

Community-based Conservation and Sustainable Utilization of Potential Medicinal Plants In Rasuwa, Nepal Himalaya



An ESON - Allachy Project (2006-2007)

Project Reference No: AA007



Final Report Prepared by
Ethnobotanical Society of Nepal (ESON)
Kathmandu, Nepal

Submitted to
Plantlife International, UK.



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ACRONYMS AND ABBREVIATIONS

CBOs	Community Based Organizations
CDO	Chief District Officer
CFs	Community Forests
CFUGs	Community Forest User Groups
DDC	District Development Committee
DFO	District Forest Office
DEPROCS	Development Project Service Centre Nepal
DNPWC	Department of National Parks and Wildlife Reserves
ESON	Ethnobotanical Society of Nepal
FECOFUN	Federation of Community Forest User Groups of Nepal
HAA	Himalaya Amchi Association
HH	House Hold
IPAs	Important Plant Areas
LNP	Langtang National Park
MAPs	Medicinal and Aromatic Plants
MoFSC	Ministry of Forest and Soil Conservation
MOU	Memorandum of Understanding
MPs	Medicinal Plants
MSN	Manekor Society of Nepal
NAF	Nepal Agroforestry Foundation
NEHHPA	Nepal Herbs and Herbal Products Association
NG	Nepal Government
NGOs	Non Governmental Organizations
NP	National Park
NTFPs	Non Timber Forest Products
TRAPP	Tourism for Rural Alleviation of Poverty Program
USC Nepal	Paraspar Nepal (USC Nepal)
UNDP/MEDEP	United Nations Development Program/Micro-enterprise Development Program
VDC	Village Development Committee

Fact sheet of Chilime Village Development Committee (VDC) of Rasuwa district

Area : 101 sq km.

Altitude: 2000m - 4700m

Ward: 9

Vegetation: Tropical Montana-Alpine

Population: 1521 (More than 98% Tamang ethnic group)

House Hold (HH): 350 and 38 HH land less

House hold size: 4.68 (average HH)

Male: 812

Female: 709

CFUGs: 16

Interesting site: Chilime hydroelectric project (14 MW)-Tatopani Hotspring, Chilime village-Culturally rich Tamang village; Chilime forest – Rich in Himalayan medicinal plants.

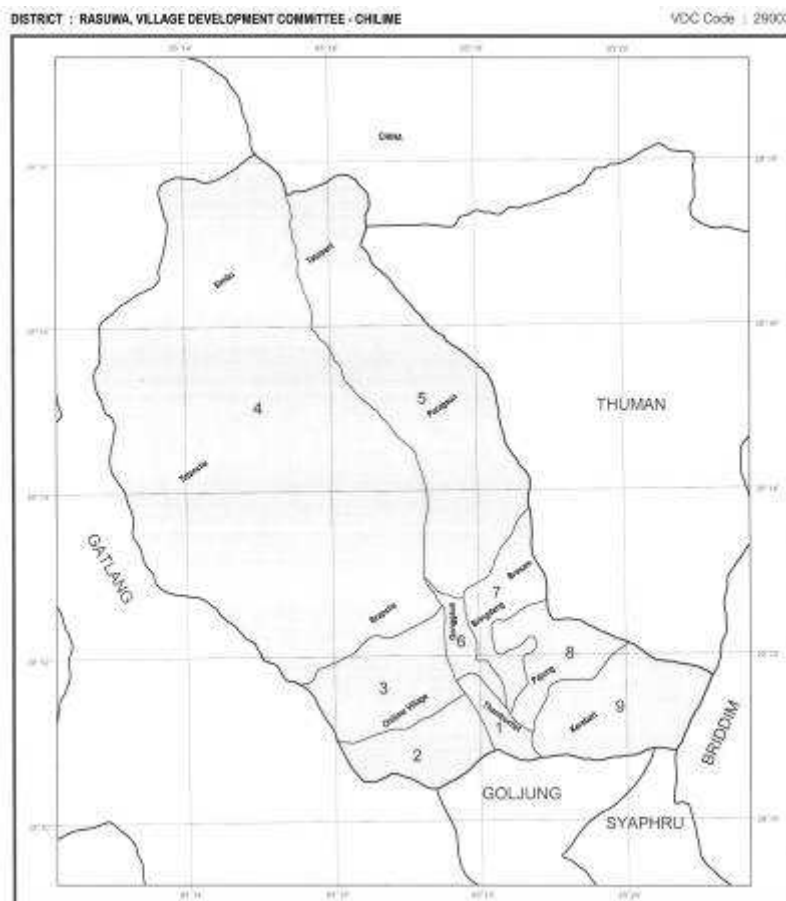


Fig. 2. Map of Chilime

2. Objectives

2.1. Short term objectives

- ✓ Find out the priority medicinal plants of local communities and understand local conservation efforts, if any. Implement collaborative activities to encourage in situ conservation of MAPs
- ✓ To know the Medicinal plants species availability, their distribution, regeneration, local use, trade and livelihood of local people.
- ✓ Raise awareness among local communities on sustainable use and management of medicinal plants and encourage them to institutionalize their activities from a single common team (committee) for better communication, coordination and exchange of learning's on sustainable utilization, management and growing of medicinal herbs. This committee is supposed to develop confidence and bargaining capacity of the involved community forest user groups.
- ✓ Formation of medicinal plant management and monitoring team in the village.
- ✓ Building capacity of Community Forest Groups in inventory and assessment of medicinal plants to develop habitat monitoring and annual sustainable harvesting plan.
- ✓ Develop appropriate market linkage of wild and cultivated herbs?.
- ✓ Based on the resolution of this first phase of study, develop community based Action plan for follow up project mainly *in situ* and *ex situ* conservation of medicinal plants.

2.1. Long term objectives

- ✓ Establish Medicinal Plants Information Centre in Dhunche (the district headquarter of Rasuwa)
- ✓ Building capacity of traditional healers to Institutionalize their herbal treatment practices
- ✓ Identification of Important Plant Areas (IPA) of commercially threatened medicinal plants, and study its population dynamics inside and outside the protected area.
- ✓ Institutionalize medicinal plants habitats monitoring system and developing sustainable annual yield or harvesting plan within the communities.
- ✓ *Ex situ* conservation of commercially potential MAPs in community forests and marginal land.
- ✓ Establish medicinal plants based small scale cooperative, and model herbal nursery plots, to uplift the economy of less privileged and disadvantaged ethnic group.

- ✓ Establish community herbal health care centre operated by local trained traditional healers in collaboration with Himalaya Aamchi Association (HAA).
- ✓ Expansion of the project in and around Langtang National Park.

3. Project Activities and Achievements

This project is entirely a community participatory action oriented program. Each project activities were conducted in close collaboration with local authorities and concerned stakeholders of the project area. Information regarding ecology and natural resource management related research works highlighting more on Ethnobotany of the Rasuwa district was extensively reviewed during literature review. Along with documentation of existing research works, the major focus was to sort out the activities conducted in the Rasuwa district especially in the management of the medicinal plant resources. Past projects and ongoing activities were taken as baseline to develop new project activities and filling the gaps in the sustainable management of MAPs through *in situ* conservation approach in the district.

From Kathmandu, the capital city of Nepal, Langtang is the nearest mountainous district bordering China. Rasuwa is easily accessible from Kathmandu but very remote regarding the availability of basic public services to the local people inhabiting in the scattered patches on the slopes of fragile landscapes. Many national and international non-governmental organizations are engaged to assist local people for delivering social services as well as implementing diverse kind of project activities in different sector like, natural resources, environment, health, education, etc. Unfortunately the services provided by these organizations are also biased to remote people living far from district headquarter at the base of the mountains. More than dozens of non governmental organizations and three to four international non-governmental organizations are reported to be working in this district.

For better effectiveness of the project activities, ESON selected two local organizations having tendency to work with the remote communities better relationships and sound prestige among local people. After couple of interactions Manekor Society of Nepal (MSN) based on Rasuwa, and Rasuwa unit of Federation of Community Forest User Groups Nepal (FECOFUN) were identified as potential local collaborators to execute all the project activities further. The final framework of the project activities were developed after the mutual understanding and discussions between the partners and among other concerned organizations. Annual framework of the project activities are provided in the Annex II. The accomplished project activities according to the respective objectives are as follows.

<u>Organizations working in Rasuwa</u>
Action Aid
DEPROCS Nepal
FECOFUN
HAA
Manekor Society of Nepal (MSN)
NAF
NEHHPA
Paraspar Nepal
Poverty Alleviation Fund
Practical Action
Search Nepal
The Mountain Institute (TMI)
UNDP/MEDEP, TRAPP
World Education
WWF-Nepal

Objective 1. Find out the priority medicinal plants of local communities and understand local conservation efforts, if any. Implement collaborative activities to encourage *in situ* conservation of MAPs

Activities 3.1. Develop project activities and initiate collaboration at local level: The project started its formal activities by the organization of Inception meeting in Dhunche, the District headquarter Rasuwa district on November 9, 2006. Though the activities of the project was already started from September 2006 through local level consultations and interactions, the formal meetings with all the concerned stakeholders were to be waited until September due to the unfavorable climatic condition in the project area. One day Inception meeting on "Conservation and Sustainable



Fig. 3. Project Inception meeting in Rasuwa., the chief guest Act. Chief District Officer Mr. Bharat Luitel (3rd from right) and President ESON, Dr. Krishna K. Shrestha (4th from right).

