



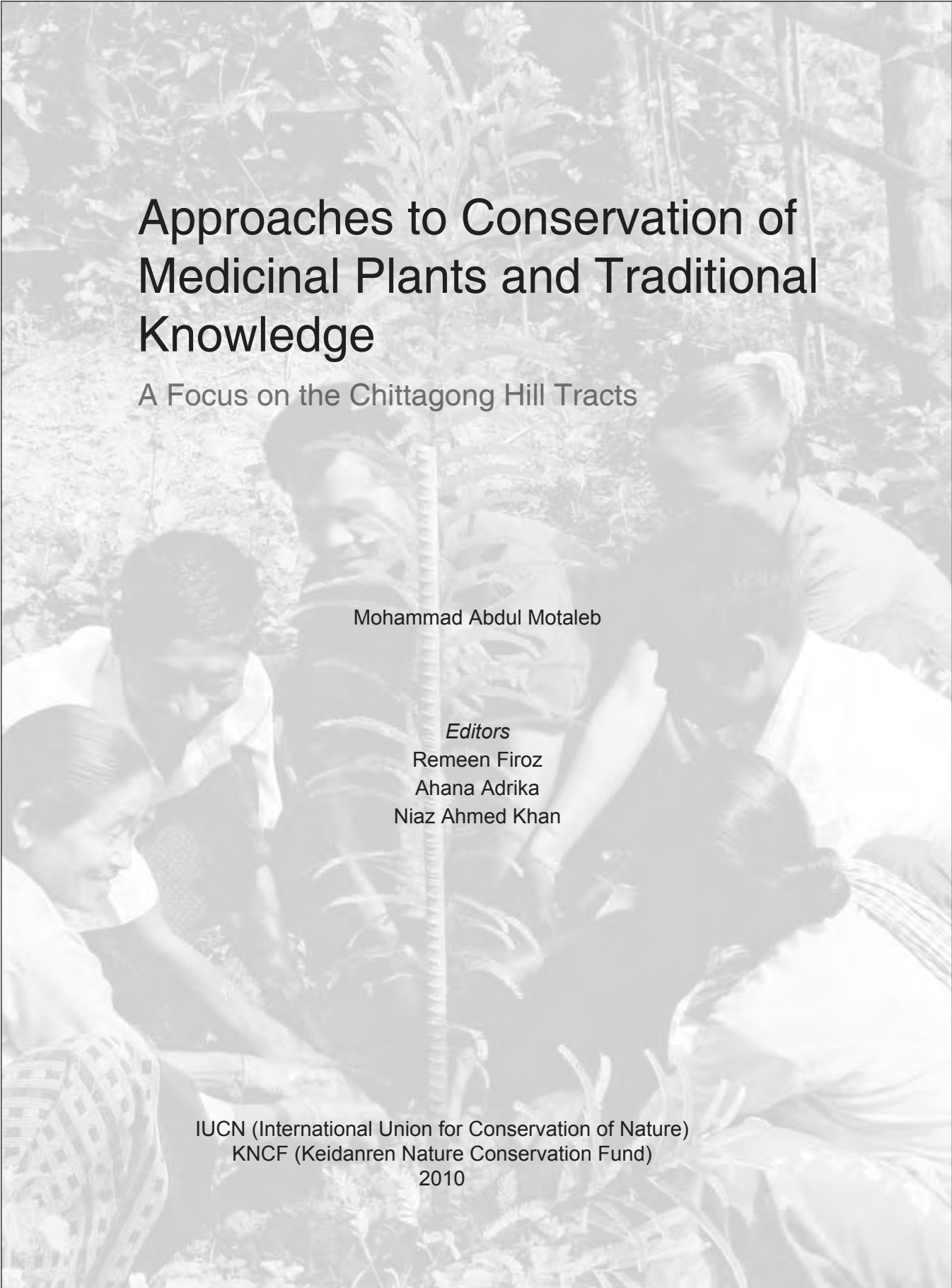
# Approaches to Conservation of Medicinal Plants and Traditional Knowledge

A Focus on the Chittagong Hill Tracts



Bangladesh Country Office





# Approaches to Conservation of Medicinal Plants and Traditional Knowledge

A Focus on the Chittagong Hill Tracts

Mohammad Abdul Motaleb

*Editors*

Remeen Firoz

Ahana Adrika

Niaz Ahmed Khan

IUCN (International Union for Conservation of Nature)  
KNCF (Keidanren Nature Conservation Fund)  
2010

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This book is published with financial support received from KNCF (Keidanren Nature Conservation Fund) under the 'One Stop Service: facilitating conservation of medicinal plant and traditional health service to ethnic communities of Chittagong Hill Tracts (CHT) Bangladesh (2nd phase)' Project.

Published by: IUCN (International Union for Conservation of Nature), KNCF (Keidanren Nature Conservation Fund).



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Citation: Motaleb, M. A., 2010. Approaches to Conservation of Medicinal Plants and Traditional Knowledge: A Focus on the Chittagong Hill Tracts. IUCN (International Union for Conservation of Nature), Bangladesh Country Office, Dhaka, Bangladesh, pp viii+30.

ISBN: 978-984-33-1029-3

Cover Design: Sheikh Asaduzzaman

Layout: Mohammad Abdul Motaleb

Cover Photo: Flowers of *Vhat* (Glory tree, *Clerodendrum viscosum* Vent.)

Cover Photo by: Dr. Mohammad Zashim Uddin

Printed by: Mamun Printing Press

Available from: IUCN (International Union for Conservation of Nature)  
Bangladesh Country Office  
House 11, Road 138, Gulshan 1  
Dhaka 1212, Bangladesh  
Tel: 880-2-9890423, 9890395  
Fax: 880-2-9892854  
[www.iucn.org/bangladesh](http://www.iucn.org/bangladesh)

## Foreward

In Bangladesh, due to population pressure, deforestation and changes in land use patterns, many species of both flora and fauna have become extinct and many more are threatened and endangered. In addition, the country will face serious consequences of biodiversity loss from the global climate change. Considering the present situation and future need, the problems of extinction of the native plant resources, conservation and management programmes are necessary.

Today, many medicinal plant species of Bangladesh have reached the fate of extinction or severe genetic loss. Unfortunately, detailed information and complete inventories on such plants often do not exist. For most of the endangered species, no conservation efforts have been implemented and a lion's share of the knowledge on their properties and use are held by traditional healer societies, whose very existence is now under threat. At the current rate of consumption and use, the status of medicinal plants is threatened, risking our own future benefits and knowledge.

IUCN, International Union for Conservation of Nature, Bangladesh Country Office, in collaboration with Bolipara Nari Kalyan Somity (BNKS), a member organization of IUCN, has been implementing a project from May 2008 titled 'One Stop Service: facilitating conservation of medicinal plant and traditional health service to ethnic communities of Chittagong Hill Tracts (CHT) Bangladesh' or 'One Stop Service Project' (OSSP) with financial support from Keidanren Nature Conservation Fund (KNCF), Japan. The main objective of the project was to create enabling conditions for conservation of medicinal plants and associated knowledge, by providing health services to local community.



The following report documents different approaches to conservation of medicinal plants and traditional knowledge in Bolipara union of Thanchi upazila of Bandarban hill district. This initiative involved the collection of baseline data on medicinal plants and their uses, motivating people towards the uses and practices, identification and knowledge sharing with the traditional healers, establishment of an electronic database and carrying out specific conservation measures and awareness activities. This document also provides a number of recommendations to ensure sustainability of such initiatives for safeguarding medicinal plants and indigenous knowledge associated with them. We sincerely hope that this account will be useful to the people interested in medicinal plants, especially in developing countries.

