance between production and utilization, the facility of access to these resources is not only likely to increase their consumption at the domestic level, but also provide an additional source of income through sale, particularly for the less affluent economic strata of the area who exploit these resources. Some of these resources (for instance mushrooms and minerals) fetch a high price in the market.[5]

Since the construction of the Karakorum Highway, most of the wildlife of the area has retreated into the mountains. Development of wildlife reserves would furnish protection not only to the edible but also the inedible wildlife that preys on, and poses a threat to the smaller livestock in the summer pastures, and whose extinction is consequently encouraged.

(b) Commercial Forestry

The development of commercial forestry, on the other hand, would have to tackle the problem not only of maintaining a balance between the produce and utilization (domestic as well as commercial) of forest resources, but also of: increasing the productivity of these resources; expansion of forest cover; and the commercialization of surplus produce. Whereas appropriate technology and the development of a feasible market infrastructure would be necessary for the first

[5]The market price of these resources fluctuates remarkably, depending on the season when these are sold, and their quality. Mushrooms for instance, have been sold for as little as Rs 500.00 per kg. to as much as Rs 1700.00 per kg. *Salajeet* can be sold for Rs 55.00 per kg. on an average. One maund of *salajeet* may hence fetch upto Rs 2200.00.

and third considerations, the expansion of forest cover is related to traditional rights of different sections of the population over different categories of land where reforestation is to be encouraged. The use of land for reforestation would thus have to depend upon a consideration of all these rights and the corresponding compensation and/or compromises different sections of the population are willing to make (subject to potential socio-economic priorities) and their willingness or otherwise, to relinquish and/or revise the terms of their rights over different categories of land for purposes of reforestation.

The Chaprote forest however, is too small for any large-scale commercialization of its resources. If such a measure is eventually to be taken, it must be withheld until such time as the timber depleted during government management has been replaced. The planting of fast growing trees may be a suitable solution for making up more speedily for the loss. Commercialization must furthermore be planned in such a way that it does not, in any circumstance, reduce the stock of natural capital.

The sharing of management responsibilities of the forest with the local community appears, in the first instance, to be the most meaningful strategy for developing the area in harmony with existing conditions, and likely future developments. Such an arrangement is suited to checking socially functional forms from being discontinued and possible excesses by external agencies, from taking root.

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Comments on
"Management Arrangements of the Chaprote Forest and their Implications for Sustainable Development"

The paper falls into the category of micro-studies of sustainable resource use. In Pakistan, such studies have tended to focus more on irrigation management. As such, the focus on forest resources is a useful contribution.

I will limit my comments to three major areas: the contextual literature, the methodology, and the substance.

1. The paper addresses issues lying at the interface of the literature on social forestry, and common property. It is customary to contextualize a paper in the literature to bring out the current issues and gaps. This eliminates the possibility of redundancy, and contradictory use of terms. Unfortunately, the present paper has ignored the literature on common property and only partially relied on the social forestry literature. As a result, the authors have confused the two notions of "common property" and "open access", which are normally used to refer to two different regimes. This confusion could have been avoided.
   The common property literature starts with Garrett Hardin's seminal paper on "The Tragedy of the Commons", and the debate that has centred around it since. The issues have since been incorporated into the literature on Social Forestry.
2. The paper refers to a "communal council" which apparently was in existence prior to the establishment of Mirdom, several centuries ago. Having worked in the same area, and indeed in the same village, I have found no evidence of such a communal council. If the authors have indeed discerned evidence of the elements of such a council, it is incumbent on them to establish its existence now or at any time in history, and it would have been useful for them to elaborate on its structure, functions and coverage. Proper techniques for such analyses lie within the purview of ethnohistorical methods. If, on the other hand, the existence of the communal council is based on villager recall, then it is pure conjecture, and is unacceptable.

The factual situation is that Chaprote is the oldest village in the area. With population growth and development of the lower tracts, long before pressure on forest resources increased significantly, Mirdom had been established. It is unlikely that any community management system in existence at a point in history when forest resources were abundant relative to the size of the user group would have much bearing now, several centuries later.

3. The relevance of this disagreement relates to the conclusion where the authors assert that the *Islahi Committee* built upon the organizational basis of the communal council [*sic*]. This is an assertion, not a conclusion. Its truth can only be determined by an organizational analysis which compares the structural elements of the communal council with that of the *Islahi Committee*. Such an analysis is, unfortunately, missing and, I would suggest, not possible. The resurrection of a hypothetical communal council in the form of the *Islahi Committee* is, as yet conjecture, rather than proven fact.

   The literature on social forestry is replete with examples proving that local management systems are not, in fact, traditional. They emerge in the context of growth and development and borrow elements from tradition and the modern administrative realm. The *Islahi Committee* is no exception. To assert that forest management should build on tradition is not enough. What is needed is an identification of the means to do so. It looks like we need to wait for another paper for more useful answers.

   3.1 The paper briefly talks of reforestation in the context of commercial forestry. It is not clear whether the authors are recommending private plantations or social forestry. In the Northern Areas, natural forests are common/state property. Planted trees are private. Plantation establishes ownership – by the state, or by individuals. Yet all land demarcated as forest land remains under the legal jurisdiction of the state. Thus land tenure is different from tree tenure.

   Until tenurial issues are clarified there can be no reforestation by the community, except on private irrigated fields, and that too of species such as poplars and willows, not controlled by the forest department. This remains one of the most intractable problems of social forestry programmes. Major legislative changes were

introduced in Nepal in the last few decades to establish *panchayat* forestry with community control. Similar policy changes encouraged the establishment of community forestry through van *panchayats* in U. P., India. Without such macro-intervention, reforestation cannot take place on a large enough scale.

3.2 – Of the main conclusions, while we agree with the logic of building on earlier institutional arrangements, the issue of HOW to go about this has not been addressed. This leaves a sense of dissatisfaction.

– Given limited resources in Chaprote, we agree that community forestry should take precedence over commercial forestry.

– The economic analysis of alternative energy sources recommended by the authors should have formed part of this study and can, possibly be incorporated in this paper, at least by comparing the opportunity cost of fuelwood collection with alternative sources of fuel.

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