

Role of women in the use and conservation of biodiversity: studies in the Nepal Himalaya

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In Nepal, rural women normally play a major role in the collection of various forest products. Supporting their families through the use of such products have become increasingly difficult in the present scenario of rapidly degrading environment. Hence, women who are clearly a major beneficiary of the conservation and sustainable management of biodiversity, their recent demand of rights to be treated justly in order to maintain the benefits they enjoy from the adjoining vegetation and to overcome the difficulties they have to face from biodiversity degradation, is praiseworthy. There are examples of women organising themselves and establishing self-help groups, with involvement in decision making in biodiversity conservation and management programmes in different communities in the Himalaya.

Gender issue involving access to and control of resources is a social, not simply an economic process. Given a strong linkage between gender, illiteracy rates, poverty, and ecological decline, it is imperative to recognise the role of women in conservation and development activities. Nowhere is this more important than in the area of community organisation and natural resource management. Community training and capacity building, primarily focused on women, are necessary prerequisites to local biodiversity conservation programme, but otherwise, for the Himalayan biodiversity to get better with adequate conservation and sustainable management, the struggle ahead is likely to be a long and difficult one.

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The last few years have witnessed expanding interest in environment and biodiversity. The United Nations Conference on Human Environment held at Stockholm in June 1972 sensitised the world about degrading environment. Since then the environment has become a major issue for man. Twenty years later, United Nations organised another earth summit at Rio de Janeiro, Brazil on environment and development. United Nations Conference on Environment and Development's (UNCED) Agenda 21 calls for women to be fully involved in decision making and in the implementation of sustainable development activities. The Hindu Kush Himalaya that covers a length of about 3500 km stretches from Afghanistan

in the west to Myanmar in the east, is the home to more than 120 million people who depend on its immense natural resources for their livelihood. Biodiversity in South Asia is comparatively very high.

More than 12,500 species of higher plants occur in the Himalaya only (Dobremez, 1996). The tiny Himalayan country of Nepal is a transition zone between the cultures of the Indian sub-continent and the central Asia. However, it being more accessible from the south, the Indo-Aryan cultural elements are mostly dominant than that of the north. There is a limited amount of land available for cultivation, which is typically characterised by

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tiny holdings distributed over rugged terrain with minimal irrigation facilities. Subsistence agriculture supplemented by livestock and forest products continues to be the main occupation. Geographical isolation and ecological variations have contributed to the existence of a large number of ethnic and cultural groups in the country, each with a variety of ancient traditions, prominent among them being the use of wild plant resources for the livelihood.

Role of wild plants in Nepal's rural economy

Majority of Nepali people depend on Nepal's immense natural resources for their livelihood. Every year thousands of tons of crude medicinal herbs are collected from forest land and pastures, some of which are used to prepare drugs by the local pharmaceutical companies while many are traded to other countries either raw or as semi-processed products. Majority of these commercial collections are carried out by the local people, including women, providing them considerable off-farm employment opportunities. Currently a number of non-timber forest products (NTFPs) are collected by the people largely for subsistence and to a lesser extent as a means for economic gain. These collections are mostly meant for food, fodder, fuel, and a variety of domestic articles. They are also used for fat, dye, tannin, fibre, gum, resin, agricultural and hunting tools, weapons and for witchcraft and magic. Some species are also used in worship and other ritual functions. Taking the specific case of medicinal plants in Nepal, there is a strong tradition on the use of plants as medicines in folk remedies. In most parts of the country, these traditional means are fairly well accepted and, in majority of the cases, these remain the therapy of choice with a notable degree of effectiveness. As these herbal remedies are easily available in the vicinity, bearing a minimum cost, the tradition is believed to continue for a long time to come.

Knowledge and contribution of women in the use of wild plant resource

Information on the contribution of women in various household and economic activities in different parts of the country is scanty. In order to determine the share of women in various household and economic activities, Gurung (1995) however, conducted a study on the socio-economic status of rural women in two remote villages - Benigaon and Ranagaon at Gorkha District. The major biodiversity-related activities of the rural women included wild food/fodder/fuel collection, local grazing/herding, primary processing of various non-wood forest products including medicinal herbs,

extracting fibre and dyes from plant parts, weaving baskets and ropes, etc.

Due to poverty and shortage of food materials, the diet is supplemented by edible wild plants or parts such as wild vegetables, roots and rhizomes, flowers, fruits, seeds, etc. In addition to wild food, fodder and fuel-wood collection, rural women are also responsible for the collection of plant or parts to prepare incense, and to extract dye, fiber and fat for the household use. Frequently, some of the wild useful products, mostly the edible items, are sold in the local markets providing cash income to the women.

