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CHITTAGONG HILL TRACTS WATERSHED CO-MANAGEMENT ACTIVITY

USAID GRANT # AID-388-IO-13-00003

Assessment of Floral and Faunal Diversity in the Village Common Forests of the Chittagong Hill Tracts

Strengthening Inclusive Development in Chittagong Hill Tracts
A Project of Ministry of Chittagong Hill Tracts Affairs and UNDP Bangladesh

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Published by SID-CHT Project, UNDP
IDB Bhaban, Agargaon, Dhaka
Bangladesh

This publication is available online at www.bd.undp.org/SID-CHT. Please direct any questions about this publication to communications.bgd@undp.org

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Chairman
Bandarban Hill District Council
Bandarban, Chittagong Hill Tracts
Bangladesh

MESSAGE

I am pleased to write a forward massage for this report on Floral and Faunal Study in the Village Common Forests (VCFs) in the Chittagong Hill Tracts (CHT). The CHT Forests and the VCFs are improtant Sources of many streams and rivers, apart from providing forest ecosystem goods, services and functions to the forest dependent community people in Bandarban district. Bandarban Hill District council is working for these forest dependent community people by providing administrative and legal support for community-based management of VCFs under USAID funded Chittagong Hill Tracts Watershed Co-Management Activity through Strengthening Inclusive Development in CHT (SID-CHT), a project of the Ministry of Chittagong Hill Tracts Affairs and UNDP Bangladesh.

For VCF Conservation, the partnerships of local people and the leaders are the keys. Local communities are taking the generous responsibility of conserving VCFs by addressing critical issues realistrically by developing and implementing VCF management plans by VCF management committees. I appreciate the passion and willingness of the CHT leaders and communities for the conservation of VCFS despite increasing biotic pressure.

Sustainable management of VCFs faces challenges relating to forest degradation and forestland encroachment. Main drivers are incrasing population pressure and poverty; in-migration; expanding cultivation by destroying natural forest. urbanization and industrialization; lack of awareness to conserve forests; and inadequate investment for forest protection and development.

Repid loss of resilience in VCF ecosystems not only adversely affects the dependent community but also adversely impacts biodiversity, loss of divverse flora and faunna, alternative income opportunities, sil fertility, water quality and quantity, and carbon seq2uestration capacity of forests - all leading to declining natural rewource base with emerging environmental concerns.

Mainstreaming of VCFs is improtant and this study fulfills the long-felt need of documenting the diversity of flora and fauna and way of diverse uses. I extend my thnaks to the SID-CHT project of UNDP for completing this detailed study. We sincerely hope and believe that the implementation of main recommendations of this study will results in improved management of VCFs for better livelihoods and lives of local people.

Kyaw Shwe Hla
Chairman
Bandarban Hill District Council.

Chairman
Khagrachari Hill District Council
Khagrachari, Chittagong Hill Tracts
Bangladesh

MESSAGE

It is a privilege for me to write this message for this report on Flora and Fauna Study conducted in the Village Common Forests (VCFs) of the Chittagong Hill Tracts (CHT). The CHT forests including the VCFs are important sources of many streams and rivers, apart from providing forest ecosystem goods, services and functions to local people and many other opportunities. Khagrachari Hill District Council is working to provide legal support for community-based management of VCFs under USAID funded Chittagong Hill Tracts Watershed Co-Management Activity through Strengthening Inclusive Development in CHT (SID-CHT), a project of the Ministry of Chittagong Hill Tracts Affairs and UNDP Bangladesh.

For VCF conservation the partnerships of local people and traditional leaders are vital. Local communities arc taking the onerous responsibility of conserving VCFs by addressing critical issues realistically by developing and implementing VCF management plans, creating awareness to local community people by VCF management committees. I congratulate the CHT leaders and communities for the conservation of VCFs despite increasing biotic pressure and decreasing number of VCFs in Khagrachari district.

Sustainable management of VCFs faces challenges relating to forest degradation and forcstl and encroachment and converting natural forest into orchard. Main drivers are increasing population pressure and poverty; in-migration; expanding cultivation, urbanization and industrialization; lack of awareness to conserve forests; and inadequate investment for forest protection and development.

Rapid loss of resilience in VCF ecosystems not only adversely affects natural resource dependent community but also adversely impacts biodiversity, loss of diverse flora and fauna, pressure on Reserved and Protected forest, soil fertility, water quality and quantity, and carbon sequestration capacity of forests -all leading to declining natural resource base with emerging environmental concerns.

Mainstreaming of VCFs is important and this study fulfills the long-felt need of documenting the diversity of flora and fauna and way of its diverse uses. I extend my thanks to the SID-CHT project of UNDP for completing this detailed study. We sincerely hope and believe that the implementation of main recommendations of this study will result in the ways of policy formulation for improved management of VCFs for better livelihoods and lives of local people.

Mongsueprou Chowdhury
Chairman
Khagrachari Hill District Council.

Chairman
Rangamati Hill District Council
Rangamati, Chittagong Hill Tracts
Bangladesh

MESSAGE

It gives me great pleasure to write a forward message for Flora and Fauna Study for Village Common Forests (VCFs) in the Chittagong Hill Tracts (CHT). The CHT forests including the VCFs are important sources of many streams and rivers, apart from providing forest ecosystem goods, services and functions to local people. Rangamati Hill District Council is working to provide legal support for community-based management of VCFs under USAID funded Chittagong Hill Tracts Watershed Co-Management Activity under Strengthening Inclusive Development in CHT (SID-CHT), a project of the Ministry of Chittagong Hill Tracts Affairs and UNDP Bangladesh.

For VCF conservation the partnerships of local people and leaders are vital. Local communities are taking the onerous responsibility of conserving VCFs by addressing critical issues realistically by developing and implementing VCF management plans by VCF management committees. I congratulate the CHT leaders and communities for the conservation of VCFs despite increasing biotic pressure.

Sustainable management of VCFs faces challenges relating to forest degradation and forest land encroachment. Main drivers are increasing population pressure and poverty; in-migration; expanding cultivation, urbanization and industrialization; lack of awareness to conserve forests; and inadequate investment for forest protection and development.

Rapid loss of resilience in VCF ecosystems not only adversely affects natural resource dependent community but also adversely impacts biodiversity, loss of diverse flora and fauna, soil fertility, water quality and quantity, and carbon sequestration capacity of forests - all leading to declining natural resource base with emerging environmental concerns.

Mainstreaming of VCFs is important and this study fulfills the long-felt need of documenting the diversity of flora and fauna way of diverse uses. I extend my thanks to the SID-CHT project of UNDP for completing this detailed study. We sincerely hope and believe that the implementation of main recommendations of this study will result in improved management of VCFs for better livelihoods and lives of local people.

Aongsuipru Chowdhury
Chairman
Rangamati Hill District Council.

National Project Manager
Strengthening Inclusive Development
in Chittagong Hill Tracts

MESSAGE

It is my pleasure to share with you the flora and fauna assessment study report on the Village Common Forests (VCFs) in the Chittagong Hill Tracts. The study was completd by the Institute of Forestry and Environmental Sciences of the Chittgaong University under USAID funded Chittagong Hill Tracts Watershed Co-Management Activity (CHTWCA) of Strengthening Inclusive Development in CHT (SID-CHT), a project of the Ministry of Chittagong Hill Tracts Affairs and UNDP Bangladesh.

Rapid loss of resilience in VCF ecosystems adversely affects natural resource-dependent communities, biodiversity, soil fertility, water quality and quantity, and carbon sequestration capacity of forests. VCF conservation depends on how effectively local people and leaders are collaborating for improved forest management and sustainable land-use by optimizing forest use through sustainable consumption. VCF management committees take on the onerous responsibility of forest conservation by developing and implementing five-year VCF management plans.

I congratulate the CHT leaders and communities for the conservation of VCFs despite increasing biotic pressure as brought by increasing population pressure and poverty, in-migration, expanding cultivation, urbanization, industrialization, lack of conservation awareness, inadequate forest protection and development investment, etc.

This report is a knowledge material for the practitioners working in the CHT forests and watersheds. As mainstreaming of VCFs is essential, this study fulfills the long-felt need of documenting the diversity of flora and fauna.

I am incredibly delighted that the USAID's CHTWCA under the SID-CHT project of UNDP has successfully completed this detailed study report. I am thankful to my colleagues including Mr. Ishtiaq Uddin Ahmed, Former Chief Conservator of Forests, Bangladesh for their valuable review of the study report. I sincerely hope that implementing the study recommendations will result in improved management of VCFs for better lives and livelihoods of local people.

Prasenjit K Chakma
National Project Manager
SID-CHT, UNDP

EXECUTIVE SUMMARY

United States Agency for International Development (USAID) funded Chittagong Hill Tracts Watershed Co-Management Activity (CHTWCA) under the "Strengthening Inclusive Development in Chittagong Hill Tracts (SID-CHT) project of the Ministry of Chittagong Hill Tracts Affairs (MoCHTA) is implemented by UNDP to improve climate resilience and biodiversity conservation in the Chittagong Hill Tracts (CHT). One of the expected outcomes of CHTWCA is improved governance of community managed Village Common Forests (VCFs) or Mouza forests. Baseline assessment was completed for floral and faunal diversity in the 20 sampled VCFs by the Institute of Forestry and Environmental Sciences of Chittagong University. An exhaustive assessment report was prepared by following analysis of all data collected from field surveys including sample surveys of both flora and fauna diversity in the sampled VCFs, and sessions of Focus Group Discussions (FGDs) and Key Informant Surveys (KISs) and other questionnaire surveys involving participants from both the VCF management committee members and the common village people.

For collection of flora and fauna data, various physical features (slope, altitude etc.), habitat conditions (streams, topographic position, etc.) and vegetation types (trees and their canopies, shrubby/bushy growth, etc.) were used as criteria for stratifying the entire area of each VCF before beginning the actual sampling work. In each stratum systematic sampling method was followed for collection of data on flora, that is, the first point at which the collection of data started was selected at random and then the subsequent points were chosen systematically, for example, at regular intervals of fixed distances. On the other hand, generally stratified random sampling technique was followed for collection of data on fauna in the field, and roads and junctions of animal movements were also included for fauna survey. Pitfall trapping technique was used for observing herpetofauna (amphibians and reptiles), point count sampling was used for birds and mammals, camera trapping technique was followed for mammal sampling, and net trapping technique was followed for collecting insect specimens.

For analysis, the plant data were compiled to produce VCF-wise lists of identified plant species. A master inventory list of all plant species recorded in all the 20 sampled VCFs was also prepared. Likewise, fauna (crustaceans, mollusks, fish, wildlife, and insects) data were compiled to produce VCF-wise lists of identified fauna species. Master inventory lists of fauna (wild animals and insects) species found in all the 20 VCFs were prepared. Quadrat sampling of plants helped estimation of Importance Value Indices (IVIs) and Diversity Indices for various plant species. Moreover, the lists of VCF-wise plant and animal indicator species were prepared to help monitor changes in biodiversity in each VCF. Data generated through FGDs, KISs and questionnaire surveys helped identify: i) important plant and animal species for the VCF ecosystems, ii) population size of the popular plant and animal species, and iii) harvest limits to strengthen community livelihoods. This information was also used for developing community-based biodiversity monitoring tools for use by the VCF communities. These tools (both in English and Bangla) were shared with the experts, VCF management committees and finally in a workshop held at Chittagong with participants representing various organizations.

A total of 555 plant species, 369 species of wild animals and 135 insect species were recorded. The endangered tree species, Kechchua, Bhauri, Kakra, and Tsekaba (Glochidion lanceolata) were identified in Khagrachari, whereas in Bandarban the vulnerable shrub species Malabar phul (Boehmeria malabarica) was found in Numlai Headman Para Kua Ban VCF. In Rangamati the survey findings included: 2 critically

endangered Indian Pangolin (Manis crassicaudata) and Asian Elephant (Elephas maximus); 3 endangered Blue-throated Lizard (Ptyctolaemus gularis), Capped Langur (Tracchypithecus pileatus) and Barking Deer (Munticus muntjak); 1 near threatened Leopard cat (Prionailurus bengalensis); and 2 vulnerable indicator species Kalij Pheasant (Lophura leucomelanos) and Black Giant Squirrel (Ratufa bicolor). In Khagrachari 2 critically endangered species, Elongated Tortoise (Indotestudo elongata) and Phayre's Leaf Monkey (Trachypithecus phayrei) were found. In Bandarban 2 critically endangered species Reticulated Python (Python reticulatus) and Gaur (Bos gaurus), and 2 vulnerable indicator species Kalij Pheasant (Lophura leucomelanos) and Burmese Python (Python molurus) were found.

Concerted efforts should be taken for conserving the remaining growing stock of the above-mentioned tree species to protect them against further loss from the VCFs. Conserving these tree species would also ensure maintenance of proper habitats for many wildlife species (for example hornbills, parrots and pheasants) that have been disappearing from the VCFs. The study observed many herbaceous plants of culinary importance including climber plants are declining, though leafy and tuberous plants are either abundantly or moderately available in most of the VCFs. Some of these plants can be regenerated artificially in unutilized or underutilized land parcels in the VCF areas, which would help support people's livelihoods. Production of land races of rice, cucurbits, melons, mustard, sesame, chili, cotton, etc. in jhum field also has declined due to rising temperatures and erratic rainfalls because of climate change. These crop land races play an important role in food security of local people, and so VCF communities should be encouraged to grow such crops. Most of the VCFs have bamboos which not only protect the forest ecosystem by ensuring water flow in the streams, but also provide for livelihoods of local people who use bamboo in household activities.

The biodiversity in some VCFs has been subjected to many threats and challenges. The most significant threats relate to changes in crop cultivation due to rising temperatures and erratic rainfall patterns. Community people responsible for managing forests face knowledge gaps while managing VCF resources, and the same have been identified, and remedial measures suggested. For improved management of VCFs, the revival of traditional and ecological knowledge of the communities is suggested through promotion of appropriate conservation farming techniques and practices. Biodiversity conservation will be strengthened to achieve sustainable natural resources management through appropriate field interventions including training programs, conservation awareness raising, behavior change campaigns, motivational work, and exchange visits.

CHTWCA will promote sustainable approaches for biodiversity conservation in VCFs in line with traditional practices of tribal communities and through participatory monitoring of changes in floral and faunal diversity. Biodiversity monitoring methods provide communities simple tools that they can use for monitoring flora and fauna diversity, and forest ecosystem health by assessing soil moisture and fertility, stream water quality and forest regeneration. Training subjects as suggested by communities living in and around the VCFs include monitoring of weather/climatic events, improved crop farming using environment-friendly land-use techniques, forest biodiversity, and forest-based livelihoods and small enterprises. Exchange of knowledge regarding crop farming and forest conservation activities amongst the VCF communities could help a lot in enhancing conservation of biodiversity locally, thereby improving the livelihoods of the village people who live in the remotest parts of the CHT. This flora and fauna assessment report will go a long way in helping the CHT communities in biodiversity conservation and integrated ecosystem management.

CHAPTER 1: INTRODUCTION

1.1 Background

Community forestry programs, initiated on a large scale in Bangladesh since 1981, were gradually phased out in favor of participatory and collaborative forestry. The Forestry Master Plan, completed in 1993, led to the promulgation of the people-oriented National Forestry Policy, 1994; the revisions of both of which have now been drafted by taking on board emerging forestry lessons and concepts such as climate change mitigation and adaptation, forest ecosystem functions and services, integrated watershed management, biodiversity conservation, peoples benefits and collaborative forestry. Local communities increasingly have access and participatory management of public forests over which they get usufruct rights in return for increased responsibility for their protection against biotic pressure such as grazing, fire and uncontrolled harvesting. Community managed forests on the other hand are protected by local community who get benefitted in terms of forest produce, and ecosystem functions and services.

1.2 Introduction

The Chittagong Hill Tracts (CHT) Peace Accord signed in December 1997 ended the conflict in the CHT which is home to distinctive ethnic groups and mainstream Bengalis. To implement the Peace Accord, the CHT specific institutions including the Ministry of CHT Affairs (MOCHTA), the CHT Regional Council (CHTRC), and the three Hill District Councils (HDCs) were established. In partnership with the Government of Bangladesh (GOB), the CHT institutions and communities and development partners, United Nations Development Programme (UNDP) is supporting the GOB project entitled as "Strengthening of Inclusive Development in CHT" (SID-CHT) to strengthen the capacity of the population in the CHT to shape and make decisions that impact on their lives. As part of the SID-CHT, Chittagong Hill Tracts Watershed Co-Management Activity (CHTWCA), funded by United States Agency for International Development (USAID), is under implementation in the three Hill Districts to achieve sustained capacity to protect and manage the forest ecosystems of the CHT by achieving three key results: i) Strengthened ecosystem (Village Common Forests – VCFs, headwater Reserved Forests – RFs, and Protected Areas-PAs) governance, ii) Resilient livelihoods with market access improved, and iii) Reduced conflicts and improved social cohesion among communities for ecosystem conservation.

Community watershed and forest management has been traditionally integrated into socio-cultural practices of tribal people as local communities have managed and used their dispersed water systems and neighboring forests for centuries. Indeed, socio-cultural diversity of local community has been dependent on the CHT biodiversity that enabled them to practice a lifestyle of the society to which they belonged. The CHT, located in the south-eastern part of the country, comprise an elongated strip of land bounded by the Indian states of Tripura and Mizoram, and Myanmar. It covers a large geographical area, with abundant natural resources including water, forests, natural gas, and a comparatively low human population density. The CHT is a distinct hilly region and has three administrative districts: Rangamati, Bandarban and Khagrachari. The people of the CHT are diverse in terms of ethnicity, language, clothes, housing, religion and food. Twelve ethnic groups live in the region namely Chakma, Marma, Tripura, Mrung (or Mro), Tanchangya, Bawm, Chak, Pangkhua, Lushai, Khiang, Khumi and Rakhain (UNDP 2009). Chakma, Marma and Tripura communities comprise the largest proportions, that is, 46%, 29% and 13% respectively of the tribal populations in the CHT.

The CHT is topographically diverse with steep hill slopes, valleys, and plain lands, consisting of ancient formations of largely igneous rock in the Hindu Kush Himalayas. Most of its landforms comprise forests or grasslands, farming areas (shifting cultivation, tree farming, horticulture, rubber gardening, plough-based agriculture) and watersheds. Forested areas in the CHT consists of natural forests, plantation forests and secondary forests including grasslands with scattered trees and bamboo. The major plant species in the region are tropical wet evergreen/semi-evergreen, deciduous, and are classified as 'hill forests.'

1.3 Chittagong Hill Tracts Watershed Co-Management Activity

USAID funded CHTWCA is managed by UNDP to improve climate resiliency and biodiversity conservation in the CHT. The CHT traditional leaders including Headmen and Karbaris, based on stakeholder consultations, have so far identified (see Annex 1 for the list) 379 community managed forests, locally known as Mauza forests or Village Common Forests in the CHT, with the possibility of more VCFs that are still to be identified and included in the list in future. Conservation of VCFs is critical to not just managing the biodiversity of the forests but also for the livelihoods of local people who are dependent on VCFs for supplying house construction materials, medicinal plants, food and water, and in some cases earning income by managing bamboo resources. Indigenous practices of forest conservation through the centuries have kept these forests alive. In total 219 VCFs are included under CHTWCA for their improved community management for biodiversity conservation and livelihoods. Following the VCF selection, an assessment of floral and faunal diversity was taken up in 20 sampled VCFs by engaging the Institute of Forestry and Environmental Sciences of the Chittagong University (IFESCU).

1.4 Objectives of Flora and Fauna Assessment

The flora and fauna assessment attempts to identify and promote suitable approaches for improved biodiversity conservation of the VCF ecosystems in the CHT with the following specific objectives:

a. To establish a baseline inventory on floral and faunal diversity of twenty purposively sampled VCFs;

b. To identify and analyze knowledge gaps of the targeted VCFs; and

c. To develop a community-based biodiversity monitoring system for detecting and monitoring changes in floral and faunal diversity of VCFs.

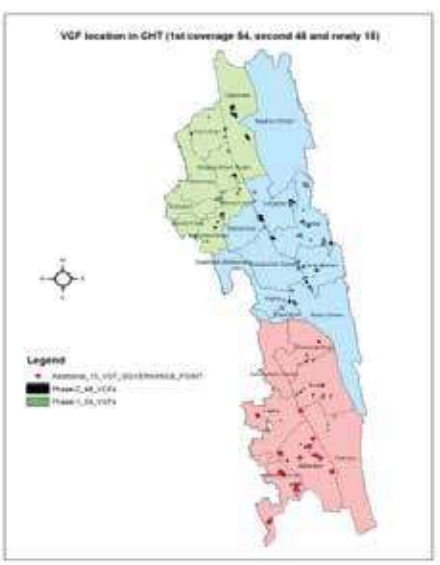
CHAPTER 2:VILLAGE COMMON FORESTS

2.1 Village Common Forests

Mouza forests or VCFs are natural forests that are traditionally conserved and managed as forest commons by neighboring communities who depend on them for forest produce and ecosystem functions and services for their subsistence consumption and local economy. Each VCF is approximately 20 – 275 hectares (ha), but few are of as little as 8 ha. Most of the VCFs in recent past have been subjected to biotic pressure for demands of forest products from an increasing number of populations living in the CHT. The CHT Regulation of 1900 allowed the traditional leaders, namely the Circle Chiefs (Rajas), Headmen or Mouza heads and Karbaris or village/para heads, with the participation of communities, to manage the natural resources of the VCFs as they played a major role in the lives and livelihoods of local communities, including ensuring water flows in the small streams and rivers that are main source of fresh water used for drinking, household uses and small irrigation for agriculture in the CHT.

The conservation and sustainable management of VCFs is critical to not just managing their biodiversity but also for the lives and livelihoods of local people who are dependent on them for supplying house construction materials, medicinal plants, foods, earning income, etc. Indigenous practices of forest conservation implemented by local community through the centuries have kept many of these forests alive and conserved. The conservation of VCFs was initiated during the British Period to offset the gradual depletion of forests in the wake of steady increase of population and to maintain the balance in nature. Local communities traditionally practiced land-based livelihood activities in valleys and around the forests. land productivity and providing land-based livelihoods to local community. The dependence of local community on neighboring forests has traditionally been high not only for forest produce but also for forest ecosystem functions and services including yield of water and fertile soils.

Village Common Forest



VCF Map

The symbiotic relationship between local community and the CHT forests has increasingly come under great stress due mainly to market forces and increasing biotic pressure including in-migration. Sustainability of VCFs presently face challenges due to VCF degradation and deforestation, and encroachments, with main drivers being increasing biotic pressure, poverty, expanding agriculture, urbanization, lack of awareness to conserve forests, and inadequate investment for forest protection and development. Many of these VCFs

(see Figure 1) are still rich in biodiversity as brought out from the flora and fauna study which also revealed that a further loss or reduction in native floral diversity in VCFs will seriously affect ecosystem functioning, resulting in disruption in availability of water and soil productivity in the CHT. It will lead to fragmentation of natural habitat for resident wild fauna, which in turn will negatively affect livelihoods of VCF communities. Therefore, there is an urgent need to undertake efforts for restoration of VCFs which will eventually help improve natural habitat and livelihood opportunities of local people. To conserve the existing VCFs, in total 132 VCFs (see VCF map at Figure 2) have so far been brought under improved community management under CHTWCA and 87 new VCFs are being added for their community conservation.