Dhaka  
April 2010

Professor Niaz Ahmed Khan, Ph.D.  
Country Representative  
IUCN Bangladesh Country Office

## Acknowledgement

IUCN Bangladesh gratefully acknowledges the financial support received from Keidanren Nature Conservation Fund (KNCF) in implementing 'One Stop Service: facilitating conservation of medicinal plant and traditional health service to ethnic communities of Chittagong Hill Tracts (CHT), Bangladesh'. We would like to thank KNCF for funding three consecutive phases of the project. Special note of thanks are due to Mr. Yasunori Tatsumi, Manager, The Sumitomo Trust & Banking Co., Ltd. of KNCF, for his active support, advice and guidance.

We are grateful to the field staff of BNKS, who have provided valuable inputs to the project in terms of data collection and promoting medicinal plants. Without their sincere efforts, the project interventions would not have been successful.

We are also indebted to local communities, especially the traditional healers and Buddhist monks of the project site who have made genuine attempts to save their culture and heritage and helped the project by selecting appropriate medicinal plant species, collecting mother stock of certain rare species and all without any remuneration. Special thanks to the officials of District Administration and Forest Department of Bandarban for their continuous support during the implementation of the project.

We are thankful to Dr. Ainun Nishat, Mr. Raquibul Amin and Dr. Haseeb Md. Irfanullah for their initial design and technical input to the project. Thanks are also due to Sheikh Asaduzzaman for his assistance in getting the book printed.

We gratefully acknowledge the thoughtful insights of Dr. Niaz Ahmed Khan for the preparation of this approach book. Last but not the least, we would like to recall the special contribution by Ms. Remeen Firoz and Ms. Ahana Adrika, for editing this book.

Dhaka  
April 2010

Mohammad Abdul Motaleb  
Task Manager  
One Stop Service Project  
IUCN Bangladesh Country Office

## Table of Contents

|   |      |
|---|------|
| <b>Foreward</b>   | iii  |
| <b>Acknowledgement</b>  | v    |
| <b>Abbreviations, Acronyms and Local Terms</b>                | viii |
| <b>Chapter One: Introduction</b>                              | 01   |
| 1.1. Medicinal plants and traditional knowledge in Bangladesh | 01   |
| 1.2. Background of the project                                | 02   |
| 1.3. Scope of the report                                      | 04   |
| <b>Chapter Two: Site Description</b>                          | 05   |
| <b>Chapter Three: Approaches</b>                              | 07   |
| 3.1. Baseline survey and need assessment                      | 07   |
| 3.2. Stakeholder analysis                                     | 08   |
| 3.3. Awareness raising activities                             | 08   |
| 3.3.1. <i>Community meetings and workshops</i>                | 09   |
| 3.3.2. <i>Herbal fair</i>                                     | 10   |
| 3.3.3. <i>Training for the nursery growers</i>                | 11   |
| 3.3.4. <i>Exposure visit</i>                                  | 11   |
| 3.3.5. <i>Programme with future generations</i>               | 12   |
| 3.3.6. <i>Communication materials</i>                         | 13   |
| 3.4. Appreciating traditional healers expertise               | 14   |
| 3.5. <i>Ex situ</i> and <i>In situ</i> conservation           | 14   |
| 3.6. Documentation of traditional knowledge                   | 16   |
| 3.7. Establishment of health complex                          | 18   |
| <b>Chapter Four: Sustainability of the Initiative</b>         | 21   |
| <b>References</b>   | 25   |
| <b>Annex</b>  | 27   |



## Abbreviations, Acronyms and Local Terms\*

|                |  |
|----------------|--|
| ABS            | Access and Benefit Sharing   |
| <i>Bhante</i>  | Buddhist Monk  |
| BNKS           | Bolipara Nari Kalyan Somity  |
| <i>Boiddo</i>  | Traditional or Herbal Healer   |
| CHT            | Chittagong Hill Tracts   |
| FGD            | Focused Group Discussion   |
| <i>Headman</i> | Head of a <i>Mouza</i>   |
| IUCN           | International Union for Conservation of Nature and Natural Resources             |
| <i>Jhum</i>    | Shifting Cultivation   |
| <i>Karbari</i> | Head of a <i>Para</i>  |
| KNCF           | Keidanren Nature Conservation Fund   |
| <i>Kyang</i>   | Buddhist Temple  |
| <i>Mouza</i>   | Consisting of several <i>Para</i> or Village                                     |
| NGO            | Non-government Organization  |
| OSSP           | One Stop Service Project   |
| <i>Para</i>    | Village  |
| TK             | Traditional Knowledge  |
| <i>Union</i>   | The smallest local Government unit in Bangladesh                                 |
| UP             | Union Parishad   |
| <i>Upazila</i> | The lowest tire of formal Government administration consisting of several unions |

\* Local terms are in italics

# CHAPTER 1

## INTRODUCTION

### 1.1. Medicinal plants and traditional knowledge in Bangladesh

Bangladesh is a small country, with an area of about 147,570 sq km. The geographical position and favorable climatic regimes have endowed a diverse range of flora. A great variety of plants grows in the forests, agricultural-lands, barren-lands, wastelands, water bodies and homesteads, and by the roadsides. Many of these trees and plants, often considered as weeds, contain active substances with medicinal properties. It has been recorded that about 450 to 500 plants growing or available in Bangladesh have therapeutic values (Yusuf *et al.*, and 1994; Ghani, 1998).

The rich heritage of indigenous knowledge associated with herbal medicine is considered as the basis of all systems of traditional remedies in Bangladesh. Most of the medicinal plants of Bangladesh are extensively used in the preparation of Unani, Ayurvedic and Homeopathic medicines. These plants also serve as important raw materials for many modern medicinal ingredients. Research on medicinal plants in Bangladesh mostly includes sporadic surveys in different parts of the country and registers of local use and knowledge. Organized research and information on indigenous medicinal plants and knowledge have been strikingly limited. But it is highly likely that many potential medicinal plants in this country still remain unexplored and are waiting to be discovered.

Unfortunately, these priceless resources have been fast depleting, mainly because of over exploitation and change in land use. The decline in their abundance can be attributed to the growing number of population in this country. In the recent years, a rising concern has been that this local wisdom is fast eroding for reasons such as biotic interference, shrinking land resource base, deforestation, insufficient support from the government and public policies and lack of conducive management and institutional structures (Zuberi, 1999, Rashid and Rashid, 2000, 2002). These not only hamper species conservation but also threaten the occupation of herbal healers and the knowledge they bear. A number of Acts, Rules and Guidelines exist in Bangladesh for the protection of natural resources, which in some cases include medicinal plants. However, these are not succeeding in conserving medicinal plants. Over-harvesting of naturally growing medicinal plants and import of medicinal plants/products from other countries discourages local producers and manufacturers.

Until now, few communities of Bangladesh, especially the ethnic communities of the CHT have been traditionally using herbal medicine. It has been unequivocally established that medicinal plants and associated knowledge, which represent a part of rich local heritage, play a significant role in the general welfare of the upland communities of CHT (Alam, 1992 and Khan *et al.*, 2002). Zuberi (1999) elucidates that “In Bangladesh and the adjoining regions, a long tradition of indigenous herbal medical systems, based on the rich local plant diversity exists, forming a very important component of the primary health care system”.

## **1.2. Background of the project**

Plants, plant parts and plant products of all descriptions, particularly those with medicinal properties, have been used since time immemorial as principle ingredients of various traditional medicines. The history of the use of medicinal plants for alleviating diseases had its origin in the activities of the most primitive man of the remote past. Selection of the medicinal plants by early man, without any prior knowledge about them, was largely based on intuition, guesswork or trial and error. The healing powers of some plants were often discovered by accident. Thus by a combination of these processes there gradually developed a considerable knowledge of medicinal plants which was transmitted from one generation to another at first orally and later in written form as papyrus, baked clay tablets, parchments, manuscripts, herbals and finally printed herbal, pharmacopoeias and other works (Ghani, 1998). Our ancestors were compelled to use any natural substance that they came across to ease their sufferings

caused by acute and chronic illnesses, physical discomfort, wounds, injuries, and even terminal illnesses. Since ancient times, plants with therapeutic properties have occupied an important niche in the disease treatment practices (Khan *et al.*, 2005).



