

## **Linking Conservation and Development of Medicinal Plants with Local Livelihoods in Great Himalayan National Park, Kullu, India**

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### **Introduction**

The Great Himalayan National Park has been constituted as a representative area to conserve the unique biological diversity of the Western Himalayas (Gaston, *et al* 1981; Rodgers and Panwar, 1988). The 755 sq. km area of the Park is naturally protected by high mountain ridges and peaks on its northern, eastern and southern sides. However, the western side is inhabited by 15 to 1700 households in 130 villages in 265 sq. kms buffer zone of the Park. Most of the population (about 16 to 17,000 people) in the buffer zone is poor and depend on the natural resources for their livelihoods. Extraction of medicinal plants and animal husbandry have been two traditional activities of the local people through which they have been making a living. The GHNP is an example of remote and inaccessible rural areas where biodiversity is concentrated, where poverty tends to be pervasive, and where the reach of government development programs is often limited (Wells 1992; 1994a; Pandey and Wells 1997).

Efforts to conserve the biological diversity at the GHNP aim at innovative strategies and action plans involving participatory approaches with emphasis on equitable and sustainable use of natural resources by local people. This has meant a new emphasis on finding ways of deriving new economic opportunities from biological resources, which do not lead to further losses of biodiversity (McNeely 1988). The present effort on Medicinal plants propagation at GHNP need to be seen in the background of these facts.

### **GHNP and Local Communities**

- Due to isolation and inaccessibility, the indigenous communities of the Jiwa, Sainj and Tirthan Valleys have developed distinct traditions and customs.
- The isolation of valleys has led to the development of different farming practices and methods of forest exploitation. There is a great deal of livelihood dependence of rural communities on forest resources like grazing land, fuelwood and timber, NTFPs in all the three valleys of GHNP.
- Within the communities living close to GHNP, the poor are more dependent on forest resources for their livelihood needs. The poorest among these poor, usually women, because of work burden, illiteracy, caste factors, health condition, remoteness of their villages and small land holdings have no other livelihood options (Tandon, 2002).

People living on the western boundary had grazing rights as well as rights of herb collection in the National Park (Anderson, 1886). Pressures on Park resources from neighbouring village communities varied considerably. Some of them depend on the Park heavily during collection season of mushrooms (April-June) and medicinal herbs (August-October). Others do not affect the Park at all: the villagers subsist through of basket making, handloom

weaving, horticulture, etc. (Pandey, 2008). Modern research continues to find new uses for hitherto unmarketable trees and plants. For example, it has been estimated that 20 year old tree of *Taxus baccata* can yield upto 30 kg. of leaves and 5 kg. of bark which can produce 4 gm. of taxol which is priced at US10,000 at a very conservative estimate (Shukla and Rao, 1994). New finds in the pharmaceutical industry encouraged the commercialisation of medicinal herbs and animal products which, in turn, may have affected the extent of their exploitation by the local people. Some herbs such as *Aconitum heterophyllum*, *Nardostachys jatamansi*, *Dactylorhiza hatagirea* and *Jurinea macrocephala* have only become commercially valuable during the last 15 to 20 years. At the moment, there are hundreds of dealers in the country including Delhi, Amritsar, Lucknow and Calcutta who deal in herbs on commercial basis.

The traditional rights of the local people in the Great Himalayan National Park (GHNP) were settled in May 1999 through an elaborate procedure, as prescribed in the Indian Wildlife Protection Act 1972. This has led to the issuance of final notification of the GHNP. The post-settlement-of-rights situation is going to affect the Park in the following ways:

- a) the biological processes, when free of current biotic disturbances, are expected to bring positive changes in the status of biological diversity in the park;
- b) the restrictions on access to the Park area may have some negative effect on the livelihood of the local community, given their high dependence on herb collection and livestock grazing. Alternative ways and means are now getting in place to mitigate such effects.

### **Stratified Community in GHNP Ecozone**

The society in GHNP is highly stratified (please see Annexure 1). The Scheduled Castes (SCs) are commonly excluded from access to key resources and institutional services. Literacy levels are lowest among the SCs. Widows and deserted women are almost universally included among the poorest category of people, but coverage under government programs like widow pension scheme is seen to be poor. In the 11 panchayats of the eco-development zone the proportion of Scheduled Caste population to the total population is 31.50 %, (Tandon, 2002). The poorest in village community are most dependent for their livelihoods on the village resources. Among all categories of the poor, the women are poorest. For example, a beggar's wife is poorer than her husband. In most societies, the women are poorer than the men because of patriarchy and general discrimination against girls/ women. This is the reason why we find that the female literacy is much less than male literacy. Also a girl is generally less educationally qualified than her brother. In rural areas, girls are married off at a much younger age.