VCFs, most with encompassing water bodies, are located within mouza boundaries. All households in neighboring paras/communities become members of a management committee which develops and implements necessary management guidelines and plans to protect forests and regulate collection of forest produce for their household uses. They are source of food, water, household materials, fuelwood, traditional medicinal plants, and wildlife which are directly related to their livelihoods. In addition, VCFs are directly linked to cultural traditions and spiritual beliefs of different tribal communities. VCF management committees play significant role in livelihood pursuits of remotely located marginalized communities in the CHT.

A policy consultation workshop (see the adjoining Figure) on 'Mainstreaming of Village Common Forests in Chittagong Hill Tracts' was organized on 19 June 2019 at Chattogram. The workshop was inaugurated by Mr. Md. Mesbahul Islam, Secretary, MOCHTA with Mr. Suddata Chakma, Additional Secretary (Development) and National Project Director, SID-CHT and Mr. Thomas Pope, Director of Economic Growth Office, USAID Bangladesh as Special Guests. The participants of this important workshop included key CHT stakeholders including the Chief Executive Officers of the three Hill District Councils and representatives of the three Circle Chiefs and other important CHT institutions and leaders. Main purpose of the workshop was to contribute to improved understanding of key issues, framework, and strategic interventions necessary for mainstreaming of the VCFs. Specific objectives of the workshop included: i) to review and analyse, through key stakeholder consultations, the existing legal and policy framework for mainstreaming of VCFs; ii) in consultation with key stakeholders, to discuss options for mainstreaming VCFs within the existing GOB policy and legal framework, and iii) to suggest plausible steps for mainstreaming of VCFs. Main deliberations of the workshop are briefly reproduced as below:

The CHT Regulation 1900 (sections 41 and 42) provides for management of the Mauza forests or VCFs by the traditional institutions and community, namely the Circle Chiefs, Headmen or Mouza heads, and Karbaris or village/para heads, with the participation of local communities. All forests (except Reserved Forests as managed by Forest Department) presently under the control of Deputy Commissioners, are to be transferred to the three Hill District Councils (HDCs) as per the Hill District Council Acts of 1989 as they are important, particularly for meeting the demands of local people and the region's economy. A legal basis for mainstreaming of VCFs, therefore, exists. The VCF management committees (each comprising

Mr. Goutam Dewan delivering his presentation

10-15 members including 5 office bearers) as organized and developed under CHTWCA are responsible for sustainable management of VCFs. In the second National Steering Committee held on 1 October 2018 under the chairmanship of the Hon'ble Minister, MOCHTA decided to closely associate the traditional leaders including Headmen and Karbaries with sustainable management of VCFs.

The workshop was opened by National Project Director of SID-CHT and Additional Secretary (Development), Ministry of Chittagong Hill Tracts Affairs of Bangladesh Government, Mr. Sudatta Chakma, who after welcoming the participants, requested them to share their views and suggestions on mainstreaming the VCFs. He said that the role of forests including VCFs in the CHT is specifically significant particularly due to its high vulnerability to climate change, and dependence of poor people on forests for ecosystem goods, services and functions. He said that in the CHT, there are presently about 379 VCFs which are community managed forests that local communities traditionally conserved and managed.

Mr. Thomas Pope, Director of Economic Growth Office of USAID Bangladesh said that VCFs play an important role in the wellbeing of local communities who should be empowered to work closely with the traditional and relevant government authorities. Their voices and participation should be part of the decision-making process on how the VCFs are conserved and protected. VCF management committees have provided suitable platforms where local communities can work hand in hand with the Government of Bangladesh through the HDCs and in consultation with the Circle Chiefs.

Mr. Md. Mesbahul Islam, Secretary, MOCHTA said that forest functions as a renewable resource to sustain society and natural environment by providing provisioning, supportive, and regulatory goods and services to the community, the country and beyond. He stressed that a meaningful partnership of local community in restoration of the CHT forests including VCFs is very important not only for forest conservation but also for poverty alleviation and community development. Managing VCFs sustainably for yielding water and soil, in addition to non-timber forest products (NTFPs) such as bamboo and medicinal plants, is important for ensuring food security in the CHT, which is predominantly an agrarian economy. He said that mainstreaming of VCFs is important and should be done by developing an appropriate mechanism.

Secretary, MOCHTA delivering his speech

Mr. Goutam Dewan, one of the two key note presenters in the workshop and an ex-Chairman of Rangamati Hill District Council, gave an overview on legal framework for VCFs and indigenous ways of doing conservation in VCFs that are protected under the existing legal framework: (i) Rule 41 A (B) of 1900 Regulation authorize Headman to conserve Mouza forests., (ii) standing order by Deputy Commissioner in 1965, asking the mouza Headman to preserve at least 40 ha in single block or several blocks as mouza reserves, and (iii) the HDC Acts, 1989 (and amendments thereafter).

In his closing remarks Mr. Sudatta Chakma thanked all the participants for important deliberations and making significant recommendations to protect forests through conservation of VCFs. He said that the MoCHTA will make concerted efforts to take effective measures for the protection of VCFs in consultation/participation with key stakeholders.

In his closing remarks, Mr. Md. Mesbahul Islam stressed that we must conserve/protect the VCFs for our own good/necessity by improving management capacities of the VCF management committees and ensuring tangible benefits for the beneficiaries/communities involved. He also stressed to identify more VCFs for scaling up conservation activities.

2.2 Flora and Fauna Study

The participants of the workshop were informed that a Flora and Faunal Stocktaking Assessment was conducted by the Institute of Forestry and Environmental Sciences of Chittagong University during July 2016-August 2017 by purposively sampling 20 VCFs for establishing a baseline inventory on floral and faunal diversity, identifying knowledge gaps, and developing a floral and faunal biodiversity monitoring system. The final report of the assessment was prepared by analysis of all data collected from field surveys including sample surveys of both flora and fauna diversity in the 20 sampled VCFs, and sessions of Focus Group Discussions (FGDs) and Key Informant Surveys (KISs) and other questionnaire surveys involving participants from the VCF management committees and other key stakeholders. In the subsequent chapters the report summarizes the main findings of this important study.

CHAPTER 3: VCF BIODIVERSITY ASSESSMENT METHODOLOGY

3.1 Floral diversity study methodology

Flora sampling was done twice, once in the wet season (September to November 2016) and then in the dry season (December 2016 to March 2017). For quantitative assessment of plant diversity, quadrat method was followed, with the size of each quadrat being 10 m x 10 m. The number of quadrats for each VCF was determined as follows: for the VCFs of size 40 ha or less the number of quadrats was 5, and for the VCFs of size larger than 40 ha the number of quadrats was multiples of 5. In each quadrat Geo-referencing (Latitude, Longitude) were recorded with the help of a GPS device. During the second round of visits, transect lines each of 100 m length along four directions from a point inside each VCF were laid out to record plant species encountered within a 2 m width, 1 m away from both left- and right-hand sides of the transect line. In addition, height (in meters) and diameter at breast height (dbh in cm) for tree species were measured.

Using the data from both the first and the second round of visits, recorded plants were categorized into sub-groups such as tree, herb, shrub, climber, bamboo, and epiphyte. The parameters commonly used to characterize the structure of the plant communities were: i) Density; ii) Frequency; and iii) Abundance. These parameters were combined to determine Importance Value Index (IVI). Relative density, relative frequency, relative abundance, and IVI were calculated. Biodiversity indices were estimated to determine the richness of plant species (trees, herbs, and shrubs). A master inventory (placed as Annexure A) list of all plant species recorded in the 20 sampled VCFs was developed. Indicator plant species (see Annexure D) for each VCF were determined based on ocular observation and were verified using data from the VCF-wise lists of plants.

3.2 Faunal diversity study methodology

Prior to making field observation of fauna, 3-5 local village people were contacted in each VCF for interview. They, with the help of structured questionnaires, were tasked for survey of local people's knowledge about wildlife diversity, and beneficial and harmful insects. Faunal habitat types correspond to the vegetation types identified in the vegetation baseline survey. The timing for faunal survey was matched with floral survey, whenever possible. Field data were collected in detail with respect to species names, number of individuals (in case of insects), Global Positioning System (GPS) coordinates, etc. The fauna list was prepared on the basis of observed animals and insects actually detected in each VCF site and its adjacent area and also those potential species that were not detected during field survey but have been reported by the interviewees to occur in the VCF areas. Identification of species were confirmed based on in-house expertise as well as with the help of relevant literature.

3.2.1 Survey on entomo-fauna

Entomo-fauna or insects were collected by following forest entomo-fauna collection procedures, such as direct observation, manual collection and traps collections. The sampling method followed was simple random sampling or opportunistic survey. In addition to collection of insect-samples for identification, selected people from each VCF were interviewed about their knowledge regarding beneficial/harmful entomo-fauna.

3.2.2 Survey on crustaceans, mollusks, and fish

Survey of crustaceans, mollusks and fish was conducted in the existing water bodies (for example, creeks or jhiri and streams or chara) by using local techniques with the help of local people. Unidentified specimens were preserved and brought to experts at the Department of Zoology,

Chittagong University for proper identification. Data were recorded in the formatted data collection sheet.

3.2.3 Survey on heterofauna

The following two popular methods were applied for recording the diversity of herpetofauna (amphibians and reptiles) in the selected VCFs:

- Direct Area Search Method
- Pitfall Trapping

Opportunistic observation was also made to prepare species profile of amphibians and reptiles in the selected areas.

3.2.4 Survey on birds

The survey on diversity of birds was carried out by employing the following two methods:

- Point Count sampling
- Line Transect

3.2.5 Survey on mammals

Mammals' survey was conducted by Line Transect method. Forest logging trails, bridle paths and hilly streams were used as transects. Opportunistic census information (scats, signs and calls) was also included in confirming the existence of the species. Beside Line Transect method, camera traps were also used to know the presence of any mammalian species. Camera traps were set up in 3 larger size VCFs, one in each of the three Hill Districts. Data was recorded in the formatted data collection sheet.

3.3 Data analysis

Information from each of the data sheets was compiled for data analysis. Checklist of each fauna group namely crustaceans, mollusks, fish, amphibians, reptiles, birds, mammals and insects for each VCF was developed from the lists of species recorded in data sheets. For each VCF, indicator fauna species have been determined based on data collected from the field. Combined checklists (or master inventory lists) for wild animals (crustaceans, mollusks, fish and wildlife) and insects were also developed for all the VCFs.

3.4 Focus Group Discussion

FGDs were conducted with participants represented by the members of the VCF management committees of the respective VCFs.

3.5 Key Informant Survey

Key Informant Surveys were conducted with participants represented by the Chairpersons of the respective VCF management committees.

3.6 Questionnaire Survey

The questionnaire surveys (local knowledge about wildlife and insects) were conducted with participants from the local community.

CHAPTER 4: BIODIVERSITY OF FLORA AND FAUNA

The 20 sampled VCFs provided an overall picture of the physical assessment of forest biodiversity in the CHT VCFs. The following sections provide VCF-wise descriptions, whereas master lists of the flora species and the fauna species inventoried in the 20 sampled VCFs are placed as Annexure B and Annexure C respectively.

4.1 Kaindya Egojyasori (Sagorbanda) Service VCF

A total of 152 plant species belonging to 121 genera under 59 families were recorded from the Kaindya Egojyasori (Sagorbanda) Service VCF, of which 51 were herbs, 24 shrubs, 48 trees, 26 climbers and 03 epiphytes. The tree species Wrightia arborea (local names: Dudh-koraiya, Dudhkurush, Indrajab, Shet-kurchi), is the indicator plant. Plant species which are abundantly available in the VCF are: Amloki, Bohera, Gutgutya, Khona Gulo, Bamboos, Gondhobadali, and Mohapothi Gach, from which fruits, leaves or seeds can be harvested plentifully for use. The moderately available plants are: Lotkon and Sorbaik Gulo, fruits of which can be harvested once every fortnight in fruiting season. Plants with decreasing availability are: Fakgulu, Haritaki, Barottho Gulo, Jam, Thankuni and Akondo, from which plant parts can be harvested judiciously so that their natural regeneration is not affected adversely. Bamboos (muli bans) are abundant, and their presence is crucial for maintaining stream flow which is currently in a very good state in the VCF. Therefore, mature bamboo culms can be harvested with permission of VCF management committees. However, removal of mature bamboos during the regeneration period (May to September) should be restricted when new culms come up.

Dudhkurush or Shet-kurchi: Wrightia arborea

Leopard Cat

A total of 114 species of wild animals were observed in Kaindya Egojyasori VCF. Among them 4 species were crustaceans, 2 mollusks, 6 fish, 11 amphibians, 17 reptiles (5 lizards, 11 snakes and 1 tortoise), 54 birds and 20 mammals. In addition, 59 insect species were identified. Leopard cat is the indicator animal species in the VCF. In Kaindya Egojyasori VCF, 59 insect species belonging to 29 families and 12 orders were recorded. Among the identified insect species 6 are direct pests and 15 are pollinators. Omphisa fuscidentalis, Gryllides sp., larvae of wasps and bees are usually consumed as food by the locals and other insects play crucial role as bioindicators. Of the wild animals recorded, 4 species belong to crustaceans under 2 families, 2 mollusks under 2 families, and 6 fish under 3 families. Eleven species of amphibians from 5 families, 17 species of reptiles, 54 birds from 26 families, and 20 mammals from 13 families were recorded. Nineteen species of birds were sighted, and 16 species of mammals were recorded. Most wild animals as recorded were bird species (54 species or 47.37% of total animal species) while the least were mollusks (2 species or 1.75% of total animal species).

4.2 Bonjogisora VCF

Boehmeria glomerulifera

A total of 112 plant species including 95 genera under 51 families were recorded from the Bonjogisora VCF. Of the total number of species, 44 were herbs, 16 shrubs, 33 trees and 19 climbers. Boehmeria glomerulifera, a shrub (local names: Urmurpata, Mrangna, Aruleng, Holemfry), is the indicator plant. Plant species which are abundantly available in the VCF are: Dumur and Bohera which play important role in holding moisture in a forest ecosystem as well as act as source of food for wildlife. Fruit can be harvested from these trees once every fortnight in fruiting season. The moderately available plants are: Amloki, Gutgutya, Jongoler Am, Jam, Jongoler Alu, Mormoiccha Amili and Thankuni, from which fruits and other plant parts can be harvested judiciously. Plants with decreasing availability are: Lotkon, Sorbaik Gulo, Chapalish, Borta, Hortoki, Rog Cokho, Hubong Bichi, Nolam, Long Da Kochu, Dhenki Shak, Chiun Sakh, Katthol Dinghy, Tara Shak, Changi Tara, Tita Kochu, Gondho Pata Luthi, Lelong Pata, Pilai Sakh, Bai Sakh and Jongoilla Sakh, from which fruit and plant parts may be harvested carefully.

Most of the plants of decreasing availability are herbaceous and shrubby plants which are of culinary importance to local communities. Artificial regeneration of these plants needs to be started particularly in the unutilized or underutilized land parcels. Bamboos (muli bans) are abundant, and their presence is crucial for maintaining stream flow which is currently in a very good state in the VCF.

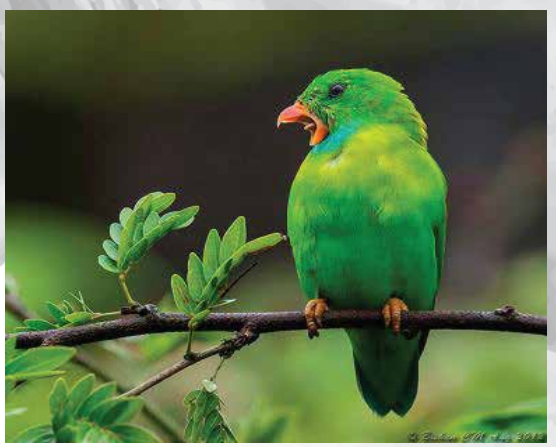
A total of 152 species of wild animals were observed in Bonjogisora VCF. Among them 3 species were crustaceans, 2 mollusks, 6 fish, 8 amphibians, 28 reptiles (11 lizards, 15 snakes, 1 turtle and 1 tortoise), 75 birds and 28 mammals. In addition, 61 insect species were identified. Kalij Pheasant is the indicator animal species in the VCF. In the survey, 3 crustaceans (Golda Chingri, Thengua Icha and Shadu Panir Kakra), 2 mollusks (Poba Shamuk and Leja Shamuk), 6 fish species (Darkina, Mola, Pati Chela, Taki, Gechua, Gutum) were directly observed in the streams. During the breeding season in the monsoon, the harvesting of these species must be stopped for at least 2 to 3 months. Among the insects, Urchunga, larvae of wasps and bees are consumed as food by the locals. The insects can be harvested during the swarming period and larvae of insects can be harvested when they are available in the forest. Harvesting of insects and larvae should be allowed for a maximum of one week in a season.

4.3 Basanta Pangkhua Para Reserve VCF

A total of 130 plant species including 107 genera under 60 families have been recorded from the Basanta Pangkhua Para Reserve VCF. Of the total number of species, 53 were herbs, 14 shrubs, 40 trees, 22 climbers and 01 epiphyte. Boehmeria glomerulifera, a shrub (local names: Urmurpata, Mrangna, Aruleng, Holemfry), is the indicator plant species. Plant species which is abundantly available in the VCF is Suruj Gulo (its fruit is used by the Pangkhua community), fruit of which can be harvested once every fortnight in fruiting season. The moderately available plants are: Amloki, Bohrera, Saikkha Chola, Shukura Mili, Jurbopai Sakh, Bagol Bichi, and Lichu Taichang, from which fruits and other plant parts may be harvested judiciously. Plants with decreasing availability are: Gutgutya, Am, Chapalish, Haritaki, Chiun Sakh, Bamboo, Mormoiccha Amili, Changi Tara, Amra and Ahnarai, from which fruits and other plant parts may be harvested carefully.

Most of the plants of decreasing availability are fruit trees which also are sources of wildlife food. Artificial regeneration of some of these plants (Am, Chapalish, Haritaki and Amra) should be started, particularly in the unutilized or underutilized land parcels. Bamboos (muli bans) are decreasing, and their presence is crucial for maintaining stream flow which is currently in a very poor state in the VCF. Therefore, there

should be restrictions on harvesting of bamboos from the VCF. However, removal of over-mature bamboos beyond the regeneration period (May to September) may be allowed by the VCF management committee.



Vernal Hanging Parrot (upper storey bird)

A total of 155 species of wild animals were observed in the VCF. Among them 4 species were crustaceans, 2 mollusks, 3 fish, 8 amphibians, 25 reptiles (8 lizards, 13 snakes, 4 turtle and tortoises), 88 birds and 25 mammals. In addition, 79 insect species were identified. Barking Deer is the indicator animal species in the VCF. In the survey, 4 crustaceans (Golda Chingri, Thengua Icha, Goda Chingri and Shadu Panir Kakra), 2 mollusks (Poba Shamuk and Leja Shamuk), 3 fish species (Darkina, Pati Chela, and Gechua, Gutum) were directly observed in the streams.

As populations of the above-mentioned fauna have not declined, they can be harvested once a month. VCF management committee may, once a month, allow the nearby villagers to harvest these faunas from the streams. However, harvesting must be stopped for at least 2 to 3 months during the breeding season in the monsoon period. It was mentioned by the villagers that larvae of wasps and bees are consumed as food by the locals. Larvae of insects can be harvested when they are available in the forest. Harvesting of larvae should be allowed for a maximum of one week in a season.

4.4 Bamer Bagchori VCF

A total of 108 plant species including 85 genera under 47 families have been recorded from the Bamer Bagchori VCF. Out of the total number of species, 50 were herbs, 28 shrubs, 19 trees, 10 climbers and 01 epiphyte. Cheilocostus speciosus, an herb (local names: Keu, Kedogi), is the indicator plant in the VCF. Plant species which are abundantly available in the VCF are: Gutgutya, Ojon Shak, Dhenki Shak, Hutthi Jugo, Batbaitta Shak, Chiun Shak, Hekrok, and Batbaitta Shak, which are mostly edible herbaceous plants and can be harvested once every 3 months. The moderately available plants are: Amloki, Katthol Dinghy, Chedok Shak, Jongli Ada, Parunga Shak, Jongli Alu, Heing Alu, Pana Alu, Ramba Alu, and Huruba Alu.

Most of the above-listed plants are of culinary importance and so should be harvested judiciously. Plants with decreasing availability in the VCF are: Cau, Bohera, Hujum, Heth Gulo, Haritaki, Sorbaik Gulo, Jogna Gulo, Borta Gulo, Chalta Gulo, Jharbo Lichu, Chamini Katthal, Nolam, Regchok, Aafza Gulo, Jogna Gulo, Bon Boroi, Eureng Shak, Baruna Shak, Dou Alu and Hirija Aga, most of which are tree species that are critically important for maintaining the VCF ecosystem (soil moisture and fertility, food for wildlife, etc.). Therefore, special attention must be paid for conserving the remaining populations of these species.

Cheilocostus speciosus

Three bamboo species namely, muli bans, kanta bans and mitinga bans were abundantly available in the VCF. Therefore, the removal of mature bamboo culms from the VCF may be allowed by the VCF management committee, but only beyond the regeneration period (May to September).

A total of 161 species of wild animals were observed in Bamer Bagchori. Among them 3 species were crustaceans, 2 mollusks, 5 fish, 11 amphibians, 19 reptiles (6 lizards, 11 snakes, 2 turtle and tortoises), 89 birds and 32 mammals. In addition, 49 insect species were identified. Black Giant Squirrel is the indicator animal species in the VCF. In the survey 3 crustaceans (Golda Chingri, Thengua Icha, and Shadu Panir Kakra), 2 mollusks (Poba Shamuk and Leja Shamuk), and 5 fish species (Darkina, Mola, Pati Chela, Taki and Gutum) were directly observed in the streams.

As populations of the above-mentioned fauna have not declined, they can be harvested once a month. VCF management committee may allow the villagers once a month harvesting of these faunas from the streams. However, harvesting must be stopped for at least 2 to 3 months during the breeding season in the monsoon period. Among the insects, Urchunga, larvae of wasps and bees are consumed as food by the locals. The insects can be harvested during the swarming period; however, larvae of insects can be harvested when they are available in the forest. Harvesting of insects and larvae should be allowed for a maximum of one week in a season.

4.5 Begenasori VCF

A total of 161 plant species including 123 genera under 72 families have been recorded from the Begenasori VCF. Of the total number of species, 67 were herbs, 21 shrubs, 48 trees, 23 climbers and 02 epiphytes. Maesa indica, a shrub (local names: Sain Khuing Trang, Thah Mong Su), is the indicator plant species in the VCF. Plant species which are abundantly available in the VCF are: Jogna Gulo, Bohera, Amloki, Dhenki Shak, and Ketrang Sakh, most of which are tree species necessary for maintaining the VCF ecosystem health. Among these, fruit tree species (Jogna Gulo, Bohera, Amloki) can be tapped for harvesting fruits once in a fortnight in the fruiting season, whereas the herbaceous plants can be harvested once every 3 months. The moderately available plants are Bon Ada, Jongli Kola, Oiccheng Sakh, Ambor Sakh, Mormoiccha Amili, Lelong Pata and Puthting Gulo, most of which are herbaceous plants of culinary importance and, therefore, should be harvested judiciously. These plants can be cultivated in the unutilized land parcels.

