Empowering Rural Women for Sustainable Livelihoods through Natural Resource Management in Garhwal Himalaya, Uttarakhand, India

Bhagwati Uniyal[1], V.P. Uniyal[2] and Vinod K. Bhatt[1]

1. Navdanya, 105 Rajpur Road Dehradun, India
Website: www.navdanya.org; E-mail: bhagwatiuniyal@rediffmail.com

2. Wildlife Institute of India, Post Box # 18, Dehradun, India.
E-mail: uniyalvp@wii.gov.in

Abstract: Efforts has been initiated to strengthen rural women of Garhwal by providing training and awareness programme for income generation activities using natural resource management *viz.* medicinal plants cultivation, organic farming and alternative high value cash crops. Women of this region are aware about biological diversity and rich in indigenous knowledge of natural resource and its management on which they depend for livelihoods. The pilot study is being undertaken in five villages in two districts of Garhwal region of Uttarakhand with financial assistance from science and society programme for empowering rural women for sustainable development.

Key words: Mountain, biodiversity, indigenous knowledge, natural resources, sustainable livelihoods.

Introduction

Mountains have significantly support the life system, aesthetic and cultural values and economics of the people residing in or adjacent to the area. They depend directly or indirectly on mountain resources for livelihoods from time immemorial. With the rapid increase of industries and other human pressures in the plains, mountainous regions have considerably damaged the ecology and natural resources of the area. Mountainous regions are ecologically potential with natural resources but economically less developed. These resources need to be utilized in rational and sustainable manner for long-term sustenance for the people of this region.

Women play a vital part in the mountainous region of Uttaranchal state. In this region, as men in most of the families work out side due to lack of industries or other avenues of employment in this region. Women of this hill state are very hard worker; they toil through the day, starting with the family works, nurturing children and livestock, going out for fodder, fuel, drinking water and NTFP collection for

sustaining livelihoods (Fig. 2). Unfortunately, these women do not possess the status of farmer. If these women are given the status of farmer, they will get right over their land, which will go a long way in empowering them and improving their status. In the midst of all these worries, a hill woman remains firmly devoted to her work, keeps her composure and is honest. Enhancing social security for these women and setting up processing industry and management of natural resources, medicinal plants cultivation etc. can enhance employment opportunities both for men and women in this region, which will result into the less migration of the man folk. The remote area of this state has inadequate networking of transport and other basic supporting facilities, which come in the way for proper benefits of agriculture, horticulture and other developmental programmes conducted by state and other organizations (Uniyal, 2006).

Keeping in view, the status of women in the state, a pilot study is being undertaken in Two districts of Garhwal area of Uttarakhand for empowering rural women through natural resource management by providing village level trainings to reduce their work load *vis-à-vis* develop their skills for long-term sustainable livelihoods.

