

Evaluation Report

Name of the project

Community based participatory herbal garden

Implementing entity

Juno Pawr



Evaluated and prepared by:

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Executive summary

Many people worldwide depend chiefly on traditional, largely herbal, medicine to meet their primary healthcare needs. But deforestation created by many factors in the tropical and sub-tropical countries like Bangladesh, are threatening the medicinal plant resources. The Chittagong Hill Tracts (CHTs) once regarded as a biodiversity hotspot is losing its medicinal plants relentlessly. The Arannayk Foundation supported the project entitled “Community based participatory herbal garden” implemented by the Juno Pawr to conserve the traditional medicinal plants. The project has been running from November 2006 through December 2014. To measure the activities and impacts of the project, an evaluation activity was finished on December, 2011. The evaluation incorporated reviewing the project documents, annual progress reports and/or draft project completion report; visiting the project sites and discussing with the project staff, project participants, community leaders and other stakeholders; reviewing the achievement of the projects against the set objectives, both from the written report and field observations. To conserve the traditional medicinal plants in the CHTs, the present project was undertaken with the following specific objectives; (a) Mass awareness for biodiversity conservation and development; (b) Restoration and preservation of endangered species; and (c) Livelihood improvement through income generating activities. The impacts of the project show a partial potential of sustainability of the capacity achieved by this project. However, the good health of the corresponding conservation plots is dependent on some important factors, e.g., sustainability of the institutional support, activities altering the economic behavior of the participant, activities enforcing the conservation wisdom of the participants, etc. So, sustainability of restoring and conserving the forests depends on at least the above factors. If the project is extended for another one term, the evaluator recommends emphasizing on incorporating more traditional healers and preserving the medicinal plants in their own homesteads. The evaluator also recommends to incorporating the more monks and *Bana Bihar* to conserve the medicinal plants. Some activities facilitating the marketing of the medicinal plants will be critical to uphold the projects major objectives. The present report is critical to the decision makers of the Arannayk Foundation whether to extend the project or not. However, it is a good to measure the community based conservation of traditional medicinal plants.

Introduction

The Chittagong Hill Tracts (CHT) in Bangladesh is considered a center of bio-cultural diversity because of its richness in natural resources and cultural diversity (Halim et al. 2007). It comprises three hill districts, i.e., Rangamati, Khagrachari and Bandarban, covering 10% of the total land area of Bangladesh and 76% of the total hilly region of the country (Haque 2000). Varieties of indigenous groups live in Bangladesh, at least 12 of different socio-linguistic groups in the CHT (Levene 1999). Since time immemorial, these indigenous communities have been dependant on slash-and-burn agriculture, fishing, hunting and harvesting of forest products for their food and social security (Rasul & Thapa 2007). Forest products are an integral component of the livelihoods of the majority of rural households and are a lower, although not insignificant, component of urban households in the CHT. This region is particularly rich in herbal medicine resources (Khan & Rashid 2006). Some earlier studies regarding herbal medicines undertaken in the CHT also indicated the dependence of the various tribes on medicinal plants. Miah & Chowdhury (2003) for the *Mro* tribe, and Alam (2002) for the *Marma* tribe, reported the use of medicinal plants for different ailments. The literature review shows a huge dependence of the local people, especially the low earners, on the medicinal plants in some other parts of the world, e.g., India (Maikhuri et al. 2000; Murthy et al. 2005; Ragupathy et al. 2007; Valiathan 2006), Bhutan (Namgyel & Ghimiray 1998), Ethiopia (Yineger & Yewhalaw 2006), Brazil (Almeida et al. 2006), Jordan (Al-Qura'n 2006; Hudaib et al. 2008), Turkey (Uzun et al. 2004), Cameroon (Focho et al. 2009), South Africa (Matsabisa et al. 2009). However, deforestation in the developing countries is a serious concern because of its resulting loss of plants especially the medicinal ones (Ehrhardt-Martinez et al. 2002). It also hampers the livelihood and cultural integrity especially of the indigenous communities (Culas 2007). Community-based forest management is broadly considered as a principal strategy in nature conservation (Mannigel 2008). It becomes effective when appropriate incentives are offered to and roles are clearly defined to the participation (Sawhney et al. 2007). During the period 2000-2005, the annual rate of deforestation in Bangladesh was 0.3% (2000 ha) as stated by FAO (FAO 2007). In the meantime, many plants and animals have become extinct or endangered in Bangladesh (Chowdhury et al. 2009). The hilly areas of the CHTs are subject to severe degradation due to overpopulation, shifting cultivation and extension of agriculture (Salam et al. 1999) coupled with encroachment by settlers, poverty and lack of awareness (JP 2011). To conserve the local medicinal plants and traditional healing procedure is a global concern now-a-days (Hamilton 2004).