"utilization of the medicinal Plants of Rasuwa district" was conducted in the district headquarter, Rasuwa. This meeting was participated by more than 35 persons representing 20 organizations including leading government and non government organizations/institutions of the district. Mr. Bhart Luitel, Act. Chief District officer, was the Chief Guest of the program and the program was conducted under the chairmanship of Dr. Krishna K. Shrestha (President, ESON). This program was participated by the wide range of people from Village level authorities to district level including representations from local people, medicinal plant collectors, traders, growers, and the political parties. This meeting concentrate its discussion on the following issues.

1. Identification and assessment of medicinal plants
2. Ways of sustainable utilization of the medicinal plants
3. Need and importance of participatory conservation of medicinal plants.
4. Identify and minimize the challenges seen in the medicinal plant sector.

This program was very successful to get encouraging supports from district and VDC level authorities. It has been realized that medicinal plants sector is an important sector prioritised by the government and non governments organizations focussed in the livelihood improvement of the people of Rasuwa especially residing in northern VDCs.

Achievement 1.1.

Organizations working in the improvement of medicinal plant sector inside Rasuwa define their role and agreed not to duplicate same work in the same locality.

Achievement 1.2.

If possible every organizations will take participatory approach taking concern of traditional healers, local traders, herbs collectors and community forest user groups, while conduction programs related with MAPs

Achievement 1.3.

For the identification and assessment of the medicinal plants of the district organizations like, ESON, District Forest Office (DFO) and USC Nepal (Paraspar Nepal) will work together, so that there will be uniformity in the survey procedures. District Forest Office will work together with ESON to update and revise the operation plans of the community forests in the project area. ESON will be cooperated by DFO and other concerned organizations in the study of population dynamics of the medicinal plants in the potential sites of the district.

Achievement 1.4.

Every medicinal plant related project will closely work with Langtang National Park (LNP) authorities, and LNP will collaborate with each projects and communities inside and outside national parks for the correct certification of the herbs regarding their origin.

Achievement 1.5.

In collaboration with all the organizations working in the district, the meeting realized the need of establishment of (medicinal) Plant information Center in the district headquarter so as to provide correct information on the medicinal herbs, endemic and threatened plants, and related activities in the district. This information center will develop demonstration plots of various medicinal plants, which is supposed to provide and disseminate both practical and theoretical knowledge among the local people of the district.

Achievement 1.6.

When formulating the annual programs, District and VDC level government authorities will take Medicinal plant as important sector and work on developing easy ways to certify the herbs from the district. Furthermore the DFO will work with the local organization in the capacity building of the local community forest user groups and help them in the *in situ* and *ex situ* conservation of medicinal plants. Each year the DFO will assist at least five local community forest user groups to revise their forest plan in close collaboration with the organizations working in that area wherever possible.

Achievement 1.7.

Each organization will give priority in the *in situ* and *ex situ* management of the highly traded plants from the district. Potential plants identified by the meeting were *Aconitum spicatum* (Bruhl) Stapf, *Acorus calamus* L., *Asparagus racemosus* Willd., *Bergenia ciliata* (Haw.) Sternb., *Dactylorhiza hatagirea* (D. Don) Soo, *Delphinium himalayai* Munz, *Fritillaria cirrhosa* D. Don, different species of Lichens, *Nardostachys grandiflora* DC., *Neopicrorhiza scrophulariiflora* (Pennell) D.Y. Hong, *Paris polyphylla* Sm., *Rheum australe* D. Don, *Swertia chirayita* (Roxb. ex Fleming) Karsten, *Taxus wallichiana* Zucc., *Valeriana jatamansii* Jones, and *Zanthoxylum armatum* DC.

Activities 3.2. Local level Community meeting and develop community based activities:

A Similar but more informal community meeting was organized in the Chilime VDC on November 10, 2006. This meeting was participated by all the sixteen community forest representatives of Chilime VDC. The



Fig. 4 (Left), Fig. 5 (right) - Community meeting in Chilime.

overwhelming number of participants, 18 male and 17 female, were actively involved in the development of one year plan under the project.

Participants made small groups and exchanged their medicinal plants management practices. They widely discussed the challenges they are facing in the sustainable management and utilization of MAPs. Small groups did resource mapping of their respective community forest user groups. ESON team members helped in preparing of Resource mapping.

Achievement 2.1.

Representatives from each community forest user groups share the problems they face in the management of forests including medicinal plants. Through resource mapping they evaluate the availability of the medicinal plants in their area and agreed on the appropriate conservation activities needed to the respective community forests.

Achievement 2.2.

They feel the gap of communication among them and identified the need of coordination between the user groups to optimize the benefit of this project.

Achievement 2.3.

The user groups plan to do more meetings and interactions in future as well. Each group emphasized on the need of *in situ* conservation programs in the MAPs rich community forest and *ex situ* programs in the community forest having less native medicinal plants but more bare land or marginal lands.

Activities 3.3. Formation of MAPs monitoring team:

A Following the commitments done by the community forests groups of Mangtang, Teganche and Tatopani villages of north Chilime in the inception meeting (November 10, 2006) organized in Thambuchet Chilime, the local communities organized one day, village level workshop in the Mangtang Village on 2nd February 2007. This workshop was done after about three months long gap due to snow fall in the villages, but provided very good opportunities for the forest users to decide what to do next and make them prepare in advance for following years collection of herbs. The workshop was attended by more than 40 community forest users representing six community forests of Brapche, Mangtang, Tetangche, Tatopani, Gongau and Paragaun villages. The workshop was also participated by local NGOs working in different sector of social services. More than fifty percent of women



Fig. 6. Community Forest User Groups of Mangtang discussing for making MAPs monitoring team

participants were actively involved in the discussions. This interactive workshop focussed its discussions mainly on the role of community forest user groups, traders, ESON, MSN, FECOFUN, Village Development Committee for the sustainable utilization and conservation of Medicinal plants of Chilime.

Achievement 3.1.

Six community forest user groups, within the core areas of medicinal plants rich habitats in the northern Rasuwa, are very serious on the increasing pressure in their medicinal plants resources of the community forests. These forests are also common grazing place for the yaks and flocks of sheep owned by the people of neighboring VDCs too. So they discussed thoroughly to manage the forest resources by the mutual understandings with the concerned people. Further, they develop plan to formulate rules under the community forest management plan both for the users of own community forest (CF) and other CFs as well. Communities were trying to provide adequate information on the sustainable harvesting, value addition and maintaining the quality of the herbs.

Achievement 3.2.

In the context of comparatively good quantities of medicinal plants in the district, they realized to incorporate medicinal plants in the community forest operation plan and decided to form 'medicinal plants management and conservation committee' to take care of the medicinal plants of the community forests.

Activities 3.4. Conduction of Free Herbal Health camp and Awareness raising campaigns:

Rasuwa district occupying by tall Himlayan peaks is rich in biodiversity and Tamang traditions.

Annually more than 10-20,000 foreign tourists from different parts of world visit this area and number is increasing after the restoration of peace in Nepal. Obviously, the tourists are major source of income for the people inhabiting along the trekking route but the pressure of tourists in the biodiversity is an alarming problem in Rasuwa. Langtang National Park is not only rich in biodiversity but also an unique assemblage of natural beauty. Many small glacial lakes above 4000 m are attractive destination for the tourists. These lakes, full of crystal clear water, carry both beauty and religious value. Annually more than 50,000 Hindu and Buddhist pilgrims visit this Holly lake. This area is also regarded as the very good zone of medicinal and other alpine plants, and several species are in high threats from the pilgrims. Along the route of lake, collection of herbs during the fair time by the pilgrims is very common. Due to hazardous collection most of the herbs are hardly seen along the route. To raise awarness among the pilgrims and make the people more responsible for developing guardianship of the resources, we had organized "Free Herbal Health Care Camp and Awareness Raising Campaign" from August 25-29, 2007.



Fig. 7. Pilgrims getting free herbal health care in the camp

Two free herbal health camps were conducted at the



Fig. 8. Providing medication to the pilgrims

height of 3500m in Cholangpati and 4400 m in Gosaikunda near the holy lake. Pilgrims having problems like altitude sickness, headache, leg pains were checked by the herbal doctors and prescribed herbal medicines. Many pilgrims were provided services like massage by herbal oil and paste. The Scouts and Red Cross volunteers were mobilized to check the health condition of the pilgrims and take them

in the camp if any serious case found. About 1000 pilgrims were served during the fair. The camp was very successful in terms of getting the positive response of pilgrims and the local peoples as well. Observation during the fair revealed that people are highly concerned in the use of herbal medicines and showed their positive attitude towards the conservation of medicinal plants of Langtang National Park.

Similarly, to reduce the plucking of flowers, collection of plants by pilgrims, and to make the area clean and to provide many useful information about altitude sickness and importance of biodiversity and herbs, we had launched awareness raising campaigns in all over the route from Dhunche to Gosaikunda Lake. The pamphlets printed in the Nepali language were distributed to the pilgrims and attractive posters/banners were sticked/hanged along the route. Pamphlets



Fig. 9. Highly threatened plant *Saussurea gossypiphora* selling by hawker to offer God Shiva

and posters tried to deal in the precautions needed for altitude sickness and some preventive measures for that. Scout volunteers and the staffs of MSN were actively involved in the distribution of the pamphlets to the pilgrims. The half A4 paged pamphlets printed in both side made more informative in terms of important information on altitude sickness, importance of medicinal herbs and biodiversity conservation of the area, existing threats on the plants of the area from the pilgrims and some important address and phone numbers at the time of emergency. The campaign was organized in close collaboration with Gosaikunda Management Committee, Nepal Army of Dhunche, Scout of Dhunche, and Nepal Red Cross Society, Dhunche.