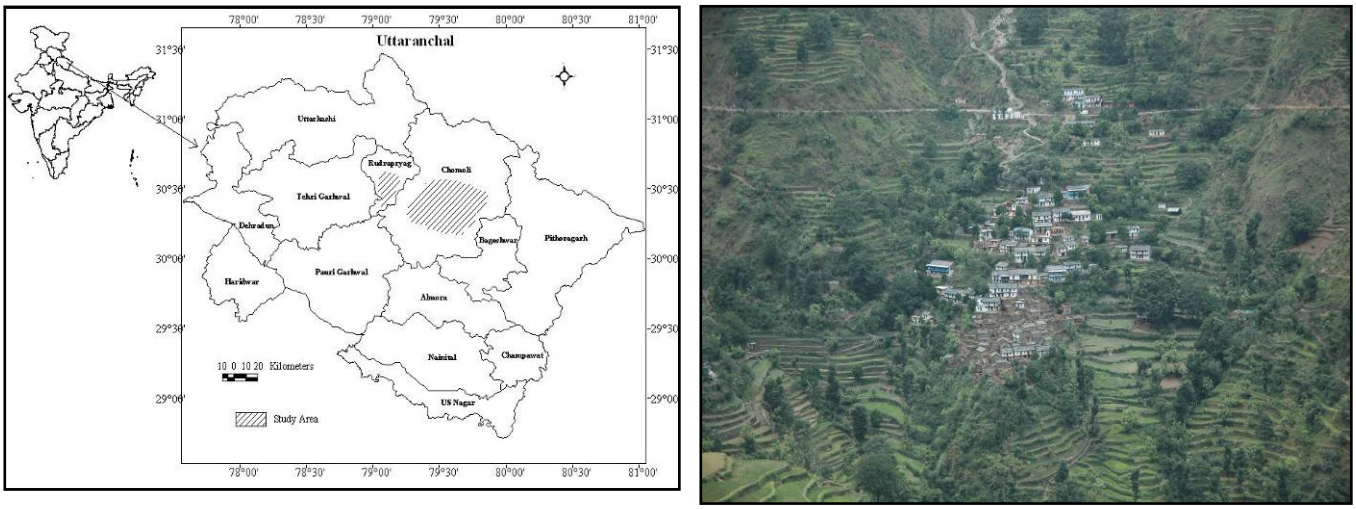
Study Area – Garhwal Himalaya

Uttarakhand, the hill state of Indian republic is well known for its rich biotic wealth, high mountainous peaks, and diverse cultural and climatic system. The total human population of the state is around 84,79,562 of which 41,63,161 are women. The state covers about 12.18% of the total Indian Himalayan region and about 40% of its total area has different forest types. The socio-cultural fabric in this region is characterized by diverse ethnic group, which have developed their own cultures based on available natural resources, giving rise to a cultural diversity.

About 75% of the total population of the state is dependent on agriculture. Agriculture pattern in this region is very complex. Terraced slops covers about 80% of the hill agriculture land, which is completely dependent on the rain, whereas remaining 20% area lies in the valleys and plains, which is fairly irrigated. Agriculture of the region is inter-linked with farming, animal husbandry and natural resources (Rao and Saxena, 1994; Maikhuri et al, 1996). Being the hilly region,

agriculture system has marginal and low productive. Its development could not take place due to various factors *viz.* lack of modern agriculture and horticulture research initiatives, inaccessibility, varied topography and extreme climatic and ecological conditions (Fig. 1). The present study is being initiated in four villages of Garhwal region with following approaches.

Fig. 1. Study Area Landscape



Approaches and Methodology

The approach has been designed to improve livelihood options for empowering women of the study area by using natural resource management. Baseline survey of natural resources, Participatory Rural Appraisal (PRA), Women Biodiversity Group (WBG) and *Jav Panchayat* were initiated in the village level. Indigenous knowledge and locally used economic plant species has been identified for cultivation by using modern scientific techniques and training. The aim to improve socioeconomic condition of women by utilizing indigenous natural resources, with the belief that sustainable development is possible only through grassroots empowerment of the area.

The study has been initiated in five villages of Rudrapryag and Chamoli districts of Grahwal. About 50 women between (25 to 60 years aged) of the study villages were interviewed and group meetings were conducted. Rural women of the study area have been targeted as direct beneficiaries under the project. The group will

largely comprise women from marginal and small farm households. Project interventions will directly towards poor rural women who have not fully benefited from any other program conducted by other organization and need support for livelihoods.

Fig. 2. Women-the main workforce in Uttarakhand

Rural Women Biodiversity Group (RWBG)

To begin with, group meetings were conducted with the target group in the study area on key issues of livelihood options for long-term sustenance. Rural Women Biodiversity Group (RWBG) was formed in all the study villages adopting Participatory Rural Appraisal (PRA) to sensitize the women about natural resource management. Group Coordinator (GC) has been identified in each village to motivate the target group towards natural resource management and biodiversity conservation.

People's Participation

About 50 women have participated in group meeting conducted in selected study villages. They have shown keen interest on the subject and willing to involve for undergoing training and capacity building. Key species as indicators of natural resources has been documented as outcome of the group meetings and participation of women during the survey conducted. Most of the participants have shown their interest requesting useful training and awareness programme for developing their skills towards natural resource management and biodiversity conservation.

Selection of Natural Resources

Natural Resources of native area were identified through a developed format and group meetings and deliberations by resource persons and rural women. Key issues as natural resources were identified for long term sustainable livelihoods.

- Organic farming
- Medicinal Plants cultivation
- Alternate cash crop and horticulture initiatives
- Bamboo cultivation
- Vermicompost
- Floriculture

Biodiversity Based Organic Farming

Biodiversity conservation and sustainable agricultural practices go simultaneously. It is proven by the different scientific studies that organic farming leads to increase in biodiversity and its conservation. Traditional multiple cropping systems and natural resources will be reintroduced in the project area by encouraging women to grow more crops together rather than going for monoculture. The intensification of biodiversity translates in to higher productivity and higher income. It has been observed that more the diversity more will be the income of the farmer. Women will be encouraged to grow more profitable croup and identified key species of natural resources in their fields.

Navdanya has proven through its intervention in 13 states of India that biodiversity based organic farming is the only way to improve the livelihood of the women community in Uttarakhand. Navdanya is a programme initiated by the foundation to conserve agricultural diversity. It places the farmer at the center of conservation and empowers him to take control over the political, ecological and economic aspects of agriculture. Navdanya means nine seeds and these represent India's collective source of food security. It connects a diverse ecological balance at every level, from the ecology of the earth to the ecology of our body. Navdanya is a national network of grassroots conservation efforts to protect the rich biodiversity, which is the basis of cultural and material sustenance for the people.

