

RESOURCE UTILIZATION PATTERN WITH SPECIAL REFERENCE TO OAK FORESTS OF PIR PANJAL HIMALAYAN REGION OF JAMMU AND KASHMIR

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ABSTRACT

Forests are one of the most important natural resources which are central to human survival and prosperity. They have been and continue to be utilized in many different ways for their invaluable services and products. Tribal populations in the Pir Panjal Himalayas exhibit a tremendous dependence on and a complex relationship with the forests they neighbor. They have evolved traditional ways of using various forms of vegetation for fulfilling their requirements ranging from food, fodder, fiber and fuel-wood to medicine and timber. On an average 30-35% of the total income of the people inhabiting hilly tracts comes from natural resources largely including forests. There are obligatory dependants who reside inside the forests and derive their entire subsistence primarily from them; optional dependants who practice agricultural or other occupations but use forests for various household purposes; and commercial dependants who engage in commercial activities involving logging, collection of forest produce, etc. Commercial extraction of forests though helps some families to earn their livelihood, has doubled the pressures on already stressed forests. Fodder for livestock is the most frequent usage of forest resources followed by timber and fuel wood collection. Use as medicine, food, industrial raw material, commercial sale of products (wood and non-wood forest products) is found to be less common in majority of the villages studied. Most of the dependence in the region under study is found to be within safer limits but requires more detailed investigations to devise and implement the forest management/conservation strategies.

Keywords: forest, forest-dependence, environmental resources, ethno-biology, sustainability,

I.INTRODUCTION

The term forest has its origin in word 'foris' meaning outside and refers to the lands and collective vegetation areas which are located outside of a village or habitation. They have variously been used by the humans

inhabiting nearby areas. People used to procure wood and non-wood products for simpler as well as sophisticated uses from forested areas. Food, fuel-wood, fodder for livestock, timber, etc remained the basic requirements which humans obtained from the adjoining forests during earlier ages but as the civilization entered newer phases some more products of advanced applications started coming from the forests. Commercial exploitation of forest resources, however, started lately with the advent of industrialization. Industrial development however resulted in a shift in the types of forest products demanded as also in the scale of their demand. Forests became the source land for industrial and commodity crops, and of raw materials for construction, furniture, and paper and pulp. The massive and global scale of the demand for these commodities has led to, remarkably high rates of, deforestation, particularly in the tropical world in the 20th century (Agarwal et al 2013).

Forest dependency is an indistinct term in its usage and the concept is very problematic in sense that every people have some sort of dependence on forests either directly for timber and employability or indirectly for paper, pulp, etc. Here, however, it refers to a direct relationship between a people and a forest. The livelihoods of tribal and forest dwellers are entirely dependent on forests, from which their socio-economic and cultural life has evolved (Shroff, 1997). Their interlinked dependency on forests, however, varies from place to place (Akhter et al., 2009).

Traditional approaches of forest resource utilization were, certainly, limited in magnitude as well as in diversity. People in that set up of the things had a lot owed to forests but that 'a lot' seems very little if compared to the supplies fed to the modern industrial sector in the form of various raw materials. They used to live in close intimacy, interpretable in different forms and ways, with their environment. They, serving as the living links between human and environment (Sajem and Gosai, 2006), value forests, nay the entire natural complex holistically, for its tangible and equally if not more preferably for intangible benefits hence serving as living links between humans and environment. Modern considerations rarely go beyond the material gains from forests and that too restricted to the types of income directly convertible to monetary terms. Current forest-related data collection is, mostly, deficient in its representation of activities and benefits from forests that are not exchanged for cash, that are in the informal sector, and that are not recognized by forest authorities (UN). This lack of the statistics with regard to various informal and non commercial forms of forest utilization reflects in the present chaotic situation of forest management. Non-availability of data, and therefore non-consideration of local aspirations, debar authorities from having a clear picture of nature and magnitude of locals' dependence on forests; and this becomes a fundamental cause of clash between them often converting forest areas into the conflict zones. It consequently ends up in failed conservation plans.

