Miracle berry changing lives at the Top of the World

General Project Description

The seabuckthorn project should serve as one measure to safeguard medicinal plants and the biodiversity of Nepal and as a sustainable income source for local people, since it is directly addressing poverty faced by local communities. Seabuckthorn is a highly nutritious multi-functional plant resource (containing Vitamins C, E, beta-carotene and flavonoids along with omega-3-fatty acids) with ecological/ environmental, economic and social benefits.

Therefore HimalAsia has started in 2003 in Mustang, Nepal, to establish three seabuckthorn-nurseries. This programme was initiated in cooperation with two community based cooperatives/committees and with one Amchi family (Amchis are doctors of traditional Tibetan Medicine), who in the meantime also formed a local cooperative/committee. Each nursery received 3000 polybags containing three to four seeds. It is planned to increase the amount of seabuckthorn seeds in each of the three nurseries later, given that the local committees are looking carefully after the plantations, specially during the first two winters. It was as well planned to begin to harvest the wild growing seabuckthorn forests that are found in certain areas of Mustang in a sustainable way. The collection from wild forests for the species of seabuckthorn *Hippophea tibetana* and of seabuckthorn *Hippophea salicifolia* in Mustang has started in autumn/winter 2004,/2005 by forming women forest biodiversity user/consumer groups, mainly from low income groups, who were trained by HimalAsia to carry out this work without overharvesting the wild forest.

The basic idea is to establish more seabuckthorn nurseries/seabuckthorn forests in different communities of Upper and Southern Mustang in Nepal to use it as an income source for the locally involved actors, and to show that this approach could serve as a model that can be replicated in other areas of Nepal, also with other medicinal herbs that could be cultivated. Since many of the local population have migrated from this relatively arid area, which on the other hand has a highly developed traditional culture, more than hundreds of years old, it would be furthermore a measure to help to safeguard this unique culture in trying to generate income here.

HimalAsia hopes that with this programme on one hand a market in Nepal itself for seabuckthorn products could be established were the local cooperatives are directly benefitting from and small and medium sized enterprises might develop. In this regard it is important to remark that a large market for seabuckthorn juice could be developed locally and seabuckthorn seed-oil could e.g. be used to treat patients with burns and scars in local hospitals more efficiently and less costly as with usual medicine/treatment. On the other hand it is expected that international companies will buy in future products from the local cooperatives - for example seabuckthorn oil for medicinal and cosmetic purposes, that will be processed directly in Nepal by using mobile oil machines that will be used by the different local cooperatives.

The berries of seabuckthorn in nurseries can be harvested the first time after five years and would be afterwards a reliable cash crop for decades. The involved locals were trained by HimalAsia how to take care of these seeds/plants. Besides, they will be trained in the coming three years how to prepare juice out of the berries, to be able to

sell this juice later to foreign trekkers and to the local population who know about the nutritional value of the juice, since awareness campaigns in this regard have been conducted in the last two years. Besides, tea will be prepared out of the leaves and pulp of the berries and special Amchi remedies will be developed in combination with other medicinal herbs. Furthermore it is planned to get seabuckthorn-pulp and seed oil (first we are starting with seed-oil) out of the remaining trester from the juice preparation which can be used for medicinal and cosmetic purposes. HimalAsia has been already able to produce the first batches of extracted seabuckthorn seed-oil together with RECAST (Research Centre for Applied Science and Technology, Tribhuvan University, Kathamndu) ; but moreover for future it is planned to purchase special mobile oil-machines for processing oil from trester directly in Nepal, which would decrease the involved costs significantly and help the local communities to benefit directly from the sale of oil.

Project Implementation up to now

1)Three co-operatives – the Ku Tsab TerNga Monastery Committee of the village of Thini, the Lekshey Choeling Chunmay Lobta Nunnery School Committee of the village in Tsarang as well as the Amchi Clinic Committee of Tiri, Upper Mustang, have been involved in the seabuckthorn programme, after they had requested HimalAsia to become partners, and accordingly three seabuckthorn nurseries have been established. It was planned together with these local actors to enlarge these nurseries in 2005/2006 (buying and planting more seeds) after this first phase was implemented successfully.