Diverse Women for Diversity is one of the important programme of Navdanya seeks to herald a global campaign of women on biodiversity, cultural diversity and

food security. Diverse women for diversity echo women's voices from the local and grassroots level to global fora and international negotiations. It seeks to strengthen women's grassroots movements and provide women with a common international platform to air their views. Over the years, diverse women for diversity have evolved a non-violent resistance and opposition to globalizations, emergency of genetic engineering and patents on life forms.

Economic Stability through Organic Farming

Shift to organic farming from chemical farming will lead to more profit to the farmers. It is the better option because: It reduces the cost of cultivation by saving money on seeds, fertilizers, pesticides and weedicides. Hence, it improved economy of households and makes farmers self-sufficient and reduces their dependency on market for agrochemicals. Expenditure on health care also reduced significantly because they were able to use the locally available herbs for some ailments. Organic farming also helps in biodiversity increases availability of diverse, nutritious foods.

Indigenous Crops – Food Security

The crop diversity in Garhwal region is very high and about 40 different crop species comprising cereals, pseudo cereals, millets, pulses, oilseeds etc. and their cultivation is according to altitudinal gradient and ecology of the region. Indigenous crops of the area play vital role as food security in this region. Such crops are considered as '*motanaj*' raw food or poor man's diet. Variety of millets *viz. mandwa* or r*agi* (finger millet); *jhangora* (barnyard millet); *kauni* (fox tail millet); *chaulai* (amaranth); *bathwa* (chenopodium) and *oggal* (buckwheat) having high nutritive food value found in the state (Fig.3). However, chemical analyses of all these crops prove as highly nutritive food value and safe diet (Rawat and Bhatt, 2002). The production and consumption of these crops will be promoted for better health and nutritional security. This is true that food habits changes with the time and economy of the region. Garhwal Himalaya is known as a repository of varieties of crop species. In recent years the crop diversity of the region has declined to an alarming proportion. Many factors are responsible for the sudden decline of cropping pattern *viz.* change in food habits, loss of biodiversity and natural resources, low grain productivity and replacement of traditional cropping system (Semwal et al, 2001).

Role of women folk is crucial and considered as back bone for hill agriculture pattern. Women are responsible for all agriculture operations ranging from field preparation, sowing, wedding, harvesting and supporting men and concern person ploughing the field. It has been monitored that maximum work load have been performed by women in the mountain region. Less agriculture facilities, modern agro-technology, migration of local youth are factors responsible for low crop productivity.

Fig. 3. Millets-food security in mountains

Medicinal Plants Cultivation

Mountains are harbours a valuable medicinal plant diversity because of majestic Himalayan range and healthy ecosystem. So far 1748 medicinal plant species have been documented from Indian Himalaya (Samant et al, 1998). On the regional scale, the maximum medicinal plants have been documented from Uttarakhand, followed by Sikkim and North Bengal (Kala et al, 2004). Majority of the medicinal plant species are endemic to Himalayan region from all documented species of different national biogeographical zones. The rural community of Uttarakhand generally uses some natural resources as plant species used as a source of food, fodder, timber, medicine and various ethno botanical purposes and source of income generation activity (Uniyal and Shiva, 2005). Medicinal plants have also strong acceptance in religious activities in Uttarakhand; local people worship the plants in the form of various gods and goddess. Some of the plant species *viz. Saussurea obvallata, Ocimum sanctum, Cedus deodara, Juniperus communis, Pinus roxburghii, Musa paradissica, Zanthoxylum armatum, Ficus benghalensis* and *Ficus religiosa* are examples of the medicinal plants highly used for medicinal as well as

religious purposes in this region (Silori, 2000; Kala et al, 2006). Medicinal plants are an integral part of the life of local communities of Uttarakhand. Local people and traditional healers have valuable information of indigenous knowledge of their healing capacities. With diverse climatic condition of state, the region is suitable for medicinal plants cultivation.

In Uttarakhand about 500 medicinal plant species are being traded. Nearly 160 of these have been identified as threatened species; most of them are found in the high altitude areas of this region (Nautiyal and Nautiyal 2004). In this region, cultivation of medicinal plants has been initiated by various institutions and organization, hence, the state has been declared as herbal state. Some medicinal plants grow in the wild in very specialized micro-habitats and association. Only selected plant species are possible for cultivation in the agriculture fields for commercial and alternate income generation option. With the help of women, initiative has been undertaken as pilot study under this project.

Conclusions

Indigenous uses of medicinal plants are time-tested system and used by people worldwide. This system has high potential medicine value and designated as safe and eco-friendly tradition for curing many diseases. The therapy has minimal side effects and cost effective compare to other system of medicine. The success of cultivation as alternate income generation options for rural community are mainly depends on awareness, interest and training programme in this region. Proper assured market, return of invested cost and appropriate agro-techniques may certainly help in improving economic condition of the people of this mountainous region.

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