Fig. 10. Pilgrims collecting plants, (1., 2. *Rhododendron anthopogon*, 3. *Juniperus indica*)

Achievement

Pilgrims and local people were found more concerned on the conservation of medicinal plants. According to Gosaikunda Fair management committee, the health camp and awareness raising campaign had significant impact on the reduction of collection of plants in the route and increased disposal of wastes in the proper place in this year.

Objective 2. To know the Medicinal plants species availability, their distribution, regeneration, local use, trade and livelihood of local people.

Activities. 3.5. Community Based Ethnographic Research: The key principle of ESON is to suggest and implement project activities entirely based on the ground realities and nature of the

Important medicinal plant areas. Laying in the same principle, the research team of the project conducted series of ethnobotanical and ecological studies to assess the local uses and trade value of medicinal plants, their population dynamics and distribution pattern in the study areas. Each study was done based on widely used methodologies, the data were analysed and the result acquired was fitted to the successive activities of the project. Allmost all the studies done were very useful to shape the project activities.



Fig. 12. Community people collecting ethnobotanical knowledge



Fig. 11. Consultation with local people

The field research was accomplished and the result was widely discussed and circulated within the ESON expert team, the Project Team Leader Dr. Krishna K. Shrestha and MAP expert Dr. Narendra N. Tiwari. After evaluating the survey result by the expert team of Dr. Shrestha, the result was executed to feedback to the next project activities. All the surveys and studies were parallely conducted along with the implementation of the project and the result of the survey is being used by the research associates Mr. Kamal Humagain and Ms. Saroj Yadav for their partial fulfillment of Master degree course in the form of M. Sc. dissertations. So this project supported two Master students of the Central Department of Botany, Tribhuvan university and built their capacity by giving training in the field. The studies were done involving local partners and taking the active participation of the local communities. Trade data of MAPs and Ethnobotanical use of selective medicinal plants species is given in the Annex V.



Fig. 13. Community groups involved in the Resource mapping of their CF



Fig. 14. Preparing voucher specimens of collected Medicinal Plants

Trade data of MAPs and Ethnobotanical use of selective medicinal plants species is given in the Annex V.

Achievement

Ethnobotanical studies and market surveys of the MAPs gathered enormous quantities of primary data useful for every MAPs conservation project of the Northern VDCs of Rasuwa district. Since Chilime is the major trade center of the herbs exported from Rasuwa, this data can be generalized for whole district except the illegal trade from the Langtang National Park. The data provides very clear idea for the certification of herbs that are traded from the community and national forests of the district. Furthermore, this result can be utilized to evaluate annual harvestable quantities of MAPs from the northern VDCs of Rasuwa outside the conservation area.

Objective 3. Raising awareness among local communities for the management of medicinal plants, and encourage them to institutionalize their activities from a single common team (committee) for better communication, coordination and exchange of learning's on sustainable utilization, management and growing of medicinal herbs.

Activities 3.6. Institutionalize Community Based Sustainable Utilization and Conservation of MAPs: Domestic use and trade of medicinal herbs is a long tradition in the Northern VDCs of Rasuwa district. Medicinal plants of the core area is not only the major source of income for the people inhabiting near the forests but also for the people living in the southern hills of the chilime VDCs. Annually large quantities of medicinal herbs including other Non-Timber Forest Products (NTFPs) are harvested from this area. Due to the hazardous collection of the local people, herbs available in the



Fig. 15. Community exercising for the formation of VDC level FECOFUN

margin of the forests and cultivated lands such as *Acorus calamus* L., *Asparagus racemosus* Willd., *Paris polyphylla* Sm., *Satyrrium nepalense* D. Don, *Swertia chirayita* (Roxb. ex Fleming) Karsten and *Valeriana jatamansii* Jones are highly threatened and only found in the margin of well conserved community forests or private forests. Lichens are collected in tons from the forests, so these are now only available in the undisturbed and old forests of *Abies* and *Quercus*.

Allmost all the herbs are traded unprocessed from the district and traded in the capital city or head north to the Tibetan market. Due to the lack of knowledge on sustainable harvesting, local people collect plants hazardously and grab any thing they get ahead. In one hand such kind of practice has heavily depleted the resources and in other hand they are still not getting proper prices of their resources. Nevertheless, there is a good awareness among the communities about not to collect immature herbs and illegal harvest from other community forest areas. However, due to lack of coordination between the community forests and villagers, immature herbs not collected by the users of coordinated CFs is either uprooted by the users of the other community forests or the community forest user themselves can't wait until the maturing of the herbs They know any other person will definitely pick if he/she miss the opportunity. A complete gap of trust between the forest user groups was realized. Apparently such kind of nature among villagers made them difficult to get even the lowest prices of the herbs in the market.

There are many other problems beyond the scope of community forest user groups, like the right and responsibilities of villagers. Sometimes there is a need of understanding or consensus among all the VDCs people over the large watershed or grazing meadows area for which they should discuss with great harmony. In such conditions, where coordination among the local people is needed, people were limiting themselves in not getting the proper



Fig. 16. Community Forest representative putting his view on the need of VDC level FECOFUN

knowledge and the benefits. Workshops and meetings organized in November, 2006 and February, 2007 discussed widely the need of VDC level coordination committee representing all the sixteen community forests groups of the Chilime VDC. This committee was supposed to be a common arena for all the villagers to discuss issues on medicinal plants including other issues of social service sectors. As Federation of Community Forests User Groups Nepal (FECOFUN) is one of the collaborating partners of the project, we put forward the formation of a VDC level FECOFUN incorporating of all the sixteen community forests. It was formed on March 12th, 2007 with an extensive discussion and active participation of all the forest users including, political parties representatives, traders, government officials, etc. The chief guest of the program was VDC secretary, while the program facilitator was FECOFUN, National committee member Mr. Pitamabar Bhandari.

Achievement 1.

There was a lack of collaboration and sharing of learning's among the community forest user groups which would be significantly decreased after the formation of VDC level federation. Every events, information, projects and activities present and on-going in the VDC and even in the district will be made available to all the sixteen community forests, that will then later channelized to individual community forest users by the respective community forest representatives.

Achievement 2.

Apart from the decision of individual community forest to manage their forest resources, the VDC level FECOFUN will also suggest appropriate programs for the community forests having similar kinds of resource pattern and assist to raise fund from VDC, DFO, CDO and other organizations working in the development of the forest sector of the district. Any new projects willing to work with community forests will be implemented only after assessing the need of individual community forest in the federation. As possible unnecessary similar type of activities will not be allowed to duplicate. But the success stories/ learning's of any individual community will be encouraged to replicate in every CFs.

Achievement 3.

In the context of monopoly of individual community forest and their executive bodies in the illegal felling and using the resources, any forest user can complain to the VDC level federation which is then thoroughly discussed and work together to find the solution. The solution made by the federation will then suggested to DFO for further actions. This approach will make every community forest transparent and updated their financial matter including the annual harvest plan of community forests.

Achievement 4.

Forest users are collecting all sorts of quality and grades of the herbs. There is no any uniformity in the collection of similar herbs. People are selling herbs to the traders from whom they took money in advance. So, there is not fair competition in the collection and selling of the herbs. The trade study also showed that herbs collected by the community forest users are not of same quality and they are not getting proper prices even for the best quality materials. The federation will regularly update the market price of the herbs through its central body and ESON as well, so the community forest user groups are building confidence and bargaining capacity of their herbs.

Activities 3.7. Support Conservation Activities Inside Langtang National Park:

ESON is also supporting few of the medicinal plant conservation initiatives inside the Langtag National Park. There is a close link with the medicinal plants traded from outside national park and illegally collected herbs form the national park. Due to the lack of certification in the origin of the medicinal plants, traders have to take lots of trouble in the park checkpost. Traders sometimes buy illegally harvested herbs from the national park are and mix with the herbs collected from the community forests. Furthermore, people collecting medicinal plants since long tme were prevented to collect herbs after the formation of national park and looking for alternate ways of utilizing herbs. In this regard, series of meeting have been conducted with the national park authorities and supported the medicinal plants growers too. To address this issue,, a half day workshop was organized in Syafrubesi on May 10, 2007 with the representatives of three Bufferzone management councils of Langtang National Park. The workshop was participated by altoghether 25 participants including Plantlife International Program Manager Dr. Alan Hamilton, ESON Allachy project Team Leader Dr. Krishna K. Shrestha, Project coordinator Mr. Ram C. Poudel, MSN President, Mr. Kaisang Tamang and FECOFUN district President Mr. Binod Poudel.



Fig. 17. Dr. Alan Hamilton and Dr. KK Shrestha discussing with Representative of Buffer zone council of LNP in Syafrubesi.

Achievement

Forest users of Buffer zone management councils are seeking to have alternate options in sustainable management of medicinal plants inside National Park. People are allowed to use medicinal plants for domestic purpose, but if park allowed they are ready to take responsibilities of certain areas of National park and manage its resources assuring the *in-situ* conservaion of threatened species and habitats, and regeneration of medicinal plants as well. People are more likely to grow potential herbs in their marginal lands. Few of the members have already started to grow medicinal herbs in their private land.