Traditionally and because of lack of education it is women who are engaged fully in household work in the GHNP ecozone. This includes working in agricultural fields, taking cattle for grazing, collection of fodder and fuelwood, fetching of water, daily milking and care of cows and so on. Women are also almost wholly responsible for the care of children, elders, the sick and old persons in the HH. Most women are therefore heavily over burdened with work.

Therefore village level decisions like closure of areas, restrictions on grazing or collection of fodder and fuelwood, choice of tree, fodder and grass species to be planted, location of and access to water bodies/ sources directly affect the work burden of women.

### **The Strategy**

The innovative strategy would aim at bringing about a change in the relationship between the natural resource base including the Park and the immediate and long term livelihood needs of the local communities from the present open access arrangement to an increasingly participatory mode of joint management involving all stakeholders. That is when conservation through sustainable use rather than exploitation will begin to “pay” (Tandon 1999).

### **The Interventions**

The experience at GHNP shows that readiness of all the partners to participate in the conservation effort is of great importance. It is difficult for a partner to actively contribute to biodiversity conservation unless it sees a definite benefit/role in it. The participation of the local community in conservation efforts depend upon the following factors:

- i. Ability of communication, education qualification (at least High School pass), and trainability were some of the criteria based on which a Group Organiser (G.O.) was selected in the Ecozone of the GHNP.
- ii. A number of training sessions were organized to train the G.O. in various aspects of surveying the villages in ecozone of GHNP for poor households (HHs) and organizing women within the poor HHs.
- iii. For effective participation, the group size is small (about 10 to 15 poor women) and it is of homogenous nature (such as women of similar social and economic conditions grouped together).
- iv. Such small groups of poor women are known as Women Saving and Credit Groups (WSCGs). A micro-credit programme has been introduced to bring the poor women together. Each poor women is to save one rupee a day. In extreme cases, the poor women were given daily wage jobs in the medicinal plant nurseries so that they are able to save money.
- v. The G.Os . and WSCGs have organized themselves as a Community Based Organization, BTCA (Biodiversity Tourism and Community Advancement) which is a registered body under the Registration Act, 1886.
- vi. The members of the WSCG choose an animator who facilitates the record keeping and depositing of collected money in the nearest bank. The group members pay for the services of the animator.
- vii. Under the WWF aided project, 23 WSCGs consisting of 190 members have been formed by BTCA. As soon as the saving of a group reach about Rs. 4,000, the group members are encouraged to give credits among themselves to invest money in income generation activity.
- viii. Each of the WSCGs is getting developed into a Production Center. The group members discuss an income generation activity. The group being small, and members knowing each other's capabilities, the decision of 'who will undertake which activity' is taken within the group. The most important of the activities

- which these groups are doing in the current year is preparation of medicinal plant nurseries (in the buffer zone), vermicomposting, organic farming, medicinal plant propagation, handicraft making (see the details below) which to some extent will be able to compensate for the loss of their herb collection rights in the GHNP.
- ix. An important medicinal plant related activity is production of vermicompost by the members of the WSCGs. About 650 sites of vermicomposting have been established among the WSCGs. Developing one vermicomposting site requires an investment of only Rs1200 which is affordable by most of the poor members (through internal credit within the group) of the WSCGs. The GHNP is the ready buyer of the vermicompost for its nurseries. In 2001-02, the total vermicompost production in one month in WSCGs is more than six tons, which fetch an income of about Rs. 42,000 per month to these groups.
  - x. At the moment 92 small WSCGs comprising of more than 900 poor women have been organized in the ecozone of GHNP. The total savings of these groups are more than Rs. 4,00,000.
  - xi. It also needs to be emphasized that the womenfolk have the intimate knowledge of the natural resources and their use. The activity of medicinal plant propagation has a gestation period of 3 to 5 years including the preparation of nursery. Hence for poor women, this is important to undertake diverse income generation activity, which may bring them quick returns.

### **Microplanning**

The mechanisms are being developed so that the WSCGs strengthen a village council (Panchayat) from within. All the WSCGs are now being developed on the ward-basis (about five or six wards constitute on Panchayat). This programme is expected to address the issues of sustainability through its inherent strength of empowerment of womenfolk within the hill society. In long run, such WSCGs are going to be sustainable and will contribute to the conservation of the biodiversity of the Park.