PHOTO: M.A. Motaleb

Scenic view of Bandarban hill district

Traditional Knowledge (TK) related to medicinal plants plays an important role in the use of herbal medicines. But the TK is eroding day by day due to inadequate documentation and limited inter-generational transfer of knowledge. On top of that, most of the important medicinal plants are also fast disappearing due to high rate of land use change. One of the best ways to conserve medicinal plants and associated knowledge is through documentation and stimulating practice by involving the local people.

IUCN (International Union for Conservation of Nature) Bangladesh has been implementing a project named, One Stop Service Project (OSSP), funded by KNCF (Keidanren Nature Conservation Fund), Japan, in association with Bolipara Nari Kalyan Somity (BNKS) in the Bolipara union of Thanchi upazila under Bandarban hill district of Bangladesh. The first phase of this project was initiated in 2008 and the second phase is on-going. The goal of the project was to contribute to the conservation of medicinal plants and associated traditional knowledge, through promotion of indigenous herbal healing practices among ethnic communities living in Bolipara union of Bandarban district of the CHT region. The project interventions have created much interest and enthusiasm among the local people of the area.

In order to understand the prevailing herbal healing scenario, a baseline survey was conducted in the project area. From the survey it was revealed that, even a decade back, 96% people used to take *boiddo*'s treatment. Almost 75% *boiddo* used to travel 4-12 km and 7% more than 12 km to treat patients. However, 56% community respondents mentioned that they used to go far away from their village



to get *boiddo*'s treatment, while others got treatment from their village *boiddo*. It was noted that 45% people used to take herbal treatment once in every six months and 40% once in every three months.

But now 80% people take allopathic doctor's treatment and only 20% people fully depend upon *boiddo*'s treatment. The study also revealed that there was good communication among the community people since most of the local people (56%) knew about a *boiddo* from word of mouth. Most of the *boiddo* gained knowledge on medicinal plants from their parents (56%) and the rest from mentor. The knowledge transfer system among the *boiddos* is limited: 63% have never shared their knowledge with others, such as, NGOs, projects, protégés and offsprings. Some of them (37%) gave knowledge to others, almost all to protégés and rarely to offsprings. There is no information or formal system for acquiring this knowledge.

Against this backdrop, five targets of this project were set, which are:

- 1) Documentation, preservation and showcasing the TK on medicinal plants and herbal healing;
- 2) Engaging the local religious and community leaders as the custodians of the documented TK;
- 3) Establishment of *ex situ* conservation areas for reviving rare and important medicinal plants at community level;
- 4) Promotion of 'Healer to Healer' (or '*Boiddo to Boiddo*') approach for TK preservation through networking; and
- 5) Initiation of linkage between conservation and marketing of medicinal plants.

### 1.3. Scope of the report

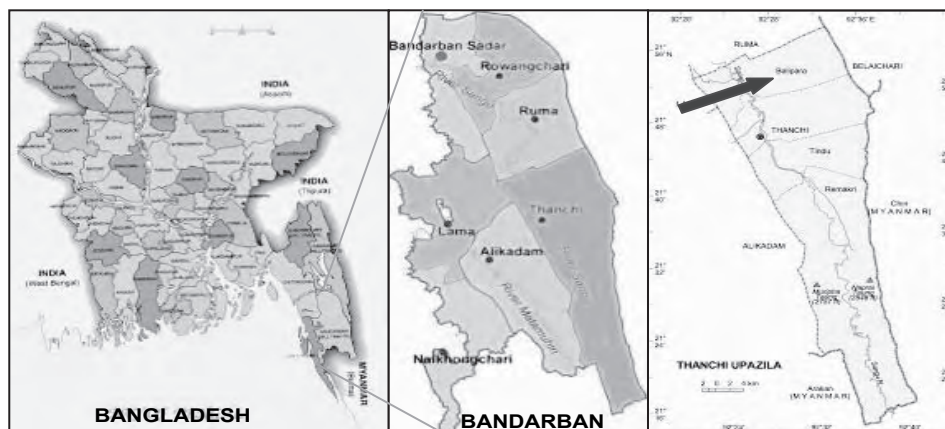
The present account documents the approaches to conservation of medicinal plants and its uses taken under OSSP in the CHT. In addition to documenting the activities carried out, the report also highlights:

- i. The impacts of the OSSP in Bolipara;
- ii. Recommends establishing a healthcare centre in CHT;
- iii. Establishing a knowledge hub for networking amongst traditional healers;
- iv. Ensuring a proper governance regime for sustainability of the initiatives.

## CHAPTER 2

### SITE DESCRIPTION

The project was implemented in Bolipara union, which is located in Thanchi upazila (longitude 21°78', latitude 92°42') under Bandarban hill district of Bangladesh and lies in the southern-eastern hilly part of the country (Map). The region is rich in biological diversity, including medicinal plants. The total population of the union is more than 10,000. The ethnic communities living in the area include Bowm, Chakma, Khumi, Marma, Mru, Tripura and Chack. Marma is the dominant community in the project area and still practices traditional lifestyle. Five para or villages of Bolipara union, namely i) Bolipara, ii) Ailmarapara, iii) Dakchhoipara, iv) Naikhongpara and v) Krongkheongpara were primarily selected for this project.



Herbal healers or *boiddo*, Buddhist monks (*Bhante*) and communities of Bolipara union were the primary stakeholders of the One Stop Service initiative. Secondary stakeholders included local administration and government service providers at upazila and union level. From the baseline survey, it was found that the family size in the area ranged from 2-9 persons/family (average size 5). About 50% of the community respondents were found to be illiterate and one-third obtained primary education or above. In case of *boiddo* respondents, only 26% had completed primary schooling.

## CHAPTER 3

### APPROACHES

IUCN Bangladesh took a number of approaches in the project site for conserving the natural wealth in Bolipara. Involvement of the people in all the activities and participatory approaches resulted in positive outputs. This chapter briefly discusses the successful approaches taken under this initiative.

#### 3.1. Baseline survey and need assessment

In the light of medicinal plant conservation and use, secondary information, scientific publications, reports and articles about the project area were not found. So, information was collected through semi-structured questionnaire, focus group discussions (FGDs) and one-to-one discussions.

A number of field visits and FGDs were conducted in Bolipara union. One-to-one discussions were conducted with the elderly and the *Headmen* (head of *mouza* consisting of several *para* or village) and *Karbaries* (head of *para*) of the ethnic community, *bhante*, *boiddo* and the ethnic people.



PHOTO: Ubanu Marma

Questionnaire survey to gather information on medicinal plants use



During one-to-one discussions, both women and men were interviewed while doing their household chores, and while they were collecting vegetables and fruits from 'jhum'. Two semi-structured questionnaires were tested and developed to collect information on medicinal plants and their uses from the *boiddo* (1st



PHOTO: Ubanu Marma

Information collection from female *boiddo*

questionnaire, Annex 1) and the community (2nd questionnaire, Annex 2). Finally, 95 households and 27 *boiddos* of 10 villages were interviewed randomly to collect information about medicinal plants. First a forestry specialist, with the help of community organizers and *boiddo*, identified the species. A number of unknown and

uncommon species were collected and preserved in the herbarium sheet, which were then identified by a plant taxonomist.

### 3.2. Stakeholder analysis

It is very important to know the target groups and beneficiaries to ensure the success of any project. For this project, the stakeholder analysis was done during the inception phase and these helped in designing activities effectively.