Objective 4. Formation of medicinal plant management and monitoring team in the village

Activities 3.8. Formation of village level medicinal plants management team: Different meetings and workshops raise awareness among the communities and user groups are now actively involved in finding better ways of managing and utilizing their resources. Despite the formulation of strict rules in the medicinal plants management plan of individual community forests and



Fig. 18. CFUGs engaged in the discussions on the management of their resources

involvement in the VDC level federation, CF groups came with the idea of formation of medicinal plants monitoring group among the CFs inside the MAPs core area of Chilime VDC. This monitoring team was formed within the 5 CFs of Mangtang, Tetangche, Simbu, Tatopani and Paragaun villages. The team organizes meeting in every month and keep minuting their decisions. In the meetings they update the situation of medicinal plants in their CFs and workout for the existing problems. Moreover, the group also invite local traders in their meetings and ask them to update the latest price of the herbs, and request to buy medicinal plants from the village. The meeting is being handled by Ms. Kabita Ghale, ESONs' local woman field staff of Tamang background. She regularly inform the progress of the meetings to ESON, MSN and FECOFUN.



Fig.19. Community participants in a monthly meeting

Achievement 1.

CFUGs of the monitoring team regularly organize monthly meeting and talk about the sustainable use of the medicinal plants of their community forest. They minute every decision made and circulate it to individual community forest, ESON, MSN and FECOFUN. Collection of the herbs have been scheduled only after complete maturation of the herbs. All the community forests under the team have developed a system of providing collection permit to the collectors. If any villager collect herbs in the unscheduled time and non permitted areas, he/she will be penalized by the team. Every forest user group should collect herbs in the defined time and area. Not any villager can collect herbs from the neighboring village unless with written permission.

Achievement 2.

CFUGs are building confidence and bargaining capacity of their herbs. In the past, they had to travel 2-4 hours from the village down to the road head to sell their herbs. From the beginning of the ESON project and formation of monitoring team, the CFUGs are organized and they invite traders in their monthly meeting and present their commitment to provide quality materials according to the interest of the trader. The trader in turn has to collect herbs from the village and give appropriate price to the herbs based on the latest market value of the respective herbs.

Objective 5. Building capacity of Community Forest User Groups in inventory and assessment of medicinal plants to develop habitat monitoring and annual sustainable harvesting plan

Activities 3.9. Inventory of CFs: Forests of Chilime VDC are mostly occupied by the sixteen community forests. Community forests are handed over to the local villagers



Fig. 20. Training program on inventory of MAPs

according to the Forest Act 1993. In the beginning, forest was handed over simply by considering the request of the local villagers. Most of the community forests resource management plans don't represent the available



Fig. 21. Inventory team heading to the top of the hill

resources in the community forest and sometimes even the boundaries mentioned in the operation plan doesn't match in reality. Forest users are collecting herbs from their forest and are not aware about the actual quantity of the herbs present in their community forest. Though they have arbitrary idea about the resources but they are now realizing the need of quantitative analysis of their resources. District Forest office has also realized the mistakes in most of the operation plans and are ready to correct these

in the coming years. To make community forest users capable in the assessment of medicinal plants following simple scientific tactics we organized a half day meeting in Tatopani village on 10 May, 2007 and conducted one week (12-18 May, 2007) long field based training in the Kaltache Community Forest. In a week long duration, community were trained in the major methods of inventory, handling simple measuring tools, herbarium preparation, plant identification, and developing annual harvesting plan.

Resource mapping of Kaltache Forest focussing all the traded medicinal plants was done with the help of local people. Based on the



Fig. 23. Members of MAPs inventory team

map, patches of potential herbs were identified and 1 to 2 hectares sample plots were taken following the distribution range of the patches. In each big plots more than 2-3% of sampling was tried to count the herbs in the 2x2 m plots. Voucher sample of each medicinal herbs counted inside the plots were taken and prepared herbarium specimens. All the plots are stationed based on the GPS data, so that regular monitoring is possible in future. The data generated are made available to the medicinal plants monitoring team, which is responsible to evaluate the changes.



Fig. 22. Steeps of the Kaltache CF, rich in medicinal herbs where permanent plot were plotted

Achievement.

Community forest users were trained to do inventory of the resources and are encouraged to make annual harvesting plan of all the traded herbs in their community forest. Annual harvesting plan of community forest is making easiness to all the concerned authorities including national park to track the origin of the herbs. Community can make their rotational harvesting system based on the annual regeneration of the herbs in the defined area. The medicinal plants monitoring team of the core area are committed to do inventory of their member CFs in close collaboration with District Forest office wherever possible.

Activities 3.10. Revise CFs Operation Plan and Develop Annual Harvesting Plan:

All the data gathered during the inventory of the MAPs of the community forest was analysed and incorporated in the operation plan of the community forest. All the analysis was done with the regular assistance of District forest office. Mr. Ghanashyan Dhakal (District forest officer) and Ranger Mr. Prem Sapkota reviewed all the data and authorized it to incorporate under the revised 'operation plan'. ESON team and DFO office worked more than two weeks to revise the old operation plan of Kaltache forest. The new revised operation plan of the Kaltache Community Forest was provided legitimacy by the DFO in the mid September, 2007.

Achievement

Model operation plan was developed in the district. This operation plan is supposed to be a first model document probably in the country.

Objective 6. Develop appropriate market linkage of wild and cultivated herbs

Activities 3.11. Develop Market Linkage of MAPs: Trade of medicinal plants is one of the important component of trade items in Rasuwa district. People are collecting herbs since many years

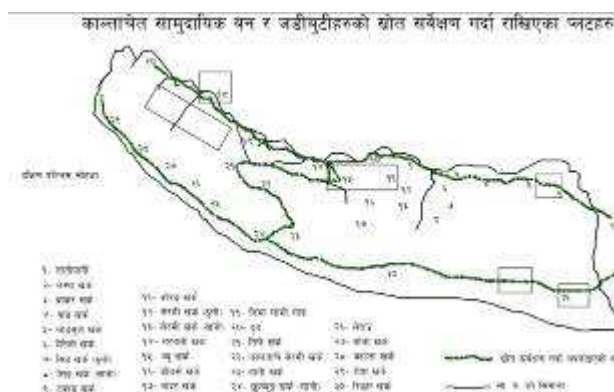


Fig. 24. MAP of community forests and detailed inventory track, plots and name of the major meadows



Fig. 25. Road head trader paying to the collector



Fig. 26. Herb collectors carrying herb down to Thambuchet

but the quality of the trade is similar as in the past. People collect herbs in what ever quantities they get at the time and sell it to the road head trader in Thambuchet. The economic status of most of the herbs collector is below the poverty line, so normally they took money in advance from the trader and pay back in the equivalent value of the herbs they sold to the traders. So, the collectors are forced to sell their herb to the same trader from whom they took the money in advance. They easily accept the price value of the herb told by the trader. Collectors hardly bargain for the value of their herbs because they are less aware or mostly unaware about the latest price. Price of the herb entirely depend on the wisdom of the trader. During the time of survey, the collectors were found less concern about the quality of the herbs and took herbs to the trader without grading. So they got same price for all the herbs sold at a time. In this context, this program had tried to highlight the importance of quality of herb and its value in the market. The CFs herb monitoring team and VDC level federation was very effective to train the communities and pass on the information of value addition to harvesters. Further roadhead traders were also trained to grade the herbs and maintain the quality. To assure the better price herb exporters and retailers were consulted in Kathmandu and developed link with the road head traders of Thambuchet. ESON team has worked as the facilitator by contacting the number of herb exporters in Kathmandu valley and even with the traders of Nepalgunj. From the series of talks, common understanding was made with herb exporters/ retailers of Kathmandu and road head trader of Thambuchet. Farmers having enough herbs can directly come with the traders and sell their MAPs of defined quality mentioned by the trader, and the trader is responsible for paying latest market price of the herbs. This market linkage encouraged many farmers, collectors of the district including road head traders. This market linkage force to provide latest herb price to the collectors by the road head traders at Thambuchet.



Fig. 27. Spikenard drying at Thambuchet

Achievement

The communities are now well aware on the quality of the herbs and latest herb prices in the markets. Both the traders and the collectors are trying to initiate fair trade of medicinal plants.