Plants with decreasing availability in the VCF are: Sorbaik Gulo, Lotkon, Cau, Jongli Am, Bandor Marfa, Haritaki, Fungri Gulo, Paillong Sakh, and Killiya Sakh, most of which are tree species important for the VCF ecosystem. Therefore, though harvesting fruit from these plants (except the herbs) can be allowed, conservation measures (for example, allowing natural regeneration to thrive) must be taken so that their populations do not decline. Four bamboo species, namely muli bans, kanta bans, mitinga bans and pharua bans were abundantly available in the VCF. Therefore, selective removal of mature bamboos from the VCF (beyond the regeneration period, May to September) may be allowed by the VCF management committee.

Hasmoragach: Maesa indica

A total of 126 species of wild animals were observed in Begenasori VCF. Among them 2 species were crustaceans, 1 mollusk, 5 fish, 15 amphibians, 25 reptiles (12 lizards, 11 snakes, 2 turtle and tortoises), 53 birds and 25 mammals. In addition, 56 insect species were identified. Blue-throated Lizard is the indicator animal species in the VCF. In the survey 2 crustaceans (Golda Chingri and Shadu Panir Kakra), 1 mollusk (Poba Shamuk), 2 fish species (Darkina and Mola) were directly observed in the streams. Harvesting of these species must be stopped for at least 2 to 3 months during the breeding season in the monsoon

period. Among the insects, Urchunga, larvae of wasps and bees are consumed as food by the locals. The insects can be harvested during the swarming period; however, larvae of insects can be harvested when they are available in the forest. Harvesting of insects and larvae should be allowed only for a maximum of one week in a season.

4.6 Sapsori Para VCF

In Sapsori Para VCF, 165 plant species belonging to 123 genera under 58 families were identified, of which 60 were herbs, 22 shrubs, 52 trees and 31 climbers. Costus speciosus, a shrub (local names: Premdaba, Prayan Chondu, Pekhum, Oal Sup), is the indicator plant species. Plant species which are abundantly available in VCF are: Dumur Gulo, Jogna Gulo, Gutgutya, Jam, Amloki, Jharbo Jolpai, bamboo, Chiun Sakh, Ek Dhaikkya Kochu, Tita Kochu, Gondho Pata Luthi, Ram Kola and Kirija Luthi. Dumur Gulo, Jogna Gulo, Gutgutya, Jam, Amloki, Jharbo Jolpai tree species are important for maintaining the VCF ecosystem health as well as sources of fruits both for humans and wildlife. The other plant species are source of vegetables for the community. Trees can be harvested for fruits once every fortnight in fruiting season, and the others plant parts can be harvested once every 3 months. T

He moderately available plants are: Sorbaik Gulo, Mou Alu, Ram Alu, Pun Alu and Koi-ung Alu, most of which are herbaceous plants of culinary importance, and, therefore, should be harvested judiciously. These plants can be cultivated in the unutilized land parcels. Plants with decreasing availability in the VCF are: Khona Gulo, Chapalish, Gere Am, Barottho Gulo, Bandor Marfa, Jharbo Kakrol, Tapasi Gulo, Horin Kun Sakh and Horoi Ahga Luthi, which should be harvested very carefully. Four bamboo species, namely muli bans, kanta bans, mitinga bans and pharua bans are abundantly available in the VCF. Therefore, the removal of mature bamboos from the VCF beyond the regeneration period (May to September) may be allowed by the VCF management committee.

Premdaba: Costus speciosus

A total of 184 species of wild animals were observed in Sapsori Para VCF. Among them 4 species were crustaceans, 2 mollusks, 10 fish, 9 amphibians, 30 reptiles (14 lizards, 12 snakes, 4 turtle and tortoises), 95 birds and 34 mammals. In addition, 77 insect species were identified. Indian Pangolin is the indicator animal species in the VCF. In the survey, 4 crustaceans (Golda Chingri, Thengua Icha, Goda Chingri and Shadu Panir Kakra), 2 mollusks (Poba Shamuk and Leja Shamuk), 10 fish species (Darkina, Chap Chela, Anjani, Pati Chela, Taki, Gechua, Bailla, Gutum, Tengra, Chanda) were directly observed in the VCF streams. Among the insects, Urchunga, larvae of wasps and bees are consumed as food by the locals. The insects can be harvested during the swarming period and the larvae of insects can be harvested when they are available in the forests. Harvesting of insects and larvae should be allowed for a maximum of one week in a season.

4.7 Hajasora O Bileisori Mon Para VCF

A total of 142 plant species; consisting of 61 herbs, 20 shrubs, 37 trees and 24 climbers; belonging to 107 genera under 54 families have been recorded from the Hajasora O Bileisori Mon Para VCF. Ficus hispida, a tree (local names: Dhumur Gula, Fah Shai Ba, Luhuk, Thainjang), is the indicator plant in the VCF. Plant species which are abundantly available in the VCF are: Gutgutya, Sorbaik Gulo, Dhenki Sakh, Chiun Sakh, Kochu Sakh, Lonki Kochu, Tita Kochu, Jharbo Ol Kochu, Kutthi Jor Go Ahga, Lelong Pata and bamboos, most of which are plants of culinary importance, therefore, can be harvested plentifully. The moderately available plants are: Jam, Amloki, Bohera, Jogna Gulo, Ek Dhaikkya Kochu, Tita Kochu, Kola, Sajok Sakh and Kirijer

Ahga, most of which are herbaceous plants of culinary importance and should, therefore, be harvested judiciously. These plants can be cultivated in the unutilized land parcels.


Kalij Pheasant (lower srtata/undergrowth living bird)

Plants with decreasing availability in the VCF are: Kusum-Gulo, Camini Katthol, Haritaki, Dol-Cau, Gere Am, Jharbo Amra, Heth Gulo, Kali Kusum, Bandar Marfa, Barottho-gulo, Kattol Dinghi, Semail Phul, Kungra Gulo, Banduk Kochu, Chingai, Khor Ahga, Mormoiccha Amili, Moghoma Gach, and Muj Cokh Bichi Gach, more than 50% of which are different tree species which deserve special attention for conservation. The other species are mostly herbaceous plants of culinary importance, which should be harvested very carefully. Four bamboo species, namely muli bans, kanta bans, mitinga bans and pharua bans are abundantly available in the VCF. Therefore, removal of mature bamboos from the VCF (beyond the regeneration period, May to September) may be allowed by the VCF management committee.

A total of 129 species of wild animals were observed in Hajasora O Bileisori Mon Para VCF. Among them 4 species were crustaceans, 2 mollusks, 8 fish, 12 amphibians, 18 reptiles (8 lizards, 9 snakes, 1 tortoise), 72 birds and 13 mammals. In addition, 64 insect species were identified. Capped Langur is the indicator animal species in the VCF. In the survey, 4 crustaceans (Golda Chingri, Thengua Icha, Goda Chingri and Shadu Panir Kakra), 2 mollusks (Poba Shamuk and Leja Shamuk), and 8 fish species (Darkina, Chela Punti, Chap Chela, Anjani, Taki, Gechua, Bailla and Gutum) were directly observed in the streams. Among the insects, Urchunga, larvae of wasps and bees are consumed as food by the locals. The insects can be harvested during the swarming period; the larvae of insects can be harvested when they are available in the forest. Harvesting of insects and larvae should be allowed for a maximum of one week in a season.

4.8 Badol Sori Vadi Sora VCF

A total of 169 species under 121 genera and 66 families were recorded, which consists of 56 herbs, 44 trees, 41 shrubs, 26 climbers and 2 epiphytes. Molineria capitulate, an herb (local names: Milnipata, Wailfa, Waleng), is the indicator plant in the VCF. Plant species which are abundantly available in the VCF are: Jam, Bohera, Jogna Gulo, Gutgutya, Damor Gulo, Khona Gulo, Jharbo Boroi, Popung Bichi, Dhenki Sakh, Chiun Sakh, Kochu Sakh, Tita Kochu, Long Da Kochu, Jongli Kola, Ol Kochu, Banduk Kochu and bamboos, among which all tree species are important for maintaining the VCF ecosystem health, and the rest of the plant species are of culinary importance. The moderately available plants are: Sorbaik Gulo, Lotkon, Haritaki and Borta Gulo, from which fruits can be harvested but judiciously.

Plants with decreasing availability in the VCF are: Jongli Am, Parejung Bichi, Cau Gulo (rare), Chamini Gulo, Jharbo Litchi (rare), Bandar Marfa, Pile Gulo, Nolam, Rosko (endangered), Pok Gulo, Tattol Gulo, Jharbo Korola, Jharbo Kakrol, Sajok Sakh, Michri Fol, Padubash Luthi, Sabarung Pata, Mudra Lota, Katthol Dinghi, Parunga Sakh, Lelong Pata, Amra, Helia Sakh, Jangailla Sakh Tita Sakh, Jharbo Amila, Mudra Gach, Changi Tara, Tara Gulo, and Bethaghi, most of which are herbaceous and shrubby plants of culinary importance. These plants need to be harvested with caution (not more frequent than every 5 months), and attempts must be made for artificial regeneration of these plants in the underutilized parts of the homesteads present around the VCF area. Two bamboo species namely muli bans and kanta bans are abundantly available in the VCF. Therefore, removal of mature bamboos from the VCF beyond the regeneration period (May to September) may be allowed by the VCF management committee.

A total of 199 species of wild animals were observed in Badol Sori Vadi Sora VCF. Among them 4 species were crustaceans, 2 mollusks, 13 fish, 11 amphibians, 29 reptiles (12 lizards, 14 snakes, 3 tortoises), 95 birds and 45 mammals. In addition, 79 insect species were identified. Asian Elephant is the indicator animal

Milnipata: Molineria capitulata

species in the VCF. In the survey 4 crustaceans (Golda Chingri, Thengua Icha, Goda Chingri and Shadu Panir Kakra), 2 mollusks (Poba Shamuk and Leja Shamuk), 13 fish species (Darkina, Chela Punti, Kanchan Punti, Chap Chela, Anjani, Pati Chela, Taki, Gechua, Bailla, Gutum, Chanda, Mola, Kursha) were directly observed in the streams. Among the insects, Urchunga, larvae of wasps and bees are consumed as food by the local people. Harvesting of insects and larvae should be allowed for a maximum of one week in a season.

4.9 Arachari Para Ban VCF

A total of 126 plant species belonging to 101 genera under 58 families have been recorded from Arachari Para Ban (VCF) of which, 46 are herbs, 20 shrubs, 34 trees, 22 climbers and 04 epiphytes. Boehmeria nivea, a shrub (local names: Kankhura, Ramie, China grass), is the indicator plant. Plant species which are abundantly available in VCF are: Dumur Gulo, Amloki, Chapalish, Tokpata, Thankuni, Jongli Kola, Shimul Alu, Poung Dhoung, Danta Sakh, Nei Dha Lui Thei and Bamboos most of which are herabaceous plants of culinary importance, which can be harvested once every 3 months. The moderately available plants are: Alu, Cramu Sai, Bong Dhoung, Thing Chut Thei, Gong Thei, On Tung Buk Thei and Krang Thei, most of which are herbaceous plants of culinary plants, which can be harvested for various plant parts.

Plants with decreasing availability in the VCF are: Lotkon, Kat badam, Jongoler Am, Pang Pain Thei, Kel Bok Thei, Thun Kung, U Kho Bol Thei, Khunga Thei and Pokh Woakh Pa, most of which are culinary plants and should be harvested with caution (once every 5 months), otherwise their populations will further decline. Four bamboo species namely muli bans, kanta bans, mitinga bans and pharua bans are abundantly available in the VCF. Therefore, removal of mature bamboos from VCF beyond the regeneration period (May to September) may be allowed by the VCF management committee.

Kankhura: Boehmeria nivea

Rare Catfish

A total of 143 species of wild animals were observed in Arachari Para Ban VCF. Among them 3 species were crustaceans, 2 mollusks, 11 fish, 11 amphibians, 29 reptiles (12 lizards, 14 snakes, 3 tortoises), 64 birds and 23 mammals. In addition, 61 insect species were identified. Streaked Spiderhunter is the indicator animal species in the VCF. In the survey 3 crustaceans (Thengua Icha and Goda Chingri and Shadu Panir Kakra), 2 mollusks (Poba Shamuk and Leja Shamuk), 11 fish species (Darkina, Chela Punti, Jaya, Taki, Bailla, Balichata, Goalpara Loach, Chanda, Ranga Chanda, Mola, Kursha) were directly observed in the streams.

4.10 Itchari VCF

In Itchari VCF, 118 species belonging to 101 genera and 54 families have been recorded, of which 48 were herbs, 13 shrubs, 30 trees, 26 climbers and 01 epiphyte. Melastoma malabathricum, a shrub (local names: Masmatairum, Koyi ing saw, Ak-Mio), is the indicator plant in the VCF. Plant species which are abundantly available in the VCF are: Amloki, Jam and Bohera from which fruits can be harvested once every fortnight in fruiting season. The moderately available plant is: Gutgutya which is an important plant for maintaining the VCF ecosystem health. Fruits from this plant should be harvested judiciously. Plants with decreasing availability in the VCF are: Chapalish, Haritaki, Lotkon, Sorbaik, Jogna Gulu, Borta Gulu, Hek Gulu, Cau Gulo, Borta, Amilik Bichi, Parejung, Jongli Am, Thankuni, Chiun Sakh, Amila, Gondhobadali, Parang Shak, Tita Kochu, Jharbo Kochu, Ojon Shak, Rani Sing, Kedogi (rare) and Lelong Pata.

Some of the tree species (for example, Jogna Gulu, Chapalish, etc.) are crucially important for maintaining VCF ecosystem health. But they have declining populations and, therefore, special attention must be given so that they may not decline further and their populations in future may thrive. The alarming factor is that many herbaceous and shrubby plants of culinary importance are also on the decline due to overharvesting. Only one bamboo species namely muli bans is abundantly available in the VCF.

A total of 113 species of wild animals were observed in Itchari VCF. Among them 3 species were crustaceans, 2 molluscs, 5 fish, 9 amphibians, 18 reptiles (10 lizards, 4 snakes, 4 tortoises), 50 birds and 29 mammals. In addition, 60 insect species were identified. Phayre's Leaf Monkey is the indicator animal species in the VCF. In the survey 3 crustaceans (Thengua Icha, Goda Chingri and Shadu Panir Kakra), 1 mollusk (Leja Shamuk), 13 fish species (Darkina, Taki and Balichata) were directly observed in the streams. As populations of the above-mentioned fauna have not declined, they can be harvested once a month. Among the insects, Urchunga, larvae of wasps and bees, fleshy maggots of flies, white ants are consumed as food by the locals. The insects can be harvested during the swarming period; however, larvae and maggots of insects can be harvested when they are available in the forest.

Masmatairum: Melastoma malabathricum

Black- hooded Oriole and Phayre' Leaf Monkey

4.11 Betchari Christian Para VCF

In Betchari Christian Para VCF 177 species under 139 genera and 60 families have been recorded, of which 70 were herbs, 53 trees, 24 shrubs, 29 climbers and 01 epiphyte. Leea indica, a shrub (local names: Kukur jiwa, Achila gach, Kra, Kre, Si Sa Kalo), is the indicator plant. Plant species which are abundantly available in the VCF are: Amloki, Jam, Bohera, Gutgutya, Jogna Gulu, Dhenki Sakh, Kochu, Tita Kochu, Jongli Kochu, Chiun Sakh, Ada, Dimi Titi Sakh, Holud, Nolam Loti, Pobong Loti, Rosko Loti and Pobak Gulo. Plants with

decreasing availability in the VCF are: Chapalish, Haritaki, Lotkon, Sorbaik, Borta Gulu, Bandor Marfa, Ojon Shina Gach, Lelong Pata, Jongli Tita Begun, Begol Bichi, Moiccha Amili, Chorbi Amili, Pioung Gulo, Totek Gozil Shak and Batbaitta Shak, which must be harvested with caution. The tree species with declining populations are Chapalish, Haritaki, Lotkon, Sorbaik and Borta Gulu. These species are ecologically important and, therefore, their conservation must be given due importance. Three bamboo species namely muli bans, kanta bans and borak bans are abundantly available in the VCF.

Kukurjiwa: Leea indica (Betchari Christian Para)

A total of 130 species of wild animals were observed in Betchari Christian Para VCF. Among them 3 species were crustaceans, 2 mollusc, 5 fish, 9 amphibians, 17 reptiles (13 lizards, 3 snakes, 1 turtle), 55 birds and 39 mammals. In addition, 80 insect species were identified. Red Jungle fowl is the indicator animal species in the VCF. In the survey 3 crustaceans (Golda Chingri, Thengua Icha and Shadu Panir Kakra), 2 mollusks (Poba Shamuk and Leja Shamuk), 5 fish species (Darkina, Pati Chela, Taki, Gechua and Gutum) were directly observed in the streams. Among the insects, Urchunga, larvae of wasps and bees are consumed as food by the locals.

4.12 Maischari VCF

A total of 96 plant species belonging to 78 genera under 78 families have been recorded from Maischari VCF; of which, 41 were herbs, 21 shrubs, 21 trees, and 13 climbers. Glochidion lanceolarium, a tree (local names: Kechchua, Bhauri; Kakra, Tsekaban), is the indicator plant in the VCF. Plant species which are abundantly available in the VCF are: Amloki, Jam, Bohera, Dhenki Sakh, Tita Sakh, Minmini Sakh, Amili Sakh and Jongoer Alu which can be harvested plentifully. Plants with moderate availability in the VCF are: Bandor Marfa, Gutgutya, Shimul, Jongli Tara and Kochu, which should be harvested judiciously. Plants with decreasing availability in the VCF are: Kusum, Haritaki, Jongli Boroi, Jongli Am, Fakgula, Mormoiccha Amili, Chiun Sakh, Katthol Dinghi and Lelong Pata, most of which are culinary plants used by the community and, therefore, must be harvested very carefully. Four bamboo species namely muli bans, kanta bans, mitinga bans and borak bans are abundantly available in the VCF.

A total of 108 species of wild animals were observed in Maischari VCF. Among them 2 species were crustaceans, 2 mollusks, 6 fish, 6 amphibians, 12 reptiles (9 lizards, 3 turtles and tortoises), 37 birds and 43 mammals. In addition, 61 insect species were identified. Elongated Tortoise is the indicator animal species in the VCF. In the survey 2 crustaceans (Thengua Icha, and Shadu Panir Kakra), 2 mollusks (Poba Shamuk and Leja Shamuk), 6 fish species (Darkina, Chela Punti, Jaya, Bailla, Taki, and Balichata) were directly observed in the streams. Among the insects, Urchunga, larvae of wasps and bees are consumed as food by the locals. The insects can be harvested during the swarming period, harvesting of insects and larvae should be allowed for a maximum of one week in a season.

Elongated Tortoise

4.13 Moyain Para VCF

In Moyain Para VCF 213 species belonging to 166 genera under 76 families have been recorded, of which 81 were herbs, 34 shrubs, 64 trees, 28 climbers and 06 are epiphytes. Anogeissus lanceolata, a shrub (local names: Hingori, Kosi), is the indicator plant. Plant species which are abundantly available in the VCF are: Jam and Dhenki Sakh which can be harvested plentifully. Important plant with moderate availability in the VCF

is Amloki which can be harvested for fruit once every fortnight in fruiting season. Plants with decreasing availability in the VCF are: Kusum, Gutgutya, Chapalish and Amra, some of which are ecologically important tree species (Gutgutya and Chapalish) and, therefore, must be harvested carefully. Also, their conservation must be ensured for maintaining a better ecosystem health of the VCF. Three bamboo species namely muli bans, kanta bans and mitinga bans are abundantly available in the VCF.

A total of 187 species of wild animals were observed in Moyain Para VCF. Among them 3 species were crustaceans, 2 mollusks, 3 fish, 19 amphibians, 42 reptiles (16 lizards, 21 snakes, 5 turtles and tortoises), 83 birds and 35 mammals. In addition, 90 insect species were identified. Leopard cat is the indicator animal species in the VCF. In the survey 3 crustaceans (Thengua Icha, Goda Chingri and Shadu Panir Kakra), 2 mollusks (Poba Shamuk and Leja Shamuk), 3 fish species (Darkina, Taki and Balichata) were directly observed in the streams. It was mentioned by the villagers that larvae of wasps and bees are consumed as food by the locals.

Hingori kosi: Anogeissus lanceolata (Moyain Para)

4.14 Shamoni Shati Bhila Natun Mag Para VCF

A total of 89 plant species belonging to 73 genera under 37 families have been recorded from Shamoni Shati Bhila Natun Mag Para VCF, of which 27 were herbs, 14 shrubs, 34 trees, 12 climbers and 02 epiphytes. Ixora nigricans, a shrub (local names: Dikranga Chuillya, Rongma, Frareko), is the indicator plant. The plant species which are abundantly available in the VCF are: Chapalish, Haritaki, Bohera, Jam, Dhenki Sakh, Tara Sakh, Kochu Sakh, Ek Dhaikkya Kochu, Tita Kochu and Jongoler Amra, which can be harvested generously. The tree species such as Chapalish, Haritaki and Bohera are ecologically very important. The herbaceous plants form parts of diet of local community. Plants with moderate availability in the VCF are: Cau Gulo, Amilik Bichi, Amloki, Gutgutya, Sorbaik, and Jongoler Am, most of which are ecologically important for maintaining ecosystem health. They should be harvested judiciously. Plants with decreasing availability in the VCF are: Harha Ghula, Kusum Gulo, Nolum, Jongoler Alu, Jongoila Sakh and Betaghi, which must be harvested very carefully. Three bamboo species namely kanta bans, mitinga bans and pharua bans are abundantly available in the VCF.

A total of 126 species of wild animals were observed in Shamoni Shati Bhila Natun Mag Para VCF. Among them 9 amphibians, 26 reptiles (12 lizards, 8 snakes, 6 turtles and tortoises), 54 birds and 37 mammals. In addition, 56 insect species were identified. Red Jungle fowl is the indicator animal species in the VCF. Streams in this VCF were found to be dry and no crustaceans, mollusks or fish were observed. Among the insects, giant water bug, Urchunga, larvae of wasps and bees are consumed as food by the locals.

Common Green Magpie (middlestorey bird)

4.15 Krok Kyong Mouza Para Ban VCF

In Krok Kyong Mouza Para Ban VCF, 172 plant species belonging to 136 genera and 63 families have been recorded, of which 54 were herbs, 30 shrubs, 57 trees, 26 climbers and 05 epiphytes. Boehmeria glomerulifera, a shrub (local names: Urmurpata, Mrangna, Aruleng, Holemfry), is the indicator plant in the VCF. Plant species which are abundantly available in the VCF are: Gutgutya, Chorki Gula, Jongli Tita Korola,

Labong, Dhenki Sakh, Kata Kochu, and Amra Gula, among which the fruit trees (Gutgutya and Chorki) can be harvested once every fortnight during fruiting season, and the other plants once every 3 months for plant parts other than fruits. Plants with decreasing availability in the VCF are: Chapalish, Chalta, Kaon Chal and Dotranga, among which Chapalish is ecologically very important and should, therefore, be harvested for fruit and other plant parts very carefully. As no bamboos were observed in the VCF, attempts may be taken for regeneration of bamboos.

