

# Chapter 1

## Background

People living in rural India, a country with diverse soil, land, climatic features, and cultural features, are known for their unique ways of living in harmony with natural surroundings and for sustainable use of natural resources, including products of plant origin. Products of plant-based fibres are important examples of judicious use of natural resources for the essential requirements of daily life. This is so particularly in hill and mountain areas where alternative products are limited. Natural fibre-based products are both strong and flexible and have attracted attention from the earliest times (Forbes 1984). Domestication of animals led to the use of tough barks of various plants to obtain long, strong, and flexible tethers (Forbes 1984). Gradually, in its elaborated form, the fibre rope came into existence. Plant fibres are not only used to make ropes but are also used to produce a variety of other important items.

tain villages as elsewhere. Fibre-yielding plants occupy an important position among different taxa that find direct use in our society. They contribute significantly to the economy through various uses in agricultural and allied activities as well as in many household operations.

Although fibre-based products and cultural manufacturing activities relating to these products constitute a key component of village culture, they provide only limited income-generating opportunities to local inhabitants or artisans. Nevertheless, natural fibre-based products have potential for commercial development of feasible cottage industries. Such products are also acceptable in wider markets as 'ethnic' items made from natural products; and this is because of their durability. Moreover, waste generated from these products is bio-degradable, thus is environmentally-friendly.

Natural (plant fibre-based) products play a key role in the day-to-day work in moun-

This report is based mainly on the work carried out in the Kumaon region of the

Central Himalayas in the state of Uttar Pradesh. The study area falls in the Lesser Himalayan zone, representing the most densely-populated mountain area in the region. The study was carried out in three districts, i.e., Almora, Bageshwar, and Pithoragarh.

### Knowhow

The first phase of the study consisted of extensive surveys in the region in order to identify local pockets of indigenous knowhow about the extraction of fibres from 'target' plants; to document various uses associated with the products and by-products; and to examine the techniques of extraction and processing. Repeated visits and the use of a participatory approach helped to identify watersheds (Table 1.1)

and some of the local pockets of specialised indigenous knowhow (Table 1.2).

It has been observed that the bark of *Grewia oppositifolia* (common names - *Bhimal*, *Bheku*, *Bhekua*, and *Bhimu*) is a widely used source of natural fibre in almost all villages in the Central Himalayan region. This tree has a common and essential presence in rural households where it is used for fodder, particularly during the winter months when green fodder is in short supply. In a sample study area in a remote watershed, i.e., in the Haigad watershed, this species was found to contribute a substantial portion of the total fodder obtained from agroforestry trees (Table 1.3). In the same watershed, in the village of Jyuna Estate, *Quercus leucotrichophora* (an important tree species growing naturally) is found in

**Table 1.1: Fibre-yielding Plants and Locations of Field Surveys**

Fibre-yielding Plants	Watersheds
<i>Cannabis sativa</i>	Kosi, Jataganga, Gomti, Haigad, Simgad
<i>Girardiana heterophylla</i>	East Ramganga
<i>Grewia oppositifolia</i>	Nana Kosi, Gomti, Haigad, Jataganga, Simgad, Gagas, Gaula, Khulgad, Kosi, West Ramganga
<i>Agave sisalana</i>	Pungar, Saryu
<i>Daphne papyracea</i>	Jataganga

**Table 1.2: Local Pockets of Specialised Indigenous Knowhow**

Fibre-yielding Plants	Main Product	Village(s)
<i>Cannabis sativa</i>	Cloth	Chamua, Bathal, Patgaon, Ganoli
<i>Girardiana heterophylla</i>	Fishing nets	Naugaon
<i>Grewia oppositifolia</i>	Rope	Basar, Kurchoona
<i>Agave sisalana</i>	Door mats	Kande-Kiroli
<i>Daphne papyracea</i>	Paper	Fulai Jageshwar

abundance, unlike in other places, and used as fodder; however, *G. oppositifolia* is still used a great deal.

among Hindus because of the famous Jageshwar temple situated there. In the past, the art of making paper out of *Daphne*

**Table 1.3: Average Tree Holdings of Fibre-yielding *Grewia Oppositifolia* per Household in the Haigad Watershed**

Village	Altitude (m)	Households (No.)	No. of trees per household	Fodder contribution (% of total fodder from agroforestry trees)
Pinglon	1230	78	4.3	50.3
Laskarkhet	1500	27	3.8	33.1
Jyuna Estate	1700	106	1.8	6.3
Hawil Kulwan	1900	86	4.1	20.0