Local knowledgeable persons, leaders (*Headmen, Karbaries*), religious leaders (*Bhante*), members of local government bodies and school teachers were involved in project initiatives, as they have greater social acceptance and influence over the ethnic communities. They play a crucial role in shaping local people's opinions and decision-making process. This approach was found positive because the community, as an authentic source of information, felt a sense of ownership from the very beginning, making the task of community mobilization much easier. Local government officers also played a catalytic role in ensuring a good governance regime in the project area.

### 3.3. Awareness raising activities

The awareness campaign was an integrated part of this community-based initiative. The main purpose was to educate the target group about the existing situation and mobilize them to effectively manage and conserve medicinal plants

and traditional practices. Communication tools were used for problem solving, to draw attention, to motivate on particular issues, or to change behavior or practices. Under this project, different awareness raising programmes were undertaken, such as, FGDs (consultation meetings with the local Buddhist monks and community leaders); one-to-one discussions with the local people; local, regional and national level workshops; programmes with the school children of the project area, herbal fairs and exposure visits. In all the programmes the participants (both male and female) were given equal opportunity to share their experiences.

### 3.3.1. Community meetings and workshops

To make ethnic people aware of the importance of medicinal plant conservation and uses, a number of consultation meetings were conducted. More than 300 one-to-one discussions and around 100 FGDs were carried out with the locals. The main participants of these meetings were the farmers engaged in shifting cultivation, *boiddos*, UP members, *Karbaris*, *Headmen* and NGO representatives.

Information on 25 medicinal plants was collected under this initiative. In order to safeguard the custodianship for these documented materials/knowledge of the local *boiddo*, five consultation meetings were held. Local people and *bhante* were of the opinion that, as these information were findings of the *boiddo*, custodianship should remain with them. They suggested the formation of a *boiddo* committee, to ensure complete ownership. Accordingly, a committee of 50 *boiddo* was formed, facilitated by this project.

Workshops were conducted at local, regional and national level to create general awareness. These meetings were aimed at exploring the marketing opportunities of medicinal plant seedlings and herbal products in the region and the possibility of replicating and upscaling this approach. People of different areas/sectors participated in these workshops, such as, Deputy Commissioner of Bandarban, Upazila Chairman and members



PHOTO: M.A. Motaleb

Regional level workshop in Bandarban

of Thanchi and Bandarban, local leaders, *Headmen*, *Karbaris*, allopathic and homeopathic doctors, NGO representatives, *Boiddos*, religious persons (Buddhist Monks), local people, local Govt. officials (Upazila Agriculture Officer, Upazila Health Officer, etc.), school teachers, IUCNB and BNKS representatives.



PHOTO: M.A.Motaleb

*Enthusiastic Bhante sharing their views on herbal healing and medicinal plant conservation*

### 3.3.2. Herbal fair

Three fairs were organized in the project site under this initiative. People of different ethnic communities participated at the fairs, which were landmark events aimed towards revitalizing their relationship with nature, practices and culture. The herbal fairs, held for the very first time in the history of CHT, created much enthusiasm among the local ethnic communities. A number of stalls displaying various herbal medicines were the main attraction of this unique



PHOTO: M.A.Motaleb

*Inauguration of Herbal fair with traditional songs*

fair. Member of Parliament (MP), Government of the People's Republic of Bangladesh along with other local government representatives such as the Deputy Commissioner of Bandarban, foreign delegates and other government and NGO officials also participated at this event.

Hundreds of people from around the region joined in the celebration and welcomed the innovative approach to raise awareness on conservation and the wise use of medicinal plants. These fairs were a great success, with music and other festivities and adorned in the diversity and colors of the hill district.



PHOTO: M.A. Motaleb

Stalls displaying various herbal medicines

### 3.3.3. Training for the nursery growers

Local nursery owners did not know the proper nursery and plantation techniques before the project commenced. But they were eager and willing to learn. Few local nursery owners and people were given training on nursery establishment and plantation techniques, where the project nursery was used as the training ground. The training was conducted by a Forestry specialist. Theoretical and practical knowledge was provided by showing them the nursery in the BNKS Health Complex, established under the OSSP.

#### The training session included following topics:

- Methods of collection of seeds/seedlings of selected species,
- Site selection for nursery,
- Bed preparation,
- Soil preparation in the seed bed or container,
- Seed storage and pre-treatment and seed sowing,
- Vegetative propagation,
- Prickling out, lifting, and transplanting,
- Hardening of seedlings,
- Nutrition of nursery stock,
- Tending operations (watering, control of weeds, protection against pests and diseases, application of fertilizer),
- Planning, controlling, and recording activities.

### 3.3.4. Exposure visit

An exposure visit was organized under this initiative with 21 persons (including 6 female *boiddo*) to Khagrachari and Rangamati districts. In Khagrachari, they visited Dr. Bernadette Herbal Research and Service Centre. The participants learned a lot of new things and ideas from this visit, such as, conservation and collection of herbal trees, improving products over time, marketing strategy, production methods and





PHOTO: Ubanu Marma

*Exposure visit outside the project area*

many other issues. In Rangamati, the team visited the medicinal plant nursery and garden made by the *boiddo* committee of Rangamati Sadar. They clearly benefited from this trip, especially by learning new nursery and plantation techniques.

### **3.3.5. Programme with future generations**

It is very important for the future generations to understand the concept of conservation. The project adopted the ‘teacher to student’ and ‘child to mother’ learning approaches for this particular activity. It was envisaged that the



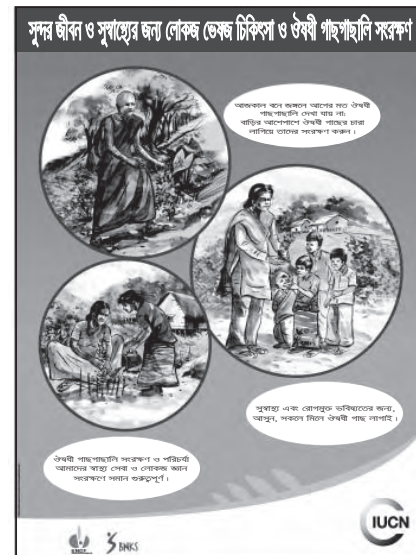
PHOTO: M.A. Motaleb

*Seedlings are distributed among the school children of the project site*

knowledge would transmit from teachers to children and eventually to their parents, relatives and neighbours through the ‘trickle down’ effect. Under this initiative a number of sessions were organized with the teachers and school children of Bolipara union. Teachers and students were sensitized about the importance of medicinal plants and their conservation and seedlings were given to them for plantation in their homesteads.

### 3.3.6. Communication materials

From this project, one brochure, one sticker and one poster was published and distributed among a diverse range of stakeholders. In the brochure, the same text



Poster



Brochure in three different languages

was published in English, Bangla and Marma languages. This attracted much appreciation from the local communities, since they saw their own language in print. This brochure was distributed in different meetings, workshops held in the project area, herbal fairs and in different schools, as well as at the national level workshop. Distribution of the communication materials (poster and sticker) among the school children (future generation) were very effective for conveying the conservation message amongst their family members and relatives.

### 3.4. Appreciating traditional healers expertise

Traditional healers are the key to identification of native medicinal plants, their utilization and pertinent conservation measures. Therefore, a special effort was made to accumulate their knowledge on medicinal plants through interactive discussions with the respective communities. The OSSP recognized the fact that the social status of the traditional healers is on the decline and without support from the community, their knowledge will be completely eroded. That is why social recognition was given through the appointment of a traditional healer and by establishing a compound within the BNKS compound in Bolipara and by forming a *boiddo* committee of more than 50 members.