Activities 3.12. Support and Encourage ex situ Conservation of MAPs: Along with the endorsement and promotion of *in situ* conservation, this project also help community forest user groups in the *in situ* conservation of potential medicinal plants inside the community forests, in private land and marginal lands inside the national park. ESON provided seeds of 'Chiraito' (*Swertia chirayita*) to the farmers of Brapche, Simbu, Mangtang, Tetanche, Tatopani and Gongang



Fig. 29. Medicinal plants nursery in Tetangche village

villages. Obviously, the villagers have very limited land to grow their main staple food, and optimum use of available land is crucial for the people to feed their family. Many farmers are now attracted to grow medicinal herbs like Chiraita, Valerian, Asparagus, etc. In the context of limited land and production, people can't do trial farming of medicinal plants, so 'Chiraito' farming in the edge of land was suggested by the project. This practice already got great success in the eastern parts of Nepal and few farmers in Rasuwa have demonstrated its greater significances too. The farmers were well demonstrated and trained, and also regularly monitored from field preparation to sowing of the seeds. They were guided in every activity and prepared in the next procedure. This approach really got success and widely appreciated by the farmers. We have also tried to support some of the medicinal plants nurseries in the village. These nurseries are very good source of locally adapted medicinal herb seeds/seedlings and technically sound



Fig. 28. ESON supported farmer caring his Chiraito saplings



Fig. 30. Farmer growing Chiraito in the edge/margin of crop land. Wheat is grown in plain land

manpower in growing of herbs. Establishment of medicinal plant nurseries is not new in Rasuwa. District forest office Rasuwa and different projects involved in the afforestation programs and conservation of medicinal plants are most likely to encourage and support local communities in the establishment of nursery to grow fast growing timber and fodder plants including medicinal plants seedlings. Learning from different projects in Nepal showed that seeds and seedlings grown in villages are more adaptive in the local climate and environment of nearby areas. Farmers also got success in getting high yield as well as problems from pests and diseases. Further nurseries in local level are very productive and successful to raise awareness among villagers and encourage them in the *in situ* as well *ex situ* conservation of locally threatened plants. The care takers of private nursery and the community forest user groups having their own nursery are knowledgeable on the pre and post germination, regeneration and handling the local pest/disease problems on the targeted plants. These locally available manpower are easy to trained further and can mobilize in the area to extend *ex situ* programs. Communities are also better convinced in the conservation activities suggested by the local persons in their own language with the live demonstrations. ESON_Allachy project took seeds from the nurseries and supplied to the local farmers. Quantities of seeds and estimated amount of respected farmers' income are provided in the Annex IV.

Achievement

Community forest users are very excited in growing medicinal plants, resulting minimize pressure on the wild species of herbs. Some of the farmers are really doing well, whose learning can be replicated very easily in the neighboring villages. As a result, from the limited land, people are getting extra income for their household expenses.

Objective 7. Based on the resolution of the first phase of study, develop community based Action plan for follow-up project, mainly the *in situ* and *ex situ* conservation of MAPs.

Activities 3.13. Develop follow-up project activities: The project wrap up meeting was organized at Thambuchet on 6th September 2007. More than thirty five participants of all the sixteen community forests, representatives from medicinal plants monitoring team, political parties, traders, herb growers were actively involved in the meeting. This program, organized by FECOFUN Chilime, was conducted by ESON_Allachy project coordinator Ram C. Poudel. All the community representatives presented their views in the workshops, training and meetings of ESON_Allachy programs. Everybody showed their keen interest towards:



31. Parties representative putting view on MAPs conservation in the VDC

b. The CFUGs are interested to form more medicinal plants monitoring team in other CFs too, do complete inventory of the MAPs of each CFs and develop annual sustainable harvestable plan.

c. They are also willing to initiate local level herb processing unit in the village, and revise the operation and management plans of all the CFUGs

d. Increase medicinal plants domestication in every villages including marginal lands of community forests and making VDC level FECOFUN more collaborative, effective and transparent.

e. Furthermore, they found imperative to establish medicinal plants nurseries at least one between two villages and develop certification system for every quantities of herbs exported from the village.

Achievement

Community forest users are organized in ESON project area and have good vision on how to conduct both *in situ* and *ex situ* conservation programs in the village. They are very active and dedicated in the sustainable use and conservation of the resources available with them. A culture of collaboration has been developed among the communities.

a. extension of the project and suggested the necessity of similar types of few more training and workshops in some more VDCs.



Fig. 32. CF representative sharing her views on the effectiveness of ESON programs

4. Follow-up Works

1. Establishment and strengthening of Plant Information Centre in Dhunche (Annex VII).
2. Identification of Important Plant Areas (IPA) of commercially threatened medicinal plants, and study its population dynamics establishing long-term research plots inside the protected area and the buffer zone.
3. *In-situ* conservation of threatened flowering plants, with emphasis on medicinal plants and endemic plants, in the threatened habitats within the core area of the Langtang National Park and the Buffer zones.
4. Encourage local communities, especially the farmers, extremely poor and marginalized people of Rasuwa in the domestication of high value commercially potential medicinal plants in the community forests and marginalized/waste lands.
5. Continuation of organizing further trainings and workshops to raise public awareness in the identification, documentation, assessment, monitoring and conservation of the threatened plants and habitats.

5. Way forward

This project launched by ESON is funded by Plantlife International for one year (September 2006 to August 2006). The collaborative work initiated by ESON and deep rooted two local organizations got great success to motivate the communities in initiating sustainable management and conservation of the medicinal plants of northern Rasuwa. Despite busy schedule of seasonal farming and limited working days (due to long persistent snow in winter and continuous rain in summer), local people actively involved in the series of interactions, meetings and trainings organized by the project and medicinal plants group formed by them. Various programs implemented by the project are appreciated widely by District level government and non government organizations and indeed by the overwhelming participation of local communities. In this regard, the achievements of the project, such as formation of VDC level FECOFUN, medicinal plants monitoring team of six CFs in Tetangche and Tatopani area, formation of model operation plan of Kaltache CF (probably with new concept in Nepal), supporting *ex situ* conservation and increasing attention of local people in the guardianship of their forest resources etc. are evaluated very positively by District Forest office, Rasuwa, Langtang National Park (LNP), District level FECOFUN, political parties and communities themselves.

To maximize the effectiveness of conservation measures, local communities of Chilime are very keen to continue the project activities in the VDC as well as extend this project in neighboring community forest areas of Gatlang and Thuman village development committees, as well as Langtang VDC in phase wise manner.

As there is a higher possibilities of medicinal plants collection in northern Chilime by the neighboring VDCs Gatlang and Thuman, the project evaluation meeting organized by FECOFUN Chilime and MSN in Thambuchet (6 September 07) was significant. It emphasized the need of formation of Gatlang and Thuman FECOFUN, initiate medicinal monitoring group in those VDCs and collaborate with the VDC level FECOFUN and respective village level monitoring groups between the VDCs. The invited CFs representatives of Gatlang and Thuman too showed their strong interest in the formation of VDC level FECOFUN and collaboration with the Chilime FECOFUN and medicinal plants monitoring team depending upon the easiness for local villagers.

All three VDCs Chilime, Gatlang and Thuman requested the ESON_Allachy Project to extend the project duration and conduct same type of activities like capacity building of the local communities in the sustainable harvesting and management of medicinal plants in the CFs. Similarly, trainings on the MAPs inventory and nursery managements, support in certifying medicinal herbs from CFs and national park, and develop more linkages with the traders and exporters of Kathmandu and Indian border, etc. hve been appreciated. Furthermore, District forest office, Rasuwa is very concerned in the conservation activities conducted by ESON_Allachy project. Evaluating the progress on conservation and local peoples' participation in the management of community forest resources, DFO also wanted to continue this project. DFO and Langtang National Park Authority is particularly interested to collaborate with ESON and its local partners in the certification of medicinal plants through detailed inventory done as in Kaltache Community Forest, development of annual sustainable harvesting plan and encourage communities to grow highly threatened medicinal plants in their CFs.

Project Team members



Top Row From Left to Right – Mr. Ram C. Poudel (Project coordinator), Ms. Sangeeta Rajbhandary (Treasurer ESON), **Mr. Kaisang Tamang** – Local collaborator (President MSN), **Prof. Krishna K. Shrestha – Project leader** (President ESON), Dr. Narendra N. Tiwari (Vice-President-ESON), Ms. Ila Shrestha (Joint Secretary ESON)

Bottom Row From Left to Right – **Mr. Binod Poudel** – Local collaborator (President FECOFUN-Rasuwa), Mr. Kamal Humagain (Research Assistant), Ms. Saroj Yadav (Research Assistant), Mr. Yagya Rokaya (Field Assistant – MSN)

Table 1. Activities Framework

SN	Activities	Partici- pants	Targeted group	Unit	Date	Venue	Assumptions	Indicators	Remarks
1	Literature review/Stakeholder Analysis/ selection		FECOFUN NAF USC Nepal ECARDS		Sept-Octo , 06		Identification of strong local partners.	Literature survey report Checklist of possible stakeholders	FECOFUN was seen as strong collaborator
2	Preliminary data gathering	2	Local communities of Rasuwa	7 days	September, 06	Inside National park	Selection of priority areas and community for MPs conservation	Report from the team members	Kamal and Saroj's Visit → Ram C, Kamal and Binod 's visit → MSN was identified sas second strong collaborator
3	First field visit/Stakeholder meeting	3	ESON team FECOFUN	4 days	October, 06	Chilime area	Identification of strong local partners and priorities activities.	First field visit report Preliminary discussion and consensus between MSN, FECOFUN and ESON	
4	Planning workshop/Interaction	40	ESON - Team (8) FECOFUN (1) Manekor (3) CFUGs (5) Political parties (8) One Representatives of CDO, LDO, DFO/Ranger, Warden/Ranger, DSP, Major of the Army, USC/Nepal, NAF, Search Nepal,	1 day	9-Nov-06	Dhunchhe DDC Hall	This workshop will create awareness and friendly working environment in the district between all the related stakeholders/line agencies	District level interaction program List of issues regarding medicinal plant conservation and sustainable utilization in Rasuwa	→ This is more data accumulating informal meeting
5	Key stakeholder meeting	16	Warden/ranger(2), DFO/ranger (2), ESON team (8), FECOFUN (1), MANEKOR (3) CDO, LDO	4 Hr. 4PM- 7PM	9 November, 2006	Guest House	Will compile all the issues raised in the day workshop and develop program according to the consent and recommendations of DFO, Warden	Consensus on issues raised on day interaction	
6	Partner organizations meeting	7	ESON team (5), FECOFUN (1), MANEKOR (1)	2-4 Hr.	9 November, 2006	Dhunchhe, Manekor /FECOFUN office	Develop participatory program, FECOFUN and	Finalization of the Project activities	

