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Traditional skill of resource utilisation

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The peasants have evolved ecological and economic sustainability in an agro-forest- livestock management system centred on Grewia over centuries in central Himalaya. The report focuses on the communities residing in Kature valley in Central Himalaya, who have learnt to utilize the *Grewia* for a number of domestic uses. The system's sustainability has been achieved through knowledge of local ecological processes derived through traditional means. In the past, these models of resource utilization were sustainable on account of low biotic pressure, but now with the increase in population, these age-old practices, which were providing both economic and ecological sustenance, have started showing signs of redundancy being less economical.

Key words: Central Himalayas, Fibre extraction, *Grewia*, Indigenous Knowledge
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The traditional/ indigenous knowledge plays a crucial role in establishing sustainable relationship between man and nature in the communities more dependent on nature for their varied needs. Unfortunately, little importance has been given to the essence of such skills, and their extinction affect ecological, cultural, and social diversities.

The Central Himalayan region encompasses a wide range of climatic conditions and a diversity of sociocultural entities. This diversity has given rise to various farming system, each of which aims at optimising the utilisation of the natural resources they are endowed with. The multitude of agro-climatic zones confers upon the region a vast assemblage of tree and shrub species, which could potently benefit livestock production. Despite the variability in farming systems, there are some features, which are common across the region. Farm sizes are generally small (1-2 ha) and some farmers even may not own any land but have access to communal land. However, the benefits of green revolution have had no major impact on revitalising the existing rainfed agricultural system in the mountain ecosystem.

Keeping in view the ever increasing population and a proportionate shrink in the availability of natural resources for each individual, the people of the Central Himalayan mid-hill have to bank on the traditional systems for the sustainability of their economic activities. Due to physiographical limitations, only 12.60% of the geographical area in the Central Himalaya is under agricultural practices, while agriculture is the main occupation for 80% of the human population, the economy is never strong enough to sustain cattle population as well[1]. Perturbations in the forests due to anthropogenic infringement have left little for the cattle to harness, and agriculture crops are seldom grown specifically for fodder production[2]. With this background, the study tries to demonstrate the utility and viability of traditional practices of resource utilization based on the traditional knowledge.

Methodology

The study was conducted in Indian Central Himalaya, the Bheta Gad-Garur-Ganga watershed lying between 29°50′23″ and 29°55′56″N and 79°28′59″ and 79°38′04″E, characterized by significant variations in terms of altitude (1090-2520 msl), having 63 villages. The data were collected by filling questionnaire, personal observation and interviews with villagers, pertaining to *Grewia oppositifolia*.

Bhimal (*Grewia oppositifolia* Roxb. ex Mast)

Grewia oppositifolia Roxb. ex Mast (common name *bhimal, beul, bhekue*)-a moderate sized deciduous tree

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Fig. 1 *Grewia oppositifolia* Roxb. Ex Mast

Fig. 2 Preparation of a Khall

Fig. 3 Retting in progress in a *Khall*

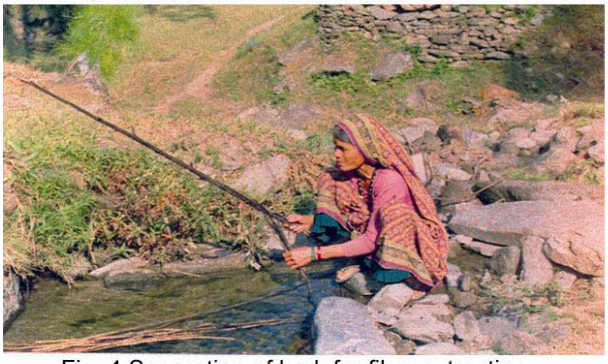

Fig. 4 Separation of bark for fibre extraction

Fig. 5 Sun drying of extracted fibre

Fig. 6 Fabrication of rope from fibre

Fig. 7 Products made from *Bhimal* fibre

(Fig. 1) grows up to an elevation of about 2000 m in India. It sheds its leaves during March-April and new leaves appear in April-May[3]. The flowers appear with the new flush of leaves and fruits are formed soon but ripen from October-December depending upon the climatic condition of the locality[4]. Green leaves of *Grewia oppositifolia* are highly nutritive for cattle and the tree show luxuriant growth along the agricultural fields' bunds.