With the goal of conserving the medicinal plants in-situ and ex-situ, the Arannayk Foundation had an intervention project entitled “Community based participatory herbal garden” during the period November 2006 to December 2014. To measure the activities and impacts of the project, an evaluation activity was finished on December, 2011. The evaluation incorporated reviewing the project documents, annual progress reports and/or draft project completion report; visiting the project sites and discussing with the project staff, project participants, community leaders and other stakeholders; reviewing the achievement of the projects against the set objectives, both from the written report and field observations. The present report is critical to the decision makers of the Arannayk Foundation whether to extend the project or not. Nationally and internationally, it is good to measure the community based nature conservation intervention.

Context and objective of the project

Forests in Rangamati under the CHTs is an important biodiversity hotspot covering the tropical wet mixed forest ecosystem. The rich diversity in flora and fauna in the developed a unique forest ecosystem with numerous numbers of fountains and streams provided a nature dependent livelihood of the indigenous communities (Jashimuddin 2009). Before 3 to 4 decades, this area had a dense evergreen forest harboring innumerable biodiversity. The present decrease of the floral diversity in the Rangamati forests made a serious threat to the indigenous communities for sustaining their traditional medicare system (JP 2011). The local anthropogenic causes to deforestation along with the global effect of warming have made this situation worse off. To conserve the traditional medicinal plants in the CHTs, the present project was undertaken with the following specific objectives; (a) Mass awareness for biodiversity conservation and development; (b) Restoration and preservation of endangered species; and (c) Livelihood improvement through income generating activities.

Project activities and outcomes

From November 2006, the Juno Pawr, a non governmental development agency in Rangamati has been implementing this project in Rangamati of the CHTs. Stipulation and the present context of the most deteriorating environmental hazards and inevitability of community assessment led the Juno Pawr to undertake this project (JP 2011). The topography and the environmental stance are suitable for conservation of forest and natural resources. The indigenous inhabitants in the project area are dependent on the cultivation of the hilly slopes and natural resources. The bio-diversity of the region is at stake due to the imbalance in the environment (JP 2011). Due to cultivation of hilly slopes, a large area comes under cultivation which erases the existing nature. Continuation of this process has brought the area to the edge of disastrous situation. To achieve the objectives of the project, the details of the outputs are shown in the Table 1, Table 2 and Table 3.

Table 1: Activities and outputs to achieve the objective ‘Mass awareness for biodiversity conservation and development’ by the Juno Pawr in Rangamati.

Major activities	Output / results	Qualitative	Quantitative
Mobilization meeting	As social mobilization activities regular monthly/quarterly meeting held with project participants during fast year. On the meetings I discussed on local environmental problems such as soil erosion, water crisis, Jhum and teak cultivation and overall project implementation and management etc. The communities are more awarded about biodiversity than before time. They think and realized themselves about their problems and try to find solutions. Now they often stopped Jhum and Teak cultivation, wild animals hunting and forest firing etc.	The communities are more organized and conscious about environment.	12
Training facilitation	Juno Pawr facilitated four training programs on homestead herbal gardening in the three Hill Districts which organized by Leprosy Mission International Bangladesh. This type of initiation is a part of mass awareness for biodiversity conservation and livelihood improvement	One hundred families are going to make homestead herbal garden in this year.	04