PHOTO: M.A. Motaleb

*Boiddo preparing herbal medicine*

### 3.5. *Ex situ* and *In situ* conservation

In order to re-introduce medicinal plants in a locality, a mother stock is necessary, from which many progenies can be propagated (Khan *et al.*, 2005). For this reason, a central medicinal plant nursery and a demonstration plot was established within the premises of the BNKS health centre, from where *boiddo* could have easy access and provide herbal treatment to the local people. In addition, *ex situ* conservation was done through plantation in schools and temple premises and along roadsides. The purpose of this nursery was to raise rare and endangered medicinal plants as identified by the local *boiddo*, *Bhante* and communities.



PHOTO: M.A. Motaleb

*Medicinal plant nursery within BNKS health complex*





PHOTO: M.A. Motaleb

*Ex situ conservation sites within the temple premises*

The nursery established under this initiative played a dual role. It acted as a source of raw materials for the *boiddo* to prepare his herbal medicines and also supplied seedlings for the local communities and institutions to establish gardens as *ex situ* plots.



PHOTO: M.A. Motaleb

*Roadside plantation under OSSP*

### 3.6. Documentation of traditional knowledge

An electronic database was established to document TK on medicinal plants, also as one of the activities of the OSSP. Through extensive field visits and consultations with local *boiddos*, information on 25 most important medicinal plants used by them were collected and documented (Table 3.1).

**Table 3.1. List of medicinal plants included in the electronic database.**

| SI no | Bangla name  | Marma name         | English name        | Scientific name                | Family          |
|-------|--------------|--------------------|---------------------|--------------------------------|-----------------|
| 1     | Akanda       | Chi kang mui       | Swallow Wort        | <i>Calotropis gigantea</i>     | Asclepiadaceae  |
| 2     | Amloki       | Kala shi           | Emblic Myrobalan    | <i>Phyllanthus emblica</i>     | Euphorbiaceae   |
| 3     | Amrul        | Ko cho chi         | Wood Sorrel         | <i>Oxalis corniculata</i>      | Oxalidaceae     |
| 4     | Ashok        | Koin khrow         | Asoca Tree          | <i>Saraca indica</i>           | Caesalpiniaceae |
| 5     | Aurjun       | Chi to long        | Aurjuna Myrobalan   | <i>Terminalia arjuna</i>       | Combretaceae    |
| 6     | Bashak       | Bosaka             | Malabar Nut Tree    | <i>Adhatoda vasica</i>         | Acanthaceae     |
| 7     | Bohera       | Ang gara ani       | Beleric Myrobalan   | <i>Terminalia bellirica</i>    | Combretaceae    |
| 8     | Bon Tulsi    | Paing new          | Hoary Basil         | <i>Ocimum sanctum</i>          | Labiatae        |
| 9     | Dadmardan    | Pou chi bang       | Ringworm Shrub      | <i>Cassia alata</i>            | Caesalpiniaceae |
| 10    | Ghridakumari | Lang hi            | Aloe                | <i>Aloe barbadensis</i>        | Liliaceae       |
| 11    | Haritaki     | Tara taba          | Gall Nut            | <i>Terminalia chebula</i>      | Combretaceae    |
| 12    | Kalo dutra   | Gaing sang roi mro | Thornapple          | <i>Datura metel</i>            | Solanaceae      |
| 13    | Kalomegh     | Kojomi             | Creat               | <i>Andrographis paniculata</i> | Acanthaceae     |
| 14    | Karamcha     | Row koa pai bong   | Indian Beech        | <i>Pongamia pinnata</i>        | Apocynaceae     |
| 15    | Nim gachh    | Kala duru          | Indian Lilac        | <i>Azadirachta indica</i>      | Meliaceae       |
| 16    | Nishinda     | Tong joi sobai     | Caste Tree          | <i>Vitex negundo</i>           | Verbenaceae     |
| 17    | Patharkuchi  | Aney choilote      | American Life Plant | <i>Kalanchoe pinnata</i>       | Crassulaceae    |
| 18    | Punarnaba    | Chi sai dai        | Pig Weed            | <i>Boerhaavia diffusa</i>      | Nyctaginaceae   |
| 19    | Shatamuli    | Boma raja          | Asparagus           | <i>Asparagus racemosus</i>     | Liliaceae       |
| 20    | Shetochandon | Nahosa             | Sandal Wood         | <i>Santalum album</i>          | Santalaceae     |
| 21    | Shialkanta   | Long               | Prickly Poppy       | <i>Argemone mexicana</i>       | Papaveraceae    |
| 22    | Shimul       | Agaroi             | Silk Cotton Tree    | <i>Bombax ceiba</i>            | Bombacaceae     |
| 23    | Tentul gachh | Kia mong           | Tamarind Tree       | <i>Tamarindus indica</i>       | Caesalpiniaceae |
| 24    | Thankuni     | Ki ching shi       | Indian Pennywort    | <i>Centella asiatica</i>       | Apiaceae        |
| 25    | Ulatkambal   | Chi row afrow      | Devil's Cotton      | <i>Abroma augusta</i>          | Sterculiaceae   |

**Microsoft Access - [FrmSpeciesInfo]**

Electronic database on medicinal plants and associated traditional knowledge( TK) of CHT

**Bangla Name:** Arjun **Scientific Name:** Terminalia arjuna (Roxb.) Wt. & A. **Family Name:** Combretaceae

**English Name:** Arjuna

**Plant Parts Used:** Fruit, Bark, Leaf

**Mamma Name:** Chi to long

**Used to treat disease/symptoms/signs:**

| Disease                   | Administration | Doses                 |
|---------------------------|----------------|-----------------------|
| Stomach pain              | Pill           | 1-3 times a day depei |
| Vomiting                  | Pill           | 1-3 times a day depei |
| Headache                  | Pill           | 1-3 times a day depei |
| Dysentery and Indigestion | Syrup          | 2 times a day         |
| Sexual                    | Syrup          | 2 times a day         |
| Fever and Skin disease    | Pill           | 3 times a day         |

**User:**

| User    | Tribe |
|---------|-------|
| Chakma  |       |
| Marma   |       |
| Mru     |       |
| Tripura |       |
| Chak    |       |
| Bowm    |       |

**Record:** 1 of 7

**Collection Time:** Anytime

**Seasonality:** Fruit: Monsoon, Bark and le...

**Preparation:**

1. Stomach pain, Vomiting and Headache: Fruit is dried and grinded into po...
2. Dysentery and Indigestion: At first green bark and leaf is fractured to make...
3. Sexual: Green bark is grinded and make paste. Honey is mixed with this...
4. Fever and Skin diseases: At first green bark is dried in the sun then grind...

**Record:** 1 of 12

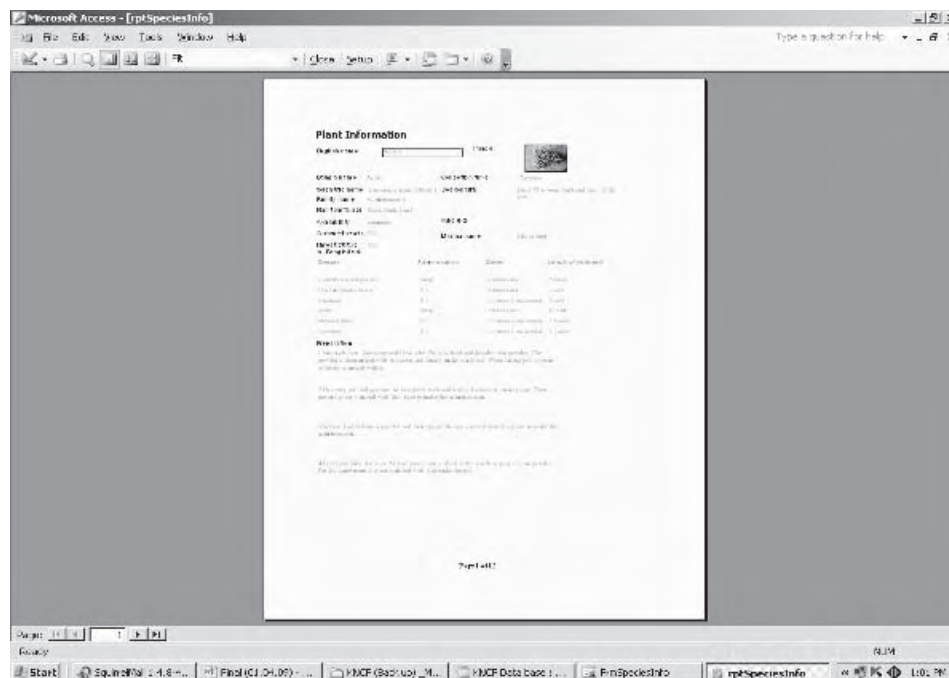
**Form View**

Start | SquirrelMail 1.4.8-4.0.1... | Final (01.04.09) - Micros... | KNCF (Back up) \_Motale... | KNCF Data base : Datab... | FrmSpeciesInfo | 1:00 PM

The graphical user interface (form) for Arjun with complete data.