There are three to five WSCGs in most of the Panchayat Wards. BTCA and the Park administration is making an attempt to federate all the WSCGs at the ward level. The Participatory Forest Management Rules of H.P. Govt, 2001 provide for the organizing the *user groups* at the ward level and the user groups will be federated to be developed into a Village Forest Development Society (VFDS). Each WSCG is a *user group*, their federation into VFDS at the ward level is to integrate the VFDS directly and organically with the Panchayat. The ward Panch is to be an *ex-officio* member of the Executive Committee of the VFDS. He/she should thus be able to effectively represent the interests of his/her ward and help secure funding from panchayat funds for the ward level microplan and help integrate with other schemes that are implemented through the panchayat. This is important for the sustainability of the VFDS. It is also seen that in most of the mid Himalaya, the ward size in terms of households would vary from about 20 to 50 HHs. This also fits in well with the need to have smaller VFDSs.

It has been seen that due to closure made by the Forest Department, many women esp. the poor women have to spend much more time and effort collecting fodder, fuel etc. This adds much more work to their already over burdened life. Often this leads to forcing

the mothers to seek help of their daughters to cope with the housework thereby making many girls drop out from school. For this reason it is very important to know, understand and act upon the concerns of women while discussing and planning microplans under PFM. To make this happen, the PFM Rules provide that 50 % of the EC of the VFDS will be of women members. Also because of this reason it is important that forest department functionaries ensure that women not only attend VFDS meetings in good number but also participate actively so that their voice is heard.

### **Training Inputs**

All the above aspects of working with WSCGs suggest that funds are needed for very specific activities. Most of such activities are related to developing skills among the local people, such as how to relate to the local communities, how to organize people in small, homogenous user groups (such as WSCGs, herb collectors, ecotourism activities, etc.), how to communicate within the groups and between groups, how to make sustainable use of locally available natural resources (very low cost income generation activities), how to monitor a Group activities over time, how to take advantage of microcredit for biodiversity conservation, how to do record keeping for savings, and credit amounts, how to do marketing, and ultimately, how to become a good Group Organizer, etc.

Various training programmes have been arranged for the Group Organisers to build their capacity to work among the poor women. All the G.Os of BTCA meet on 7th and 22nd of each month and undergo a short training programme as per needs. These trainings includes subjects such as accounts, communication skills and allied subjects. Each WSCG has one animator who needs to keep record and accounts of a WSCG. For this purpose, two trainings were organized. The Park staff, in association with BTCA, and a resource person conducted two training for selected animators.

### **Medicinal Plant Propagation as an Alternative Income Generation Activity**

Before 1999 notification, the exploitation of NTFPs (or Minor Forest Produce as it was historically termed) at the GHNP has generally been managed through a state of benign neglect. Thus, while permits for extraction and/ or transport were given by the Park authorities, little attention was paid to the *ex situ* or *in situ* management aspects, particularly of species that did not account for substantial revenue collection. Such species included most medicinal plants. Even though medicinal plants are overwhelmingly wild collected, largely from the forest estate, the existing lack of importance given to NTFPs in forest management, has led to extant free riding abetted and spurred on by the growing but little understood herb trade (Tandon, 1999). The recent spurt in demand for herbals has in turn resulted in severe over-exploitation of many high value species in the Himalayas.

The interventions here seek to combine and make complimentary the roles of the Park management and its partner NGO, BTCA in order to institutionalise an approach whereby the livelihood dependence of poorer forest dependant households can be wedded to NTFP management in a sustainable way.

In 1999-2000, the GHNP management established 10 major nurseries for medicinal plants. The main species here are of very high-value such as Karoo (*Pycrorhiza kurrooa*), Patish (*Aconitum* spp), and Hathpanja (*Dactyloriza hatagirea*). The Park management in collaboration with BTCA is encouraging the WSCGs and the old herb collectors to take up the medicinal herb propagation in the buffer zone of the Park (please see Annexure 2 and 3). The Park is providing forest land for such use to these groups under the Participatory Forest Management programme of the Himachal Pradesh government. A WSCG can enter in a contract with the Park to propagate the already enclosed forest land for medicinal plant propagation. About 22,500 plants are planted on one hectare land which makes the medicinal plant propagation commercially viable. All the 100% produce from this will go to the groups. In March 2001-02, 26 hectare of forest land has been planted by 18 WSCGs. The GHNP is facilitating a marketing tie-up for the sale of medicinal plants.

