



Women's role in management and utilization of forest resource in hills of Rawain valley of Uttarakhand

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Abstract: Traditional knowledge system has been a key to the survival of the hill society, be it in cropping, forestry or health. It has not only ensured continuous livelihood of farm households but also ecological sustainability. Farming in the hills is highly interdependent with forestry and animal husbandry, and women have been the backbone to this totally integrated system. They have a high workload but have successfully preserved transformed and carried traditional knowledge from generation to generation. However, women's role as the preservers and carriers of this knowledge has not been extensively recognised so far in the present studied area. The present study is aimed to explore how the women of hills of Rawain valley access the natural resources and their role as a preserver of traditional knowledge.

Key words: Rawain Valley, Forest resource utilization, Sustainable Livelihood.

INTRODUCTION

Natural resources are main source for people's livelihoods on which all human activity depends [1]. More than 1.6 billion people depend to varying degrees on forests for their livelihood, out of this, 60 million people are almost wholly dependent on forests and 350 million people live within or adjacent to dense forests for subsistence and income generation [2]. Hill women have considerable knowledge of the characteristics, distribution and site requirements of indigenous trees, shrubs and herbs. Income generation of women through the utilization of natural resources is crucial in the success and sustainability of development. Nevertheless, when we talk about managing and preserving traditional knowledge system, the pivotal role played by women cannot be neglected. It was pointed out that their conservative approach is not something inherent, arising out of their being women, but because of their role and work tasks [3]. Except ploughing, women carry out almost all crop production tasks to help their men folk [4]. Women's role becomes all the more important in the traditional society of mountainous region of the Himalaya, where the livelihood of the people is still dependent on the sound management of its natural resources and their sustainable utilisation. Subsistence farming still remains people's main source of livelihood, but it cannot be seen in isolation. Forest, grasslands, farms, livestock and water all were organically linked with each other and everybody respected this link. Farming was done at a subsistent level with forest provided a strong support base. They provided leaf litter for manure to be used in agriculture and fodder for livestock. In turn, the livestock manure enriched forests and farms. Knowledge and practices in a traditional society, living in a close proximity with nature, functioned like a well-oiled system. Unlike the modern knowledge it is neither atomised nor isolated. Rather, it was a highly interdependent network of actors.

MATERIALS AND METHODS

The paper is the presentation of a study carried out in and around hills of Rawain valley of Uttarkashi district of Uttarakhand state. The present study is an attempt to understand traditional knowledge system used in managing small farm systems and the role women play in preserving,

transforming and carrying this knowledge system, with a particular focus on the following issues:

- Traditional knowledge system as it evolved in relation to different crops, farming systems, forestry and animal husbandry
- Role of women in all major enterprises of the farming system
- How women preserve, transform and transfer this knowledge from generation to generation

To evaluate women's contribution and analyse the existing status of traditional knowledge system; 25 villages were selected on the basis of altitude and distance from the road head (Kandiyalgaun, Gaundiyatgaun, Pora, Sunali, Dairika, Dhakada, Kuphara, Khaladi, Bingsari, Jivandu, Mautad, Ludrala, Dargangaun, Kotgaun, Pwani, Osla, Liwadi, Shirga, Phitari, Jakhhol, Dhara, Khanyasnee, Masree, Bhitree and Doni). Some were closer to the metalled road, situated almost on the road, while others were at a distance of 5 to 25 km. Their altitudes ranged from 1500 to 2600 m. To understand the role of women better in the farming sector, we also included their roles in animal husbandry and forestry as these enterprises are organically linked with one another and cannot be understood in isolation.

For the collection of the data primarily qualitative anthropological research tools were used. The main techniques used for qualitative data are participatory observation, non-participatory observation, guided field walk and formal and informal interviews using a detailed checklist. Interviews were conducted with women who utilize natural resources in various modes. In addition to questionnaire survey and participatory research method, Group meetings were conducted in the villages especially with the women to document the information on all aspects of resource utilization adopted by the community.

RESULTS AND DISCUSSION

Women's workload

Women's knowledge has been the mainstay of crop production, animal husbandry, dairy and forestry. They have excellent knowledge about collection, storage and use of seeds [5]. Despite all this, their immense contribution to

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subsistence based rural societies remained veiled. Still, women do not have much right to either domestic or personal decision making. The study revealed that women's contribution in various cropping activities right is higher than men's, both with respect to number of tasks performed and in terms of time spent. They often spent up to 15 hours a day. They are responsible for gathering fuel wood, fodder, litter, land levelling, manuring, planting, sowing, weeding, harvesting, post harvesting and even rearing of animals.

Division of labour and social status

According to women in the area, paddy cultivation takes up their maximum time, followed by wheat and mandua. Interestingly, the division of activities in most of the crops has been such that all jobs of status are performed by men. Inter and intra village co-operation constitute an important element of both on and off field activities. Inter household reciprocal labour exchange, carried out mostly by women and popularly known as *bnara*, is a manifestation of traditional support mechanisms which exist in Rawain Valley. It not only provides an opportunity to women to socialise and share concerns and experiences with one another, but also promotes community participation.