A total of 170 species of wild animals were observed in Krok Kyong Mouza Para Ban VCF. Among them 4 species were crustaceans, 2 mollusc, 6 fish, 16 amphibians, 32 reptiles (11 lizards, 16 snakes, 5 turtles and tortoises), 68 birds and 42 mammals. In addition, 50 insect species were identified. Great Hornbill is the indicator animal species in the VCF. In the survey 4 crustaceans (Golda Chingri, Thengua Icha, Goda Chingri and Shadu Panir Kakra), 2 mollusks (Poba Shamuk and Leja Shamuk), 6 fish species (Darkina, Anjani, Taki, Gechua, Gutum, Mola) were directly observed in the streams. Among the insects, Urchunga, larvae of wasps and bees are consumed as food by the locals. The insects can be harvested during the swarming period. However, larvae of insects can be harvested when they are available in the forest. Harvesting of insects and larvae should be allowed for a maximum of one week in a season.

4.16 Nuton Bucha Para Ban VCF

In Nuton Bucha Para VCF, 98 species belonging to 74 genera and 33 families, consisting of 34 herbs, 39 trees, 08 shrubs, and 17 climbers were recorded. Thysanolaena maxima, a shrub (local name: Jharu Phul), is the indicator plant in this VCF. Plant species which are abundantly available in the VCF are: Kola and Dhenki Sakh which are important parts of tribal people's cuisine and so can be harvested. Plants with moderate availability in the VCF are: Jam, Chapalish, Bohera, Gutgutya, Dumur, Cau Gulo, Borta, Kochu, Labung, Am and Bon Alu, which should be harvested judiciously. Most of these plants are crucially important for maintaining VCF ecosystem health and, therefore, deserve special attention for conservation. Mitinga bans is moderately available in the VCF which, therefore, can be harvested in a restricted manner beyond the growing season from May to September.

Urmurpata: Boehmaria glomerulifera

Great Hornbill

A total of 146 species of wild animals were observed in Nuton Bucha Para VCF. Among them 3 species were crustaceans, 2 molluscs, 3 fish, 10 amphibians, 35 reptiles (17 lizards, 14 snakes, 4 turtles and tortoises), 53 birds and 40 mammals. In addition, 48 insect species were identified. Burmese Python is the indicator animal species in the VCF. In the survey 4 crustaceans (Thengua Icha, Goda Chingri and Shadu Panir Kakra), 2 mollusks (Poba Shamuk and Leja Shamuk), and 3 fish species (Darkina, Pati Chela and Gechua) were directly observed in the streams. Among the insects, Urchunga, larvae of wasps and bees are consumed as food by the local people. Harvesting of insects and larvae should be allowed for a maximum of one week in a season.

4.17 Tuktong Para Ban VCF

Jharu phul: Thysanolaena maxima

IIn Tuktong Para Ban VCF, 101 species belonging to 85 genera under 50 families including 39 herbs, 34 trees, 09 shrubs, and 19 climbers were recorded. Alpinia zerumbet, an herb (local name: Bara elachi), is the indicator plant in the VCF. Plant species which are abundantly available in the VCF are mostly different kinds of root crops (Kochu, for example) which can be harvested generously. The moderately available plants are: Amloki, Bohera, Jongoler Am, Jongoler Lichu, Chapalish, Bandar Marfa, Lotkon, Punjho Wi, Tetul, Khona Gulo, Dumur, Jongli Ada, and a number of herbaceous plants (Kun-koi-pau, Ya-kong, Kun-lang-rum, Ting-tai-ja, Tun-ria-rum, Ching-pik-rum, Do-rum), which are important from both ecological and culinary points of view and, therefore, harvesting of these plants should be done with caution. However, fruits can be harvested once every fortnight in fruiting season. Plants with decreasing availability are: Haritaki, Gutgutya, Lotkon, Kun Jior Rum, Mu Kong, Shanku Amra and Shetodron which should be harvested for fruit once every fortnight in fruiting season, and for other plant parts once every 5 months. Four bamboo species, namely muli bans, kanta bans, mitinga bans and Burmese bans, are abundantly available in the VCF. Tree species with decreasing availability (Haritaki, Gutgutya) should be given special attention for to ensure their conservation.

A total of 160 species of wild animals were observed in Tuktong Para Ban VCF. Among them 2 species were crustaceans, 1 mollusc, 6 fish, 9 amphibians, 42 reptiles (20 lizards, 19 snakes, 3 turtles and tortoises), 70 birds and 30 mammals. In addition, 57 insect species were identified. Oriental Pied Hornbill is the indicator animal species in the VCF. In the survey 2 crustaceans (Golda Chingri and Shadu Panir Kakra), 1 mollusk (Poba Shamuk), 6 fish species (Darkina, Anjani, Pati Chela, Taki, Bailla and Gutum) were directly observed in the streams. Among the insects, Urchunga, larvae of wasps and bees are consumed as food by the locals.

4.18 Owakchackku Para Ban VCF

Bara elach i: Alpinia zerumbet

In Owakchackku Para Ban VCF, 100 plant species belonging to 75 genera and 39 families, including 32 herbs, 19 shrubs, 33 trees, 13 climbers and 03 epiphytes were recorded. Clerodendrum viscosum, a shrub (local name: Kho pa che, Khun kha baong), is the indicator plant in the VCF. Tree species which are abundantly available in the VCF are Dumur and Jam which are important for maintaining forest ecosystem health. Fruits from these plants can be harvested plentifully. The moderately available trees are: Bohera and Rob Yar Wi which should be harvested for fruits and other plant parts judiciously. Tree species with decreasing availability are: Chapalish, Amloki and Gutgutya, which are also important for maintaining ecosystem health in the VCF. Special attention needs to be paid for their conservation. Muli bans was moderately available in the VCF and can be harvested in a restricted manner, beyond the growing season (May to September).

A total of 193 species of wild animals were observed in Owakchackku Para VCF. Among them 3 species were crustaceans, 2 mollusc, 4 fish, 11 amphibians, 52 reptiles (20 lizards, 26 snakes, 6 turtles and tortoises), 78 birds and 43 mammals. In addition, 54 insect species were identified. Reticulated Python is the indicator animal species in the VCF. In the survey, 3 crustaceans (Golda Chingri, Thengua Icha and Shadu Panir Kakra), 2 mollusks (Poba Shamuk and Leja Shamuk), 4 fish species (Darkina, Pati Chela, Taki, and Gutum) were directly observed in the streams. Among the insects, Urchunga, larvae of wasps and bees are consumed as food by the locals. Harvesting of insects and larvae should be allowed for a maximum of one week in a season.

4.19 Numlai Headman Para Kua Ban VCF

Clerodendrum viscosum Vent

The Numlai Headman Para Kua Ban VCF consists of 125 species belonging to 100 genera and 56 families including 51 herbs, 12 shrubs, 38 trees, 23 climbers and 01 epiphyte. Boehmeria malabarica, a shrub (local name: Malabar phul), is the indicator plant in the VCF. Species which are abundantly available in the VCF are: Dhenki Sakh, Jongli Kola, Kom Hing, Ray and Li-ya which are all important sources of ethnic cuisine and, therefore, can be harvested plentifully. Plants with decreasing availability in the VCF are: Cau, Haritaki, Chapalish, Jongoler Am, Khoi-ching, Rang-chung, We-be, Thut Pong, Kun- klaw, Lai Kong, Rob Ker Wi, Kun Ron, We-sing and Amra, most of which are sources of food and, therefore, need to be harvested cautiously (not more than once every fortnight in fruiting season for fruits, and every 5 months for other plant parts). Three bamboo species namely muli bans, kanta bans and mitinga bans are abundantly available in the VCF.

A total of 166 species of wild animals were observed in Numlai Headman Para Kua VCF. Among them 3 species were crustaceans, 2 mollusks, 3 fish, 14 amphibians, 35 reptiles (13 lizards, 17 snakes, 5 turtles and tortoises), 73 birds and 36 mammals. In addition, 57 insect species were identified. Barking Deer is the indicator animal species in the VCF. In the survey 3 crustaceans (Golda Chingri, Thengua Icha and Shadu Panir Kakra), 2 mollusks (Poba Shamuk and Leja Shamuk), 3 fish species (Darkina, Pati Chela and Gechua) were directly observed in the streams. Among the insects, Urchunga, larvae of wasps and bees are consumed as food by the locals.

Boehmeria malabarica (Malabar phul)

Blue-eared Kingfisher

4.20 Mongbai Tong Rua Rejak Tah VCF

Gracifuli: Didymosperma gracilis

Plant diversity of Mongbai Tong Rua Rejak Tah VCF consists of 103 species belonging to 89 genera and 45 families including 35 herbs, 35 trees, 24 climbers and 04 epiphytes. Didymosperma gracilis, a shrub (local name: Gracifuli), is an indicator plant. The plant species that have declining populations include Gutgutya, Chapalish, Lotkon, Jongoler Am, Jongoler Alu, Lelong Pata, Jongoler Amra, Pilai Sakh, Bai Sakh and Jongoilla Sakh. Some of these specie (Gutgutya and Chapalish, for instance) are crucially important for maintaining VCF ecosystem health, but they also form part of ethnic cuisine. Dumur, Champa, Jam, Dhenki Shak and Katthol Dinghi are moderately available and, therefore, may be harvested judiciously. Of these plants Dumur and Champa are ecologically important. Therefore, conservation of all these plant species is of paramount importance. Four bamboo species namely muli bans, kanta bans, mitinga bans and pharua bans are abundantly available in the VCF. Therefore, removal of mature bamboos from VCF beyond the regeneration period (May to September) may be allowed by the VCF management committee.

A total of 141 species of wild animals were observed in Mongbai Tong Rua Rejak Tah VCF. Among them 2 species were crustaceans, 2 molluscs, 2 fish, 13 amphibians, 37 reptiles (16 lizards, 17 snakes, 4 turtles and tortoises), 42 birds and 43 mammals. In addition, 59 insect species were identified. Kalij Pheasant is the indicator animal species in the VCF. In the survey 2 crustaceans (Goda Chingri and Shadu Panir Kakra), 2 mollusks (Poba Shamuk and Leja Shamuk), 13 fish species (Darkina and Taki) were directly observed in the streams. Among the insects, Urchunga, larvae of wasps and bees are consumed as food by the locals. Harvesting of insects and larvae should be allowed for a maximum of one week in a season.

CHAPTER 5: MAIN FINDINGS

A total of 555 plant species (209 species of herbs, 91 shrubs, 163 trees, 79 climbers and 13 epiphytes) involving 316 genera under 108 families have been recorded from the 20 sampled VCFs (Annexure A). Numbers of plant species found in individual VCFs were in the range of 89 to 213. Moyain Para VCF of Panchari upazila, Khagrachari is the largest in size (276 ha) and had the highest number (213) of plant species. In all other VCFs (which varied in sizes between 14 to 157 ha), the numbers of plant species recorded was fewer than 200. Among the indicator species in Khagrachari, 1 endangered tree species (Glochidion lanceolata) and in Bandarban 1 vulnerable shrub species (Boehmeria malabarica) in Numlai Headman Para Kua Ban VCF were found (Annexure D).

A total of 369 species of wild animals were recorded from the 20 VCFs, of which 4 were crustaceans, 2 mollusks, 17 fishes, 30 amphibians, 64 reptiles, 199 bird, 53 mammals and 135 insect species under 40 families belonging to 12 orders (Annexure B and C). Number of species of wild animals recorded in individual VCFs was in the range of 108 to 199. Number of insect species recorded in individual VCFs were in the range of 50 to 83. In other CHTWCA-targeted VCFs, the number of wild and insect species may be expected to occur in the similar range. In Rangamati 2 critically endangered, 3 endangered, 1 near threatened and 3 vulnerable indicator species were found. In Khagrachari 2 critically endangered species and in Bandarban 2 critically endangered and 2 vulnerable indicator species were found (Annexure E).

One common problem faced by the VCF communities is reduced crop production due to rise in temperature and erratic rainfall events which get even more accentuated since the communities do not have any developed mechanisms for monitoring of climatic events. In the sampled 20 VCFs where the present study was conducted, no forest product-based enterprises were observed. There is lack of improved marketing facilities for the farmers due to which they cannot get fair price for their forest products. Marketing of forest products is mainly constrained by poor communication system due to poor road networks and transportation facilities. The VCF communities were found having ideas and views regarding monitoring of biodiversity in their VCFs.

5.1 Threats and Challenges

Main threats and challenges faced by local people in the conservation of VCFs are summarized as below:

- Local people of the VCF areas face problems in crop cultivation due to high temperature-induced drought conditions and erratic/irregular rainfall. People generally grow native varieties of rice, cucurbits, gourds, melons, mustard, sesame, cotton, etc. but due to erratic climatic events the production of these crops is declining.
- People now face difficulty to grow certain jhum (shifting cultivation) crops such as sesame and cotton because of low production rates due to rising temperatures. Calendar for jhum cultivation has also shifted backward by 2-3 months because of the lack of necessary rain (during March-April) which is required for regeneration and survival of the planted crops.
- Local people feel that water flow in their neighboring streams is decreasing due to forest degradation including declining bamboo clumps and bushy growth. To maintain stream flow, some VCF management committees have taken steps to ban felling big trees and bamboos and protecting bushy plants particularly near streams. They also take steps for increasing awareness among the village people so that mollusks and snails that play important role in making water clean are not overharvested.
- Rainfall scarcity during crop growing season pushes farmers to use stream water through goda farming in which mud-bunds are constructed across streams at different points from where water is

pumped out to irrigate crops grown in streamside land. They also dig big water holes near streams from where water is collected to be pumped out later for irrigating crop fields.

- Local people have observed reduced availability of wild food plants such as wild tubers, culinary herbs and leafy plants in their VCFs and this impacts their food security adversely.

- Cultivation of root crops including ginger and turmeric has increased and such crops are not appropriate for soil conservation in the CHT.

- Local people have observed decreasing bamboo clumps and increasing incidences of dying of seedlings and saplings in their VCFs. Changing composition of flora is contributing to declining population of birds including hornbills (rhongrang and ketketya in Chakma language), vultures, cuckoos, maynas, owls and big kites. Big mammals such as elephants, rhinoceros and leopard have disappeared, and the population of bear, sambar deer, fox and wild dog have decreased. Ecological conditions of VCFs may degrade due to declining native tree species such as Garjan (Dipterocarpus spp.), Champa (Michelia champaca), Koroi (Albizia spp), Gamar (Gmelina arborea), Arjun (Terminalia arjuna), Jarul (Lagerstroemia speciosa), Dumur (Ficus spp.), Suruj (Toona ciliata), Haritaki (Terminalia chebula), Bohera (Terminalia bellirica), Civit (Swintonia floribunda), and Chundul (Tetrameles nudiflora). VCF ecosystem health (for example, water availability and soil quality) can be improved by maintaining and enhancing natural forests through community protection necessary for establishing natural regeneration.

- The farmers have adopted High Yielding Variety (HYV) varieties of rice and so the production of rice has increased as farmers can now use stream water to grow irrigated rice (boro crop, for example). Declining stream water may, however, jeopardize their rice production and food security.

- Due to episodic temperature extremes, the respondents of the questionnaire survey reported that they feel physically debilitating to work hard in their agricultural fields, showing symptoms of tiredness and sleepiness. On the other hand, excessive rainfall results in landslides which threaten lives and livelihoods of local people.

5.2 SWOT Analysis

Strength, Weakness, Opportunity, and Threat (SWOT) analysis for the VCFs revealed that land is moderately and labor adequately available in their surrounding areas. However, land is increasingly being used for growing high input based non-traditional crops (for example HYV rice, hybrid mangoes and litchi). Opportunities exist for growing more local food crops by selecting appropriate crop species, but there is lack of capital investment both from internal and external sources. Needs for improved VCF resource management strategies are strongly felt by local people. There are enough opportunities for taking suitable initiatives to integrate local people's traditional knowledge with modern knowledge system for improved natural resource management (NRM) planning and implementation.

Road networks are poor and water-borne transportation facilities are only available in the rainy season when water level is enough for navigation. Forest-based cottage and small-scale enterprises, if developed, could have helped villagers earn extra income to support their livelihoods. Local farmers understand their livelihood problems created by environmental degradation. They face inadequacy of support services in using environment friendly land-use techniques. There is lack of improved marketing facilities for the farmers, owing to which they cannot get fair prices for their products. Members of the community including the young generation have positive attitude towards conservation of VCF resources, but local leadership is necessary to mobilize local community to actively engage in forest resource conservation.

Severe weather events (high temperature-induced drought, excessive rainfall) pose serious threat to crop production and human health. No concerted efforts are being taken at local level for monitoring extreme climatic events which weaken community capability to deal with their negative environmental effects. Local people do not have adequate information about spreads of pests and diseases that might arise due to extreme climatic events. As a precautionary measure, special awareness programs may, however, be taken up for villagers to protect themselves and their biodiversity resources from the ill- effects of climate change.

5.3 Knowledge Gaps in VCF Resource Management

The FGDs and the KISs conducted in the 20 sampled VCFs generated information on habitat status of species and species richness, protection status and conservation significance of species, status of threat to species with respect to space and time, and the challenges of VCF resources management. The most important points that emerged from the analysis of the data generated through the FGDs and KISs are mentioned below to highlight key knowledge gaps that currently exist among the communities who are responsible for managing their VCFs. For each area of knowledge gaps identified, remedial measures have also been suggested below.

Land and Labor

Local communities are so deeply attached to their traditional ways of lifestyle that they have little time to devote for realizing the potential that they hold, particularly about land and labor. While members of the Chakma community who participated in the FGDs and the KISs appeared to have much clearer idea about such potentials that their resources and environment offer; other communities were found lagging far behind in realizing the potential about the same. Poor utilization of land and labor resources were observed in case of some communities, for example Tripura (in Moyain Para and Maischari VCFs of Khagrachari), Mro (in Tuktong Para, Wakchackku Para, Numlai Headman Para and Notun Bucha Para VCFs of Bandarban), Marma (in Mongbai Para VCF of Bandarban and Shamoni Shati Bhila Natun Mag Para VCF of Khagrachari), Pangkhua (Pangkhua Para VCF of Rangamati) and Chak (in Krok Kyong Para Mouza Ban of Bandarban).

Arrangements should be made to get the VCF communities represented by Tripura, Mro, Marma, Pangkhua and Chak groups familiarized with the strategies and techniques of environment- friendly land use/utilization adopted particularly by the Chakma community. It was observed that lack of training, and in some cases (such as Pangkhua and Mro communities) absence of training programs in local languages, acted as a deterrent in building awareness about proper utilization of land and labor resources. Therefore, more training programs on strategies and techniques of environment-friendly land use/utilization should be conducted for the VCF communities.

Weather and Climatic Events

All the VCF communities surveyed did not have proper monitoring systems in place to closely monitor the extreme weather events in their localities. Almost all the participants of the FGDs and the KISs mentioned that they feel some bad effects (soil erosion and landslides, reduced crop growth, crop failures, deteriorating health conditions, etc.) of gradually increasing temperature regimes and erratic rainfall events. There was a tendency among the younger groups of participants to shy away from the questions related to weather and climatic events, although the village elders appeared to have more knowledge about the weather patterns and climatic events in their localities.

Training should be arranged for the VCF communities, particularly, for the younger members so that they may acquire necessary knowledge to help them monitor changes in climatic events. Knowledge gained by communities through training might be useful in making decisions regarding changing cropping patterns and adopting crop diversification strategies in the face of extreme climatic events. For example, farmers have experienced shifts in crop production cycles over the recent years due to fluctuations in temperatures and

rainfall events. A few farmers managed to cope up with the situation by changing crop combinations in their crop fields. Therefore, experiential learning gained by the farmers, who successfully maintained optimum levels of crop production through crop combination techniques, should be harnessed while designing training materials related to techniques of crop farming. Training should be conducted on raising awareness about the precautions the village people need to take, and about the basic health tips that they should follow while extreme temperatures prevail.

Role of Tree Species in Providing Ecosystem Services

Respondents of the 20 FGDs mentioned about the important role that the tree species namely garjan (Dipterocarpus spp.), jam (Syzygum spp.), chapalish (Artocarpus chama), champa (Michelia champaca), goda (Vitex peduncularis), gutgutya (Protium serratum), dumur (Ficus spp.), civit (Swintonia floribunda), jarul (Lagerstroemia speciosa), and bohera (Terminalia bellirica) play for maintaining sustainable forest ecosystem in terms of availability of water in streams, maintaining soil quality and harboring wildlife species in their forests. Unfortunately, populations of almost all these tree species are on the decline, and the villagers realize that they must conserve them to ensure sustainable ecosystem services from their VCFs. Knowledge of FGD participants from various VCF communities regarding the above-mentioned tree species and their role in providing ecosystem services varied, excepting the Chakma respondents who were found to have a clear concept regarding conservation of tree species for improvement of their VCF ecosystems.

Awareness campaigns and training could be organized for the VCF communities, with Chakma communities having a lead role in demonstrating as to how important the above-mentioned tree species are for maintaining ecosystem health of VCFs. The village elders, preferably from the Chakma villages, may be consulted closely to extract traditional knowledge regarding the importance of various tree species in maintaining ecosystem health of forests, streams and crop fields, which can then be incorporated in awareness/training programs.

Culinary and Medicinal Plants

Nine VCF communities who participated in the FGDs belonged to the Chakma ethnicity. They had better knowledge about the culinary and medicinal plants available in their VCFs compared to the other communities (Tripura, Marma, Mro, Pangkhua, Chak, Khiang). Chakma people have knowledge about several wild tubers, fruits, climbers and leafy plants which are integral part of their diet. On the other hand, Pangkhua and Mro have limited knowledge about the herbaceous plants available in their VCFs. Some communities such as Tripura and Pagkhua do not have medicine men (kobiraj) in their villages, which is why they have very little or no knowledge about medicinal plants.

The knowledge gaps that exist between the Chakma and the other communities regarding culinary and medicinal plants could be bridged through organizing exchange visits with demonstrations and hands on training. The Chakma people, particularly the village elders from the Chakma villages, should play leading role in exchanging their knowledge regarding the dietary use of different parts of various plant species (wild tubers and fruit, climbers and leafy plants) available in the VCF areas. The Chakma people are also in the fore-front of practicing niche-based cropping (for example, cultivation of bahorpata) in their unutilized or underutilized lands. Knowledge about the niche-based cropping technique should be disseminated to all VCF communities so that they can enhance crop productivity.

Community Food Habits

The members of the ethnic communities (Chakma, Tripura, Marma, Mro, Pangkhua, Chak, Khiang) who participated in the FGDs informed that they have traditionally been involved in animal hunting to support their dietary requirements. People from the Mro and the Pangkhua communities were found to be the most dependent on hunting of wildlife in forest areas. Although they mentioned that they usually hunt

animals outside their VCFs, the pressure of hunting, no matter wherever it takes place, would cause an overall decline in wildlife populations, particularly leading to a serious decline in those wildlife species which are more frequently hunted for food.

Chakma community has gradually adopted to diversified food habits thereby reducing their dependence on animal hunting from forests. Mro and Pangkhua communities should be similarly motivated to gradually change their food habits to reduce their dependence on animal hunting from forests. The diet diversification strategies (combining tuberous, herbaceous and leafy plants with animal/fish protein) adopted by the people of the Chakma community may be presented to the people of other communities for possible replication and inclusion in their dietary planning and practices. This could save many wildlife species from being over-harvested and being extinct.