In this database, inputs are given through a user-friendly interface known as 'Form'. Inherently the input form contains a set of nested tables where the data are stored. For output from the database, there are certain criteria. For an example, if we want to know the name of diseases a plant can treat, we can select the plant's name from a drop-down list and press show report. The above snapshot gives the detailed report for 'Arjun'. The following image depicts the actual summary report.

In absence of a legal regime on protection of TK vis-a-vis access and benefit sharing (ABS) regime, the information collected will be kept confidential and will not be publicly disclosed. The database will be used mainly by the project management bodies as an awareness tool with only limited access by the target groups. It is very important to have proper custodians for this information system, preferably from within the local community leaders (*Headman* and *Karbari*) and religious leaders (*Bhante*).



### 3.7. Establishment of health complex

BNKS runs a healthcare complex in Bolipara of Bandarban hill district in the CHT. IUCN Bangladesh and BNKS with support from KNCF, started providing traditional healing to the communities in the health complex (a room is allotted for tending to patients undergoing herbal healing) and to encourage monks and community to plant medicinal plants under OSSP. The core notion of the initiative is to create demand for herbal treatment and thereby conservation of medicinal plants.



PHOTO: M.A. Motaleb

*Boiddo with his few tools and medicines in his chamber*

A traditional healer who has been placed in the healthcare complex is the main hub of this 'demand-supply' led conservation effort.

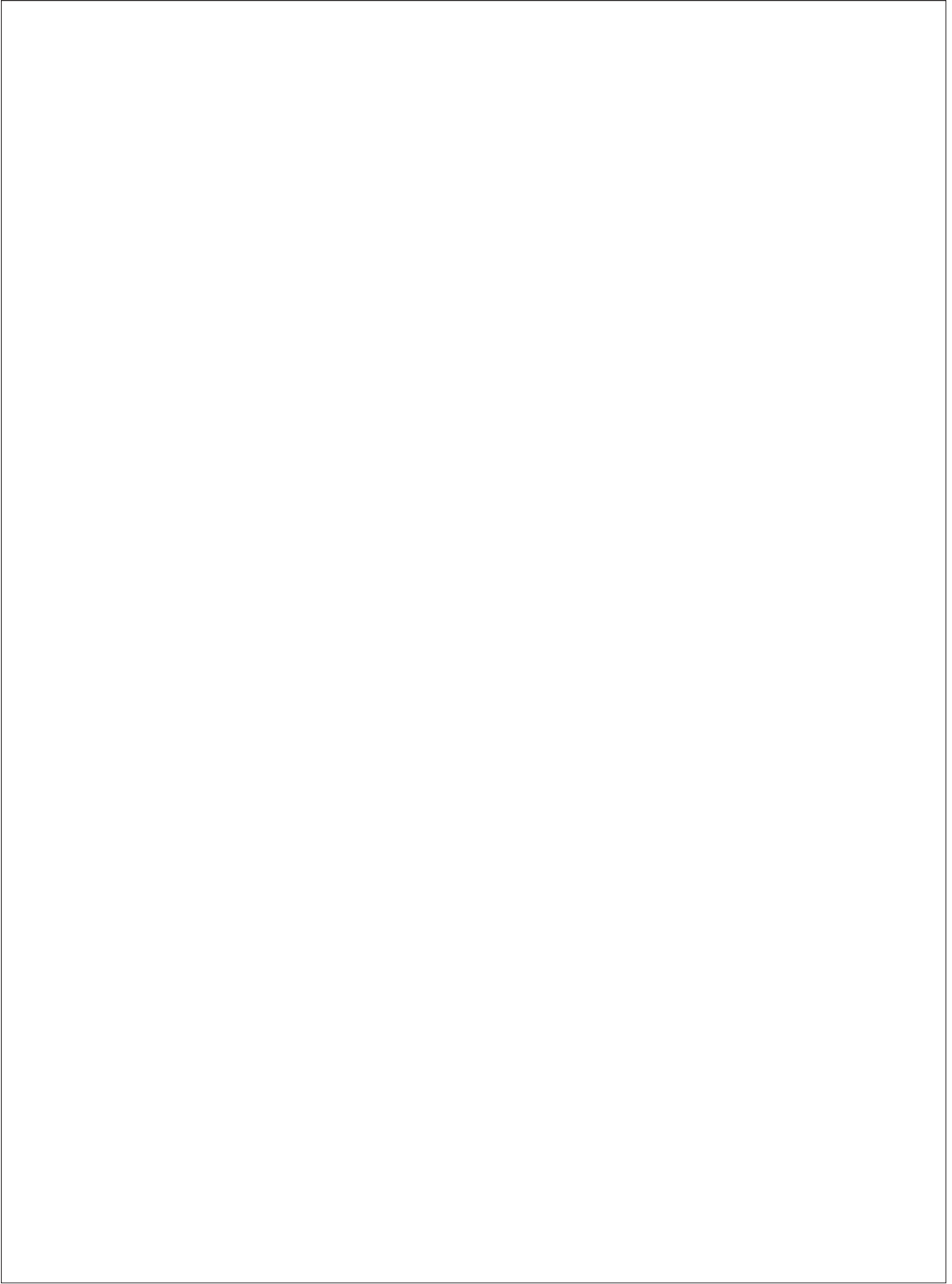


PHOTO: M.A. Motaleb

*Boiddo administering medicine to a patient*

He treats ailments from this complex, equipped with necessary backstopping services. This has increased the access of ethnic communities to the traditional healing system.





## CHAPTER 4

### SUSTAINABILITY OF THE INITIATIVES

There is a profound misunderstanding of the indigenous knowledge agenda in Bangladesh. Sillitoe (2000) stated that there is clearly a need to establish what indigenous knowledge is and how to incorporate it into the scientific research process. He also stated that recent strategy indicate that the Government of Bangladesh interested in indigenous knowledge, particularly as it relates to natural resource management. Bengali culture is under threat and it needs protection. One way to protect the perceived loss of cultural heritage is to document it (Sillitoe, 2000).

The importance and potentials of medicinal and aromatic plants have recently been reemphasised by the scientific communities, pharmaceutical industries as well as the consumer society, which is stronger in the western world (Khan *et al.*, 2005). At the same time, more and more focus is also being given on the conservation of medicinal plant species, their use and the knowledge associated with them. Documentation of indigenous knowledge on medicinal plants and their protection in nature through cultivation have been targeted by many. The OSSP was one of those initiatives, that aimed at protecting biodiversity and saving knowledge about the uses of medicinal plants.

The tree cover in the project area has increased because of the plantation programmes in the homesteads, institution premises and roadsides. When these trees reach maturity, the local environment will also improve and stakeholders will receive higher economic benefits. When the trees reach pole stage many native

birds and butterfly species that got lost with the loss of the once existent vegetative covers, will perhaps reappear.