### **Results and Discussion**

The interventions were expected to contribute significantly through WSCGs to the livelihoods of the rural poor in a participatory mode. Such an approach would necessitate that the WSCGs are strengthened, professional capacity of GHNP staff is built up, and institutional structures, procedures are established. At GHNP, the concept of WSCGs was new both to the field staff and the neighbouring communities. It is interesting to observe the influence of the interventions on the local communities, Park administration, and the donor agency.

#### **(i) Community**

**Assumption:** It is an assumption that the dependencies of the local communities for their livelihoods on the biodiversity of the National Park (in form of herb collection, sheep grazing, etc.) will get reduced if they are provided with the alternative source of income.

**In Practice:** Merely offering alternate income generation packages in form of medicinal plant propagation and other activities (see Annexure 2 and 3) can not reduce pressures on the Park. The economic development of the poor WSCGs need to be succeeded by such programmes which will improve their living conditions. To empower the poor women, it is important that they become socially strong and participate in the decision making process at village level.

#### **Learning:**

- i. It is important to organize the local poor people in small identifiable groups (about 20 individuals or so) that are of homogenous nature (such as Women's group, herb collectors group, basket-makers group, and like). Later on the small groups can become part of a larger federation or a Community Based Organisation (CBO).
- ii. Past experience has shown that the size of the group/organization is linked directly to its performance and its efficacy. This facilitates holding of meetings with adequate quorum. The poor, the illiterate, women and SCs (see annexure 1) are the categories of the stakeholders who have the maximum stake in natural resource management and decisions connected with it. In a smaller group it is

- possible to listen to their voice and concerns and include in action plans (Pandey 2008).
- iii. Smaller groups tend to be more homogenous and therefore more cohesive. Well-attended and more frequent meetings are easier to hold when the group is small and members (esp. women) do not have to cover long distances in difficult terrain to attend meetings. Thus a smaller group is more sustainable.
  - iv. The WSCG have been constituted ward-wise. The microplanning done in a WSCG can be integrated at Panchayat level.
  - v. Poor villagers participate in income generation programmes, which have very little investment, very low level of technological inputs and ready markets for the sale of produce, such as production of vermicompost in WSCGs which was readily bought by the Park management. The WSCGs show a preference for such medicinal plants which fetch more incomes and easy to grow (see Annexure 4).
  - vi. The members of WSCGs see more good in a diverse income generation activities. This provides them with more security (see Appendix 1).
  - vii. In a male dominated, poverty-ridden society, the local womenfolk who constitute half of the population can play a very important role. A WSCG through a micro-credit scheme and income generation sources provides an opportunity for the poor women to participate in the natural resource management.
  - viii. Because it is their own savings that the women are loaning for 'production activities', the recovery of such small loans is almost 100%. At the same time, these women are getting away from the 'subsidy culture'.
  - ix. In long run, such WSCGs are going to be sustainable and will contribute to the conservation of the biodiversity of the Park.

The economic upliftment through alternative income generation activities, social improvement through literacy, health care and other programmes, and sharing of political power at Panchayat level are indicators of the empowerment of the poor women at village level.

## **(ii) Park Administration**

The interventions were made as a pilot which could demonstrate linking of conservation and development of the medicinal plants and livelihoods. Changing mental maps from enforcement to participatory management was an underlined assumption. The mechanism to bring such changes is mainly training, and interactions with the WSCGs.

**In Practice:** In order to make this happen, the following experiences at the GHNP are worth attention:

1. The Park administration is providing the wage jobs to the members of WSCGs. These daily wage jobs include working in the medicinal plant nurseries, planting the plants in MPPAs, and the protection of MPPAs.
2. The programme of vermicomposting is linked to the medicinal plant nurseries. Most of the vermicompost produced by the WSCGs have been purchased by the Park nurseries, thus the marketing has never been a problem in this regard. Gradually, BTCA is finding market for vermicompost outside the GHNP.
3. Similarly, the Park engaged the male and female members of WSCGs in a street theater which spread message of nature awareness in the buffer zone of the Park.

This also added to the incomes of the poor HH to which the WSCG members belong.

4. In many cases the male members of the WSCGs who were earlier herb collectors have now organized themselves in an Ecotourism group. This group has helped the Park staff in managing the tourism into the Park as well as patrolling the area to protect the wildlife. They are earning through the jobs of porter, cook and guides.