CHAPTER 6: BIODIVERSITY MONITORING TOOLS

In line with traditional practices of tribal communities CHTWCA promotes sustainable approaches for improved biodiversity conservation in VCFs by participatory monitoring of changes in floral and faunal diversity. Biodiversity monitoring manual provides local communities simple tools that they can use for monitoring flora and fauna diversity in their VCFs. This manual also provides for monitoring of VCF ecosystem health through simple assessment of soil moisture and fertility, stream water quality and forest regeneration. Successful implementation of a community based VCF biodiversity monitoring program will depend on the following:

- VCF management committee will make and approve relevant rules regarding monitoring of biodiversity in a VCF,
- Control measures will be put in place by VCF management committees to stop forest degradation and deforestation in and around VCFs,
- All villagers will guard against the spread of fires from jhum fields into neighboring VCFs, and
- All community members should participate in forest patrolling activities particularly in those areas of a VCF where incidences of illegal cutting of trees and bamboos, and hunting of wild animals take place, particularly by the outsiders.

6.1 Biodiversity Monitoring Guidelines

An important monitoring thumb-rule for plant diversity is to walk inside a VCF to observe the density of mature trees and other plants, and of seedlings to observe about the population size of various plant species. For monitoring animal diversity, a thumb-rule is to walk inside a VCF to see whether wild fauna can be encountered easily (if wild fauna cannot be as many as were seen before, then wildlife populations might have declined). Other common rules for biodiversity monitoring are presented as below:

- Observation from a suitable point including a hill-top/peak should be made to have a bird's eye view of VCF biodiversity
- Villagers should take special care of vegetation (bamboo clumps, bushy undergrowth and trees) near streams, and of stones and pebbles therein so that stream flow can be maintained for household and agricultural purposes as well as for maintaining aquatic fauna (fish, crabs and other crustaceans, mollusks)
- Monitoring volunteers should walk in several directions to make a careful observation of plants and animals to have a quick reading about changes in biodiversity
- Volunteers must walk all around the forests to see the conditions of trees, regeneration of seedlings, flowering, fruiting, and observe as closely as possible food habits of the resident wild fauna. Main findings from field observations should be discussed with the concerned VCF management committee for taking necessary actions
- Volunteers should preferably visit a VCF in the mornings and in the evenings to maximize the chance of sighting of wild animals. They should visit jhum fields at daytime when birds can be found while foraging in jhum crops
- Volunteers should walk along trails higher up in the hills in all seasons, and in the dry season a little distance from the streams (wildlife would come to streams for drinking water and taking bath) to observe the occurrences of wildlife

- Volunteers can observe the occurrence of leaf litter, small and large woody debris, and bushy plants and vines which they think are very important for maintaining forest ecosystem health
- Pug marks of any wildlife species observed along the walking trails indicates the presence of the respective species (pug marks of animals can best be observed in the rainy season)
- Observation of certain wildlife species such as birds, wild boar, deer, bear, and monkeys can best be done during harvesting of rice paddy in jhum fields
- Birds can be watched in higher numbers in the rainy season when plenty of food is available
- Monitoring of indicator plant/animal species should be done systematically.

6.2 Biodiversity Monitoring Plan

Biodiversity monitoring planning helps communities to track changes in some identified elements of biodiversity (flora and fauna, for example) over a time period (annually and over successive years) by following good practices as described below:

- The most important part of biodiversity monitoring plan is to form a monitoring team (comprising 5 to 6 field personnel) for implementing field activities in select VCFs
- Monitoring team will be familiarized with the necessary techniques and tools of biodiversity monitoring
- Monitoring team will maintain good relationship with local community by communicating/sharing relevant findings frequently
- A point of observation (usually a nearby hill peak or raised land) should be identified for overall view of the existing biodiversity and for hearing sounds of wildlife present. Two transects (in north-south and east-west or any other directions perpendicular to each other) will be laid out in the VCF, along which biodiversity monitoring will take place. Soil moisture and fertility check and forest regeneration assessment will be done at any spot along the transect lines as the team members move forward. Stream water quality can be assessed at any point where a transect passes through a stream, and/or when it does not, by visiting the stream separately.
- Headwater VCFs will be under strict supervision so that no forest destruction, jhum, soil work or stone extraction activities take place in the surrounding areas of the headwater sources
- The community monitoring teams will tri-monthly visit the identified VCFs to take records of changes in biodiversity elements through transect surveys. Additional visits will be made to observe regeneration of bamboo and other critical species (for example, garjan, jam, chapalish, champa, goda, gutgutya, dumur, civit, jarul, and bohera) which play crucial roles in maintaining VCF ecosystem through providing food for wildlife, and maintaining water flow and soil quality
- The team will visit surrounding areas of the VCFs to keep an eye on jhum activities
- Harvesting of plants and of aquatic fauna (shrimps, fish, crabs, mollusks, etc.) from streams and other water bodies inside VCFs will be stopped for 2 to 3 months every year during the time of reproduction (flowering and fruiting period for plants and breeding season for fauna)
- Strict rules of punishment (fine in cash and/or in kind) will be put in place against infringements by VCF management committees with instructions regarding unsustainable harvesting of forest produce; part of the fine (may be 30%) can be paid to the volunteers which would act as incentives for them to work for biodiversity monitoring while the rest could be deposited to the VCF management committee fund.

6.3 Biodiversity Monitoring Tools

The following parameters and tools will be employed for biodiversity monitoring by a community team:

1. Plant diversity

a) Extent of flowering in the forest canopy
   i. Heavy flowering/intense color of the blooms/powerful fragrance
   ii. Lots of flowering/less intense color of the blooms/powerful fragrance
   iii. Sparse flowering/faded color of the blooms/little fragrance
   iv. No flowering

b) Abundance of fruit
   i. Plentiful
   ii. Some
   iii. Not a lot
   iv. Nothing

c) Extent of bamboos
   i. Gregarious formation
   ii. Scattered
   iii. Sparse
   iv. No occurrence

d) Extent of medicinal plants
   i. Plentiful
   ii. Quite a lot
   iii. Few plants
   iv. Nothing

e) Extent of culinary plants
   i. Plentiful
   ii. Quite a lot
   iii. Few plants
   iv. Nothing

2. Birds and animal diversity

a) Abundance of native birds in forests
   i. Ground-living birds: a lot/quite a lot/ very few/absolutely nothing;
   ii. Middle strata birds: quite a lot/a lot/very few/absolutely nothing
   iii. Top canopy birds: quite a lot/a lot/very few/absolutely nothing

b) Sound of native birds - great noise (cannot hear yourself speak)/loud and noisy/noise faded/silent

c) Pug marks of mammals

d) Sound of mammals

e) Sighting of reptiles and amphibians

3. Soil moisture and fertility:

a) Dryness of soil (when there is no rain):

i. Very dry or dry soil particles would not hold in hand when pressed between thumb and forefingers

ii. Slightly moist soil particles would hold in hand when pressed between thumb and forefingers

iii. Moist soil particles would appear slightly sticky when pressed between thumb and forefingers

iv. Moister: soil particles would appear sticky when pressed between thumb and forefingers

b) Color of soil:

i. Bright colored soil - well drained

ii. Dull colored soil - poorly drained

iii. Dark colored soil - rich in organic matter

iv. Black or brown colored soil - humus (decomposed organic matter) rich soil

4. Forest regeneration

a) Seedling density

i. Seedling density of indicator species: dense/medium/a few/none

ii. Seedling density of all other species: dense/medium/a few/none

b) Sapling density

i. Sapling density of indicator species: dense/medium/a few/none

ii. Sapling density of all other species: dense/medium/a few/none

5. Stream (chara) water

11 Appearance of water (refers to clarity)

i. Beautiful/free of weeds or algae/no sediment is disturbed when rock is dislodged

ii. Appealing/some weed, or algae/some sediment is disturbed when rock is dislodged

iii. Not as beautiful/quite a bit of algae or weeds/a lot of sediment is disturbed when rock is dislodged

iv. Ugly/lot of weed or algae thick and slimy on rocks/muddy looking

12 Quality of water (refers to taste of water)

i. Crystal clear/clean

ii. Still clear but with some suspended materials/not bad

iii. Murky/cloudy

iv. Dirty/muddy

13 Presence of freshwater invertebrates and vertebrates:

i. Native invertebrates (Ichamach, Kakra, Pobashamuk, LejaShamuk,

ii. Native vertebrates (Putimach, Molamach, Darkinamach)

Biodiversity Monitoring Data Sheet

In the following data sheet (Table 1) the monitoring field team will record data by tick marking in the blank spaces based on their field observations/recording. However, in case of mammals and reptiles and amphibians, the data recorder will put names of animals observed. The data can be pooled from the filled-in data sheets that come from the successive visits to the VCF for monitoring changes in biodiversity and other elements of forest health as described above.

Table 1: Biodiversity monitoring data sheet

Plant Diversity Survey Date:		**Time:**		**Name of the Surveyor:**			
Plant diversity	a. Extent of flowering	Heavy flowering		Lots of flowering		Sparse flowering	No flowering
		Intense color of bloom	Powerful fragrance	Less intense color of the blooms	Some powerful fragrance	Faded color of the blooms / Little fragrance	No bloom and no fragrance
	b. Abundance of fruit	Plentiful		Some		Not a lot	Nothing
	c. Extent of bamboos	Gregarious		Scattered		Sparse	No occurrence
	d. Extent of medicinal plants	Plentiful		Some		Not a lot	Nothing
	e. Extent of culinary plants	Plentiful		Some		Not a lot	Nothing

Animal Diversity Survey Date:		**Time:**				**Name of the Surveyor:**	
			A lot	Quite a lot	Very few	Absolutely nothing	
Birds and other animal diversity	Abundance of native birds in forest	i. Ground-living birds					
		ii. Middle strata birds					
		iii. Top canopy birds					

		Great noise (cannot hear yourself speak)	Loud and noisy	Noise faded	Silent
	Sound of native birds heard				
		Mammal 1	Mammal 2	Mammal 3	Mammal 4
	Pug marks of mammal				
		Mammal 1	Mammal 2	Mammal 3	Mammal 4
	Sound of mammal heard				
		Reptile/amphibian 1	Reptile/amphibian 2	Reptile/amphibian 3	Reptile/ amphibian 4
	Sighting of reptiles, amphibians				

Soil Survey Date:		**Time:**		**Name of the Surveyor:**	
Soil moisture and fertility	a. Dryness of soil	Very dry or dry (soil particles do not hold in hand)	Slightly moist (soil particles hold in hand)	Moist (appears slightly sticky when pressed between thumb and forefinger)	More moist (appears sticky when pressed between thumb and forefinger)
	b. Color of soil	Bright (well-drained)	Dull (poorly drained)	Dark (rich in organic matter)	Brown or black (humus rich)

Forest Regeneration Survey Date Time:			**Name of the Surveyor:**			
Forest regeneration			Dense	Medium	A few	None
	a. Seedling density	Seedling density of indicator tree species				
		Seedling density of other tree species				
			Dense	Medium	A few	None
	b. Sapling density	Sapling density of indicator tree species				
		Sapling density of other tree species				

Stream Water Survey Date:	**Time:**	**Name of the Surveyor:**				
Stream water	a. Appearance of water	Beautiful (free of weeds or algae and no sediment is disturbed when rock is dislodged)	Appealing (some weeds or algae and some sediment is disturbed when rock is dislodged)	Not as beautiful (quite a bit of weeds or algae and a lot of sediment is disturbed when rock is dislodged)	Ugly (lot of weed or algae, thick and slimy on rocks/ muddy looking)	
	b. Quality of water	Crystal clear/clean	Still clear but with some suspended materials/not bad	Murky/cloudy	Dirty/muddy	
	c. Presence of freshwater invertebrates and vertebrates			Abundant	Moderately available	Sparsely available	Not available
		i. Native invertebrates	Ichamach				
			Kakra				
			Poba shamuk				
			Leja shamuk				
				Abundant	Moderately available	Sparsely available	Not available
		i. Native vertebrates	Puti mach				
			Mola mach				
			Dankina mach				

Participatory biodiversity monitoring guidelines provide an effective tool to ensure integrated ecosystem management of the VCFs. To make this monitoring tool work better, the VCF management committee should have the ultimate authority for making and approval of suitable rules regarding monitoring of VCF biodiversity. Strict control measures should be put in place by VCF management committees so that villager people control jhum in and around headwater VCFs. Community people should take care to check against the spread of forest fires from jhum fields into neighboring VCFs. All community members should participate in patrolling activities particularly in those VCFs where incidences of illegal cutting of trees and bamboos, and hunting of wild animals take place, particularly by the intruders. VCF wise birds based on canopy and types are listed in Annexure D.

CHAPTER 7: RECOMMENDATIONS AND CONCLUSION

7.1 Recommendations

Main recommendations for community-based management of the VCFs are summarized as below:

- Training and orientation programs, designed and developed preferably in local languages, should be provided to local stakeholders living in and around the VCFs. Possible training topics may include improved farming and land-use practices using environment-friendly techniques; community-based forest management; integrated ecosystem management; protected area co-management; integrated watershed management; biodiversity conservation; forest-based livelihoods and small business enterprises; forest regeneration assessment; subsidiary silvicultural operations; forest health and biodiversity monitoring; social cohesion and conflict resolution; etc.
- For a functional VCF management, it is important to bring VCF leaders under exclusive training programs so that their management efficiency can be improved for a better performance in forest conservation and VCF biodiversity monitoring activities.
- Awareness campaigns and motivational events are crucial for encouraging the communities to adopt crop diversification strategies and develop diversified dietary habits. This will help provide adequate knowledge of conservation of forest resources uniformly among the communities.
- Since, VCF communities have different ideas and views regarding monitoring of biodiversity in their VCFs, conservation communication and awareness campaigns with focus on VCF stakeholders including local women and youth will encourage building common understanding, interests, and ownership.
- Exchange visits among communities must be organized on a regular basis so that all concerned remain aware about who is doing what for improvement of farming techniques and forest conservation. Exchange of knowledge about crop farming and forest conservation activities between the VCF communities could help a lot in proper monitoring and conservation of biodiversity thereby improving the livelihoods of the people who live in the remotest parts of the CHT.
- Conservation of critically endangered, endangered, near threatened and vulnerable plants will be given proper attention. Artificial regeneration of some of these plants can be done in unutilized parts of homesteads and other underutilized land parcels in and around VCF areas.
- There is a need to develop a uniform strategy for conservation of biodiversity in the VCFs. Through this assessment common tools for community-based monitoring of biodiversity have been developed. These tools will be implemented in the field in the presence of a dynamic leadership to be provided by the VCF management committees.

7.2 Conclusion

Improvement of lives and livelihoods of local people is closely linked with forest conservation in the predominantly forest-based and agrarian economy of the CHT. The poverty of local people, caused sometimes by poor crop production in their hilly agricultural lands, must be addressed on a priority basis. Poor road and water transportation networks which act as a deterrent in easy communication for economic development must also be addressed. Declining traditional ecological knowledge systems of the communities must be revived and blended into the modern knowledge systems of farming and forest biodiversity conservation. This will help in restoring community-forests linkages.

The CHT VCFs, though degrading, still have good biodiversity as brought out in the Flora and Fauna Study: A total of 555 plant species and 369 species of wild animals were recorded from the 20 VCFs. Bamboos, abundantly available in most of the VCFs, protect the forest ecosystems by ensuring water flow in the streams, in addition to providing for livelihoods of local people who widely use bamboo in a range of household and agricultural activities. Tree species that play a critical role in the conservation of hill forest ecosystem are declining. Additionally, herbaceous plants of culinary importance, mainly climber plants, are also declining, although leafy and tuberous plants are either abundantly or moderately available in most VCFs. Some of these plants can be regenerated artificially in the unutilized or underutilized land parcels in the VCF areas for supporting people's livelihoods.

Most VCFs have healthy streams harboring aquatic fauna such as shrimps, crabs, mollusks, various species of smaller size fish which are important sources of people's nutrition. There is a risk of over-harvesting of the fauna which might lead to decline in their populations. Strict control measures should be in place so that no harvesting of aquatic fauna takes place for at least 2 to 3 months in the spawning season that usually occur in monsoon. In order to arrest forest degradation, community access and protection efforts should be facilitated for conserving the remainder growing stock which is necessary for maintenance of suitable habitats for wildlife species. Sustainable VCF management in partnership with local community stakeholders is necessary to restore floral and faunal biodiversity. Community monitoring of forest health and biodiversity will help assess effectiveness of community-based forest management. Suitable corrective measures can then regularly be employed by VCF management committees for improved VCF management and biodiversity conservation.

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ANNEXURES

A: MASTER INVENTORY LIST OF 555 PLANT SPECIES

Master inventory list of plants documented from the 20 sampled VCFs of the Chittagong Hill Tracts

Sl.	Scientific Name	Family	Habit
1	Abelmoschus manihot (L.) Medik.	MALVACEAE	Herb
2	Abelmoschus moschatus Medik.	MALVACEAE	Shrub
3	Abroma augusta (L.) L.f.	STERCULIACEAE	Shrub
4	Acacia nilotica (L.) Del. subsp. indica (Benth.) Brenan	MIMOSACEAE	Tree
5	Acalypha indica L.	EUPHORBIACEAE	Herb
6	Acampe praemorsa (Roxb.) Blatt. & McCann	ORCHIDACEAE	Epiphyte
7	Achyranthes aspera L.	AMARANTHACEAE	Herb
8	Acmella alba (L'Hér.) R.K.Jansen	ASTERACEAE	Herb
9	Acronychia pedunculata (L.) Miq.	RUTACEAE	Tree
10	Actephila excelsa (Dalzell) Müll.Arg.	EUPHORBIACEAE	Shrub
11	Actinodaphne angustifolia Nees	LAURACEAE	Tree
12	Actinodaphne obovata (Nees) Blume	LAURACEAE	Tree
13	Actinostemma tenerum Griff.	CUCURBITACEAE	Climber
14	Adenia cardiophylla (Mast.) Engl.	PASSIFLORACEAE	Tree
15	Adiantum caudatum L.	ADIANTACEAE	Herb
16	Adiantum flabellulatum L.	ADIANTACEAE	Herb
17	Adiantum latifolium Lam.	ADIANTACEAE	Herb
18	Adiantum philippense L.	ADIANTACEAE	Herb
19	Aegle marmelos (L.) Corr. Serr.	RUTACEAE	Tree
20	Aerides odorata Lour.	ORCHIDACEAE	Epiphyte
21	Aeschynanthus hookeri C.B.Clarke	GESNERIACEAE	Climber
22	Ageratum conyzoides (L.) L.	ASTERACEAE	Herb
23	Aglaonema hookerianum Schott.	ARACEAE	Herb
24	Albizia chinensis (Osbeck) Merr.	MIMOSACEAE	Tree
25	Albizia lebbeck (L.) Benth.	MIMOSACEAE	Tree
26	Albizia myriophylla Benth.	MIMOSACEAE	Tree
27	Albizia odoratissima (L.f.) Benth.	MIMOSACEAE	Tree
28	Albizia procera (Roxb.) Benth.	MIMOSACEAE	Tree
29	Albizia richardiana (Voigt) King & Prain	MIMOSACEAE	Tree
30	Aleuritopteris bicolour (Roxb.) FreserJenk	PTERIDACEAE	Fern
31	Allophylus cobbe var. serratus (Roxb.) Prain	SAPINDACEAE	shrub
32	Allophylus cobbe var. villosus (Roxb.) Prain	SAPINDACEAE	shrub
33	Allophylus triphyllus (Blume f.) Merr.	SAPINDACEAE	Shrub
34	Allophylus villosus (Roxb.) Blume	SAPINDACEAE	Shrub
35	Alocasia acuminata Schott	ARACEAE	Herb
36	Alocasia cucullata (Lour.) G.Don	ARACEAE	Herb

Sl.	Scientific Name	Family	Habit
37	Alpinia calcarata (Haw.) Roscoe.	ZINGIBERACEAE	Herb
38	Alpinia conchigera Griff	ZINGIBERACEAE	Herb
39	Alpinia malaccensis (Burm.f.) Roscoe	ZINGIBERACEAE	Herb
40	Alpinia nigra (Gaertn.) B.L.Burtt	ZINGIBERACEAE	Herb
41	Alpinia zerumbet (Pers.) B.L.Burtt & R.M.Sm.	ZINGIBERACEAE	Herb
42	Alstonia scholaris (L.) R.Br.	APOCYNACEAE	Tree
43	Amaranthus viridis L.	AMARANTHACEAE	Shrub
44	Amischotolype mollissima (Blume) Hassk.	COMMELINACEAE	Herb
45	Amomum aromaticum Roxb.	ZINGIBERACEAE	Herb
46	Amomum subulatum Roxb.	ZINGIBERACEAE	Herb
47	Amorphophallus bulbifer (Roxb.) Blume	ARACEAE	Herb
48	Ampelocissus barbata (Wall.) Planch.	VITACEAE	Climber
49	Ampelopteris prolifera (Retz.) Copel.	THELYPTERIDACEAE	Herb
50	Angiopteris evecta (G.Horst)Hoffn.	MARATTIACEAE	Shrub
51	Angiopteris helferiana C.Presl	MARATTIACEAE	Herb
52	Angiopteris helferiana C.Presl	MARATTIACEAE	Herb
53	Angiopteris indica Desv.	MARATTIACEAE	Herb
54	Anisomeles indica (L.) Kuntze	LAMIACEAE	Herb
55	Anogeissus lanceolata (Wall. ex C.B.Clarke) Prain	COMBRETACEAE	Tree
56	Antidesma acidum Retz.	EUPHORBIACEAE	Shrub
57	Antidesma bunius (L.) Spreng.	EUPHORBIACEAE	Shrub
58	Antidesma montanum Blume var. montanum	EUPHORBIACEAE	Herb
59	Antidesma velutinosum Blume	EUPHORBIACEAE	Shrub
60	Aphanamixis polystachya (Wall.) R.Parker	MELIACEAE	Tree
61	Aporosa microstachya (Tul.) Müll.Arg.	EUPHORBIACEAE	Tree
62	Aporosa octandra (Buch.-Ham. ex D.Don) A.R.Vickery	EUPHORBIACEAE	Tree
63	Aporosa wallichii Hook.f.	EUPHORBIACEAE	Tree
64	Aquilaria agallocha Roxb.	THYMELAEACEAE	Tree
65	Ardisia colorata Roxb.	MYRSINACEAE	Herb
66	Ardisia elliptica Thunb.	MYRSINACEAE	Herb
67	Ardisia khasiana C.B.Clarke	MYRSINACEAE	Herb
68	Ardisia odontophylla Wall.	MYRSINACEAE	Herb
69	Ardisia solanacea Roxb.	MYRSINACEAE	Herb
70	Areca triandra Roxb. ex Buch.-Ham.	ARECACEAE	Herb
71	Argyreia nervosa (Burm.f.) Bojer	CONVOLVULACEAE	Climber
72	Argyreia splendens (Roxb.) Sweet	CONVOLVULACEAE	Climber
73	Argyreia strigosa (Roth) Roberty	CONVOLVULACEAE	Climber
74	Aristolochia indica L	ARISTOLOCHIACEAE	Climber
75	Aristolochia tagala Cham.	ARISTOLOCHIACEAE	Herb
76	Artabotrys suaveolens (Blume) Blume	ANNONACEAE	Shrub
77	Artocarpus chama Buch.-Ham. ex Wall.	MORACEAE	Tree