2) It is intended to establish more seabuckthorn nurseries in Mustang: after the first two years of introducing seabuckthorn nurseries in Mustang were a successful example, in 2005 it was decided that HimalAsia, after having been requested, would start a new partnership with the Ama Sama Group (Mother Group) of the village of Larjung and implemented in spring 2005 a new nursery at this village, in order to have an independent income resource for future in addition to the already existing wild seabuckthorn forest, which is relatively small in that area.

3)Furthermore in autumn 2004 two Women Forest Consumer Groups were formed in Lete/Kalopani and in Larjung, who were trained how to collect seabuckthorn in a sustainable way in the wild forest. These women belong to poor families of that area, who are able to generate income in this way. In autumn 2004 these two groups started for the first time to pluck seabuckthorn berries in the wild forests of Lete/Kalopani and Larjung collectively in order to make berry juice for sale and especially to get seeds and pulp of the remaining trester that was seperated for this purpose, to be able to make oil out of it later. The trester/seed/pulp of seabuckthorn was sold then to HimalAsia, who transported it to Kathmandu in order to prepare tea and get oil out of it.

All women were registered, the trester was weighed, paid and documented – all this also in order to prepare them as well for a certifying process and to have all procedures documented transparently; and they were taught before how to carry out this work without overharvesting the wild forest. The collection of seabuckthorn-berries was carried out under the surveillance of HimalAsia in collaboration with the local government institutions. In this way future certification for transparency of the

seabuckthorn products collected in the wild can be guaranteed. Futhermore HimalAsia introduced to these groups how to produce herbal tea made out of the remaining seabuckthorn pulp. This tea was already successfully sold to trekkers in Mustang and supermarkets in Kathmandu in spring 2005.

4) HimalAsia has begun in 2005 to collaborate with the Sushma-Koirala Hospital in the Kathmandu Valley by starting a research-programme with extracted seabuckthorn seed-oil to treat patients with burns and scars more efficiently and less costly.

Future planning / implementation

1) HimalAsia so far has helped financially to establish seabuckthorn nurseries in Mustang, to buy seeds and necessary tools and paid the necessary trainers. It is envisaged to initiate more seabuckthorn establishments in Mustang in ten different villages but the financial recources of HimalAsia and the local partners (eventhough they are participating with their labour to establish the nurseries) are not sufficent for this endeavour.

2) Besides, HimalAsia has also started to train the local people how to harvest the wild growing seabuckthorn forests in Mustang in a sustainable way (initiated in autums 2004), in order to be able to achieve the necessary amount to produce juice and oil as soon as possible (it is very difficult to understand for the villagers to wait for five years until they can harvest for the first time their seabuckthorn berries from the nurseries. Therefore overbridging measures have to be conducted). But the training and awareness programmes of/for local people need to be intensified in the next two years (before the nurseries will be harvested for the first time), which will involve costs that HimalAsia is not able to cover completely.

3) The major hurdle in the moment that needs to be overcome is to get the right cold oil pressing machines (different types for pulp and seed oil, - but it was discussed to start to purchase seed oil machines first, according to the requirements of the market and because the local inhabitants would be able to handle these machines much easier than pulp oil centrifugal machines which are more difficult to operate and include much more knowledge and training for the locals) to install them at the local community/co-operatives villages in order to be able to process oil right at these places, so that the locally involved partners are benefitting directly from the programme. HimalAsia has started to work collaboratively in this concern with RECAST, and began to extract oil in the laboratories of RECAST; but to meet the demands of international market cold oil pressing machines are needed which are not available in Nepal/India. The best machines for this purpose can be purchased on the international market, particularly in Europe, and will include costs of around 4000–7000 EURO (depending on the size) excluding transportation fares. Therefore HimalAsia has communicated with various companies in Europe to find out, which would be the best purchase in this regard, because it is intended to start to work with such a machine in winter/spring 2005/2006 in Nepal. The Executive Director of HimalAsia was invited to visit these companies during her next stay in Europe to find out which machine would be the most suitable one; but it will be difficult for HimalAsia to cover all the included costs and therefore financial help is required which we hope could be covered in particular for the oil machine by the SEED Initiative, as they have indicated already.