Major activities	Output / results	Qualitative	Quantitative
	through homestead herbal gardening. The participants will make homestead herbal garden in this season by the help of Leprosy Mission.		
Involvement of traditional healers and midwife	Juno Pawr and Adibashi Boidyo Samity organized an exceptional knowledge sharing program in the 2 nd quarter of the last year (2011) as picnic. Many traditional healers and Ozas (Midwife) participated from different villages of that program. They brought many medicinal plants from their localities and discussed deeply to share their traditional knowledge each others and documented. In the program they also discussed their traditional formulas and exchanged their traditional knowledge each others. This type of program is very effective, fruitful and practical for sharing the traditional knowledge and preservation for generation to generation as the part of sound environment.	Built up good relationship and awareness among the Boidyos and exchanged their traditional knowledge.	01
Data collection and Documentation Program	In the 3 rd quarter of the last year Juno Pawr arranged a documentation program in Rangamati with traditional healers. The president of Adibashi Boidyo Samity Mr. Sukra Kumar Chakma presided on the program and was present a respected French herbal expert Dr. Bernadette and project consultant Dr. Mohiuddin. The healers gathered about one hundred medicinal plants from different localities. We discussed deeply and asked individually from every healer of species wise. We have collected and documented community wise local name, habitat, characteristics and uses of the medicinal plants.	Identification in local name, knowledge exchange and documentation	01
Primary health care training	A demonstration and orientation program was held on hygienic way preparation of decoction, extraction and suspension to the community of Hazachara village. In the purposes of, to save money, utilize the local resources and to ensure primary health care at community level. The community learnt very eagerly and committed to preparation themselves at home for primary treatment of cough problem.	The community are more aware of primary health care	01
Capacity development training	The community received training on Horticulture & Nursery management and exchange visit to Nator medicinal plant cultivation. The project staffs also received training on PRA, ODM and Value Chain Analysis.		04

Table 2. Activities and outputs to achieve the objective ‘Restoration and conservation of endangered species’ by the Juno Pawr, Rangamati.

Major activities	Output / Result	Qualitative	Quantitative
Conservation Plot of Hazachara	A conservation plot prepared by involving community in 15 acres land. There are about 200 wild and cultivated medicinal and native fruits plants are preserved and nursing by local community. Among of those plants about 20 endangered species are preserved naturally in that conservation plot. We planted Bashok, Asparagus, Nishinda and Amla in large quantity as potential and valuable species.	There are many native fruits and wild endangered medicinal species are preserved and nursing by community which are very important for nature and human beings.	01
Homestead based herbal garden	By the inspiration and mobilization of the project staffs the community planted many medicinal and fruits plants in their homesteads for IGA and meet of primary health care and nutrition demand. Juno Pawr provided technical supports and distributed seedlings to the every households.	The community meeting nutrition demand and ensured primary health care.	45
Preparation of demonstration plot at Bana Vihara	As pagoda based conservation of medicinal plants initially we started as experimental demonstration plot at Rangamati Raj Bana Vihara Hospital and Sangaram Vihara. There are about 150 different valuable species are preserved and nursing by the monks and healers. We collected those valuable species from different location in CHTs which are often using in traditional formulas for primary treatment.	A good participation and involvement of Buddhist monks on conservation of endangered medicinal plants. This plot would be used for students and researchers.	02
Homestead based conservation plot	A traditional healer named Sona Moni Chakma at Chompatoli village in Ghagra made a homestead herbal garden along with 150 different valuable and endangered species. We provided technical and nominal financial supports as incentive for collection and preservation the valuable and endangered medicinal plants. He uses those medicinal plants in his traditional formulas and distributes to others as nominal costs and free for serving tendency.	Involvement and upgrade the Traditional healers on medicinal plants conservation.	01

Table 3. Activities and outputs to achieve the objective ‘Livelihood improvement through income generating activities (IGAs)’ by the Juno Pawr, Rangamati.