SN	Activities	Participants	Targeted group	Unit	Date	Venue	Assumptions	Indicators	Remarks
7	Project Inception meeting	50	ESON team (8) Field Staff (1) Manekor (2) FECOFUN (1) CFUGs (5x5) Traders (5) Civil society (5)	1 day	10 November, 2006	Chilime, at Chilime health post	This inception meeting will retrieve the communities interest on MPs and also gather existing conservation activities,	→ Resource mapping of selected Community forests → Understand community's interest regarding medicinal plant management inside CF → Further finalizing the project activities	→ This meeting will know interest of community and their priority medicinal plants → Provide actual information on trade of MPs in the area as well as domestic use of MPs
8	Field assistant recruitment	1	Local people	10 months	from 15 November, 2006	Chilime		Recruitment of field staff based on Chilime by Manekor	Female Tamang candidate having secondary level education for ten months
9	Market linkage development		Traders, DFO, MAP farmers, community forest user groups		Whole project period	Rasuwa	Development of sustainable Market channel of MAPs	Sustainable market linkage,	
10	Field visit	6	ESON team (3) Field assistant (1) FECOFUN (1) Manekor (1) Community representatives	7 days	11 November, 2006	Chilime, at the working site, in each CF-s, and Users village	This community participatory field visit will gather all the field information of individual CFUGs as well as MPs related activities in and out of the Chilime VDC	→ Cross verification of data gathered during resource mapping → Report on field visits	→ Field visit is mainly concentrated to verify the information gathered in project inception meeting → Verification and cross checking of Resource mapping
11	Awareness rising program/training	15-30	ESON team (1 or 2) Field assistant (1) FECOFUN (1) Manekor (1) CFUGs (20-25)	1 day	December 2006 (13-15, Mangsir)	Chilime/ Langtang National park	This program will make communities more interested and active in our program especially to form MPs management core team	→ Short interaction program in Mangtang → Formation of Medicinal Plants Core Team from the area → Active involvement of MSN & FECOFUN to form the core team and mobilization of its staffs to monitor, strengthen core teams a	→ The program will mainly focus on creating awareness in community regarding MP conservation, sustainable utilization. → Two

SN	Activities	Partici- pants	Targeted group	Unit	Date	Venue	Assumptions	Indicators	Remarks
									programs each in Chhime and National park area will be conducted but the nature will be completely different.
12	Awareness rising program/training	15-30	ESON team (1 or 3) Field assistant (1) FECOFUN (1) Manekor (1) CFUGs (20-25)	1 day	Feb/March, 2007 (23, Phalgun)	Chhime/ Langtang National park	→ This program will make communities more interested and active in our program especially to form MPs management core team → People will knowledgeable on resource ownership and guardianship	→ Short interaction program again in Mangtang or in Tatopani area based on the achievement of first awareness rising activities in Mangtang → Formation of Medicinal Plants Core Team from the area Active involvement of MSN & FECOFUN	→ This program will be designed by FECOFUN → The program will focus on resource ownership and guardianship among communities. → Two programs each in Chhime and National park area will be conducted but the nature will be completely different.
13	Establish Information centre		CFUGs, Government officials, Scholars, Researchers, Pilgrims, Tourists, Herbal stakeholders		Establish in March and formally open in May 4 ?	Dhunche	Information Centre will be established in Dhunche in coordination with District level government officials (DDC, LDO, DFO, LNP) etc and other concerned stakeholders	Information Center in Dhunche	In the process of establishment

SN	Activities	Partici- pants	Targeted group	Unit	Date	Venue	Assumptions	Indicators	Remarks
14	Support <i>ex situ</i> activities (supply Chiraito seeds)		Community forests of Tetangche, Tatopani, Gonggaun, Simbu, Brapche, Mangtang Village		May, 2007	-	Community people will grow 'Chiraito' in their marginal lands, community forests and margins of agriculture lands	Number of community forest users involved in growing MAPs	Locally grown Chiraito seeds will be distributed
15	Field based Resource Inventory/training	15 of one CF+15=30	ESON team (7) Field assistant (1) FECOFUN (1) Manekor (1) 15 people from each CF	12 days	May, 15, 2007 (First of Jestha)	Mangtang & Tetanche community forests	This activity will assess complete figure of MPs available inside each pocket CFs	Detailed information on Medicinal plants of the inventoried CFs	This 12 days program will be conducted in two CFs (Mangtang and Tetanche) taking 5 people from each CF. - Purely research type activity will be conducted in Langtang National Park.
16	Development of operation plan of 5 communities	-	ESON team Field assistant FECOFUN Manekor 5 people from each CF DFO Ranger	1 month	May/June, 2007 (Jestha/Asar)	Chilime/Dhunche	This program will make detail Operation plan of at least five community forest user groups	Updated/new Operation Plan of active/potential CF	This fund will be provided only for those community forest people who actively involve in the MP core team and contribute in making operation plan.
17	Meeting with Bufferzone committees of Langtang National Park		MSN and Bufferzone councils	Half day	May	Syafrubesi	This meeting will assess the ongoing conservation activities done by the committees inside national parks To know the interest of committees in both in situ and ex situ conservation of MAPS	- Few interested farmers came up with proposals in growing herbs - Ready to work in a team	

SN	Activities	Partici- pants	Targeted group	Unit	Date	Venue	Assumptions	Indicators	Remarks
18	MPs Sustainable harvesting, value addition training,	110 HH	ESON team (7) Field assistant (1) FECOFUN (1) Manekor (1) HH representative from 110 HH, CFUG users	3	May/June 2007 (Bhadra)	Chilime, In each community forests/village	This field based training cum orientation class will make local people educate/aware on sustainable harvesting and value addition on the medicinal plants	→ Community involvement in the training → Community interest in the use of sustainable harvesting tools and techniques	→ Program materials also includes harvesting tools. A complete set of tools will be donated to all five CFUGs after orientation training
19	Program evaluation/Monitoring	4	ESON team (1) FECOFUN (1) Manekor (1)	4	July, 2007	Chilime	Evaluate and monitor program achievements and activities.	Evaluation report	
20	Communities feedback collection meeting	60	ESON team (4) Field assistant (1) FECOFUN (1) Manekor (1) CFUGs representative Traders Civil society Mother groups Clubs	1	July, 2007	Chilime/ Langtang National Park	Develop follow up project activities based on the communities interest and learning from the project.	Feedbacks from community for follow up project	→ This one day feedback collection meeting will entirely community participatory. → This program will also be conducted in Langtang NP.
21	Free herbal health care camp		Pilgrims and tourist		August 25-29	Langtang National Park Area	Rise awareness among pilgrims and local communities in the importance of herbs inside the National park	- Decrease in the hazardous collection of MAPs on the way to Gosaikunda lake and its surrounding.	Will be conducted in collaboration with FECOFUN, MSN, National Park, Nepal Scouts, Nepal Army, Goasikunda development Committee

SN	Activities	Participants	Targeted group	Unit	Date	Venue	Assumptions	Indicators	Remarks
22	Gosikunda trail Cleaning campaigns		Pilgrims, local people		August	Langtang National Park area	Increased dumping of waste in the allocated place along the Gosaikunda trail and around the lake Rise awareness in the importance of biodiversity of national park	- Very satisfactory support from the pilgrims	
23	District level feedback collection workshop/interaction	40	ESON - Team (8) FECOFUN (1) Manekor (3) CFUGs (5) Political parties (8) One Representatives of CDO, LDO, DFO/Ranger, Warden/Ranger, DSP, Major of the Army, USC/Nepal, NAF, Search Nepal,	1 day	August, 2007	Dhunchhe DDC Hall	→ This full day workshop will disseminate/share project achievements, learning's and problems faced. → Collect more feedbacks from major stakeholder/line agencies to make follow up project activities suggested by local	Interaction workshop in Dhunchhe	→ This meeting will be a good exercise to make follow up project realistic
25	Regular community meeting		Field assistant (1) MSN FECOFUN ESON (some times) MPs coordination committee members	2-3 hr in each months for 10 months		Chilime	This regular meeting conducted by field assistant will work on gathering of local issues on MPs and develop a good MPs monitoring system between CFs involved in the committee	Community meetings and minuting in the registers provided by ESON	This meeting will also inform communities about future programs and make them ready for it.
24	Final report preparation and submission	3	ESON - Team (3)	1 month	August, 2007	Kathmandu	Develop excellent project report	Final report	

Table 2. Local use of Medicinal Plant in Gatlang, Chilime and Thuman Village Development Committee of Rasuwa (Yadav, 2007)