Sl.	Scientific Name	Family	Habit
78	Artocarpus lacucha Buch.-Ham.	MORACEAE	Tree
79	Arundo donax L.	POACEAE	Herb
80	Asarum cordifolium Fischer	ARISTOLOCHIACEAE	Herb
81	Asplenium nidus L.	ASPLENIACEAE	Epiphyte
82	Azadirachta indica A.Juss.	MELIACEAE	Tree
83	Baccaurea ramiflora Lour.	EUPHORBIACEAE	Tree
84	Bambusa balcooa Roxb.	POACEAE	herb
85	Bambusa bambos (L.) Voss	POACEAE	Herb
86	Bambusa burmanica Gamble	POACEAE	Herb
87	Bambusa polymorpha Munro	POACEAE	Herb
88	Bambusa tulda Roxb.	POACEAE	Herb
89	Bauhinia scandens L.	CAESALPINIACEAE	Climber
90	Begonia barbata Wall. ex A.D.C.	BEGONIACEAE	Herb
91	Begonia roxburghii (Miq.) A.DC.	BEGONIACEAE	Herb
92	Begonia thomsonii A.DC.	BEGONIACEAE	Herb
93	Bidens pilosa L.	ASTERACEAE	Herb
94	Bischofia javanica Blume.	EUPHORBIACEAE	Tree
95	Bixa orellana L.	BIXACEAE	Tree
96	Blumea balsamifera DC.	ASTERACEAE	Herb
97	Blumea lacera (Burm.f.) DC.	ASTERACEAE	Herb
98	Blumea pterodonta DC.	ASTERACEAE	Herb
99	Boehmeria glomerulifera Miq.	URTICACEAE	Shrub
100	Boehmeria kurzii Hook.f.	URTICACEAE	Shrub
101	Boehmeria malabarica Wedd.	URTICACEAE	Shrub
102	Boehmeria nivea (L.) Gaud.	URTICACEAE	Shrub
103	Bolbitis angustipinna (Hayata) Ching	LOMARIOPSIDACEAE	Herb
104	Bombax ceiba L.	BOMBACACEAE	Tree
105	Bombax insigne Wall.	BOMBACACEAE	Tree
106	Bouea burmanica Griff.	ANACARDIACEAE	Tree
107	Bouea oppositifolia (Roxb.) Meissner	ANACARDIACEAE	Tree
108	Breynia retusa (Dennst.) Alston	EUPHORBIACEAE	Shrub
109	Bridelia retusa (L.) A.Juss.	EUPHORBIACEAE	Tree
110	Bridelia sikkimensis Gehrm.	EUPHORBIACEAE	Tree
111	Bridelia stipularis (L.) Blume	EUPHORBIACEAE	Tree
112	Bridelia stipularis (L.) Blume	EUPHORBIACEAE	Tree
113	Bridelia tomentosa Blume	EUPHORBIACEAE	Tree
114	Brownlowia elata Roxb.	TILIACEAE	Herb
115	Bulbophyllum auricomum Lindl.	ORCHIDACEAE	Epiphyte
116	Bulbophyllum lobbii Lindl.	ORCHIDACEAE	Epiphyte
117	Byttneria aspera Colebr.	STERCULIACEAE	Climber
118	Byttneria pilosa Roxb.	STERCULIACEAE	Climber

Sl.	Scientific Name	Family	Habit
119	Caesalpinia cucullata Roxb.	CAESALPINIACEAE	Climber
120	Caesalpinia digyna Rottler	CAESALPINIACEAE	Climber
121	Caesalpinia sappan L.	CAESALPINIACEAE	Tree
122	Cajanus goensis Dalzell	FABACEAE	Shrub
123	Calamus arborescens Griff.	ARECACEAE	Climber
124	Calamus erectus Roxb.	ARECACEAE	Climber
125	Calamus gracilis Roxb.	ARECACEAE	Climber
126	Calamus guruba Buch.-Ham.	ARECACEAE	Climber
127	Calamus longisetus Griff.	ARECACEAE	Climber
128	Callicarpa arborea Roxb.	VERBENACEAE	Tree
129	Callicarpa macrophylla Vahl	VERBENACEAE	Tree
130	Calotropis gigantea (L.) Ait.f.	ASCLEPIADACEAE	Tree
131	Cassia fistula L.	CAESALPINIACEAE	Tree
132	Cayratia trifolia (L.) Domin	VITACEAE	Shrub
133	Celosia argentea L.	AMARANTHACEAE	Shrub
134	Centella asiatica (L.) Urban	APIACEAE	Herb
135	Cheilocostus speciosus (J.König) C.Specht	COSTACEAE	Herb
136	Christella dentata (Forssk.) Brownsey & Jermy	THELYPTERIDACEAE	Herb
137	Christella evoluta (C.B.Clarke) Holttum	THELYPTERIDACEAE	Herb
138	Chromolaena odorata (L.) R.M.King & H.Rob.	ASTERACEAE	Herb
139	Cissus adnata Roxb.	VITACEAE	Climber
140	Cissus assamica (Lawson) Craib	VITACEAE	Climber
141	Cissus javana DC.	VITACEAE	Climber
142	Cissus pentagona (Roxb.) Lawson.	VITACEAE	Climber
143	Clausena heptaphylla (Roxb.) Wight & Arn. ex Steud.	RUTACEAE	Tree
144	Clausena suffruticosa (Roxb.) Wight & Arn.	RUTACEAE	Tree
145	Clerodendrum indicum (L.) Kuntze	VERBENACEAE	shrub
146	Clerodendrum nutans Wall.	VERBENACEAE	Shrub
147	Clerodendrum viscosum Vent.	VERBENACEAE	Shrub
148	Codariocalyx gyroides (Link) Hassk.	FABACEAE	Shrub
149	Colocasia esculenta (L.) Schott.	ARACEAE	Herb
150	Colocasia mannii Hook.f.	ARACEAE	Herb
151	Combretum album Pers.	COMBRETACEAE	Shrub
152	Combretum griffithii Heurck & Müll.Arg.	COMBRETACEAE	Climber
153	Combretum punctatum Blume subsp. squamosum (Roxb. ex G.Don) Excell	COMBRETACEAE	Climber
154	Commelina benghalensis L.	COMMELINACEAE	Herb
155	Commelina diffusa Burm.f.	COMMELINACEAE	Herb
156	Commelina erecta L.	COMMELINACEAE	Herb
157	Congea tomentosa Roxb.	VERBENACEAE	Climber
158	Corchorus aestuans L.	TILIACEAE	Herb
159	Corchorus fascicularis Lam.	TILIACEAE	Shrub

Sl.	Scientific Name	Family	Habit
160	Crassocephalum crepidioides (Benth.) S.Moore	ASTERACEAE	Herb
161	Crataeva magna (Lour.) DC.	CAPPARACEAE	Tree
162	Crotalaria pallida Aiton	FABACEAE	Herb
163	Crotalaria verrucosa L.	FABACEAE	Herb
164	Curculigo orchioides Gaertn.	LILIACEAE	Herb
165	Curcuma angustifolia Roxb.	ZINGIBERACEAE	Herb
166	Curcuma aromatica Salisb.	ZINGIBERACEAE	Herb
167	Curcuma latifolia Roscoe	ZINGIBERACEAE	Herb
168	Curcuma longa L.	ZINGIBERACEAE	Herb
169	Cyanthillium patulum (Dryand. ex Dryand.) H.Rob.	ASTERACEAE	Herb
170	Cyathea brunoniana (Wall. ex Hook.) C.B.Clarke & Baker.	CYATHEACEAE	Tree
171	Cyathea gigantea (Wall. ex Hook.) Holttum	CYATHEACEAE	Herb
172	Cyathula prostrata (L.) Blume	AMARANTHACEAE	Herb
173	Cymbidium aloifolium (L.) Sw.	ORCHIDACEAE	Epiphyte
174	Cynodon dactylon (L.) Pers.	POACEAE	Herb
175	Cyperus digitatus Roxb.	CYPERACEAE	Grass
176	Cyperus rotandus L.	CYPERACEAE	Herb
177	Dalbergia ovata Benth.	FABACEAE	Tree
178	Dalbergia sissoo DC.	FABACEAE	Tree
179	Dalbergia spinosa Roxb.	FABACEAE	Tree
180	Dalbergia stipulacea Roxb.	FABACEAE	Tree
181	Dalbergia volubilis Roxb.	FABACEAE	Tree
182	Dehaasia kurzii King ex Hook.f.	LAURACEAE	Shrub
183	Delonix regia (Hook.) Raf.	CAESALPINIACEAE	Tree
184	Dendrobium aphyllum (Roxb.) C.E.C.Fisch.	ORCHIDACEAE	Epiphyte
185	Dendrophthoe falcata (L.f.) Ett.	LORANTHACEAE	Epiphyte
186	Dendrophthoe falcata (L.f.) Ett.	LORANTHACEAE	Epiphyte
187	Dentella repens (L.) J.R.Forst & G.Forst.	RUBIACEAE	Herb
188	Derris mitis (L.) Kurz	FABACEAE	Climber
189	Derris robusta (DC.) Benth.	FABACEAE	Tree
190	Derris scandens (Roxb.) Benth.	FABACEAE	Climber
191	Desmodium gangeticum (L.) DC.	FABACEAE	Shrub
192	Desmodium heterocarpon (L.) DC.	FABACEAE	Shrub
193	Desmodium laxiflorum DC.	FABACEAE	shrub
194	Desmodium motorium (Houtt.) Merr.	FABACEAE	Shrub
195	Desmodium oblongum Benth.	FABACEAE	Shrub
196	Desmodium triflorum (L.) DC.	FABACEAE	Shrub
197	Desmos chinensis Lour.	ANNONACEAE	Shrub
198	Desmos dunalii (Wall.) Saff.	ANNONACEAE	Tree
199	Dicranopteris linearis (Burm.f.) Underw.	GLEICHENIACEAE	Herb
200	Didymosperma gracilis Hook.f.	ARECACEAE	Shrub

Sl.	Scientific Name	Family	Habit
201	Dillenia indica L.	DILLENIACEAE	Tree
202	Dillenia pentagyna Roxb.	DILLENIACEAE	Tree
203	Dioscorea aculeata L.	DIOSCOREACEAE	Climber
204	Dioscorea alata L.	DIOSCOREACEAE	Climber
205	Dioscorea belophylla (Prain) Voigt ex Haines	DIOSCOREACEAE	Climber
206	Dioscorea bulbifera L.	DIOSCOREACEAE	Climber
207	Dioscorea kamoonensis Kunth	DIOSCOREACEAE	Climber
208	Dioscorea oppositifolia L.	DIOSCOREACEAE	Climber
209	Dioscorea pentaphylla L.	DIOSCOREACEAE	Climber
210	Diplazium esculentum (Retz.) Sw.	WOODSIACEAE	Herb
211	Diplazium latifolium T.Moore	WOODSIACEAE	Herb
212	Diploclisia glaucescens (Blume) Diels	MENISPERMACEAE	Climber
213	Dipteracanthus prostratus (Poir.) Nees	ACANTHACEAE	Herb
214	Dipterocarpus tuberculatus Roxb.	DIPTEROCARPACEAE	Tree
215	Dipterocarpus turbinatus Gaertn	DIPTEROCARPACEAE	Tree
216	Dracaena angustifolia (Medik.) Roxb.	AGAVACEAE	Herb
217	Dracaena elliptica Thunb. & Dalm.	AGAVACEAE	Shrub
218	Dracaena helferiana Wall. ex Kurz	AGAVACEAE	Herb
219	Dracaena spicata Roxb.	AGAVACEAE	Herb
220	Dracaena terniflora Roxb.	AGAVACEAE	Herb
221	Drynaria quercifolia (L.) J.Sm.	POLYPODIACEAE	Fern
222	Duabanga grandiflora (Roxb. ex DC.) Walp.	SONNERATIACEAE	Tree
223	Eclipta prostrata (L.) L.	ASTERACEAE	Herb
224	Elaeocarpus floribundus Blume	ELAEOCARPACEAE	Tree
225	Elaeocarpus tectorius (Lour.) Poir.	ELAEOCARPACEAE	Tree
226	Elatostema papillosum Wedd.	URTICACEAE	Herb
227	Elatostema sesquifolium (Blume) Hassk.	URTICACEAE	Herb
228	Elatostema sesssile J.R.Forst. & J.G.Forst.	URTICACEAE	Shrub
229	Elephantopus scaber L.	ASTERACEAE	Shrub
230	Engelhardtia spicata Lesch. ex Blume var. spicata	JUGLANDACEAE	Tree
231	Enhydra fluctuans Lour.	ASTERACEAE	Herb
232	Entada rheedii Spreng.	MIMOSACEAE	Climber
233	Erythrina arborescens Roxb.	FABACEAE	Tree
234	Erythrina variegata L. var. variegata	FABACEAE	Tree
235	Euphorbia hirta L.	EUPHORBIACEAE	Herb
236	Eurya acuminata DC.	THEACEAE	Herb
237	Evolvulus nummularius (L.) L.	CONVOLVULACEAE	Herb
238	Ficus ampelas Burm.f.	MORACEAE	Tree
239	Ficus auriculata Lour.	MORACEAE	Tree
240	Ficus benghalensis L.	MORACEAE	Tree
241	Ficus benjamina L.	MORACEAE	Tree

Sl.	Scientific Name	Family	Habit
242	Ficus fistulosa Reinw. ex Blume	MORACEAE	Tree
243	Ficus glaberrima Blume	MORACEAE	Tree
244	Ficus hispida L.f.	MORACEAE	Tree
245	Ficus ischnopoda Miq.	MORACEAE	Tree
246	Ficus maclellandii King	MORACEAE	Tree
247	Ficus pumila L.	MORACEAE	Tree
248	Ficus racemosa L. var. racemosa	MORACEAE	Tree
249	Ficus religiosa L.	MORACEAE	Tree
250	Ficus rumphii Blume	MORACEAE	Tree
251	Ficus semicordata Buch.-Ham. ex J.E.Sm.	MORACEAE	Tree
252	Ficus auriculata Lour.	MORACEAE	Tree
253	Firmiana colorata (Roxb.) R.Br.	STERCULIACEAE	Shrub
254	Flacourtia jangomas (Lour.) Raeusch.	FLACOURTIACEAE	Tree
255	Flemingia macrophylla (Willd.) Merr.	MORACEAE	Tree
256	Flemingia stricta Roxb.	FABACEAE	Shrub
257	Floscopa scandens Lour.	COMMELINACEAE	Herb
258	Garcinia cowa Roxb. ex DC.	CLUSIACEAE	Tree
259	Gardenia coronaria Buch.-Ham.	RUBIACEAE	Tree
260	Gardenia latifolia Aiton	RUBIACEAE	Shrub
261	Gastrochilus calceolaris (Buch.Ham. ex Sm.) D.Don	ORCHIDACEAE	Epiphyte
262	Getonia floribunda Roxb.	COMBRETACEAE	Shrub
263	Globba clarkei Baker	ZINGIBERACEAE	Herb
264	Globba pendula Roxb.	ZINGIBERACEAE	Herb
265	Glochidion assamicum (Müll.Arg.) Hook.f.	EUPHORBIACEAE	Tree
266	Glochidion ellipticum Wight	EUPHORBIACEAE	Tree
267	Glochidion khasicum (Müll.Arg.) Hook.f.	EUPHORBIACEAE	Tree
268	Glochidion multiloculare (Rottler ex Willd.) Voigt	EUPHORBIACEAE	Tree
269	Gloriosa superba L.	LILIACEAE	Shrub
270	Gmelina arborea Roxb.	VERBENACEAE	Tree
271	Gnetum latifolium Blume	GNETACEAE	Climber
272	Gnetum scandens Roxb.	GNETACEAE	Climber
273	Gossypium arboreum L. var. arboreum	MALVACEAE	Shrub
274	Grewia laevigata Vahl	TILIACEAE	Tree
275	Grewia nervosa (Lour.) Panigrahi	TILIACEAE	Tree
276	Grewia serrulata DC.	TILIACEAE	Tree
277	Grewia tiliifolia Vahl	TILIACEAE	Tree
278	Haldina cordifolia (Roxb.) Ridsdale	RUBIACEAE	Tree
279	Hedyotis capitellata Wall. ex G.Don	RUBIACEAE	Herb
280	Hedyotis scandens Roxb.	RUBIACEAE	Herb
281	Heliconia stricta Huber	HELICONIACEAE	Herb
282	Helminthostachys zeylanica (L.) Hook.	OPHIOGLOSSACEAE	Shrub

Sl.	Scientific Name	Family	Habit
283	Hemidesmus indicus (L.) R.Br	ASCLEPIADACEAE	Twiner
284	Hemigraphis latebrosa (Heyne ex Roth) Nees	ACANTHACEAE	Herb
285	Hemiorchis pantlingii King	ZINGIBERACEAE	Herb
286	Hibiscus sabdariffa L. var. Sabdariffa	MALVACEAE	Shrub
287	Hodgsonia macrocarpa (Blume) Cogn.	CUCURBITACEAE	Climber
288	Holarrhena antidysenterica (Roxb. ex Fleming) Wall. ex A.DC.	APOCYNACEAE	Tree
289	Holigarna longifolia Buch.-Ham. ex Roxb.	ANACARDIACEAE	Tree
290	Homalomena aromatica (Spreng.) Schott	ARACEAE	Herb
291	Homalomena pendula (Blume) Bakh.f.	ARACEAE	Herb
292	Hoya parasitica (Roxb.) Wall. ex Wight	ASCLEPIADACEAE	Epiphyte
293	Hydnocarpus kurzii (King) Warb.	FLACOURTIACEAE	Tree
294	Hymenodictyon orixensis (Roxb.) Mabb.	RUBIACEAE	Tree
295	Hyptis brevipes Poit.	LAMIACEAE	Herb
296	Hyptis capitata Jacq.	LAMIACEAE	Herb
297	Hyptis suaveolens (L.) Poit.	LAMIACEAE	Herb
298	Ichnocarpus frutescens (L.) R.Br.	APOCYNACEAE	Climber
299	Ipomoea hederifolia L.	CONVOLVULACEAE	Climber
300	Ipomoea pes-tigridis L.	CONVOLVULACEAE	Climber
301	Ipomoea quamoclit L.	CONVOLVULACEAE	Climber
302	Ixora nigricans R.Br. ex Wight & Arn.	RUBIACEAE	Shrub
303	Jacquemontia paniculata (Burm.f.) Hallier f.	CONVOLVULACEAE	Climber
304	Jasminum subtriplinerve Blume	OLEACEAE	Climber
305	Lagerstroemia indica L.	LYTHRACEAE	Tree
306	Lagerstroemia speciosa (L.) Pers.	LYTHRACEAE	Tree
307	Lannea coromandelica (Houtt.) Merr.	ANACARDIACEAE	Tree
308	Lantana camara L.	VERBENACEAE	Shrub
309	Leea acuminata Wall.	LEEACEAE	Shrub
310	Leea aequata L.	LEEACEAE	Shrub
311	Leea indica Merr.	LEEACEAE	Shrub
312	Leea macrophylla Roxb. ex Hornem.	LEEACEAE	Shrub
313	Lepidagathis fasciculata Nees	ACANTHACEAE	Herb
314	Lepidagathis hyalina Nees	ACANTHACEAE	Herb
315	Lepidagathis incurva Buch.Ham. ex D.Don	ACANTHACEAE	Herb
316	Lepisanthes senegalensis (Poir.) Leenh.	SAPINDACEAE	Tree
317	Leucas aspera (Roth) Spreng.	LAMIACEAE	Herb
318	Licuala peltata Roxb. ex Buch.-Ham.	ARECACEAE	Tree
319	Lindera latifolia Hook.f.	LAURACEAE	Herb
320	Lindernia antipoda (L.) Alston	SCROPHULARIACEAE	Herb
321	Lindernia procumbens (Krocker) Philcox	SCROPHULARIACEAE	Herb
322	Lindernia pusilla (Willd.) Boldingh	SCROPHULARIACEAE	Herb
323	Lippia alba (P.Mill.) N.E.Br. ex Britt. & Wilson	VERBENACEAE	Shrub

Sl.	Scientific Name	Family	Habit
324	Litsea cubeba (Lour.) Pers.	LAURACEAE	Tree
325	Litsea glutinosa (Lour.) C.B.Rob.	LAURACEAE	Tree
326	Litsea monopetala (Roxb.) Pers.	LAURACEAE	Tree
327	Ludwigia adscendens (L.) Hara	ORCHIDACEAE	Shrub
328	Ludwigia hyssopifolia (G.Don) Exell.	ORCHIDACEAE	Herb
329	Ludwigia prostrata Roxb.	ONAGRACEAE	Herb
330	Lycopodiella cernua (L.) Pic.Serm.	LYCOPODIACEAE	Herb
331	Lygodium flexuosum (L.) Sw.	SCHIZAEACEAE	Climber
332	Lygodium microphyllum (Cav.) R.Br.	SCHIZAEACEAE	Climber
333	Macaranga denticulata (Blume) Müll.Arg.	EUPHORBIACEAE	Tree
334	Macaranga peltata (Roxb.) Müll.Arg.	EUPHORBIACEAE	Tree
335	Madhuca longifolia	SAPOTACEAE	Tree
336	Maesa indica (Roxb.) A.DC.	MYRSINACEAE	Shrub
337	Maesa ramentacea (Roxb.) A.D.C.	MYRSINACEAE	Shrub
338	Mallotus philippensis (Lam.) Müll.Arg.	EUPHORBIACEAE	Shrub
339	Mallotus tetracoccus (Roxb.) Kurz	EUPHORBIACEAE	Tree
340	Mangifera indica L.	ANACARDIACEAE	Tree
341	Mangifera longipes Griff.	ANACARDIACEAE	Tree
342	Mangifera sylvatica Roxb.	ANACARDIACEAE	Tree
343	Manihot esculenta Crantz	EUPHORBIACEAE	Shrub
344	Melastoma malabathricum L.	MELASTOMATACEAE	Shrub
345	Melocanna baccifera (Roxb.) Kurz	POACEAE	Herb
346	Merremia vitifolia (Burm.f.) Hallier f.	CONVOLVULACEAE	Climber
347	Microcos paniculata L.	TILIACEAE	Shrub
348	Micromelum hirsutum Oliver	RUTACEAE	Tree
349	Micromelum minutum (J.G.Forster) Wight & Arn.	RUTACEAE	Tree
350	Microsorum dilatatum (Bedd.) Sledge	POLYPODIACEAE	Herb
351	Mikania micrantha Kunth	ASTERACEAE	Climber
352	Mimosa pudica L.	MIMOSACEAE	Herb
353	Mitragyna diversifolia (Wall. ex G.Don) Havil.	RUBIACEAE	Tree
354	Mitragyna parvifolia (Roxb.) Korth	RUBIACEAE	Tree
355	Mitragyna parvifolia (Roxb.) Korth. var. microphylla (Kurz) Ridsdale	RUBIACEAE	Tree
356	Modecca furfuracea Wall.	PASSIFLORACEAE	Climber
357	Molineria capitulata (Lour.) Herb.	HYPOXIDACEAE	Herb
358	Monochoria hastata (L.) Solms.	PONTEDERIACEAE	Herb
359	Morinda angustifolia Roxb.	RUBIACEAE	Shrub
360	Morinda citrifolia L.	RUBIACEAE	Herb
361	Mucuna pruriens (L.) DC. var. pruriens	F-ACEAE	Climber
362	Mukia maderaspatana (L.) M.Roem.	CUCURBITACEAE	Climber
363	Murraya koenigii (L.) Spreng.	RUTACEAE	Tree
364	Musa acuminata Colla.	MUSACEAE	Herb