Major activities	Output / results	Qualitative	Quantitative
Utilization of Revolving Fund	The respected community of Hazachara village is utilizing the revolving fund properly. From that fund they are getting benefits directly and indirectly. The community especially used the fund for the purposes of Turmeric, Zinger, and Banana cultivation and mix fruit gardening and very few for small business. Thus, their livelihood improving gradually and reducing forest dependency.	Created alternative income activities and increased income and strengthened financial management capacity than before time.	

Impacts of the project

The impacts of the projects are outlined below for all the three objectives;

1. The organized traditional healers have been aware and active in conserving the landscape and forest resources of the project area.
2. Annual income of the participants (households) of the project increases by the project interventions
3. Production of fruits, vegetables and other horticultural crops in the homesteads of the project participants increases
4. Community people kept them away to cut the Jhum surrounding the village common forest
5. Natural regeneration in the conservation plot has been increased
6. Baseline survey report under this project acted as a guideline to conduct restoration and income generation activities
7. Now the participants are more interested to conserve the community forest and other best practices.
8. Endangered medicinal plants species has been successfully planted near to the homesteads, in the conservation plot and in the Bana Vihar. The project activities are preserving around 200 different medicinal plants in Rangamati.

Sustainability potentials

The impacts show a partial potential of sustainability of the capacity achieved by this project. However, the good health of the corresponding village conservation plot is dependent on some important factors, e.g., sustainability of the institutional support, activities altering the economic behavior of the participant, activities enforcing the conservation wisdom of the participants, etc. So, sustainability of restoring and conserving the forests depends on at least the above factors. The field observation shows that conservation sites are not in good condition. The interferences by the settlers and lack of sincerity of the participants to conserve the plots made this uncertainty. The geography of the conservation plot is another bottleneck of the project activities. The remoteness of the plot from the homesteads of the participants is a cause for declining the species conservation in the plots. Including the traditional healers, making them aware and conservation practices by their initiatives is a successful activity by this project. Demonstration plot in the *Bana Bihar* is importantly

working to make the local peoples aware with a lower transaction costs. In this process, the monks are working as the critical role through their religious activities.

Weakness/Areas that need to be strengthened

The participants of the conservation plot opined that they needed more supports to find out the alternative livelihoods. More training/workshop is needed to uphold the activities. The revolving funds provided to the committee were deemed to be insufficient by the participants. So, more funds should be given to the committees for their alternative livelihood activities. However, conservation plot segment of the project is not a successful one. The evaluator thinks that this is not sustainable due to the external interferences of the settlers, and lack of sincerity of the participants. Lack of the regular marketing facilities of the medicinal plants is another bottleneck to conserve the medicinal plants. The project's documentation activities were found poor and irregular.

Recommendations

The reports and corresponding field visits show that the project has not a significant effect on restoring and conserving the forests and their surroundings. The impacts show a partial potential of sustainability of the capacity achieved by this project. However, the good health of the corresponding village conservation plot is dependent on some important factors, e.g., sustainability of the institutional support, activities altering the economic behavior of the participant, activities enforcing the conservation wisdom of the participants, etc. So, sustainability of restoring and conserving the forests depends on at least the above factors. If the project is extended for another one term, the evaluator recommends emphasizing on incorporating more traditional healers and preserving the medicinal plants in their own homesteads. The evaluator also recommends to incorporating more monks and *Bana Bihar* to conserve the medicinal plants. Some activities facilitating the marketing of the medicinal plants will be critical to uphold the projects major objectives.