**Learning:** The Park staff so far sees the WSCGs as an effort of BTCA. Involvement of women/NGO is yet to be integrated as an approach of H.P. Forest Department to conserve the natural resources. While the HPFD is totally male dominated, there is a predominance of women in WSCGs in GHNP ecozone. The present interventions demonstrate the experience of working with poor women which is very new for the forest staff. However, this important learning may be a beginning of realization on behalf of the HPFD to give proper representation of women in its recruitment policy, service rules, etc.

### **A Future Perspective**

#### **Medicinal Plants Conservation Areas**

The floristic survey of the Park suggests *in situ* reserves containing valuable populations of threatened medicinal herbs. Their ultimate value would lie in harbouring viable, breeding populations of known medicinal herbs (other species as well). This is to be done by setting up at least one *in situ* conservation areas for medicinal herbs in each different forest type within the National Park. In a MPCA there is a need to commission detailed floristic, botanical and ecological studies and maintain a herbarium of the medicinal plant species, surveyed in the MPCAs. More research inputs are required to facilitate enriching the genetic variation within a species so that a sufficiently large gene pool can be conserved over long term.

#### **Research on MPPAs and MPCAs**

This is yet another area which needs attention of the Park administration and the HP Forest Department. The most important task here is the proper identification of various research aspects related to conservation of the biodiversity of the GHNP. We need to monitor the changes that may occur due to community involvement in the present Medicinal Plant Propagation efforts. Long Term Ecological Monitoring (LTEM) needs to be undertaken to assess the impact of exclusion of the biotic factors on the medicinal plants of the Park.



## Appendix 1

### Income generation activities that the WSCGs are undertaking

- **Vermicomposting:** About 700 sites have been established among the WSCGs. Developing one vermicomposting site requires an investment of only Rs1200 which is affordable by most of the poor members (through internal credit within the group) of the WSCGs. The GHNP is the ready buyer of the vermicompost for its nurseries. In 2001, the total vermicompost production in about 20 WSCGs is more than one tonne which fetches an income of about Rs. 7,000 per month to these groups. At the moment seven to nine tones vermicompost is being produced each month.
- **Organic Farming:** Vermicomposting is in fact the first step towards the organic farming. The WSCGs are now using the surplus vermicompost to manure their fields. Long time use is expected to produce quality fruits, vegetables and cereals. Already there is a substantial reduction in the use of chemical fertilizers, pesticides in the ecozone.
- **Medicinal Plant Propagation:** In 1990-2000, the GHNP has established 10 major nurseries for medicinal plants. The main species here are of very high-value such as Karoo (*Pycrorhiza karoo*), Patish (*Aconitum* spp), and Hathpanja (*Dactyloriza heterogeria*). The Park management is encouraging the WSCGs and the old herb collectors to take the medicinal herb propagation in the ecozone of the Park. The Park is providing forest land for such medicinal plant propagation to these groups under the Joint Forest Management programme. A WSCG or any other group can enter in a contract with the Park to cultivate the already enclosed forest land for medicinal plant propagation. About 22,500 plants are planted on one hectare land which makes the medicinal plant propagation commercially viable. All the 100% produce from this will go to the groups.
- **Stone Oil Extraction:** Earlier the stone fruits such as hill apricots, walnuts, almonds were being bought by the local traders at a cheap rate. Now the WSCGs are giving money on credit to their members to buy the stone seeds and produce oil. The Park management is helping in marketing of oil. In year 2000-2001, about 8 WSCGs could earn Rs. 40,000 from this activity.
- **Hindicrafts/Souvenirs:** Training workshops are being organised for WSCGs to make hemp or grass based handicrafts/souvenirs. The GHNP has organised sale of such material through departmental shops as well as various local fairs and exhibitions.
- **Wage Labour:** The GHNP gives priority to WSCGs for working as wage labour in its ten medicinal plant nurseries, construction work, repairs, etc. This is to encourage savings by the women in their groups.
- **Ecotourism:** This activity is now getting organized in the area. The male members of WSCGs are being organised in an ecotourism group to work as guides, cooks, camp organizers, and porters. Ecotourism activity in year 2000 till now could fetch Rs 3,50,000 in the respective WSCGs.
- **Street Theater:** This activity is based on the local folksongs which are sung by the local villagers. Twelve boys and girls have come together to form a street theater which earns daily wages from the HP Forest Department for giving regular shown on nature awareness in the villages close to the Park and forest areas.

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