Sl.	Scientific Name	Family	Habit
365	Musa ornata Roxb	MUSACEAE	Herb
366	Musa paradisiaca L.	MUSACEAE	Herb
367	Musa paradisiaca var. sapientum (L.) Kuntze	MUSACEAE	Herb
368	Mussaenda glabra Vahl	RUBIACEAE	Shrub
369	Mussaenda roxburghii Hook.f.	RUBIACEAE	Herb
370	Mycetia longifolia (Wall.) Kuntze	RUBIACEAE	Shrub
371	Mycetia malayana (G.Don) Craib	RUBIACEAE	Herb
372	Mycetia mukergiana Deb & Dutta.	RUBIACEAE	Shrub
373	Mycetia stipulata (Hook.f.).O.ktze. Subsp. Mecrostachya.	RUBIACEAE	Shrub
374	Myristica linifolia Roxb.	MYRISTICACEAE	Tree
375	Neolamarckia cadamba (Roxb.) Bosser	RUBIACEAE	Tree
376	Nephrolepis cordifolia (L.) C.Presl	NEPHROLEPIDACEAE	Herb
377	Ocimum gratissimum L.	LAMIACEAE	Herb
378	Ophiorrhiza mungos L.	RUBIACEAE	Herb
379	Ophiorrhiza rugosa var. prostrata (D.Don) Deb & Mandal	RUBIACEAE	Herb
380	Oreocnide integrifolia (Gaud.) Miq.	URTICACEAE	Tree
381	Orobanche cernua Loefl. var. desertorum G.Beck	OROBANCHACEAE	Herb
382	Oroxylum indicum (L.) Kurz	BIGNONIACEAE	Tree
383	Osbeckia stellata Buch.-Ham. ex Ker Gawl.	MELASTOMATACEAE	Shrub
384	Oxyspora cernua Hook.f. & Thomson ex Triana	MELASTOMATACEAE	Herb
385	Paederia erecta Roxb.	RUBIACEAE	Climber
386	Paederia foetida L.	RUBIACEAE	Climber
387	Paederia lanuginosa Wall.	RUBIACEAE	Climber
388	Pandanus foetidus Roxb.	PANDANACEAE	Herb
389	Pandanus furcatus Roxb.	PANDANACEAE	Herb
390	Panicum fasciculatum Sw.	POACEAE	Herb
391	Panicum incomtum Trin.	POACEAE	Herb
392	Panicum maximum Jacq.	POACEAE	Herb
393	Panicum repens L.	POACEAE	Herb
394	Paracalyx scariosus (Roxb.) Ali	FABACEAE	Shrub
395	Paramignya monophylla Wight	RUTACEAE	Shrub
396	Paramignya scandens (Griff.) Craib.	RUTACEAE	Tree
397	Passiflora foetida L.	PASSIFLORACEAE	Climber
398	Peliosanthes teta Andrews subsp. Teta	LILIACEAE	Herb
399	Peperomia pellucida (L.) Kunth	PIPERACEAE	Herb
400	Pericampylus glaucus (Lam.) Merr.	MENISPERMACEAE	Climber
401	Peristylus goodyeroides (D.Don) Lindl.	ORCHIDACEAE	Shrub
402	Persicaria chinensis (L.) H.Gross	POLYGONACEAE	Herb
403	Persicaria hydropiper L.	POLYGONACEAE	Herb
404	Persicaria orientalis (L.) Spach	POLYGONACEAE	Herb
405	Phaseolus calcaratus Roxb.	FABACEAE	Climber

Sl.	Scientific Name	Family	Habit
406	Phragmites karka (Retz.) Trin. ex Steud.	POACEAE	Herb
407	Phrynium imbricatum Roxb.	MARANTACEAE	Herb
408	Phyla nodiflora (L.) Greene	VERBENACEAE	Tree
409	Phyllanthus emblica L.	EUPHORBIACEAE	Tree
410	Phyllanthus niruri L.	EUPHORBIACEAE	Herb
411	Phyllanthus reticulatus Poir.	EUPHORBIACEAE	Shrub
412	Phyllanthus sikkimensis Müll.Arg.	EUPHORBIACEAE	Tree
413	Phyllanthus urinaria L.	EUPHORBIACEAE	Tree
414	Phyllodium pulchellum (L.) Desv.	FABACEAE	Herb
415	Physalis minima L.	SOLANACEAE	Herb
416	Pilea microphylla (L.) Liebm.	URTICACEAE	Herb
417	Pinanga gracilis Blume	ARECACEAE	Herb
418	Piper boehmeriaefolium Wall.	PIPERACEAE	Climber
419	Piper chaba Hunter.	PIPERACEAE	Climber
420	Piper retrofractum Vahl	PIPERACEAE	Climber
421	Plumeria rubra L.	APOCYNACEAE	Shrub
422	Pogostemon auricularius (L.) Hassk.	LAMIACEAE	Herb
423	Pongamia pinnata (L.) Pierre	FABACEAE	Tree
424	Pothos scandens L.	ARACEAE	Epiphyte
425	Pouzolzia sanguinea (Blume) Merr	URTICACEAE	Shrub
426	Pouzolzia zeylanica (L.) Benn.	URTICACEAE	Herb
427	Premna esculenta Roxb.	VERBENACEAE	Shrub
428	Protium serratum (Wall. ex Coelbr.) Engl.	BURSERACEAE	Tree
429	Psychotria adenophylla Wall.	RUBIACEAE	Shrub
430	Psychotria montana Blume	RUBIACEAE	Herb
431	Psychotria sphaerocarpa Wall.	RUBIACEAE	Herb
432	Pteris khasiana (C.B.Clarke) Hiern.	PTERIDACEAE	Herb
433	Pteris vittata L. subsp. Vittata	PTERIDACEAE	Herb
434	Pterospermum acerifolium (L.) Willd.	STERCULIACEAE	Tree
435	Pterospermum semisagittatum Buch.-Ham. ex Roxb.	STERCULIACEAE	Tree
436	Pueraria tuberosa (Willd.) DC.	FABACEAE	Climber
437	Quercus oblongata D.Don	FAGACEAE	Herb
438	Quercus oxyodon Miq.	FAGACEAE	Tree
439	Randia dumetorum (Retz.) Lam.	RUBIACEAE	Shrub
440	Rhaphidophora calophylla Schott	ARACEAE	Herb
441	Rhaphidophora decursiva (Roxb.) Schott	ARACEAE	Herb
442	Rhaphidophora glauca (Wall.) Schott	ARACEAE	Herb
443	Rhynchotechum ellipticum (Wall. ex D.Dietr.) A.DC.	GESNERIACEAE	Shrub
444	Richardia scabra L.	RUBIACEAE	Shrub
445	Ricinus communis L.	EUPHORBIACEAE	Shrub
446	Saccharum arundinaceum Retz.	POACEAE	Herb

Sl.	Scientific Name	Family	Habit
447	Saccharum bengalense Retz.	POACEAE	Shrub
448	Saccharum procerum Roxb.	POACEAE	Herb
449	Saccharum spontaneum L.	POACEAE	Herb
450	Saraca asoca (Roxb.) Willd.	CAESALPINIACEAE	Tree
451	Saraca indica L.	CAESALPINIACEAE	Tree
452	Sarcochlamys pulcherrima Gaudich.	URTICACEAE	Shrub
453	Saurauia roxburghii Wall.	ACTINIDIACEAE	Tree
454	Schefflera elliptica (Blume) Harms	ARALIACEAE	Tree
455	Schima wallichii Choisy	THEACEAE	Tree
456	Schizostachyum dullooa (Gamble) R.B.Majumdar	POACEAE	Herb
457	Schleichera oleosa (Lour.) Merr.	SAPINDACEAE	Tree
458	Scindapsus officinalis (Roxb.) Schott	ARACEAE	Epiphyte
459	Scoparia dulcis L.	SCROPHULARIACEAE	Herb
460	Selaginella delicatula (Desv. ex Poir.) Alston	SELAGINELLACEAE	Herb
461	Sellaginella inaequalifolia (Hook. & Grev.) Spring	SELAGINELLACEAE	Herb
462	Senna alata (L.) Roxb.	CAESALPINIACEAE	Shrub
463	Senna hirsuta (L.) H.S.Irwin & Barneby	CAESALPINIACEAE	Herb
464	Senna obtusifolia (L.) H.S.Irwin & Barneby	CAESALPINIACEAE	Shrub
465	Senna sophera (L.) Roxb.	CAESALPINIACEAE	Shrub
466	Senna tora (L.) Roxb.	CAESALPINIACEAE	Herb
467	Sesbania sesban (L.) Merr.	FABACEAE	Herb
468	Sida acuta Burm.f.	MALVACEAE	Herb
469	Sida cordata (Burm.f.) Waalkes	MALVACEAE	Herb
470	Sida rhombifolia L.	MALVACEAE	Herb
471	Siphonodon celastrineus Griff.	CELASTRACEAE	herb
472	Smilax ferox Wall. ex Kunth	SMILACACEAE	Climber
473	Smilax multiflora M.Martens & Galeotti	SMILACACEAE	Climber
474	Smilax odoratissima Blume	SMILACACEAE	Climber
475	Smilax ovalifolia Roxb. ex D.Don	SMILACACEAE	Climber
476	Smilax zeylanica L.	SMILACACEAE	Climber
477	Solanum sisymbrifolium Lam.	SOLANACEAE	Shrub
478	Solanum torvum Sw.	SOLANACEAE	Shrub
479	Spathoglottis plicata Blume	ORCHIDACEAE	Herb
480	Spathoglottis pubescens Lindl.	ORCHIDACEAE	Herb
481	Spermacoce articularis L.f.	RUBIACEAE	Herb
482	Spermacoce exilis (L.O.Williams) C.D.Adams ex W.C.Burger & C.M.Taylor	RUBIACEAE	Herb
483	Spermacoce hispida L.	RUBIACEAE	Herb
484	Spermacoce latifolia Aubl.	RUBIACEAE	Herb
485	Spermacoce ocymoides Burm.f.	RUBIACEAE	Herb
486	Spermacoce stricta L.f.	RUBIACEAE	Herb
487	Spermacoce tenuior L.	RUBIACEAE	Herb

Sl.	Scientific Name	Family	Habit
488	Spilanthes acmella (L.) L.	ASTERACEAE	Herb
489	Spondias pinnata (L.f.) Kurz	ANACARDIACEAE	Tree
490	Stachyphrynium placentarium (Lour.) Clausager & Borchs.	MARANTACEAE	Herb
491	Stenochlaena palustris (Burm.f.) Bedd.	BLECHNACEAE	Herb
492	Stephania japonica (Thunb.) Miers	MENISPERMACEAE	Climber
493	Sterculia foetida L.	STERCULIACEAE	Tree
494	Sterculia villosa Roxb.	STERCULIACEAE	Tree
495	Stereospermum colais (Buch.-Ham. ex Dillw) Mabb	BIGNONIACEAE	Tree
496	Stereospermum suaveolens (Roxb.) DC.	BIGNONIACEAE	Tree
497	Steudnera colocasioides Hook.f.	ARACEAE	Herb
498	Steudnera gagei C.Krauce.	ARACEAE	Herb
499	Streblus asper Lour.	MORACEAE	Tree
500	Strobilanthes scaber Nees	ACANTHACEAE	Herb
501	Suregada multiflora (A.Juss.) Baill.	EUPHORBIACEAE	Tree
502	Swintonia floribunda Griff.	ANACARDIACEAE	Tree
503	Synedrella nodiflora (L.) Gaertn.	ASTERACEAE	Herb
504	Syzygium cumini (L.) Skeels	MYRTACEAE	Tree
505	Syzygium fruticosum (Roxb.) DC.	MYRTACEAE	Tree
506	Syzygium grande (Wight.) Walp.	MYRTACEAE	Tree
507	Syzygium nervosum A.Cunn. ex DC.	MYRTACEAE	Tree
508	Tabernaemontana divaricata (L.) R.Br. ex Roem. & Schult	APOCYNACEAE	shrub
509	Tacca integrifolia Ker Gawl.	TACCACEAE	Herb
510	Tamarindus indica L.	CAESALPINIACEAE	Tree
511	Tectaria coadunata (Wall. ex Hook. & Grev.) C.Chr.	DRYOPTERIDACEAE	Fern
512	Tectaria griffithii (Baker) C.Chr.	DRYOPTERIDACEAE	Fern
513	Tectaria polymorpha (Wall. ex Hook.) Copel.	DRYOPTERIDACEAE	Herb
514	Tectaria vasta (Blume) Copel.	DRYOPTERIDACEAE	Herb
515	Tectona grandis L.f.	VERBENACEAE	Tree
516	Tephrosia candida (Roxb.) DC.	FABACEAE	Shrub
517	Tephrosia purpurea (L.) Pers.	FABACEAE	Shrub
518	Tephrosia purpurea (L.) Pers.	FABACEAE	Tree
519	Terminalia arjuna (Roxb. ex DC.) Wight & Arn.	COMBRETACEAE	Tree
520	Terminalia bellirica (Gaertn.) Roxb.	COMBRETACEAE	Tree
521	Terminalia chebula (Gaertn.) Retz.	COMBRETACEAE	Tree
522	Tetrameles nudiflora R.Br.	DATISCACEAE	Tree
523	Tetrastigma leucostaphyllum (Dennst.) Alston ex Mabb.	VITACEAE	Climber
524	Tetrastigma serrulatum (Roxb.) Planch.	VITACEAE	Climber
525	Thunbergia alata Bojer ex Sims	ACANTHACEAE	Climber
526	Thunbergia grandiflora Roxb.	ACANTHACEAE	Climber
527	Thysanolaena maxima (Roxb.) Kuntze	POACEAE	Herb
528	Tiliacora acuminata (Lam.) Hook.f. & Thomson	MENISPERMACEAE	Herb

Sl.	Scientific Name	Family	Habit
529	Tinospora cordifolia (Willd.) Miers	MENISPERMACEAE	Climber
530	Tinospora crispa (L.) Hook.f. & Thomson	MENISPERMACEAE	Climber
531	Toona ciliata Roemer	MELIACEAE	Tree
532	Torenia asiatica L.	SCROPHULARIACEAE	Herb
533	Trapa bispinosa Roxb.	TRAPACEAE	Herb
534	Trema orientalis (L.) Blume.	ULMACEAE	Tree
535	Trevesia palmata (Roxb. ex Lindl.) Vis.	ARALIACEAE	Shrub
536	Trichosanthes cucumerina L.	CUCURBITACEAE	Climber
537	Trichosanthes tricuspidata Lour.	CUCURBITACEAE	Climber
538	Triumfetta rhomboidea Jacq.	TILIACEAE	Herb
539	Urena lobata L.	MALVACEAE	Herb
540	Vanda tessellata (Roxb.) Hook.f. ex G.Don	ORCHIDACEAE	Herb
541	Vernonia patula (Aiton) Merr.	ASTERACEAE	Herb
542	Vigna adenantha (G.Mey.) Marechal, Mascherpa &	FABACEAE	Climber
543	Vigna luteola (Jacq.) Benth.	FABACEAE	Climber
544	Vitex glabrata R.Br.	VERBENACEAE	Tree
545	Vitex peduncularis Wall. ex Schauer	VERBENACEAE	Tree
546	Vitis pentagona (Roxb.) Lowson	VITACEAE	Climber
547	Woodfordia fruticosa (L.) Kurz	LYTHRACEAE	Shrub
548	Wrightia arborea (Dennst.) Mabb.	APOCYNACEAE	Tree
549	Xanthosoma sagittifolium (L.) Schott.	ARACEAE	Herb
550	Zingiber rubens Roxb.	ZINGIBERACEAE	Herb
551	Zingiber zerumbet (L.) Roscoe ex Sm.	ZINGIBERACEAE	Herb
552	Ziziphus mauritiana Lam.	RHAMNACEAE	Tree
553	Ziziphus oenoplia (L.) Mill. var. oenoplia	RHAMNACEAE	Tree
554	Unidentified 1		Tree
555	Unidentified 2		Tree

B. MASTER INVENTORY LIST OF FAUNA (MOLLUSCS, FISH, WILDLIFE ETC.)

Crustaceans, mollusks, fish and wildlife recorded in the 20 sampled Village Common Forests of Chittagong Hill Tracts

A. CRUSTACEANS

Sl. no.	Family	Scientific Name	Common Name	Bengali Name
1	**Palaemonidae**	*Macrobrachium rosenbergii*	Fresh-water Giant Prawn	Icha mach
2		*Macrobrachium birmanicum*	Birma River Prawn	Icha mach
3		*Macrobrachium dolichodactylus*	Golda River Prawn	Icha mach
4	**Potamidae**	*Sartoriana spinigera*		Kakra

B. MOLLUSCS

Sl. no.	Family	Scientific Name	Common Name	Bengali Name
1	**Ampullariidae**	*Pila globosa*	Fresh water apple snail	Shamuk
2	**Thiaridae**	*Melanoides tuberculata*	Red-rimmed Melania	Jhinuk

C. FISHES

Sl. no.	Family	Scientific Name	Common Name	Bengali Name
1	**Cyprinidae**	*Bangana dero*	Kalabans	Kursha
2		*Megarasbora elanga*	Rasbora	Along
3		*Esomus danricus*	Flying Barb	Darkina
4		*Amblypharyngodon mola*	Carpet	Mola
5		*Aspidoparia jaya*	Jaya	Jaya
6		*Chela laubuca*	Indian Grass Barb	Chep Chela
7		*Puntius chola*	Swamp Barb	Chola Puti
8		*Rasbora daniconius*	Common Rasbora	Darkina
9	**Channidae**	*Channa punctatus*	Spotted Snakehead	Taki
10		*Channa gachua*	Dwarf Snakehead	Gachua
11	**Cobitidae**	*Lepidocephalichthys gutea*	Puiya, Gutum	Gutum
12	**Gobidae**	*Awaous guamensis*	Pacific River Goby	Bailla
13	**Ambassidae**	*Chanda nama*	Glassy Perchlet	Lomba Chanda
14		*Pseudambassis ranga*	Indian Glass Perchlet	Ranga Chanda
15	**Nemacheilidae**	*Acanthocobitis botia*	Striped Loach	Bilturi
16	**Cobitidae**	*Neoeucirrhichthys maydelli*	Goalpara Loach	-
17	**Bagridae**	*Mystus bleekeri*	Catfish	Golsha-tengra

D. AMPHIBIANS

Sl. no.	Family	Scientific Name	Common Name	Bengali Name
1	**Bufonidae**	*Duttaphrynus melaostictus*	Asian Common Toad	Kuno Bang
2		*Bufo somaticus*	Marbled Toad	Khoshkhoshey Bang
3	**Dicroglossidae**	*Euphlyctis cyanophlyctis*	Skipper Frog	Kot-koti Bang
4		*Euphlyctis hexadactylus*	Green Frog	Sabuj Bang
5		*Fejervarya asmati*	Asmat's Frog	Asmoter Jhijhi Bang
6		*Fejervarya nepalenis*	Nepal Cricket Frog	Nepaler Jhijhi Bang
7		*Fejervarya pierrei*	Pierrei's Cricket Frog	Piarer Jhijhi Bang
8		*Fejervarya syhadrensis*	Long-legged Cricket Frog	Bon Jhijhi Bang
9		*Fejervarya teraiensis*	Terai Cricket Frog	Boro Kotkoti Bang
10		*Fejervarya cancrivora*	Crab-eating Frog	Kankra-bhook Bang
11		*Hoplobatrachus tigerinus*	Indian Bullfrog	Kola Bang
12		*Occidozyga borealis*	Northern Frog	Choto Chagaldaka Bang
13		*Occidozyga lima*	Puddle Frog	Chagaldaka Bang
14	**Megophryidae**	*Xenophrys parva*	Crown Frog	Belcha-pa Bang
15	**Microhylidae**	*Kaloula pulchra*	Painted Bull Frog	Vepue Bang
16		*Microhyla berdmorei*	Berdmore's narrow-mouthed Frog	Boro Laubichi Bang
17		*Microhyla ornata*	Ornate narrow-mouthed Frog	Choto Laubichi Bang
18		*Microhyla rubra*	Red narrow-mouthed Frog	Lalpith Laubichi Bang
19	**Ranidae**	*Amolops marmoratus*	Marbled Cascade Frog	Jharna Bang
20		*Clinotarsus alticola*	Poin-nose Frog	Chukha-matha Pahari Bang
21		*Humerana humeralis*	Bhamo Frog	Myanmarer Bhamo Bang
22		*Hylarana leptoglossa*	Cope's Frog	Koper Ashami Bang
23		*Hylarana nigrovittata*	Dark-sided Frog	Kalophuta Bang
24		*Hylarana taipehensis*	Two Striped Grass frog	Juradag Pata Bang
25		*Hylarana tytleri*	Yellow-striped Frog	Halud Pata Bang
26	**Rhacophoridae**	*Chiromantis simus*	Annandale Tree Frog	Ashamer Gechho Bang
27		*Chiromantis vittatus*	Two-striped Pigmy Tree frog	Ashamer Gechho Bang
28		*Polypedates leucomystax*	Common Tree Frog	Dorakata Gechho Bang
29		*Polypedates maculated*	Maculated Tree Frog	Gechho Bang
30		*Rhacophorus bipunctatus*	Twin spotted Tree Frog	Lal-pa Gechho Bang

E. REPTILES

a) TURTLES AND TORTOISES

Sl. no.	Family	Scientific Name	Common Name	Bengali Name
1	**Testudinidae**	*Indotestudo elongata*	Elongated Tortoise	Halud Pahari Kossop
2		*Manouria emys*	Asian Brown Tortoise	Pahari Kossop
3	**Trionychidae**	*Lisemys punctata*	Spotted Flapshell Turtle	Sundhi Kasim
4		*Nilssonia hurum*	Peacock Softshell Turtle	Dhum Kasim
5	**Geoemydidae**	*Cyclemys gemeli*	Indian Leaf Turtle	Assamer Pata Kasim
6		*Melanochelys tricarinata*	Tricarinate Hill Turtle	Shila Kossop
7		*Morenia petersi*	Indian Eyed Turtle	Haldey Kaitta
8		*Pangshura tecta*	Indian Roofed Turtle	Kori Kaitta
9		*Pangshura tentoria*	Indian Tent Turtle	Majhari Kaitta

b) LIZARDS

Sl. no.	Family	Scientific Name	Common Name	Bengali Name
1	Agamidae	*Calotes versicolor*	Oriental Garden Lizard	Roktochusha
2		*Calotes emma*	Emma's Forest Lizard	Bonbasi Roktochusha
3		*Ptyctolaemus gularis*	Green Fan-throated Lizard	Nilgola Tiktiki
4		*Draco maculatus*	Spotted Flying lizard	Chitra Uranta Tiktiki
5	Gekkonidae	*Hemidactylus frenatus*	Common House Lizard	Mosrin Tiktiki
6		*Hemidactylus brookii*	Brook's House Gecko	Khoshkhoshey Tiktiki
7		*Hemidactylus bowringii*	Bowring's Gecko	Choto Tiktiki
8		*Hemidactylus platyurus*	Flat-tailed Gecko	Chepta-lej Tiktiki
9		*Hemidactylus garnotii*	Garnot's Gecko	Garnoter Tiktiki
10		*Crytodactylus ayeyarwadynsis*	Ayeyarwady Bow-fingered Gecko	Iravoti Pahari Tiktiki
11		*Gekko gecko*	Tokay Gecko	Tokkhak
12	Lecertidae	*Takydromus khasiensis*	Khasi Hill Long-tailed Lizard	Lomba-lej Khashia Tiktiki
13	Scincidae	*Eutropis carinata*	Common Grass Skink	Omosrin Anchil
14		*Eutropis multifasciata*	Many lined skink	Bohu-dora Anchil
15		*Eutropis macularia*	Bronze Grass Skink	Tamatey Ajnon
16		*Scicella reevesii*	Reeve's Ground Skink	Reever Nomonio Anjon
17		*Sphenomorphus maculatus*	Spotted Litter Skink	Chitrito Buno Anchil
18		*Lygosoma bowringii*	Bowring's supple skink	Bowringir Nomonio Anjon
19		*Lygosoma punctata*	Spotted supple skink	Chitrito Anjon
20	Varanidae	*Varanus bengalensis*	Bengal Lizard	Gui
21		*Varanus salvator*	Ring Lizard	Ram Gadi
22		*Varanus flavescence*	Yellow Monitor	Sona Gui

c) SNAKES

Sl. no.	Family	Scientific Name	Common Name	Bengali Name
1	Typlopidae	*Typlops jerdonii*	Jerdon's Blind snake	Jerdoner Dumukha Shap
2	Boidae	*Python bivittatus*	Burmese Python	Ajogar
3		*Python molurus*	Burmese Python	Ajogar
4		*Python reticulatus*	Reticulated Python	Golbahar
5	Colubridae	*Ahaetulla nasuta*	Common Vine Snake	Laodoga Shap
6		*Ahaetulla prasina*	Short-nosed Vine Snake	Bhotanak Laodoga Shap
7		*Amphiesma stolatum*	Striped Keelback	Dora Shap
8		*Xenochrophis piscator*	Checkered Keelback	Dhonra Shap