Project aim taking into consideration the sustainability and efficiency of the project.

Since seabuckthorn is unlike other medicinal herbs of the Himalaya not threatened by extinction it can serve as a particularly suitable cash crop plant which will provide a sustainable income. Particularly in the Mustang area two species of seabuckthorn are found: the tall growing seabuckthorn tree (*Hippophae salicifolia*) and the small seabuckthorn bush (*Hippophae tibetana*).

1) After the initial investments for the nurseries have been made they will become self-sustainable after the first harvest through the sale of products - e.g. alone by selling juice to the locals/trekkers. The selling of seabuckthorn juice is very lucrative for the villagers, especially the lodge owners.

2) The role of the committees/cooperatives of the nunnery and monks school as well as of the Amchi clinic in Tiri – and also the one of the Ama Sama group in Larjung is to plant seabuckthorn in order to get 'products' by preparing juice and tea out of the berries and to process oil out of the trester as a sustainable income source. These partnerships will be an example for other communities, and are building up capacity, and the involved co-operatives will be able to teach other local actors in future how to implement seabuckthorn nurseries – snowball effect –capacity building, management, awareness and information will be disseminated (the establishment of the envisaged nursery in Larjung is already a result of this snowball effect). More people will be involved in future.

3) The Women Forest Biodiversity User Groups will be able to teach other local actors in future how to collect seabuckthorn or other medicinal herbs in a sustainable way in a wild forests without overharvesting the resources there. Awareness will be created. In the special partnership with HimalAsia the additional role of the Forest User Groups is to overbridge the long period of getting the first harvest of seabuckthornberries from the nurseries

4) Besides, the Mustang region and other similar areas in the Himalayas suffer from a high level of land degradation, desertification and soil erosion. As seabuckthorn plants are extremely hardy and exhibit vigorous root growth, they could play a significant role in ecological rehabilitation, and it is hoped that the project will serve to mitigarte these environmental concerns. HimalAsia in cooperation with the RECAST Institute and the Institute for Technology in the Tropics, University of Applied Sciences in Cologne, is currently using the seabuckthorn project to conduct research into the beneficial effects of the plants on soil quality, soil erosion and degradation, since threatening landslides due to climate changes occurred in Mustang and adjacent areas in the last years.

Innovative aspects of the project taking into account the technological standards and the circumstances in this region.

The area of Mustang is known well to Susanne von der Heide, Executive director of HimalAsia, since two decades. She always expected that one of the several aid organisations working in Nepal would develop a sustainable project for seabuckthorn in the remote district of Mustang, since it is growing wildly there and the prospects

for future seemed to be promising. Since no overall programme in that concern was developed she started with HimalAsia, to develop a project of her own in collaboration with the local people of Mustang. She had seen that trekkers visiting the area of Mustang were very fond of seabuckthorn juice that was offered in a few trekking lodges, since it was traditionally used, but locals had no intention to develop a constant sustainable income source out of that, for example, by also working with the remaining trester of the berries used for juice. At around the same time she participated at the first ever held international conference on seabuckthorn in 2003 in Berlin. There she received different ideas from participants from all over the world and travelled to India afterwards to visit seabuckthorn projects over there. What she learned as well was that the research on seabuckthorn and its different properties has just started, but the results are already so promising, in particular for medicinal and cosmetic purposes, that worldwide different companies are trying to get involved.

1) At the beginning information and training programs were organised for different villages/committees in Mustang, and she introduced seabuckthorn and its use and prospects for future together with officers from the Forest Department of Nepal, who knew at least something about the plantation of seabuckthorn and need officially to be involved because of Nepal's policy in this regard. All these committees are jointly responsible for the care of the seabuckthorn-nurseries and also participated with their labour in building these nurseries. Other village communities have as well expressed their wish to join the programme: but HimalAsia wanted to see first how these initial ideas with a few committees were developing in particular in winter, since in the first two years the plants need special care.