PHOTO: M.A. Motaleb

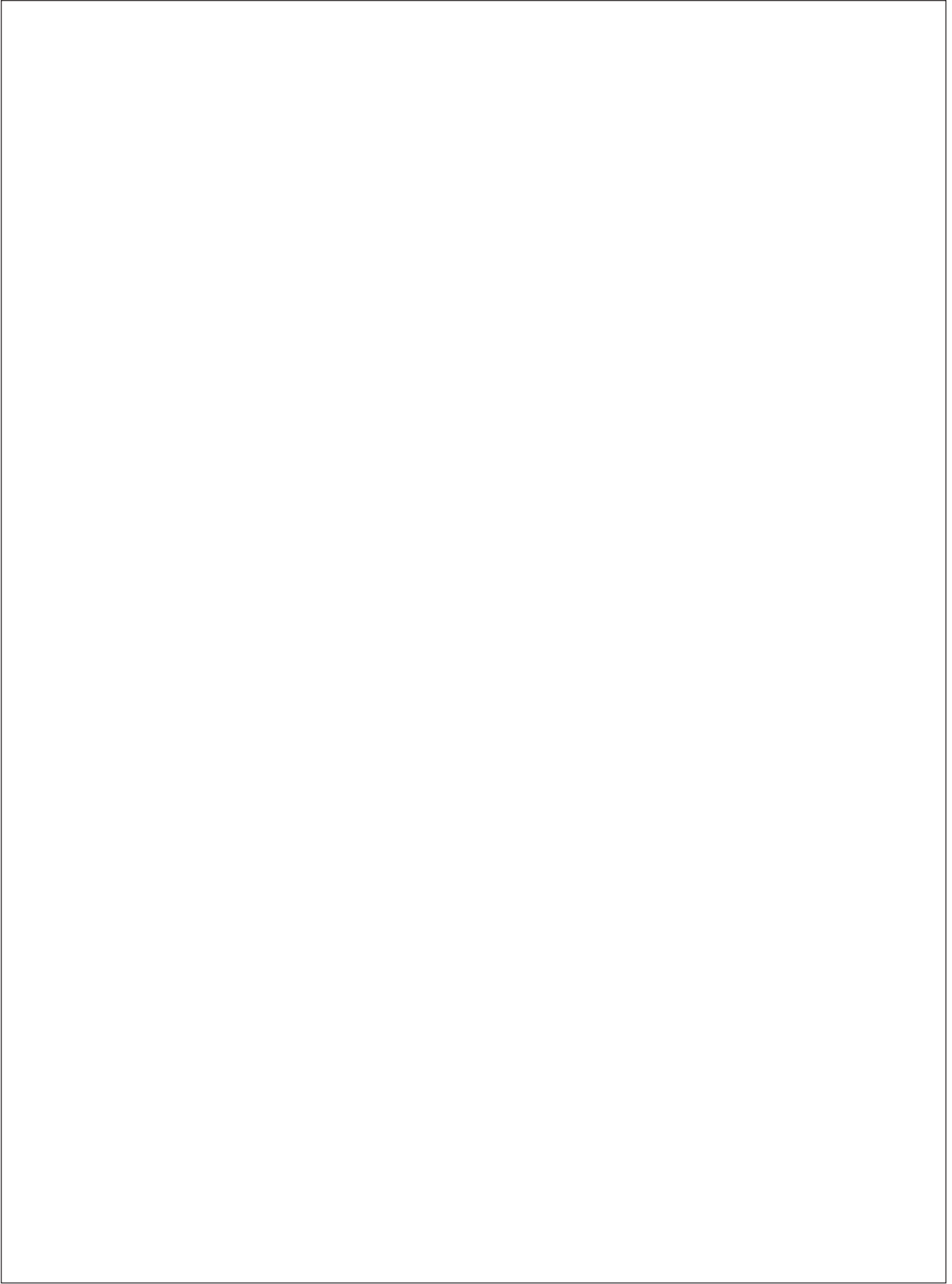
*Bhante planting medicinal plant seedlings within the temple premises*

Sustainability is crucial for any community-based programme. Under this initiative, a linkage between conservation and marketing of medicinal plants has been initiated. The marketing opportunity of medicinal plant seedlings and herbal products in the region were explored. Some *boiddos* resumed their traditional treatment practices after a few years. The continuous supply of raw materials has motivated *boiddos* to go back to their traditional livelihoods.

Although very localized, initiatives taken for medicinal plants conservation under OSSP have significantly impacted the people of the project area. Community people are now much more aware of the importance of medicinal plants, the need for their conservation and protection measures to be taken for safeguarding these natural capitals. Establishment of medicinal plants plots in the *ex situ* conservation sites is a promising sign, which not only ensures local supply of raw materials for herbal medicines but also provides an alternative source of income.

In the light of the current initiative, a few recommendations are being made for sustaining this community-based initiative.

- Institutionalization and capacity building of the local people for conservation could help overcome funding problems of the poor.
- A *boiddo* somity may be established to this end with a view to continues the activities even after the project is withdrawn.
- Local government and other non-government agencies should take some initiatives, like OSSP to replicate this type conservation programme.
- A community register of the uses of medicinal plants is absolutely essential, along with proper documentation for ensuring property rights and claiming patent rights.
- Special care should be taken to prohibit bio-piracy, which can be best achieved by maintaining a 'people's register'. In future, these areas of Access and Benefit Sharing (ABS) need to be further explored.
- The experience would further be useful in undertaking similar conservation measures in other parts of the country and of the world with similar conservation issues and concerns.



## REFERENCES

- Alam, M. K. 1992. Ethnomedicobotany of the Marma Tribe of Bangladesh, *Economic Botany*, 45 (3): 330-335pp.
- Ghani, A. 1998. Medicinal Plants of Bangladesh. Chemical Constituents and Uses. Asiatic Society of Bangladesh, Dhaka-1000, 1-460pp.
- Khan, M. S. I.; Mannan, M. A. and Chowdhury, M. T. I. 2005. Medicinal Plant Conservation through Community Participation. IUCN-The World Conservation Union, Bangladesh Country Office, Dhaka, 1-46pp.
- Khan, N. A.; Alam, M. K. and Khisa, S. K. (Editors), 2002. Farming Practices and Sustainable Development in the Chittagong Hill Tracts, Chittagong Hill Tracts Development Board, Government of Bangladesh and Village and Farm Forestry Project, Intercooporation, 272 p.
- Rashid, A. Z. M. M. and Rashid, M. H. 2000. The Status of Herbal Medicines in Bangladesh, In: *Of Popular wisdom: Indigenous knowledge and Practices in Bangladesh*, Khan, N. A. and Sen, S. (eds.). Bangladesh Resource Centre for Indigenous Knowledge, Dhaka, 150p.
- Rashid, M. H. and Rashid, A. Z. M. M. 2002. The Prospects of Medicinal Plant Cultivation and Floriculture in the Upland Farming System. In: *Farming Practices and Sustainable Development in the Chittagong Hill Tracts*, Khan, N. A. (eds.), Chittagong Hill Tracts Development Board and Swiss Agency for Development and Cooperation, 272 p.

- Sillitoe, P. 2000. The State of Indigenous Knowledge in Bangladesh. **In:** Indegenous Knowledge Development in Bangladesh, Present and Future. Sillitoe, P. (eds.). The University Press Ltd., Dhaka, Bangladesh. 3-20pp.
- Yusuf, M.; Choudhury, J. U.; Wahab, M. A. and Begum, J. 1994. Medicinal plants of Bangladesh. Centre for Scientific and Industrial Research, Dhaka, Bangladesh.
- Zuberi, M. I. 1999. Medicinal Plant Diversity: the Present Situation and Conservation Needs in Bangladesh, **In:** the Role of Medicinal Plants Industry in Fostering Biodiversity Conservation and Rural Development, Karki, M. and Johari, R. (eds.). Medicinal and Aromatic Plants Programme in Asia (MAPPA), IDRC/SARO, New Delhi, India, 121 p.