Mixed cropping and Food Security

In earlier years women practised mixed cropping. It ensured a better nutritional balance and more food security in terms of variety and quantity. Even on the small farms of the study area, where land holdings per household varied between 0.2 ha to 1.0 ha, farmers used to grow a significant number of crops. This system was known as *baraanaaj* where at least 12 different crops would grow on a single farm, and women were well aware of the different production practices including seed preparation of each variety of each crop. Given the adverse geographical condition, it was considered best to grow as many varieties as possible in order to reduce vulnerability.

Crop Production and Crop inputs

Women have been traditionally involved in all cropping activities. Even young girls contribute a big share of their time to help their mothers in the field. Another very essential operation in subsistence farming systems is the preparation of farm yard manure (FYM) which is again done by women. Pine needles and oak leaves (which were very easily available in the past) are gathered from the forests for animal bedding. These materials, when mixed with dung and household organic refuse, serve as excellent organic manure. This practice contributes to waste management, recycling and provides nutrients. The government has encouraged the use of agricultural and horticultural chemicals in the area by making them available to the farmers at highly subsidised rates. However, women believe that artificial fertiliser cannot substitute the moisture retaining capacities of dung and humus and the use of artificial fertiliser alone is harmful.

Seed preparation, collection and storage have been intrinsic parts of traditional lifestyles in Rawain hills. Like other indigenous practices, women farmers here have a remarkable know how of the unique traditional methods

which have evolved over the years to collect, prepare and store seeds. They are stored in *tumri* (hollowed gourd shells), *bhakars* (wooden boxes), Kuthars and occasionally in covered *ringal* (bamboo) baskets lined with cow dung. Seeds are usually mixed with cow dung (*gobar*) ash or walnut leaves or even smeared with oil to ward off insects and pests. Seeds of most of the crops are still prepared at home by women or exchanged within the village or with nearby villages or with villages with which women have natal kinship (*maite*).

Forestry

Women's role in agriculture has traditionally involved integrating forestry with food production. Forest resources augment the nutritive value of the fields both directly through its foliage and indirectly through the dung of the cattle fed with forest grass and leaves. They have the knowledge of lopping cycles and practices to maximise fodder and leaf production. Moreover, they know how lopping could be used as a forest management strategy, which under appropriate conditions could actually increase forest canopy as well as forest productivity. Besides, they also manage local fodder trees growing on their farmlands. Through systematic pruning they procure maximum fodder yield without damaging the growth of plants.

Animal Husbandry

In the Rawain hills, animals are reared primarily to provide draught power for land preparation, tillage, sowing, threshing farm activities and manure production. Again, women's role is significant for their traditional role in integrating agriculture with animal husbandry. Women realise the contribution animals make to crop yield, due to which they are ready to undergo the drudgery of walking miles to get the fodder, making quantities of hay and utilising crop residues for their animals. Women know which leaves and grasses are best for fodder, which can help milch cattle, which plants have veterinary uses. Women are also well aware of the traditional techniques and methods of preparing highly energetic concentrates comprising coarse millets, lentils and vegetables. These home-made concentrates are fed to animals for enhancing milk yield, provide them energy especially during arduous activities such as ploughing etc.

Utilization of grazing resources

Forest is one of the main grazing resources of the villagers for raising herds like cattle, sheep and goats. Livestock rearing is a key livelihood and risk mitigation strategy, because it provides essential food products, manure, employment, household income and export earnings. The role of women in livestock rearing is very crucial. Livestock rearing at the household level is largely a women led activity, and therefore income from livestock rearing and decisions related to management of livestock within the household are primarily taken by women.

Utilization of Forest for income generation

Rural women rely heavily on natural resources for the survival of their families and shaping their livelihood. Forest is the most important natural resource of the villagers for providing both substantial needs and economic

needs. The women rely heavily on the forest for meeting their day to day needs like fetching firewood, fodder for their cattle, getting raw material for making agricultural implements and household furniture and also earning their livelihoods by utilizing various NTFPs.

Collection of medicinal plants and other NTFPs

The hill women's are engaged in illegal collection of medicinal plants such as *Saussurea costus* (Kuth), *Picrorhiza kurroa* (Kutki), *Aconitum heterophyllum* (Atis), *Angelica glauca* (Chora), *Dactylorhiza hatagirea* (Panja), *Commiphora mukul* (Guggul), NTFPs such as *guchchhi*, *Jhula*, and various types of edible forest products for their own consumption as well as trade for earn money. Some people bring the raw wood material from the forest for making agricultural, furniture and household implements [6, 7, 8]. The herders also bring some fruits, nuts, agricultural implements like *Hal* and *Shamain* grinding stick, poles etc. along with them when they go for graze their animals in the forest and bugyals.

CONCLUSION

The study has clearly demonstrated that women are the backbone to the farming system of the Rawain hills as they have intrinsic knowledge different farming activities. It is clear that women are a reservoir of traditional knowledge system of not only in farming but also forestry and animal husbandry, despite the highly skewed division of labour and decision making. This knowledge has so far provided good food security and ecologically sustainable farming. However, the traditional knowledge system is threatened. Key agents of change include the government, the market and the high rate of male out migration from the region to the plains of India. As peoples' dependence on forests, animals and their own farms is decreasing, the new generation has less incentive to learn about the traditional knowledge system, thereby posing a real challenge for the policy makers and stake-holders in the region

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