In rural Nepal, the role of mother has a marked influence on the treatment of the entire family members, and as a result they have a considerable knowledge of local medicinal plants. It is a common experience that in the Nepali rural societies most of the women related health problems are handled by the traditional healers, frequently women, and the traditional midwives or birth attendants who successfully conduct majority of the natal care and treatment of maternal and child illnesses using locally available herbs (Bhattarai, 1994).

In the Surmi region of Dolpa District, west Nepal, a traditional practice known as *Khulla* is still in vogue in which every unmarried girl, after attaining puberty, has to leave the village every year for three months, according to the solar calendar, from 15th of Paus to 15th of Chaitra (first of January to the last of March, approx.) to live in isolation in the forest. During this period, the girls are not permitted to come back to the village. Most of them take shelter in the caves, forests, or even the temporary cattle sheds constructed during summer grazing. They might also erect a temporary shed using branches, barks, leaves, etc, and supplement their varied requirements including food from the local forest products. This system, on the one hand, is supposed to train the future mothers to live in harmony with nature, and on the other, to increase their practical knowledge about the life-supporting wild plants and their sustainable use.

In the foothills and middle mountains of west Nepal, there is a tribe known as *Raute*, who wander in the forests and live entirely on wild plants and animals. They have not yet settled for farming. While the male members of the community have the responsibility of hunting and fishing, the women collect all the necessary plants for food, fibre, medicine and other uses. None of the members come out of forests or in contact with the villagers, except the head of the tribe, who occasionally goes

in villages *en route* to barter bamboo products and wooden utensils for grains. Similarly, Danuwar, a minority in the churia hills and low mountains of central Nepal have started the shifting cultivation for less than 100 years. Needless to say, the major proportion of their requirement is still fulfilled from the wild source, the women being mostly responsible for their collection and processing.

Bhattarai (1989) recorded the use of 57 species, sub-species or varieties of plants under 47 genera and 25 families, consumed on 22 different ceremonial days of the year in the central Nepal. This is a typical example of the tradition till maintained where the plant-food is processed mostly by women. Although details are not available from other parts, the consumption of ceremonial plant-foods is, no doubt, a deep-rooted religious tradition in the country. Likewise, the tradition of preservation of plant-food prevalent in the country seems to be a wise step towards the rational use of available resources in the best way possible when abundant, for the days of food scarcity. Mostly women are involved in the collection and subsequent processing of the plant parts. In a study conducted in central Nepal (Bhattarai, 1991), it was reported that among the 123 species, sub-species and varieties of plants-parts preserved, 52 entities were of wild origin. Even in Kathmandu, women still possess a fair knowledge and experience on the curative properties of wild plants available in the vicinity and utilise them for the treatment of a good number of frequently occurring ailments (Bhattarai, 1988).

A large number of ethnobotanical literature is available from the Nepal Himalaya covering almost all the geographical and ecological limitations, and the major ethnic and tribal communities. Almost every ethnobotanical documentation in the Himalaya has been possible with the use of knowledge, tradition and practice of rural women of the particular locality, providing evidences that women are the inevitable source of ethnobotanical knowledge and the key players in the maintenance of folk herbal tradition.

Activities of women in the conservation and sustainable management of biodiversity

Women are clearly the major beneficiaries of initiatives taken to conserve non-wood forest products. In order to maintain such benefits and to overcome the difficulties they might face from environmental degradation, women, in different communities in the Himalaya are organising themselves and establishing self-help groups.

Village women headed by Srimati Gaura Devi in Chamoli District, Garhwal, India, initiated the now world famous "Chipko Movement" in the 1970s which played a unique role in local environmental matters, to save the region's forests from unsustainable exploitation. The Chipko Movement is often quoted as a successful example of women resisting the government's tree harvesting policy. This movement has inspired many and, to this day, these Garhwali women maintain an active interest in the conservation of local forests. The locally organised Mahila Mangal Dals (Women's Welfare Organisations) are active in most villages in Garhwal giving continuity to the Chipko Movement with varying degrees of effectiveness. Apart from various social welfare activities, these women's organisations are actively associated with the Van Panchayats (Village Forest Management Committee) facilitating cooperation for the management and sustainable use of forest resources.