SN	Name of Species	Local Name/Tamang name (T)	Family	Parts Used	Uses	Name of Place	Mode of Use
1.	<i>Aconitum ferox</i> Wall.ex Seringe	Bikh (T)	Ranunculaceae	Root	Uric acid, orthopaedic use	Chilime Thuman	Paste
2.	<i>Arisaema flavum</i> (Forssk.) Schott.	Sarpako Makai	Araceae	Root tubers, flowers	Stomach pain	Chilime, Thuman	Paste and Juice
3.	<i>Anaphalis contorata</i> (D.Don)Hook.f.	Buki phul	Compositae	Flower, leaf	Chest pain, inner bleeding	Gatlang	Juice
4.	<i>Asparagus racemosus</i> Willd.	Kurilo komo, Kobi (T)	Liliaceae	Root	Fermentation, diarrhoea fever tonic	Chilime, Thuman	Paste
5.	<i>Astilbe rivularis</i> Buch.-Ham.ex D.Don	Thuloausadi	Saxifragaceae	Root/leaf	Menstrual disorder	Chilime	Paste
6.	<i>*Aconitum spicatum</i> (Bruhl).Stapf.	Bikma, Bingma, Nyamen, Bishjara (T)	Ranunculaceae	Root	Poison, joint pain and stomach Disorder of animals, Fever	3 VDCs	Juice Paste
7.	<i>Artemesia indica</i> Willd.	Titepati Surchent (T)	Compositae	Leaf and stem	Fever, remove tape worm	Chilime, Gatlang	Juice
8.	<i>*Acorus calamus</i> L.	Seda (T)	Araceae	Rhizome, leaf	Cough/coal, insecticide	3 VDCs	Paste
9.	<i>Berberis asiatica</i> Roxb.ex.DC.	Chutro Yansingba (T)	Berberidaceae	Stem	Eye pain	Chilime	Powder

10.	<i>Berberis aristata</i> DC.	Yansingba (T)	Berberidaceae	Root	Fever	Thuman	Paste
11.	<i>Berberis aristata</i> DC.	Chutro	Berberidaceae	Stem	Swelling pain	Gatlang	Paste
12.	*<i>Bergenie ciliata</i> (Haw.) Sternb.	Pakharved Brasen (T)	Saxifragaceae	Stem root	Eye pain, cut and wounds of animal	3 VDCs	Paste
13.	*<i>Boschniakia himalaica</i> Hook.&Thomson ex Hook.f.	Thomasin, Kangdol (T)	Orobanchaceae	Leaf	Gastric	Gatlang	Powder
14.	<i>Bistorta affinis</i> (D.Don) Greene	Muakui (T)	Polygonaceae	Root leaf	Diarrhoea/ dysentery	Chilime	Paste
15.	<i>Cannabis sativa</i> L.	Wang, Sima ganja (T)	Cannabaceae	Stem	Stomach pain	3 VDCs	Raw
16.	*<i>Cordyceps sinensis</i> (Berk.) Sacc	Yarshagumba	Hypocereaceae	Whole plant	Tonic	3 VDCs	Juice/ Paste
17.	<i>Cinnamomum tamala</i> (Buch.-Ham.) Nees &Eberm.	Singding (T)	Lauraceae	Leaf bark	Vomiting	3 VDCs	Paste
18.	*<i>Dactylorhiza hatagirea</i> (D.Don) Soo	Ompolakpa (T)	Orchidaceae	Root tubers	Heal wounds, cuts and burns, stomach pain	3 VDCs	Paste
19.	*<i>Delphinium himalayai</i> Munz	Nirmansi Bongmar (T)	Ranunculaceae	Root	Fever, headache, cough/cold	3 VDCs	Paste
20.	<i>Dioscorea deltoidea</i> Wall.ex.Griseb.	Bhyakur	Dioscoreaceae	Root	Worm	Thuman	Paste
21.	<i>Ephedra gerardiana</i> Wall.ex.Stapf.	Somlata	Ephedraceae	Stem	Asthma	3 VDCs	Juice
22.	<i>Entada rheedei</i> Spreng.	Pangram (T)	Mimosaceae	Whole	Pain relief of bone	Gatlang	Paste

					plant							
23.	Eupatorium adenophorum Spreng.	Banmara	Compositae		Leaf	Cuts/wounds	Gatlang				Juice	
24.	Fraxinus foliribundan Wall.	Kipsil (T)	Oleaceae		Leaf	Body pain	Chilime Thuman				Juice	
25.	*Frittelaria cirrhosa D. Don	Kakoli, bimo (T)	Liliaceae		Whole plant	Gastric/ stomach pain	Chilime				Paste	
26.	Pteris biaurita L.	Ratounyu	Asclepiaceae		Root	Aaunpareko	Chilime, Gatlang, Thuman				Paste	
27.	Geranium sp.	Gurije, Sangmen (T)	Geraniaceae		Root	Cuts/ wounds	Gatlang				Paste	
28.	Gentiana capitata Buch.-Ham. ex D. Don	Pangennomta (T)	Gentianaceae		Whole plant	Poisoning and diarrhoea	Gatlang				Paste	
29.	Hippophae salicifolia D. Don	Dalaechuk	Elaeagnaceae		Fruits	Cough, gastric, women menstrual disorder	Gatlang Chilime				Paste	
30.	Hippophae tibetana Schtdl.	Taru (T)	Elaeagnaceae		Fruits	Diahorrea	Thuman				Paste	
31.	Juglens regia L..	Okhar	Juglandaceae		Nuts	Body fresh-up	Thuman Gatlang				Juice	
32.	Juniperus recurva Buch.-Ham ex D. Don.	Sukpa (T)	Cupressaceae		Fruits	Throat pain	Chilime, Gatlang, Thuman				Juice	
33.	Lindera nessiana (Wall ex Nees) Kurz.	Kurum (T)	Lauraceae		Seed	Diahorrea	Thuman				Juice	
34.	Lonicera myrtillus Hook. f. & Thomson	Taktak (T)	Caprifoliaceae		Root	Fever	Chilime, Gatlang, Thuman				Paste	
35.	Lyonia ovalifolia (Wall.)	Tamasing (T)	Ericaceae		Leaf	Boils and wounds	Chilime, Gatlang,				Paste	

48.	Rhododendron anthopogan D. Don.	Sunpati	Ericaceae	Flower	Cause high altitude, High altitude sickness	Chilime, Gatlang, Thuman	Juice
49.	*Swertia chirayita (Roxb.ex Fleming) Karsten	Chiraito Timda (T)	Gentianaceae	Whole Plant	Fever, headache	Chilime, Gatlang, Thuman	Juice
50.	*Swertia multicaulis D. Don	Sarmaguru (T)	Gentianaceae	Whole plant	Fever, cut/wounds headache	Chilime, Gatlang, Thuman	Paste
51.	Taxus wallichiana Zucc.	Silding (T)	Taxaceae	Stem/leaf	Stimulant, Respiratory relief	Chilime, Gatlang, Thuman	Paste, Juice
52.	*Valeriana jatamansi Jones.	Sugandhawal Lungbe (T)	Valerianaceae	Rhicome	Cough/cold, Throat pain	Chilime, Gatlang, Thuman	Paste
53.	Vitex negundo L.	Simali	Verbenaceae	Seed	Worms relief	Chilime, Gatlang, Thuman	Paste
54.	*Zanthoxylum armatum DC.	Promo (T), Timur	Rutaceae	Fruit	Gastric	Chilime, Gatlang, Thuman	Paste
55.		Gurije		Root	Fever, cut and wounds		
56.		Yajemo		Root	Fever, stomach pain, heart pain		
57.		Brashin		Whole plant	Cuts/wounds, Bodypain		
58.		Silingpralbu		Roof	Diarrhoea		
59.		Wangyang		Leaf	Stomach pain		
60.		Wamarbu/Tamta		Root	Treat blood dysentery		
61.		Yakim		Root	Fever		
62.		Mahaguru			Fever (stomach pain)		
63.		Ayzibi		Root	Fracture		

64.		Sunga		Root	Tonic	
65.		Siding		Leaf (stem)	Respiration relief	
66.		Pe		Leaf	Blood pressure/fever	
67.		Tomasing		Leaf	Wounds with water	
68.		Govo, Taru		Fruit	Diahorrea	
69.		Jaktak		Root	Fever	
70.		Chandan			Worshipping	
71.		Tajguru		Root	Fever	
72.		Wana		Rhizome	Fever	
73.		Khuimta		Stem	Fever	
74.		Nigirjale		Root	Fever	

* Highly Traded Medicinal Plants in Rasuwa

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Table 3. NAME AND ADDRESS OF THE FARMERS SUPPORTED FOR CHIRAITO (*Swertia chirayita*) GROWING