Despite the traditional economies having been replaced by the modern economic systems everywhere, forests are still a source of livelihood for, according to a UN report, 1.5 billion people world over. About 69 per cent of India's population (833 million) live in rural areas and most of them have land based economy and use forest resources one way or the other. It is estimated that about 200 million people live in and around forests, and fully depend for their livelihood on forest resources. Further, of the 530 million livestock population in India, about

190 million fully depend on forests either by direct grazing or by harvesting of fodder causing additional burden on the forests. (FSRI Report 2010). Deforestation (for which are responsible generally non local actors), besides having grave ecological implications far and wide, is bound to impact the livelihood of thousands of locals in mountainous terrains.

Patterns of forest-usage have not changed much in areas where vegetation is naturally an important character of local geography. Nomadism and pastoralism are still prevalent along with other set of practices which revolve around forests to provide livelihood for considerable chunk of populations in hilly and forested tracts. In certain areas people heavily depend on natural vegetation for fulfilling their day to day needs ranging from fuel-wood, fodder, fiber and even part of their food requirements; while as in some other areas, which are somewhat under so called developmental influence, inhabitants owe greatly for timber, fuel-wood, employability, etc to the neighboring forests. The dependence is not that simple as it appears when expressed in some horizontal data. It's multidimensional and somewhat ecologically based besides being socioeconomic. It thus can be said that reliance for some minor commodities is sometimes much more vital than certain commodities which are obtained in larger quantity. Medicinal usage, for example, is one such example which has no alternative in wake of nonexistent modern health facilities in far flung areas. As their socio-economic and cultural life has evolved in and around forests (Shroff, 1997), locals have sound knowledge base, as well as capabilities, to develop innovative practices and valuable products from their environment.

Systematic documentation of diverse aspects of forest dependence in rural and hilly areas is not only indispensable from forestry and ecological point of view but is significantly helpful, and worth considering, in economic and developmental planning as well. Large populations in rural and hilly areas are provided by forests not only a healthy abode but also a livelihood, thus, in a sense, relieving local governments of huge burdens of responsibilities and the related problems. Appropriate understanding of socioeconomic structures and their scientific analysis is always helpful in minimizing the conflicts between locals and helps forest protective agencies. Locals' knowledge and capabilities can also be used for sustainable resource management.

Study Area

The study was carried out on foothill villages of Pir Panjal mountainous range which forms part of the western Himalayas in Indian state of Jammu and Kashmir (Fig. 1). The mountain range comprising of rocky peaks and undulating valleys, runs in a southeast to northwest direction from Jammu Shivaliks to Banihal ridges in the state. Rajouri and Poonch, the twin hilly districts majorly representing the Pir Panjal region, form its politico-administrative mapping. The range consists of mounds and slopes generally harboring a good deal of floral and faunal diversity. Major slope of the terrain is towards south and southwest. Higher reaches are frequented with pastures and grasslands. Structural hills belonging to Murree and Siwalik groups are mostly longitudinal with altitude varying between 562-4800 m amsl. The climate varies from semitropical in the southern relatively plain tracts to temperate in the mountainous northern part. The lower sub-tropical southern part receives regular

monsoons whereas the northern part prone to hailstorms experiences excessive rains. The average annual rainfall is 1150 mm and average temperature varies from 7.42 degree celsius to 37.4 degree celsius. The maximum rainfall in the area is received through southwest monsoon during July-September. The rainfall during the rest of the period is sporadic and scanty (Ministry of Water, Govt of India). Population is sparsely distributed and is scattered in lower tract of the mountainous range leaving the upper reaches, at least during the wintery part of the year, uninhabited. Nomadism and pastoralism, however, is a regular practice of Gujjar and Bakrwal tribes who constitute major part of the inhabitants. They move seasonally to upper reaches in the Himalayan lap in search of fodder for their livestock. Overwhelming majority lives under below poverty line conditions. Agricultural and allied activities are main source of livelihood.