References

- Al-Qura'n S (2006). Ethnopharmacological survey of wild medicinal plants in Showbak, Jordan. *Journal of Ethnopharmacology* 123: 45-50.
- Alam MK (2002). Ethnobotanical Knowledge and Indigenous Non-Timber Food Crops for Sustainable Development of Upland Farming System in the CHTs. In: *Farming Practices and Sustainable Development in Chittagong Hill Tracts* (ed N. A. Khan) pp. 155-163. Chittagong Hill Tracts Development Board, Government of Bangladesh and Village & Farm Forestry Project-International Co-operation, Swiss Agency for Development & Cooperation.
- Almeida CFCBR, Amorim ELC, Albuquerque UP, Maia MBS (2006). Medicinal plants popularly used in Xingo region-a semi-arid location in Northeastern Brazil. *Journal of Ethnobiology and Ethnomedicine* 2: 1-15.

- Carlson KM, Curran LM (2009). REDD Pilot Project Scenarios: Are Costs and Benefits Altered by Spatial Scale? *Environmental Research Letter* 4.
- Chowdhury MSH, Koike M, Muhammed N (2009). Embracing collaborative protected area management for conservation: an analysis of the development of the forest policy of Bangladesh. *International Forestry Review* 11(3): 359-374.
- Culas RJ (2007). Deforestation and the environmental Kuznets curve: An institutional perspective. *Ecological Economics* 61(2-3): 429-437.
- Ehrhardt-Martinez K, Crenshaw EM, Jenkins JC (2002). Deforestation and the environmental Kuznets curve: A cross-national investigation of intervening mechanisms. *Social Science Quarterly* 83(1): 226-243.
- FAO (2007). *State of the World's Forests 2007*. Rome, Italy, Food and Agriculture Organization (FAO), The United Nations.
- Focho DA, Nkeng EA, Lucha CF, Ndam WT, Afegenui A (2009). Ethnobotanical survey of plants used to treat diseases of the reproductive system and preliminary phytochemical screening of some species of malvaceae in Ndop Central sub-division, Cameroon. *Journal of Medicinal Plants Research* 3: 301-314.
- Halim S, Roy RD, Chakma S, Tanchangya SB (2007). Bangladesh: The Interface of Customary and State Laws in the Chittagong Hill Tracts. In: *Bridging the Gap: Policies and Practices on Indigenous Peoples' Natural Resource Management in Asia* (ed H. Leake) pp. 41-110. UNDP (United National Development Program)-RIPP(Regional Indigenous Peoples' Program) and AIPP (Asia Indigenous Peoples' Pact) Foundation, Chiang Mai.
- Hamilton AC (2004). Medicinal plants, conservation and livelihoods. *Biodiversity and Conservation* 13: 1477-1517.
- Haque M (2000). Indigenous Knowledge and Practice of the People of the Chittagong Hill Tracts in Bangladesh. In: *Of Popular Wisdom: Indigenous Knowledge and Practices in Bangladesh* (ed N. A. Khan) pp. 129-134. BARCIK/IARD, Dhaka.
- HF (2011). *Project Completion Report: Community Based Conservation of Forest Resources and Enhancing Rural Livelihood in Rangamati, CHT*. 1-10. Rangamati, Hill Flower.
- Hudaib M and others (2008). Ethnopharmacological survey of medicinal plants in Jordan, Mujib Nature Reserve and surrounding area. *Journal of Ethnopharmacology* 120: 63-71.
- Jashimuddin M (2009). *Baseline Survey Report: Community Based Conservation of Forest Resources and Enhancing Rural Livelihood in Rangamati, CHT*. 1-14. Dhaka, Arannayk Foundation.
- JP (2011). *Project Completion Report: Pilot Level Community Based Participatory Herbal Garden*. 1-6. Rangamati, Juno Pawr.
- Khan NA, Rashid AZMM (2006). A study on the indigenous medicinal plants and healing practices in Chittagong Hill Tracts (Bangladesh). *African Journal of Traditional, Complimentary and Alternative medicines* 3(3): 37-47.