The local women of Humla District, Nepal has provided an example of how conservation efforts can be directed towards immediate economic gain to local communities. Juniper trees (*Juniperus indica* Bertol.), a slow-growing high-altitude conifer, has traditionally been used for fire-wood of choice in the district. Mahila Kalyan Sewa (the women welfare service), a local non-governmental organisation founded by the local women, has brought together the members of the community to protect the few remaining patches of the district's most threatened juniper trees. Very recently, members of the community are using the dried fruits of this species to make the hand-made Tibetan-type incense stick that are increasingly used in the Buddhist monasteries and other religious ceremonies, other ingredients of the incense being spikenard root (*Nardostachys grandiflora* DC.), *Artemisia* leaves (*Artemisia dubia* Wall. ex Besser, *Artemisia sieversiana* Willd., etc.), thyme leaves (*Thymus linearis* Benth. ex Benth.), traditional Nepali paper (prepared from the bark of *Daphne bholua* Buch.-Ham. ex D. Don), etc. Currently, the product is marketed in Kathmandu and a considerable proportion has also recently entered into the international markets.

The Humla Conservation and Development Association, a local non-governmental organization funded by Biodiversity Conservation Network (BCN), has recently initiated the involvement and active participation of the local women in the sustainable harvesting and local processing of non-timber forest products. This is aimed at conservation of biodiversity together with increased and long-

term economic benefits to the local people. The traditional herb collectors have already organised *Collector Societies* in some 20 villages and are currently involved in learning and practicing sustainable harvesting and post harvest treatment techniques.

In Nepal, current forest policy puts great emphasis on community forest management (HMG/Nepal, 1988). Community forestry is based on the notion of people's participation - participation of the forest users to manage their resources. Consequently, the management of the national forest is being systematically handed over to identified community of users. As a group they will share the rights and responsibilities of managing the forest according to their own needs, which included the sale or distribution of forest products at independently fixed rates. In most districts of Nepal, community forestry is progressing well ahead.

Forest user groups in Nepal are characterised by a comparatively high level of women's participation. In Gorkha District, out of 96 forest user groups 17 are predominantly or entirely composed of women. Women in most of the groups are very committed to forest protection and management, although in many cases they have to revegetate with severely degraded forest patches (Stoian and Yadav, 1995). They regularly participate in community meetings and involve themselves in decision making. Most male dominated rural societies in Nepal have now been increasingly convinced that women are capable of making decisions regarding forest conservation and the sustainable use of their resources.

Discussion

Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Agrawal, 1995). Much of the Himalayan rural economic activities, however, is based on unsustainable use of natural resources, resulting in a loss of biodiversity and degradation of natural habitats. Its natural resources are still abundant. But the transformation of rural economy threatens to have a dramatic impact on the environment if nothing is done to ensure sustainable use of these resources.

Women as well as men are the true resource users and managers, having different roles, responsibilities, opportunities and constraints in its management both within the household and in the community, with a vested interest in maintaining the natural resources on which they depend. But poverty and illiteracy have forced people to continue activities

which help them survive in the present but which will cause more severe problems in the future (Bhattarai and Croucher, 1996). Mostly, this is not only a case of preference but also of a situation of having no alternative choices.

Women are among those in rural communities who collect and process most of the non-timber forest products and, therefore, have a major stake in the long-term sustainable management of biodiversity. The time and energy consuming tasks performed by women in harvesting and processing forest products are often crucial in determining the cash returns to a family. Most of the work women do, is of maintenance and nurturance nature resulting no monetary acquisition, which cannot be translated in terms of economic value. This has led to the economic dependence of majority of women on men; and hence, unfortunately placing them in an inferior status.

Women are the primary managers, sources of information and teachers in the use of natural resources. Although the exploitation of some plant parts (e.g. fruits, seeds and latex) is less damaging than others (e.g. bark, stems or roots), almost any form of resource harvest produces an impact on the structure and function of plant populations. There are ways to exploit the non-timber resources produced by plant populations with the minimum of ecological damage. Controlled and regulated exploitation of wild medicinal plants is fully compatible with the ecological and conservation functions of the forest and pastures. Wild plants, when properly harvested, managed, processed and marketed, however, can play a strategically positive role in the conservation of biodiversity as well as in the economic development of the region. Recognising that important decisions on biodiversity conservation and utilisation are made at local level there is need for direct involvement and flow of benefits at this level. Community training and capacity building, primarily focused on women, are a necessary prerequisites to local biodiversity conservation programme. With increasing pressure on diminishing resources, it is imperative that multipurpose tree species be promoted. Women can integrate multipurpose tree species into the small-scale farming systems and use the tree products to meet household needs, generate income and increase their families' well-being. As experiences have shown, women are at the forefront of farming because of their knowledge, experience and ability. Community-based and women oriented approaches should be initiated involving the *ex-situ* measures like ethnobotanical gardens, home gardens and commercial cultivation, and a network of green

