

Fuelwood, Fodder Consumption and Deficit Pattern in Central Himalayan Village

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ABSTRACT

A study of traditional agroecosystem conducted to understand status of fuelwood and fodder in central Himalayan village. The fuel consumption is 418.86 MT and the annual fuel availability is 211.03MT, there is a deficit of 207.83MT. Total available fodder is 281.76 MT but the total consumption is 402.72 MT so there is a deficit of 207.83 MT.

KEY WORDS: Fodder and Fuel deficit, Central Himalaya, Consumption and Sources

INTRODUCTION:

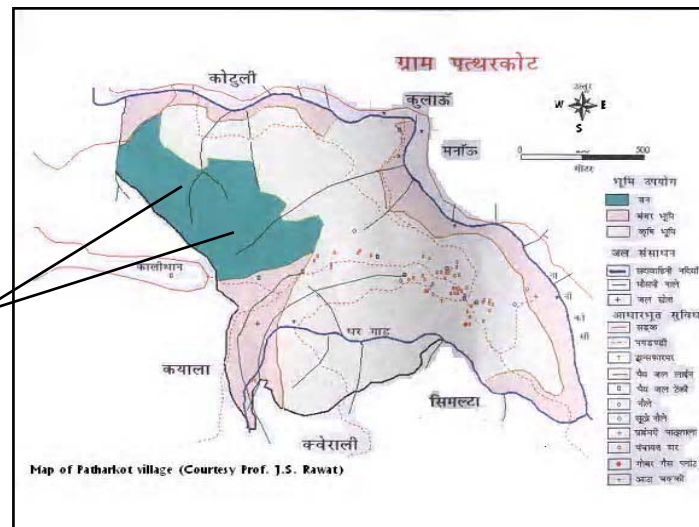
In many of the developing countries, forests are the main source of fuel wood, timber for house construction and fodder for livestock. Consequently, any depletion of this resource base can erode living standards as well as ecosystem stability (Shah, 1982; Pant and Singh, 1987). In the central Himalaya traditional agriculture is the main source of the fodder and forests are the source of fuel energy. The livelihoods of the hill people are mainly dependent on marginal agriculture on the one hand and rearing livestock on the other. Fodder and fuelwood is collected by lopping/ the vegetative biomass. Moreover in Uttarakhand hills, it is well known that women are mainly responsible for the collection of fuelwood and fodder. Since vegetation is already in a degraded stage in most of the areas further exploitation of natural resources is a degrading factor. Villagers rear these animals for the milk that adds to their income. (Chandra et al.). The major constraint in the central and north – western Himalaya in improving livestock and increasing milk production is that the livestock feeds are inadequate and unbalanced. The most serious problem is the unavailability of green forage, particularly in winter, causing deficiency of protein and vitamins, resulting in low milk production, shortened breeding span and decreased working capacity of bullocks. (Palni et al). Aims of the study were to (i) To assess the status of the fuel and fodder in the study village (ii) list out the sources and species of fuel and fodder species in central Himalayan village.

STUDY AREA:

The study was conducted in the village Patharkot, block- Hawalbagh district – Almora which is situated at Uttarakhand. The total population of the village is 733 out of them 433 male and 300 female members. The

literacy rate of the village is very good and is approximate 95%. The total land area of the village is 163.62 ha out of them Van panchyat is 33.40 ha, agriculture area is 65.97 ha and other is 64.24 ha. The other area includes wastelands and settlements. The no. of agriculture fields in the study site are 7395. The farming system prevalent in the hills is subsistence-farming framers cultivate the crops in their land for the living. The land holdings are smaller in size with majority farmers coming in the marginal category. Agriculture is heavily dependent on energy flows from uncultivated lands such as forests and grasslands recycled in to manure through livestock. (Mahadev, Ashish 1979).

Community Forest- Major source of fuel and fodder



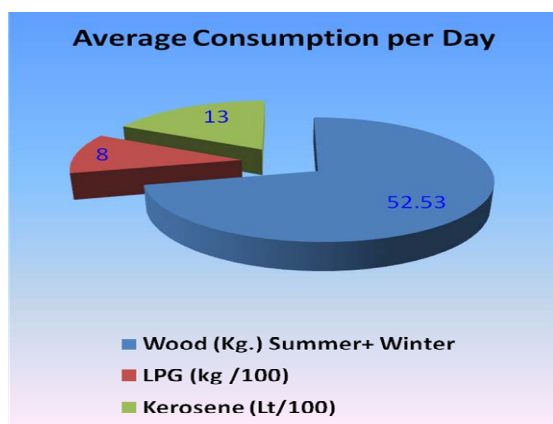
Resource Map of Study Site:

METHODOLOGY:

The study was based on the primary survey and data collected through PRA method by approaching the villagers representing different age groups and gender also. The collected information was recorded and tabulated also. This data used for the status of fuel and fodder status in the central Himalayan village. Lists of families were procured from Gram Panchyat / Gram Shabha or family register for the secondary information about the village. Estimation of the actual amount of fodder and fuelwood consumed was carried out based on regular observation in the village. The source and supply of fodder for animals was quantified as contribution of agricultural by- products, forest and tree fodder from agroforestry by estimation in the villages and by measuring the daily ration of food concentrates given to the animals by each household. Use of firewood by human population was also quantified under different categories viz. firewood for cooking, water heating, house warming, animal food preparation and festivals. Villagers were asked to burn a known weight of firewood and observations were taken for time and quantity of firewood. (Sundriyal, 1994).

FUELWOOD CONSUMPTION:

Among the natural resources of Uttarakhand, forests are the most important, both economically and environmentally (Sati, 2005). The forest is the main sources of the fuel in the state. The use of fuel wood is the only form of energy for cooking. Men, women and children from nearby forested areas collect firewood. At higher elevations people collected firewood during winter months only and store it in heaps for the whole year, whereas, at lower elevations collection is made throughout the year. Due to collection of huge amount of firewood, forests near to the villages are subjected to rapid degradation and over exploitation. A very small fraction of firewood comes from the agriculture fields. (Sunderiyal, 1994). The total forest area of the fuel collection for the village is 33.40 ha and the per household forest area in the village is 0.63 ha. According to primary survey of the village the fuel consumption is 418.86 MT and the annual fuel availability is 211.03 MT, there is a deficit of 207.83 MT. Per family fuel consumption is 52.53 kg. (Summer – 17.28 kg. Winter – 35.25 kg.). Consumption of Kerosene is 0.13 lt. and LPG is 0.08 kg. Per day per family. The major fuel wood species are *Quercus leucotrichophora*, *chir Pinus roxburghii*, *Myrica esculanta* and *Pyrus pashia*.



Van Panchyat Area	33.40 ha
Total household	53 (NoS.)
Per household forest area	0.63 ha
Fuel requirement per year	418.86 MT
Availability per year	211003 MT
Deficit	207.83 MT
Major fuel wood species	Banj Oak, Chir Pine, Kafal, Mehal etc.

Status of Fuelwood in village Patharkot

FODDER CONSUMPTION:

In the Himalayan region, the domestic animals provide main drought power for agriculture system. They also process crop residues, provide essential organic manure and generate farm income when they are sold (Thapa et al., 1991). The domestic animals are depending on forest as well as agricultural residues also. The main type of fodder, sources of fodder area under fodder production and total production is quantified by regular observation and survey method in the village. The maximum fodder comes from agricultural and

forest areas in the months of May to July, which is 197.58 MT (based on dry matter). Villagers collect the dry grasses from grass fields which are locally known as *Mange*. Fodder collected from these grasslands is 62.70 MT., the other sources of fodder are agricultural residues and tree species. The main tree species of fodder are *Grewia optiva*, *Celtis australis*, *Quercus leucotrichophora* etc. The total available fodder is 281.76 MT but the total consumption is 402.72 MT so there is a deficit of 207.83 MT.

Fodder	Sources	Area (ha)	Quantity (dry matter)
Green Grasses	Agricultural Fields and Forest	15 ha	197.58 MT
Dry Grasses	Grasslands (Mange)	9.04 ha	62.70 MT
Tree Fodder	Agricultural Fields	NA	3.91 MT
Agricultural residues	Agricultural Crops	15 ha	6.99 MT
Oak leaves	Forests (Bajani)	33.04 ha	10.78 MT

Fodder Status in village Patharkot

CONCLUSION AND FUTURE PROSPECTS:

Based on the statistics of fuel and fodder it has been noticed that in the central Himalayan village have a problem of fuel and fodder. Due to lack of fodder the livestock is very poor in this village so, there is a wide concept gap between villagers for the marketing of milk and other products. The fuel consumption is 418.86 MT and the annual fuel availability is 211.03 MT, there is a deficit of 207.83 MT. The major fuel wood species are *Quercus leucotrichophora*, *chir Pinus roxburghii*, *Myrica esculanta* and *Pyrus pashia*. The main tree species of fodder are *Grewia optiva*, *Celtis australis*, *Quercus leucotrichophora* etc. Total available fodder is 281.76 MT but the total consumption is 402.72 MT so there is a deficit of 207.83 MT. Afforestation with ecologically as well as socio - economically viable species will not only fulfill the demand of local villagers but also provide other basic needs of central Himalayan people.

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