S.No	Name of Participant	Address	Species cultivated	Area in Ropany	Estimated Qty in Kg	Remarks
1	Bahadur tamang	Chilime 4	Chiraita	1 ropany	25 Kg steam, 2 Kg seed	Trained person
2	Besar tamang	Chilime 5	Chiraita	2 ropany	50 Kg steam, 4 Kg seed	New farmer
3	Chimo tamang	Chilime 5	Chiraita	2 ropany	50 Kg steam, 4 Kg seed	New farmer
4	Chyangba dup tamang	Chilime 4	Chiraita	1 ropany	25 Kg steam, 2 Kg seed	Trained person
5	Dawa chenjim tamang	Chilime 4	Chiraita	3 ropany	75 Kg steam, 6 Kg seed	New farmer
6	Dawa chenjom tamang	Chilime 4	Chiraita	0.5 ropany	12.5 Kg steam, 1 Kg seed	Trained person
7	Dindup wangdi	Chilime 4	Chiraita	2 ropany	50 Kg steam, 4 Kg seed	New farmer
8	Gombo dorje taman	Chilime 4	Chiraita	0.5 ropany	12.5 Kg steam, 1 Kg seed	Trained person
9	Kale tamang	Chilime 5	Chiraita	2 ropany	50 Kg steam, 4 Kg seed	New farmer
10	Kami chenjom tamang	Chilime 4	Chiraita	3 ropany	75 Kg steam, 6 Kg seed	New farmer
11	Kami shya tamang	Chilime 5	Chiraita	2 ropany	50 Kg steam, 4 Kg seed	New farmer
12	Kami sitar tamang	Chilime 5	Chiraita	2 ropany	50 Kg steam, 4 Kg seed	New farmer
13	Lakpa dindup tamang	Chilime 4	Chiraita	1 ropany	25 Kg steam, 2 Kg seed	Trained person
14	Lakpainggi tamang	Chilime 4	Chiraita	0.5 ropany	12.5 Kg steam, 1 Kg seed	Trained person
15	Lha bri tamang	Chilime 5	Chiraita	2 ropany	50 Kg steam, 4 Kg seed	New farmer
16	Malangjom tamang	Chilime 4	Chiraita	4 ropany	100 Kg steam, 8 Kg seed	New farmer
17	Mingmar tamang	Chilime 4	Chiraita	1 ropany	25 Kg steam, 2 Kg seed	Trained person
18	Mingmar tamang	Chilime 4	Chiraita	1 ropany	25 Kg steam, 2 Kg seed	New farmer
19	Nangdang tsering tamang	Chilime 4	Chiraita	1 ropany	25 Kg steam, 2 Kg seed	New farmer
20	Nanggang chiring tamang	Chilime 4	Chiraita	1 ropany	25 Kg steam, 2 Kg seed	Trained person
21	Nima tamang	Chilime 5	Chiraita	4 ropany	100 Kg steam, 8 Kg seed	New farmer
22	Norchel tamang	Chilime 6	Chiraita	3 ropany	75 Kg steam, 6 Kg seed	Trained person
23	Nurpu tsering tamang	Chilime 5	Chiraita	2 ropany	50 Kg steam, 4 Kg seed	New farmer
24	Pasang wangdi tamang	Chilime 4	Chiraita	0.5 ropany	12.5 Kg steam, 1 Kg seed	
25	Pempa chomo tamang	Chilime 5	Chiraita	2 ropany	50 Kg steam, 4 Kg seed	New farmer
26	Phinjo tamang	Chilime 4	Chiraita	0.5 ropany	12.5 Kg steam, 1 Kg seed	Trained person

27	Ralpa tamang	Chilime 4	Chiraita	1 ropany	25 Kg steam, 2 Kg seed	
28	Sampa dindup tamang	Chilime 4	Chiraita	3 ropany	75 Kg steam, 6 Kg seed	Trained person
29	Sampa tamang	Chilime 4	Chiraita	0.5 ropany	12.5 Kg steam, 1 Kg seed	Trained person
30	Sarki tamang	Chilime 5	Chiraita	2 ropany	50 Kg steam, 4 Kg seed	New farmer
31	Selkar tamang	Chilime 4	Chiraita	0.5 ropany	12.5 Kg steam, 1 Kg seed	Trained person
32	Sem dorje tamang	Chilime 5	Chiraita	2 ropany	50 Kg steam, 4 Kg seed	New farmer
33	Singghi namghyal tamang	Chilime 4	Chiraita	1 ropany	25 Kg steam, 2 Kg seed	Trained person
34	Sonam darpo tamang	Chilime 4	Chiraita	7 ropany	175 Kg steam, 14 Kg seed	Trained person
35	Sonam Duche tamang	Chilime 5	Chiraita	2 ropany	50 Kg steam, 4 Kg seed	New farmer
36	Talpin tamang	Chilime 4	Chiraita			Trained person
37	Tapcha tamang	Chilime 5	Chiraita	2 ropany	50 Kg steam, 4 Kg seed	New farmer
38	Thulo kami tamang	Chilime 4	Chiraita	0.5 ropany	12.5 Kg steam, 1 Kg seed	Trained person
39	Urlama tamang	Chilime 4	Chiraita	3 ropany	75 Kg steam, 6 Kg seed	Trained person

20 ropany is Equivalent to 1 hectare

Table 4. Non Timber Forest Products (NTFPs) traded from Rasuwa district (2006-2007)
Traders name: Karsang Tamang & Kami Dorze (Thambuchet) Advance to the traders: NRs. 500-2000

SN	Scientific/Nepali Names of NTFP	Tamang name	Collection area/VDCs	Number of households engaged in the collection of MAPs													Yearly harvest Qua.		Post harvest process	
				Chilime VDC									Gatlang	Goljung	Thuman	Trader	Collector			
				1	2	3	4	5	6	7	8	9								
1	<i>Swertia chirayita</i> (Roxb. ex Fleming) Karsten (Chiraito)	Timita	Chilime, Goljung, Gatlang, Thuman	2-3	4-5	30-40	20-25	2-3	5-7	4-5	6-7	10-15	20-25	2006 and 07	2000-3000	Dry	Dry			
2	<i>Delphinium himalayai</i> Munz/(Nirmansi)	Bongmar, Wongmar	4,5, Thuman, Gatlang			30-40	20-25						1-2	50-100	50-100	Dry	Dry			
3	<i>Aconitum heterophyllum</i> Wall. ex Royle./(Bishma)	Bingma	4, 5, Gatlang										4-5	50-80	50-80	Dry	Boil			
4	<i>Aconitum ferox</i> Wall. ex Ser./(Bish Jara)	Niyamen	4, 5, Gatlang			30-40	20-25	1-2	1-2					2000-3000	2000-3000	Dry	Boil			
5	<i>Nardostachys grandiflora</i> DC. /(Jatamansi)	Pangpe, Lahape	4, 5, Gatlang, Thuman			30-40	20-25	1-2	1-2				20-25	4000-5000	4000-5000	Dry	Dry			
6	<i>Acorus calamus</i> L./(Bojo)	Seda	Chilime, Goljung, Gatlang, Thuman	1-2	2-3	4-5	30-40	20-25	2-3	5-7	4-5	6-7	10-15	500-1000	500-1000	Dry	Cut/Dry			
7	<i>Valeriana wallichii</i> Jones. /(Sugandhawal)	Lungbe	Chilime, Goljung, Gatlang, Thuman											500	500	Dry	Dry			
8	<i>Lichen/Jhyau</i>	Po	Chilime, Goljung, Gatlang, Thuman	1-2	2-3	4-5	30-40	20-25	2-3	5-7	4-5	6-7	10-15	10000-15000	10000-15000	Dry if needed				
9	<i>Patis polyphylla</i> Sm./(Satuwa)	Kalchyung												100	100					

Financial report (Provided in separate page)

Table 5.

Non Timber Forest Products Information Centre in Dhunche

During the Inauguration workshop of ESON_Allachy project in November 9, 2006 participants representing 20 organizations including Central District Office, District Forest Office, Langtang National Park, Community Forest User Groups, herb traders, traditional healers identified the need of the establishment of medicinal plants information center in the district so that resource ownership and guardianship will be developed among civil society of Rasuwa.

The information center will be the repository of all kinds of plant related information in the form of herbarium materials, museum specimens, literatures of high value non-timber forest products, highly threatened and endemic plant, ethnobotanical knowledge and plant related activities in the district.

Rationale

Rasuwa district at an altitudinal range of 900 to 7410 m occupies 1544 sq km land area comprising 47% high Himalaya, 50% high mountain and 3% mid mountain. This district is one of the biodiversity rich natural habitats of unique flora and fauna in the central Himalaya at the Nepal-China boarder. Tamang and Yolmo ethnic people are the dominant inhabitants of Rasuwa. Livelihood of about 60-70 percent of the people living at the northern VDCs of Rasuwa entirely depend on the income from the collection of medicinal plants in wild.

Over harvesting of medicinal plants, overgrazing, forest fires, encroachment in the natural habitats are causing excessive decrease in the richness of the high value plants together with degradation of the important habitats. Despite many programs focused on MAPs and NTFPs in Rasuwa there are not any outstanding outputs so far achieved in this sector. To address this issue, a step forward action is identified by the concerned organizations and civil societies of this district on the sustainable utilization and conservation of the plant resources.

Expected outputs

- Repository/library of all the researches, study reports, theses, articles published/written on the natural resources of Rasuwa and some selective references of Nepal and abroad as well.
- Model nursery maintained by information center which helps to disseminate *in situ* and *ex situ* information within and neighboring district.
- Plant and NTFP database of the district.
- Common venue to organize meetings, seminars, workshops, trainings on medicinal plants in the district.
- Center will also take initiatives for the development of Operation Plans of Community forests of the districts incorporating detailed information of sustainable utilization plan of NTFPs and information on biodiversity (both flora & fauna).
- Develop Local Resource Persons (LRPs) for the NTFP inventory, general research on MAPs, socio-economic studies, medicinal plants nursery preparation and management, herbarium preparation and management and biodiversity monitoring.
- Minimize the duplication of work and increase the replication of successful learning in the district.

Sustainability

Information center will be operated and managed by Federation of Community Forest User groups Nepal (FECOFUN) Rasuwa unit and Manekor Society of Nepal (MSN) in the local level and Ethnobotanical Society of Nepal (ESON) will take care on the updated information in the form of literatures, museum specimens etc.

As medicinal plant conservation and support alternative income generating programs in the district, is one of the priority activity of District Development Committee (DDC) Rasuwa, the centre is also supported by DDC Rasuwa. Similarly there will be active role of District forest office, Langtang National Park and Village Development Committees and organizations working in the nature resources management of the district.

Information center will charge nominal amount for visitors who use (photocopy) literature, use database for research/study, use information center room for conducting workshop, trainings, seminar. The collected amount will be used for the office management, buying literatures and nursery management.