health nurseries should be established according to local needs. Under natural conditions economic wild plants can be managed along with wood and other non-timber forest products (NTFPs) in an integrated manner thus increasing overall productivity. It is, therefore, urgent that forest-dependent communities including women be provided with appropriate models for harvesting, growing, post-harvest services and primary processing of NTFPs at community level. It is also necessary to assess how communities can integrate and extend these models, how they can develop management strategies and use the acquired knowledge for sustainable harvesting, local level processing of NTFPs and marketing of the resultant high-value products.

Women around the world have triple responsibilities - for production, and for reproduction at the household level, and for management of a range of activities at the community level. While women normally play the major role in managing the use of NTFPs at the household level, and in the community in some cases, they usually occupy a minor role in forest resource assessment and in the other activities related to the conservation of biodiversity and its sustainable use. As there are elements in effective natural resource management that can be influenced through understanding and use of gender analysis, the importance of their role in the care and management of the environment needs to be recognised.

There are growing numbers of female-headed households, and women are increasingly supporting their children in declining rural economies. There is also a growing awareness that the burdens of natural resource destruction may fall most heavily on women in poor households. The nature and impact of gender on natural resource management and development strategies have been either overlooked or misunderstood by researchers, practitioners, and policy makers dealing with environmental issues in the Himalaya. Likewise, most planners have not yet recognized the different roles women and men play at the community level, and they have not adopted conceptual frameworks and methodological tools for incorporating gender into planning. Nowhere is this more important than in the area of community organisation and natural resource management.

Very recently, women are beginning to demand their rights to be treated justly as evidenced by the growing participation of women in various conservation programmes. It is, therefore, essential to incorporate gender into the discussion because it is central to positioning both men and women in institutions that determine access to wild plants, to forest products and other resources, and to the

wider economy. An analyses of gender is central to an understanding of the ways in which resource users and managers relate to resources and to each others.

Gender is a dynamic, historically and culturally determined social construct created by men and women to determine their relationship with each other and with the environment. This includes access to and control of resources, a social, not simply an economic process. Given a strong linkage between gender, poverty, and ecological decline, it is imperative to examine the role of gender in matters of access to and control over natural resources. Gender, as a key factor in the division of labor, rights, and responsibilities, affects the management of local systems for sustainable livelihoods and equitable development. Gender analysis provides a conceptual framework and methodological tools for disaggregating information about the functioning of the household and community organisations involved in natural resource management. Such disaggregation helps clarify men's and women's roles, the indefinite boundaries of household and family, and the complex ways in which family, household, community, and ecosystem are linked. At the same time, a link has been experienced between illiteracy rates and forest depletion in many parts of the Himalaya, particularly in areas with low literacy rates among women. Within the field of plant resources and other biological sciences, there are generally too few professional women, particularly at the advisory and policy-making levels familiar with the need and problems of their rural counterparts.

One of the reasons for the lack of women in biodiversity and biological sciences generally, must lie in basic education. In most Himalayan regions fewer girls have access to education. This gap starts at the primary level and widens towards higher levels. Opportunities need to be provided to alter this pattern, especially to permit more women to enter the biological sciences. This will allow women to play an increasing role in the development and management of one of the most precious Himalayan resources. Conservation education works best in situations where the local community has an effective say over the use of its resources. Local traditional knowledge is seldom built into training courses, although such knowledge is often highly relevant to achieving sustainable development. Teachers and trainers need to be given more creative independence in developing local curricula suited to local needs.

It is, therefore, the under-represented needs of women, in addition to the better-known priorities of men, that must be understood and accounted for

in the planning and implementation of sustainable development programmes. Due to the tremendous variations in cultures, constraints, and opportunities in this mountain region, policies and plans for the incorporation of gender perspectives must be based on local realities, which differ widely from east to west (Gurung, 1996). Finally, it is essential that basic knowledge about plant resource and biodiversity assessment is included in all programmes involving the capacity building of women. It is only through broader understanding of biological resources and its implications for the livelihood of mankind that women will be able to contribute effectively to sustainable development as called for in Agenda 21 of the UNCED.

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