Methodology

Study area was surveyed extensively for collecting data and information. Ten villages were selected carefully to ensure the representation of entire rural area designated for the study. Available data was obtained from relevant agencies and their literature. Main informants were general households, local representatives, Forest officials etc. They were encouraged and engaged for detailed discussions on their relationship with neighboring forests. Information was ascertained on various aspects of their dependence on environmental resources. Reliance on forest, its type and extent were worked out. Data was recorded, wherever possible, in figures and numeric form. Questionnaire based interviews, wherever thought helpful, were also conducted especially for obtaining locals' perceptions on various issues. Field Observations and Information collected from respondents was analyzed and processed to be presented in precise form.

II.RESULTS AND DISCUSSIONS

Results depict a heavy dependence of locals on forest resources. They owe a lot ranging from food to fuel-wood to neighboring forests. Oaks and pines are the predominant tree species among hundreds of broadleaved and coniferous species in forests. Majority of population reels under poverty (Table 1). People derive their day to day and occasional requirements from forests in number of ways (Table 2). Type and degree of dependence (Figure 2) varies from place to place. It is highest among the families living within forest areas. Such families (11% in the study area) have no or very small landholdings. Others who significantly depend for their household and day to day requirements as well as for certain specific (such as medicinal) uses on neighboring forests (54%) include those principally associated with agriculture or allied activities but also involved with forests one way or the other. They indulge in collection of forest produce for i) consumptive uses (food, medicine, etc); ii) domestic uses (fuel wood, fodder, fiber, timber, livestock medicine, agricultural articles, etc.); and iii) commercial (sale of timber, fuel wood, fiber, medicinal plants/preparations, wildlife, etc.). Many others make use of forests or forest products either as a matter of choice (such fuel wood instead of routine LPG) or under some specific circumstances (for example in case of non availability of first preference). The percentage of this third category was, however, found to be negligible (3%). Fuel wood collection forms the highest and the most

frequent use of forests followed by timber and fodder collection for livestock (Figure 3, Table 3). Though not so commonly but people considerably make use of medicinal plants for treating human or livestock ailments. They occasionally or seasonally visit neighboring forest for obtaining vegetables, fruits, etc. Other uses include collection of resin and other such products which are relatively of less frequent requirements. Larger proportion of population depends heavily on adjoining forests (54%+25%). They obtain their day to day needs as well as draw means of livelihood in various forms from neighboring green areas (Table 2, 3). There are three different population groups who indicate different types of people-forest relationships. First group is of those who reside inside the forests and almost completely rely on it for their livelihood. Second group which also forms an overwhelming majority in the study area is that of the people residing near forests and practicing agriculture but also heavily depending on forests in various ways. Third group consists of people residing not far away from forests but who do not rely directly on forests; they, however, indirectly make use of forests or forest products. Though relatively low but a considerable chunk of population depend in entirety for earning their livelihood on forests. Some traditional ways of forest utilization are detected to be on decline which indicates changes in the usage pattern of the people who, under the influence of modernization, are shedding their conservative ways of life to seek more participation in modern social structures. Though not always in conformity with the scientifically approved practices, the indigenous people in the region, however, tend to manage, modify and utilize forest resources with the aims in mind to earn maximum possible from the resources as well as to conserve them.

III.CONCLUSION

As per UN estimates, the number of people deriving direct and indirect benefits from forests – in the form of employment, forest products, and direct or indirect contributions to livelihoods and incomes – range between 1 billion - 1.5 billion. But data gaps and absence of reliable information are major problems in estimating the economic contributions of forests at local and larger scales Majority of rural population in the area under study principally depend on forests in one way or the other. Their dependence, which is also linked with their socioeconomic status, aggravates the already stressed forest ecosystems. The usage pattern is very much within the harmless limits and on safer patterns provided some more attention is paid by various stakeholders. Involving the locals effectively in all endeavors aiming at eco-conservation requires to be considered seriously. Improving their living standards vis a vis promoting their traditional lifestyle must be taken into account while planning /devising nature-conservation programs/schemes.