## ANNEX

### Annex 1: Sample of the empirical survey questionnaire: anticipated to the 'Boiddo'

প্রজেক্টের নাম : ওয়ান স্টপ সার্ভিস

তত্ত্বাবধানে : আই ইউ সি এন বাংলাদেশ এবং সহযোগিতায় বি এন কে এস

#### বৈদ্য-এর জন্য প্রশ্নাবলী

১। পাড়ার নাম :-----

২। বৈদ্য এর নাম :-----বয়স :-----

৩। বৈদ্যের শিক্ষাগত যোগ্যতা :

- |                   |                    |
|-------------------|--------------------|
| ক) অশিক্ষিত       | খ) ওয়ান থেকে ফাইভ |
| গ) সিক্স থেকে টেন | ঘ) এস এস সি        |
| ঙ) এইচ এস সি      | চ) অন্যান্য        |

৫। কার কাছ থেকে শিখেছেন :

- |                    |         |                      |             |
|--------------------|---------|----------------------|-------------|
| ক) পরিবারের গুরুজন | খ) গুরু | গ) শিক্ষা প্রতিষ্ঠান | ঘ) অন্যান্য |
|--------------------|---------|----------------------|-------------|

৬। কী কী রোগ / লক্ষণের চিকিৎসা দিয়ে থাকেন ?

- |                 |               |                |                 |
|-----------------|---------------|----------------|-----------------|
| ক) জ্বর         | খ) মাথাব্যথা  | গ) ডায়রিয়া   | ঘ) ম্যালেরিয়া  |
| ঙ) সেরুম        | চ) সর্দি-কাশি | ছ) পেটের পীড়া | জ) বাতের ব্যাথা |
| ঝ) বুকের ব্যাথা | ঞ) হাত ভাঙ্গা |                |                 |

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- ৮) আপনি চিকিৎসা করার জন্য কত দূর যান ?  
ক) ১-৩ কিমি      খ) ৪-৭ কি মি      গ) ৮-১২ কি মি      ঘ) > কি মি
- ৯) আপনি কোথা থেকে দরকারী গাছ সংগ্রহ করেন ?  
ক) বন      খ) নার্সারী      গ) নিজের বাগান      ঘ) অন্যান্য
- ১০) নিজের বনৌষধি বাগান থাকলে কতটুকু জায়গায় গাছ লাগিয়েছেন (শতকে)-----
- ১১) নিজের বাগান না থাকলে আপনি কি ঔষধী গাছ লাগাতে ইচ্ছুক    ক) হ্যাঁ    খ) না
- ১২) আপনি কি আপনার চিকিৎসা জ্ঞান কাউকে দিয়েছেন      ক) হ্যাঁ    খ) না  
● হ্যাঁ হলে কাকে দিয়েছেন ?  
ক) এন জি ও      খ) প্রজেক্ট      গ) শিষ্য      ঘ) অন্যান্য
- ১৩) কী কী গাছ আপনার বেশী কাজে লাগে  
প্রধান পাঁচটির নাম বলুন :-----  
-----  
-----  
-----  
-----
- ১৪) ওয়ান স্টপ সার্ভিস সম্পর্কে আপনার মতামত    ক) ভাল    খ) খারাপ

তথ্য সংগ্রহকারীর মতামত-----  
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তথ্য সংগ্রহকারীর স্বাক্ষর

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তারিখ

## Annex 2: Sample of the empirical survey questionnaire: anticipated to the 'local community member'

প্রজেক্টের নাম : ওয়ান স্টপ সার্ভিস

তত্ত্বাবধানে : আই ইউ সি এন বাংলাদেশ এবং সহযোগিতায় বি এন কে এস

### পাড়ার লোকের জন্য প্রশ্নাবলী

- ১। পাড়ার নাম :-----
- ২। লোকের নাম :-----বয়স :-----
- ৩। শিক্ষাগত যোগ্যতা :
  - ক) অশিক্ষিত খ) ওয়ান থেকে ফাইভ
  - গ) সিক্স থেকে টেন ঘ) এস এস সি
  - ঙ) এইচ এস সি চ) অন্যান্য
- ৫। আপনার পরিবারের লোক সংখ্যা কত জন ? \_\_\_\_\_ জন
- ৬। আপনার পরিবারের লোকদের শিক্ষাগত যোগ্যতা (জন) ?
  - ক) অশিক্ষিত \_\_\_\_\_ জন খ) ওয়ান থেকে ফাইভ \_\_\_\_\_ জন
  - গ) সিক্স থেকে টেন \_\_\_\_\_ জন ঘ) এস এস সি \_\_\_\_\_ জন
  - ঙ) এইচ এস সি \_\_\_\_\_ জন চ) অন্যান্য \_\_\_\_\_ জন
- ৭। আপনি বৈদ্যের সে কোথায় যান ? ক) নিজ গ্রামে খ) দূরে কোথাও
- ৮। এই পরিবার বৈদ্যের কাছে চিকিৎসা নেয় কিনা : ক) হ্যাঁ খ) না
  - i) যদি হ্যাঁ হয় তবে তা কত দিন পর পর চিকিৎসা নেন
    - ক) ১ মাসে ১ বার খ) ৩ মাসে ১ বার গ) ৬ মাসে ১ বার ঘ) অন্যান্য
  - ii) যদি না হয় তবে কি আপনি ডাক্তারের চিকিৎসা নেন কিনা ক) হ্যাঁ খ) না
- ৯। বৈদ্যের খবর আপনি কোথা থেকে পান ?
  - i) নিজ পাড়া থেকে : ক) হ্যাঁ খ) না
  - ii) অন্য বৈদ্যের কাছ থেকে : ক) হ্যাঁ খ) না
  - iii) অন্যান্য রোগীর কাছ থেকে : ক) হ্যাঁ খ) না
- ১০। বৈদ্যের কাছে আপনি কত দূর পর্যন্ত যান ?
  - ক) ১-৩ কিমি খ) ৪-৭ কিমি গ) ৮-১২ কিমি ঘ) >১২ কিমি
- ১১। কী কী রোগের চিকিৎসা বৈদ্যের কাছে পেয়েছেন ?
  - ক) জ্বর খ) মাথাব্যথা গ) ডায়রিয়া ঘ) ম্যালেরিয়া
  - ঙ) সেক্স চ) সর্দি-কাশি ছ) পেটের পীড়া জ) বাতের ব্যাথা
  - ঝ) বুকের ব্যাথা ঞ) হাত, পা ভাঙ্গা ট) অন্যান্য-----

১২। চিকিৎসার উপকার কেমন হয় ?

- |      |                |          |       |
|------|----------------|----------|-------|
| i)   | সম্পূর্ণ সুস্থ | ক) হ্যাঁ | খ) না |
| ii)  | সামান্য সুস্থ  | ক) হ্যাঁ | খ) না |
| iii) | উন্নতি হয় না  | ক) হ্যাঁ | খ) না |

১২। ওয়ান স্টপ সার্ভিসের মাধ্যমে একজন লোক আপনার নিজ গ্রাম চিকিৎসা দিলে কেমন হয়

- |    |     |    |       |
|----|-----|----|-------|
| ক) | ভাল | খ) | খারাপ |
|----|-----|----|-------|

তথ্য সংগ্রহকারীর মতামত :

..□  
..□  
..□  
.□

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তথ্য সংগ্রহকারীর স্বাক্ষর

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তারিখ



INTERNATIONAL UNION  
FOR CONSERVATION OF NATURE

House 11, Road 138  
Gulshan 1, Dhaka 1212

Tel 880 2 9890395, 9890423  
Fax 880 2 9892854

[www.iucn.org/bangladesh](http://www.iucn.org/bangladesh)

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