Another common plant fibre is obtained from *Cannabis sativa* (common name-*Bhang*). The plant occurs abundantly in the wild, generally in the vicinity of villages. The fibre, however, is extracted for the most part from cultivated plants. In recent times, the cultivation of this species has been legally restricted due to its use in the production of narcotics. In the detailed study of the Jataganga catchment area, it was observed that almost every village household still cultivates this crop to cater for fibre and/or seed as spices. The cultivated area per household varies between two *mutthi* to four *nali*.<sup>1</sup> No apparent use of the plant as a source of narcotics was observed.

The Jataganga catchment also happens to be the centre of local knowhow for making paper from *Daphne papyracea* bark. The *Daphne* plant is a small shrub usually found in the oak forests of the Central Himalayan region (Saxena and Singh 1982) and it occurs on slopes. The area is important

was a common practice among the local inhabitants. It is the same as *Lokta* paper in Nepal; the paper popularised by UNICEF projects. This paper was used for writing traditional documents and for making horoscopes. The art of making paper has suffered badly in spite of the fact that interest in horoscopes has not declined, but, on the contrary, increased. This is attributed to the availability of commercially manufactured paper at cheap rates. The present state of affairs regarding *Daphne* paper is quite dismal and, in the study area, only one person knows how to make it: and that person too also does not make it any more.

The fibre obtained from *Girardiana heterophylla* (common name-*Sisun*), which grows commonly along water courses and on sites rich in nutrients, is used mainly to make fishing nets. This specialisation appears to be confined to one village (i.e., Naugaon) in the Saryu River catchment (Table 1.2).

<sup>1</sup> (*Mutthi* and *nali* are the local units for land measurement: 16 *mutthi* = 1 *nali*; 20 *nali* = 1 acre; 2.47 acre = 1 hectare).

## Objectives and Approach

In the context of the background, the present study will document: (i) details of plant use and knowhow in respect of the five fibre-yielding plants selected, (ii) indigenous knowhow and processes involved in fibre extraction, (iii) role of fibre products and by-products in village and household economies, and (iv) the potential of enterprise development using these natural fibres at cottage industry level.

To achieve these objectives a two-fold approach was devised and various tools ranging from participatory approaches to questionnaire-based surveys were carried out in different villages and markets in Almora, Bageshwar, and Pithoragarh districts.

### Approach 1

Detailed surveys were undertaken in households and shops in different villages. Questions were related to use of plants to make fibre products. An inventory was developed for households, e.g., (i) different fibre products in use, (ii) specific uses, if any, (iii) number of products, (iv) personal use by households and/or products marketed, and (v) the selling prices of fibre products. Similarly, another inventory was developed for villages and shops concerning the availability of products and the wholesale and retail prices of various items.

Studies were also carried out in specialised pockets where indigenous know-how (village level) prevailed to make inventories of: (i) the specific products and their uses, (ii) practices/techniques and tools used in fibre extraction, (iii) resource availability and future potential, and (iv) the existing marketing structure and possible expansion.

### Approach 2

Some town markets were selected and surveyed, particularly those that were the main trading centres for surrounding villages. These towns were: Almora and Bageshwar (District Headquarters); Berinag, Takula, Bhainsiachana, and Dhaulchina (all block headquarters); and Jageshwar, Kotmanya, and Dharamghar (all small service centres). An inventory of each market was made on the following basis: (i) supply of fibre products from and to the villages, (ii) shops dealing in fibre products, (iii) purchase and supply, (iv) items kept in stock and sold, and (v) the demand and potential of various products.

The report is organized into three sections dealing with: (i) taxonomical descriptions of selected fibre-yielding plants and processes and knowhow of fibre extraction, (ii) role of fibre products in village and market economies, and (iii) the potential for enterprise development.

<i>Cinnabala zizania</i>	(Table 1)	
<i>Girardinia heterophylla</i>	Fishing net	Nauagan
<i>Greigia oppositifolia</i>	Rops	Basar, Kurchona
<i>Agave sisalana</i>	Doc-rope	
<i>Daphne papyracea</i>	Paper	Fula Jageshwar