- Levene M (1999). The Chittagong Hill Tracts: A case study in the political economy of 'creeping' genocide. *Third World Quarterly* 20(2): 339-369.
- Maikhuri RK, Nautiyal S, Rao KS, Semwal RL (2000). Indigenous knowledge of medicinal plants and wild edibles among three tribal sub-communities of the central Himalayas, India. *Indigenous Knowledge and Development Monitor* 8(2): 7-13.
- Mannigel E (2008). Integrating parks and people: How does participation work in protected area management? *Society and Natural Resources* 21: 498-511.
- Matsabisa MG, Spotose T, Hoho D, Javu M (2009). Traditional health practitioners' awareness training programme on TB, HIV and AIDS: a pilot project for the Khayelitsha area in Cape Town, South Africa. *Journal of Medicinal Plants Research* 3: 142-147.
- Melick D (2010). Credibility of REDD and Experiences from Papua New Guinea. *Conservation Biology* 24(2): 359-361.
- Miah MD, Chowdhury MSH (2003). Indigenous healthcare practice through medicinal plants from forests by the Mro tribe in Bandarban region, Bangladesh. *Indilinga* 2(2): 59-74.
- Murthy IK, Bhat PR, Ravindranath NH, Sukumar R (2005). Financial valuation of non-timber forest product flows in Uttara Kannada district, Western Ghats, Karnataka. *Current Science* 88: 1573-1579.
- Namgyel P, Ghimiray AC (1998). Forest the Superstore: a Case Study of Rural Peoples' Dependence on Forest Resources in West-Central Bhutan. In: *Applied Ethno-Botany* (eds R. L. Banik, M. K. Alam, S. J. Pei, and A. Rastog) Bangladesh Forest Research Institute, Chittagong.
- Oestreicher JS and others (2009). Avoiding deforestation in Panamanian protected areas: An analysis of protection effectiveness and implications for reducing emissions from deforestation and forest degradation. *Global Environmental Change-Human and Policy Dimensions* 19(2): 279-291.
- Ragupathy S, Steven NG, Maruthakkutti M, Velusamy B, Ul-Huda MM (2007). Consensus of the 'Malasars' traditional aboriginal knowledge of medicinal plants in the Vellangiri holy hills, India. *Journal of Ethnobiology and Ethnomedicine* 4: 1-8.
- Rasul G, Thapa G (2007). The Impact of Policy and Institutional Environment on Costs and Benefits of Sustainable Agricultural Land Uses: The Case of the Chittagong Hill Tracts, Bangladesh. *Environmental Management* 40(2): 272-283.
- Salam MA, Noguchi T, Koike M (1999). The causes of forest cover loss in the hill forests in Bangladesh. *Geojournal* 47(4): 539-549.
- Sawhney P, Kobayashi M, Takahashi M, King PN, Mori H (2007). Participation of civil society in management of natural resources. *International Review for Environmental Strategies* 7(1): 117-132.
- Singh PP (2008). Exploring biodiversity and climate change benefits of community-based forest management. *Global Environmental Change* 18(3): 468-478.

- Skutsch MM, Trines E (2008). Report from the UNFCCC meeting in Bali. *African Journal of Ecology* 46(1): 1-2.
- Stickler CM and others (2009). The potential ecological costs and cobenefits of REDD: a critical review and case study from the Amazon region. *Global Change Biology* 15(12): 2803-2824.
- UNFCCC (2007). Views on Issues Related to Further Steps Under the Convention Related to Reducing Emissions From Deforestation in Developing Countries: Approaches to Stimulate Action. Subsidiary Body for Scientific and Technological Advice (SBSTA), United National Framework Conventions on Climate Change (UNFCCC).
- Uzun E and others (2004). Traditional medicine in Sakarya province (Turkey) and antimicrobial activities of selected species. *Journal of Ethnopharmacology* 95: 287-796.
- Valiathan MS (2006). Towards Ayurvedic Biology- a Decadal Vision Document. Indian Academy of Sciences, Bangalore.
- Yineger H, Yewhalaw D (2006). Traditional medicinal plant knowledge and use by local healers in Sekoru District, Jimma Zone, Southwestern Ethiopia. *Journal of Ethnobiology and Ethnomedicine* 3: 1-24.