Sustainable use

The tree sheds leaves during March-April but local inhabitants harvest trees in a manner that the greenery remains till end of March. Its branches are lopped and leaves are fed to the cattle only at the time, when they are to be milched. Since this a lean period of fodder availability, only milking cattle is given these leaves as the leaves are highly rich in protein & other nutrients, and do not contain any tannin. Its digestibility is about 82%, which improves the milk quality[5-6]. Milk production is maintained despite scarcity of fodder. Now a days, seeds of *Grewia* are in short supply because farmers are lopping whole tree for fodder and flower appears only in one year old branches.

Traditional *barter system*

A 4-5 yrs old *Bhimal* tree fetches Rs 40-60 per season and older the tree, greater is its economic value. Some people use the archaic *barter system* by giving their *Bhimal* tree temporarily, for a season to a cattle owner who in return gives them money or *ghee*.

Traditional Technology of fibre extraction

The villagers also make fibre from the *Grewia* branches. During first week of November, the branches are chopped and the green leaves are used as cattle fodder. The sticks are placed under a tree for shade drying.

At the onset of spring, in the first week of April, all the dried sticks are collected and put under the sun for complete drying. After this process is completed bundles of sticks weighing 20-25 kg each are tied and brought to a *Ghadhera* (brook) for rating process. An artificially created water pool called *Khall* is prepared by stopping the running water by placing stone around, where these bundles of sticks are finally kept for retting (Figs 2 & 3). A stone is placed on each bundle keep it under water for about three months. In the first week of June, the retting process is completed. The bark of each stick is pulled out in narrow strips, washed thoroughly in running water, the outer pulp is cleaned by continuous washing in water to get the inner bark, the fibre which is dried in the sun (Figs 4 & 5).

Using the local skills and a combination of various *ties and knots*, different products are fabricated to fulfill domestic demands (Figs 6 & 7). The ropes of *Bhimal* are used for tying the cattle, as they do not get heated up in the sun. There is a clear division of labour in the entire process as lopping to extraction of fibre are done by women and different products from fibre are fabricated by old man of more than 60 yrs. The sticks are used for making fancies and as fuel wood.

Socio-economic significance

The plant species is hardy and provide year round fodder, used as supplement in lean periods with proper management and propagation techniques. This fodder is used as a viable feed resource to supplement the income of small farmers. In addition, it also helps to stabilise the soil and the environment. The entire products are eco-friendly.

Cost effectiveness

In whole process (an average five tree of 7-15 yrs old, per family) around 7.50 Kg ghee, 11 Kg fibre and 60 Kg fuel wood is obtained.

Now a days, end product from fibre are prepared by old men only, the younger generation are generally not very keen at inheriting this craft. There is an urgent need to encourage this art of making fibre lest the knowledge is lost. Undoubtedly, *Bhimal* is an intrinsic part of villagers giving implicit services in the Central Himalaya.

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References

1 Shah S L, *Planning and Management of Natural and Human Resources in Mountains* (Yatan Publication New Delhi), 1986, 87-119.

2 Ramakrishan P S, Rao K S, Kothyari B P, Maikhure R K & Saxena K G, Deforestation in Himalaya: causes, consequences and restoration, In: *Restroration of Degreaded lands: Concepts and Strategies*, by J S Singh (Rastogi Publications, Merrut), 1992.

3 Bandis D, *Indian Trees* (Bishen Singh Mahendra Pal Singh, Dehradun), 1906, 76.

4 Troup R S, *The Silviculture of Indian trees*, (Clarendar Press, Oxford), 1921.

5 Lohan O P, Lal D, Pal R N & Negi S S, Cell wall constituent and *in vitro* dry matter digestibility to some fodder tree in HP *Forage Res*, 6 (1980), 21-27.

6 Negi SS, Pal RN & Ehrich C, Tree fodders in HP, An Introduction to six most common fodder tree in HP, State of Indian and their feeding value for cattle, *German Agency of Technical cooperation (GTZ), Eshborn Federal Republic of German*, 6 (1979) 68.