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Figures and Tables



Figure 1 Study area

Table 1 Socioeconomic setting in the study area

Average Family Size	06	
Family Type	Joint as well Nuclear	
Economic Class	APL	35%
	BPL	65%
Economic Activity	Agricultural	59%
	Nomadism	35%
	Labour	02%
	Others(Govt /prvt job)	04%

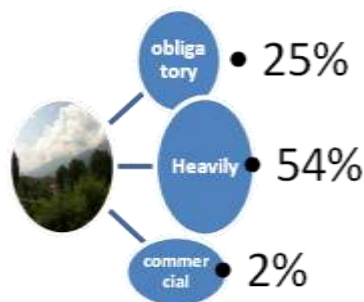


Figure 2 Population proportions with varying degrees of forest dependence

Table 2 Forest dependence patterns (types of dependence vis a vis population percentage)

Category	Array/examples of uses	Percentage population involved
A. Household	Timber, fuel wood, wild food(plant, animal), medicine, other NTFPs, grazing of animals, forest based agriculture,, nutrient subsidies for agriculture	95%
B Food Security	Forest food when crops fail to meet seasonal requirements or to provide dietary supplements	11%
C Income Generation	From sale of any products listed above or sale of agricultural or livestock production dependent on forest	3%
D Employability	Working in different forest based works/industry	4%

(adopted from Nur Muhammad et al, 2013, with slight modification)

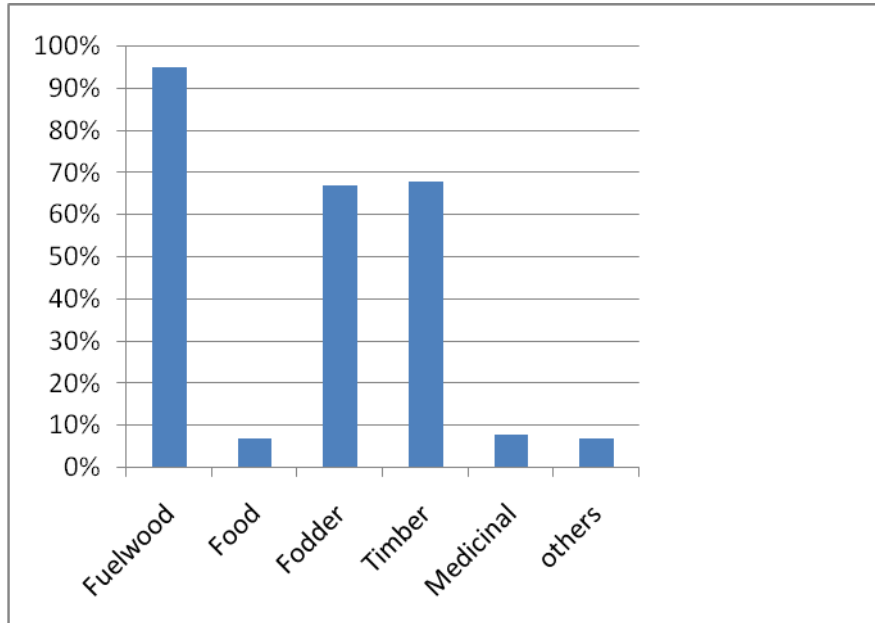


Figure 3 Forest utilization pattern (usage type against percentage of dependent population)

Table 3 Forest utilization pattern (quantitative assesment)

Usage	Quantity/household per annum(kg)
Firewood	2500
Fodder(leaves/twigs)	14,400 (summer +spring months=13200;autumn+winter months=1200)
Fruit/vegetable	120
Medicinal plant/plant product collection	Occasional
Timber/construction wood	Need based