2)Another innovative part of the programme is the collection of seabuckthorn in the wi ld forest in a sustainable way. For this purpose two different women utilisation consumer groups/forest user groups have been formed in autumn 2004 who have collected seabuckthorn berries in a sustainable way as trained by HimalAsia. The process of collecting, weighing and selling of seabuckthorn berries and trester to HimalAsia has been documented thoroughly, so that the whole process will be completely transparent, which is necessary for future certification of seabuckthorn products.

3) The entrepreneurial idea is to process and produce seed oil (later also pulp oil) with mobile oil machines directly in Nepal, so that the local people will get a direct income in future and will be connected with the local and international market. Since the two species of seabuckthorn that are existing in Mustang are growing in the Himalayan area at an altitude between 2500 and 4000 meters, the quality/properties of the seabuckthorn juice and especially of the oil made from the remaining trester will be one of the best in the world (very high amount of beta-carotene, Vitamin C and E). Beside HimalAsia has send the processed seabuckthorn tea for testing to a laboratory in Germany, and the results have been excellent.

Cost/benefit - description of economic and social aspects.

1) The project directly addresses the poverty faced by the local communities – especially also the local forest user group members belonging usually to very low caste groups - by simultaneously supporting the establishment of seabuckthorn plantations as well as the collection of seabuckthorn in the wild forests in a sustainable way, and developing a market for the sale of the plant products, locally

and internationally (juice, tea, jam, amchi medicine, oil for cosmetic and medicinal purpose).

2) The project addresses social concerns in four ways:

- Income from the seabuckthorn nurseries are used directly to provide a sustainable source of income for the Lekshey Choeling Chunmay Lobta Nunnery School and the Ku Tsab TerNga Monastery, providing education to young children.
- The partnership alleviates the problem of malnutrition through the development of seabuckthorn products rich in vitamins A and C, E and omega-3 fatty acids, minerals and other active substances.
- The partnership also addresses the question of gender equality, given the involvement of three women's co-operatives in the collection, cultivation and sale of seabuckthorn products. The project also provides revenues for the education of young women at the Lekshey Choeling Chunmay Lobta Nunnery School.
- Furthermore, the partnership could play an important role for the local hospitals that are having patients with burns: the seabuckthorn seed-oil can be used to treat patients more efficiently and less costly. The Sushma Koirala/Interplast Hospital in the Kathmandu valley is using the seabuckthorn project currently to carry out more scientific research in this regard.

3) The use of seabuckthorn seed-oil in hospitals will build up capacity, bring new informations, expertise and help to sell new products.

4) The involvement of University Institutions will as well help to build up capacity, get more informations, expertise and quality control, technical support and people.

Replication potential of the project. Possible effects on the market.

The above developed ideas could be replicated 1) for seabuckthorn species in different Himalayan areas of Nepal and India; 2) for other herbal plants that are not threatened of extinction in the Himalayan area. They could serve as cash crop plants and in this way help to generate income, particularly in remote areas, which will also help to safeguard the biodiversity of Nepal. *Taxus baccata*, *Artemisia vulgaris, Acorus calamus* are medicinal plants of high value, for example.

Nepal has the potential to become one of the important suppliers of plant-based products to the world. In order to obtain this enviable status Nepal should build an infrastructure and develop a framework to pursue and implement market driven policies that create an environment largely of public-private partnerships. Participating organisations should be motivated to address such issues as biodiversity loss, the need to enhance Nepal's knowledge base in science and technology, and ensure that the opportunity for wealth generation is distributed through robust small and medium size enterprises. Opportunities for women and adult youth to engage professionally in medicinal plant programmes should be encouraged through education and training, both nationally and internationally. In the long run it should be considered to involve international organisations/companies to support to build the infrastructure for medicinal plant programmes in Nepal, which would have the capacity to lift the country out of poverty and pivot Nepal toward an era of more prosperity and sustainability for its people and its bioresources.

Budget

Item	Unit cost	Sub-total
Creating ten nurseries	3500	35000
Gardeners for ten nurseries for three years	$40/month salary	14400
Two oil-pressing machines (including delivery)	$6000	12000
Training (for all ten villages) over three years [establishing nurseries/silviculture programme and implementing hygenic standards, introducing processing and marketing]	$3000/year	9000
	Sub-total	**70400**
Global Giving overhead	10%	7040
	TOTAL	**77440**