Sl. no.	Family	Scientific Name	Common Name	Bengali Name
9		*Rhabdophis subminatus*	Red-necked Keelback	Lalghar Dora Shap
10		*Lycodon aulicus*	Common Wolf Snake	Gharghinni Shap
11		*Lycodon jara*	Yellow Speckled wolf snake	Gharghinni Shap
12		*Lycodon zawi*	Zaw's Wolf Snake	Jor Gharghinni Shap
13		*Oligodon albocinctus*	White-barred Kukri Snake	Sada-dagwala Kukri Shap
14		*Oligodon cyclurus*	Cantor's Kukri Snake	Kukri Shap
15		*Oligodon dorsalis*	Spot-tailed Kukri Snake	Dora-jukto Kukri Shap
16		*Boiga ochracea*	Tawny Cat Snake	Khoiri Phonimonosha
17		*Boiga siamensis*	Eyed Cat Snake	Chokhfoota-jukto Phonimonosha
18		*Coelognathus helenus*	Common Trinket Snake	Helena Dudraj Shap
19		*Coelognathus radiatus*	Copper-headed Trinket Snake	Dudraj
20		*Chrysopelea ornata*	Ornate Flying Snake	Kalnagini
21		*Dendrelaphis pictus*	Painted Bronzed-back Tree Snake	Dora Gecho Shap
22		*Enhydris enhydris*	Common Smooth Water Snake	Painna Shap
23		*Ptyas mucosa*	Indian Rat Snake	Daraj Shap
24		*Ptyas korros*	Indo-Chinese Rat Snake	Jolpaironga Daraj Shap
25	**Elapidae**	*Bungarus fasciatus*	Banded Krait	Shongkhini
26		*Bungarus caeruleus*	Common Krait	Kal Keotey
27		*Bungarus niger*	Black Krait	Kalo Keotey
28		*Naja naja*	Binocelate Cobra	Khoia Gokhra
29		*Naja kaouthia*	Monocellate Cobra	Gokhra Shap
30		*Ophiophagus hannah*	King Cobra	Shankhachoor
31	**Viperidae**	*Trimeresurus albolabris*	White-lipped Pit Viper	Sabuj Bora
32		*Trimeresurus erythurus*	Spot-tailed Pit viper	Chitriti-lej Sabuj Bora
33		*Trimeresurus popeiorum*	Pope's Pit Viper	Golapi-chitijukto Sabuj Bora

d) BIRDS

Sl. No.	ORDER/Family	Scientific Name	Common Name	Bengali Name
Non-passerine				
	GALLIFORMES			
1	**Phasianidae**	*Gallus gallus*	Red Junglefowl	Lal Bon Murgi
2		*Lophura leucomelanos*	Kalij Pheasant	Mothura
3		*Polyplectron bicalcaratum*	Gray Peacock Pheasant	Kath-mayur
4		*Pavo muticus*	Green Peafowl	Sabuj Mayur
	TURNICIFORMES			

Sl. No.	ORDER/Family	Scientific Name	Common Name	Bengali Name
5	**Turncidae**	*Turnix suscitator*	Barred Buttonquil	Sadharan Lawa
	PICIFORMES			
6	**Picidae**	*Picumnus innominatus*	Speckled Piculet	Khudey Kaththokra
7		*Sasia ochracea*	White-browed Piculet	Lal Khudey Kaththokra
8		*Dendrocopos canicapillus*	Grey-capped pygmy woodpecker	Dhushar Matha Baman Kaththokra
9		*Dinopium benghalense*	Black-rumped Flameback	Kaththokra
10		*Dendrocopos macei*	Fulvous-breasted Woodpecker	Pakra Kaththokra
11		*Celeus brachyurus*	Rufous Woodpecker	Lalchey Kaththokra
12		*Picus canus*	Grey-headed Woodpecker	Dhushor-mukh Kaththokra
13		*Picus xanthopygaeus*	Streak-throated Woodpecker	Sabujey Kaththokra
14		*Picus chlorolophus*	Lesser Yellownape	Holudgola Kaththokra
15		*Picus flavinucha*	Greater Yellownape	Holudgola Kaththokra
16		*Dinopium javanense*	Common Goldenback	Bormi Kaththokra
17		*Chrysocolaptes lucidus*	Greater Goldenback	Brihodakar Sonali-pith Kaththokra
18		*Mulleripicus pulverulentus*	Great Slaty Woodpecker	Brihot Kaththokra
19	**Megalaimidae**	*Psilopogon asiaticus*	Blue-throated Barbet	Bara Basanta Bauri
20		*Psilopogon australis*	Blue-eared Barbet	Sabujav Basanta Bauri
21		*Megalaima haemacephala*	Coppersmith Barbet	Choto Basanta Bauri
22		*Psilopogon lineatus*	Lineated Barbet	Gurkhood
	BUCEROTIFORMES			
23	**Bucerotidae**	*Anthracoceros albirostris*	Oriental Pied Hornbill	Pakra Dhonesh
24		*Buceros bicornis*	Great Hornbill	Raj Dhonesh
	UPUPIFORMES			
25	**Upupidae**	*Upupa epops*	Common Hoopoe	Hudhud
	TROGONIFORMES			
26	**Trogonidae**	*Harpactes erythrocephalus*	Red-headed Trogon	Lal-matha Kuchkuchi
	CORACIIFORMES			
27	**Coraciidae**	*Coracis benghalensis*	Indian Roller	Nilkantha
28		*Coracis affinis*	Indo-Chinese Roller	Bharotio Nilkantha
29		*Coracias orientalis*	Oriental Dollarbird	Pahari Nilkantha
30	**Alcedinidae**	*Alcedo atthis*	Common Kingfisher	Choto Machhranga

Sl. No.	ORDER/Family	Scientific Name	Common Name	Bengali Name
31		*Alcedo meninting*	Blue eared Kingfisher	Nilavkan Choto Machhranga
32	**Halcyonidae**	*Halcyon smyrnensis*	White-throated Kingfisher	Sadabuk Machhranga
33		*Pelargopsis capensis*	Stork-billed Kingfisher	Meghhao
34	**Cerylidae**	*Ceryle rudis*	Pied Kingfisher	Pakra Machhranga
35	**Meropidae**	*Merops leschenaulti*	Chestnut-headed Bee Eater	Pathkileymatha Shuicora
36		*Merops orientalis*	Green Bee-eater	Banspati
37		*Nyctyornis athertoni*	Blue-bearded Bee eater	Pahai Shuicora
	CUCULIFORMES			
38	**Cuculidae**	*Cacomantis merulinus*	Plaintive Cuckoo	Karun Papiya
39		*Chrysococcyx xanthorhynchus*	Violet Cuckoo	Beguni Kokil
40		*Eudynamys scolopaceus*	Asian Koel	Kokil
41		*Phaenicophaeus tritis*	Green-billed Malkoha	Ban Kokil
42	**Centropodidae**	*Centropus bengalensis*	Lesser Coucal	Kukka
43		*Centropus sinensis*	Greater Coucal	Kanakua
	PSITTACIFORMES			
44	**Psittacidae**	*Loriculus vernalis*	Vernal Hanging Parrot	Lotkan
45		*Psittacula alexandri*	Red-breasted Parakeet	Tuta
46		*Psittacula eupatria*	Alexandrine Parakeet	Baro Tia
47		*Psittacula finschii*	Grey-headed Parakeet	Kalomatha Tia
48		*Psittacula krameri*	Rose-ringed Parakeet	Tia
49		*Psittacula roseata*	Blossom-headed Parakeet	Lalmatha Tia
	APODIFORMES			
50	**Apodidae**	*Cypsiurus balasiensis*	Asian Palm Swift	Batashi
51		*Apus affinis*	Little Swift	Khudey Ababil
	STRIGIFORMES			
52	**Tytonidae**	*Tyto alba*	Barn Owl	Laxmi Pencha
53	**Strigidae**	*Otus bakkamoena*	Collared Scops Owl	Bondhanijukta Nimpokh
54		*Otus sunia*	Oriental Scops Owl	Kalodagwala Nimpokh
55		*Glaucidium cuculoides*	Asian Barred Owlet	Dora Kalipencha
56		*Ketupa zeylonensis*	Brown Fish Owl	Bhutum Pencha
57		*Athene brama*	Spotted Owlet	Khuruley Pencha
58	**Caprimulgidae**	*Caprimulgus macrurus*	Large-tailed Nightjar	Ratchara
	COLUMBIFORMES			
59	**Columbidae**	*Columba livia*	Blue rock Pigeon	Jalali Kabutar
60		*Spilopelia chinensis*	Eastern Spotted Dove	Tila Ghughu
61		*Streptopelia orientalis*	Oriental Turtle Dove	Ram Ghughu

Sl. No.	ORDER/Family	Scientific Name	Common Name	Bengali Name
62		*Streptopelia tranquebarica*	Red Turtle Dove	Lal Ghughu
63		*Ducula aenea*	Green Imperial Pigeon	Dhumkol
64		*Chalcophaps indica*	Common Emerald Dove*	Sabuj Ghughu
65		*Treron phoenicopterus*	Yellow-footed Green Pigeon	Botkol
66		*Treron phayrei*	Ashy-headed Green Pigeon	Horial
	GRUIFORMES			
67	**Rallidae**	*Amaurornis phoenicurus*	White-breasted Waterhen	Dahuk
68	**CICONIIFORMES**	*Gallinula chloropus*	Common Moorhen	Jol Murgi
69	**Accipitridae**	*Pernis ptilorhynchus*	Crested Honey Buzzard	Modhu Baz
70		*Aviceda jerdoni*	Jerdon's Baza	Boro Baza
71		*Aviceda leuphotes*	Black Baza	Kalo Baza
72		*Elanus caeruleus*	Black-winged Kite	Sada Chil
73		*Milvus migrans*	Black Kite	Bhubon Chil
74		*Haliastur indus*	Brahminy Kite	Shankho Chil
75		*Accipiter badius*	Shikra	Toorki Baj
76		*Accipiter virgatus*	Besra	Besrar Baj
77		*Spilornis cheela*	Crested serpent Eagle	Tila Baj
78	**Falconidae**	*Falco amurensis*	Amur Falcon	Lalpa Turmuti
79		*Falco subbuteo*	Eurasian Hobby	Ureshier Baz
80		*Falco tinnunculus*	Common Kestrel	Choto Baz
81	**Phalacrocoracidae**	Little Cormorant	Little Cormorant	Paan-kowri
82	**Ardeidae**	*Egretta garzetta*	Little Egret	Choto Bok
83		*Bubulcus ibis*	Cattle Egret	Go- Bok
84		*Ardeola grayii*	Indian Pond Heron	Kani Bok
85		*Nycticorax nycticorax*	Black crowned Night Heron	Nishi Bok
86		*Gorsachius melanolophus*	Malayan Night Heron	Bagha Bok
87	**Pittidae**	*Pitta nipalensis*	Blue-naped Pitta	Nilpakhi
88	**Eurylaimidae**	*Serilophus lunatus*	Silver breasted Broadbill	Rupali-book Godathonti
89	**Chloropseidae**	*Irena puella*	Asian Fairy Bluebird	Nilpori
90		*Clhoropsis aurifrons*	Golden-fronted Leafbird	Pata Bulbuli
91		*Clhoropsis cochinchinensis*	Blue-winged Leafbird	Horbola
92	**Laniidae**	*Lanius cristatus*	Brown Shrike	Badami Latora
93		*Lanius schach*	Long-tailed Shrike	Lenja Latora
94		*Lanius tephronotus*	Grey-backed Shrike	Dhusor-pith Latora
95	**Corvidae**	*Corvus macrorhynchos*	Large-billed Crow	Daar Kak
96		*Corvus splendens*	House Crow	Pati Kak
97		*Cissa chinensis*	Common Green Magpie	Pati Sabujtawra

Sl. No.	ORDER/Family	Scientific Name	Common Name	Bengali Name
98		*Dendrocitta formosae*	Grey Treepie	Pahari Harichacha
99		*Dendrocitta vagabunda*	Rufous Treepie	Harichacha
100		*Hypothymis azurea*	Black-naped Monarch	Kalaghar Rajon
101		*Terpsiphone paradisi*	Asian Paradise Flycatcher	Sada Sipahi
102	**Artamidae**	*Artamus fuscus*	Ashy Woodswallow	Dhushor Ababil
103	**Oriolidae**	*Oriolus chinensis*	Black-naped Oriole	Sona Bou
104		*Oriolus xanthornus*	Black-hooded Oriole	Haldey Pakhi
105	**Campephagidae**	*Coracina macei*	Large Cuckooshrike	Kabasi
106		*Coracina melanoptera*	Black-headed Cuckooshrike	Kalo-matha Kabasi
107		*Coracina melaschistos*	Black-winged Cuckooshrike	Kalo-pakha Kabasi
108		*Hemipus picatus*	Bar-winged Flycatcher Shrike	Sada-kalo Latora
109		*Pericrocotus cinnamomeus*	Small Minivet	Choto Sat Saheli
110		*Pericrocotus divaricatus*	Ashy Minivet	Dhusharav Sat Saheli
111		*Pericrocotus flammeus*	Scarlet Minivet	Sidurey Sat Saheli
112		*Pericrocotus roseus*	Rosy Minivet	Gulapi Sat Saheli
113	**Rhipiduridae**	*Rhipidura albicollis*	White-throated Fantail	Sadagola Lejnachani
114	**Dicruridae**	*Dicrurus aeneus*	Bronzed Drongo	Choto Fingey
115		*Dicrurus hottentottus*	Hair-crested Drongo	Keshraj
116		*Dicrurus leucophaeus*	Ashy Drongo	Dhushrav Fingey
117		*Dicrurus macrocercus*	Black Drongo	Dhechcha
118		*Dicrurus paradiseus*	Greater Racket-tailed Drongo	Bhimraj
119		*Dicrurus remifer*	Lesser Racket-tailed Drongo	Vringaraj
120	**Aegithinidae**	*Aegithina tiphia*	Common Iora	Fotikjol
121	**Muscicapidae**	*Monticola solitarius*	Blue rock Thrush	Nil Thrash
122		*Myophonus caeruleus*	Blue Whistling Thrush	Nil Shish Dama
123		*Turdus dissimilis*	Black-breasted Thrush	Lalche-pet Kalo Dama
124		*Turdus unicolor*	Tickell's Thrush	Dhushar Dama
125		*Zoothera citrina*	Orange-headed Thrush	Komola Dama
126		*Ficedula albicilla*	Taiga Flycatcher	Lalgola Chotok
127		*Eumyias thalassina*	Verditer Flycatcher	Akashi Chotok
128		*Cyornis poliogenys*	Pale-chinned Blue Flycatcher	Lachey-badami Chotok
129		*Cyornis rubeculoides*	Blue-throated Blue Flycatcher	Nilgola Nil Chotok
130		*Ficedula westermanni*	Little Pied Flycatcher	Pakra Chotok
131		*Culicicapa ceylonensis*	Grey-headed Canary-Flycatcher	Futfuti
132		*Copsychus malabaricus*	White-rumped Shama	Shama
133		*Copsychus saularis*	Oriental Magpie-Robin	Doyel
134		*Phoenicurus ochruros*	Black Redstart	Lalgirdi

Sl. No.	ORDER/Family	Scientific Name	Common Name	Bengali Name
135		*Enicurus immaculatus*	Black-backed Forktail	Kalo-pith Lejchera
136		*Saxicola caprata*	Pied Bush Chat	Kalo Fidda
137		*Saxicola torquatus*	Eurasian Stone Chat	Lal Fidda
138	**Sturnidae**	*Sturnus contra*	Asian Pied Starling	Go Shalik
139		*Sturnus malabaricus*	Chestnut-tailed Starling	Kath Shalik
140		*Acridotheres fuscus*	Jungle Myna	Jhuti Shalik
141		*Acridotheres tristis*	Common Myna	Bhat Shalik
142		*Gracula religiosa*	Common Hill Myna	Moyna
143	**Hirundinidae**	*Riparia riparia*	Sand Martin	Bondhonijukto Nakuti
144		*Hirundo daurica*	Red-rumped Swallow	Lal-nitomba Ababil
145		*Hirundo rustica*	Barn Swallow	Sadharon Ababil
146	**Pycnonotidae**	*Pycnonotus atriceps*	Black headed Bulbul	Kalomatha Bulbuli
147		*Pycnonotus cafer*	Red-vented Bulbul	Bulbuli
148		*Pycnonotus jocosus*	Red Whiskered Bulbul	Sipahi Bulbuli
149		*Pycnonotus faviventris*	Black-crested Bulbul	Kalo-khupa Bulbuli
150		*Pycnonotus flaveolus*	White-throated Bulbul	Sadabook Bulbuli
151		*Iole virescens*	Olive Bulbul	Jolpai Bulbuli
152		*Hemixos flavala*	Ashy Bulbul	Kalo-dhushor Bulbuli
153	**Cisticolidae**	*Cisticola juncidis*	Zitting Cisticola	Dagjukto Lej-tula Tuni
154		*Prinia hodgsonii*	Gey-breasted Prinia	Buno Tuni
155		*Prinia inornata*	Plain Prinia	Nirol Tuni
156	**Zosteropidae**	*Zosterops palpebrosus*	Oriental White-eye	Babunai
157	**Sylviidae**	*Orthotomus atrogularis*	Dark-necked Tailorbird	Kaloghar Tuntuni
158		*Orthotomus sutorius*	Common Tailor Bird	Tuntuni
159		*Abroscopus superciliaris*	Yellow-bellied Warbler	Haldey-pet Pata Futki
160		*Phylloscopus cantator*	Yellow vented warbler	Kalobhuru Pata Futki
161		*Phylloscopus fuscatus*	Dusky Warbler	Garobadami Pata Futki
162		*Phylloscopus trochiloides*	Greenish Warbler	Halkasabuj Pata Futki
163		*Megalurus palustris*	Striated Grassbird	Brihottama Pata Futki
164		*Garrulax pectoralis*	Greater Necklaced Laughingthrush	Boro Penga
165		*Garrulax monileger*	Lesser Necklaced Laughingthrush	Choto Penga
166		*Malacocincla abbotti*	Abbott's Babbler	Muta-thont Choto Satarey
167		*Pellorneum ruficeps*	Puff-throated Babbler	Chittrito Satarey

Sl. No.	ORDER/Family	Scientific Name	Common Name	Bengali Name
168		*Stachyris rufifrons*	Rufous-fronted Babbler	Badami-kopal Satarey
169		*Pomatorhinus hypoleucos*	Large scimitar Babbler	Boro Vozali-thont
170		*Macronous gularis*	Pin-striped Tit Babbler	Halud-book Satarey
171		*Timalia pileata*	Chestnut-capped Babbler	Lalmatha Satarey
172		*Turdoides earlei*	Striated Babbler	Dora Satbhaila
173		*Turdoides striatus*	Jungle Babbler	Satbhaila
174		*Alcippe poioicephala*	Brown-checked Fulvetta	Badamichibok Choto Satarey
175	**Alaudidae**	*Mirafra assamica*	Bengal Bush Lark	Bhorat Pakhi
176		*Alauda gulgula*	Oriental Skylark	Gayok Dhul Charai
177	**Dicaeidae**	*Dicaeum chrysorrheum*	Yellow-vented Flowerpecker	Haludobasharoni Fhuljhuri
178		*Dicaeum cruentatum*	Scarlet-backed Flowerpecker	Sidurey Fhuljhuri
179		*Dicaeum erythrorhynchos*	Pale-billed Flowerpecker	Choto Fhuljhuri
180	**Necteriniidae**	*Chalcoparia singalensis*	Ruby-checked Sunbird	Sabujav Moutushi
181		*Leptocoma sperata*	Purple-throated sunbird	Beguni-book Moutushi
182		*Leptocoma zeylonica*	Purple-rumped Sunbird	Beguni-kumor Moutushi
183		*Cinnyris asiaticus*	Purple Sunbird	Niltuni
184		*Aethopyga siparaja*	Crimson Sunbird	Sidurey Moutushi
185		*Arachnothera longirostra*	Little Spiderhunter	Choto Makormar
186		*Arachnothera magna*	Streaked Spiderhunter	Boro Makormar
187	**Passeridae**	*Passer domesticus*	House Sparrow	Charui
188	**Motacillidae**	*Motacilla alba*	White Wagtail	Sada Khonjan
189		*Motacilla cinerea*	Grey Wagtail	Dhushar Khonjan
190		*Motacilla citreola*	Citrine Wagtail	Holdeymatha Khonjan
191		*Motacilla flava*	Western Yellow Wagtail	Holud Khonjan
192		*Anthus hodgsoni*	Olive-backed Pipit	Tulika
193		*Anthus richardi*	Richard's Pipit	Varikkichal Math-chorai
194		*Anthus rufulus*	Paddyfield Pipit	Math-chorai
195	**Ploceidae**	*Ploceus philippinus*	Baya Weaver	Babui
196	**Estrildidae**	*Lonchura articapilla*	Chestnut Munia	Kalo-matha Munia
197		*Lonchura punctulata*	Scally-breasted Munia	Tila Munia
198		*Lonchura malacca*	Tricoloured Munia	Teronga Munia
199		*Lonchura striata*	White-rumped Munia	Munia

* Species recorded from camera trap

e). MAMMALS

Sl. no.	ORDER/Family	Scientific Name	Common Name	Bengali Name
	PROBOSCIDEA			
1	**Elephantidae**	*Elephas maximus*	Asian Elephant	Hati
	SCANDENTIA			
2	**Tupaiidae**	*Tupaia glis*	Common Tree Shrew	Gechho Chhucha
	PRIMATES			
3	**Lorisidae**	*Nycticebus bengalensis*	Slow Loris	Lojjaboti Banor
4	**Cercopithecidae**	*Macaca assamensis*	Assamese Macaque	Ashami Banor
5		*Macaca leonina*	Pig-tailed Macaque	Ultaleji Banor
6		*Macaca mulatta*	Rhesus Macaque	Banor
7		*Trachypithecus phayrei*	Phayre's Leaf Monkey	Chashmapora Hanuman
8		*Tracchypithecus pileatus*	Capped Langur	Mukhpora Hanuman
9	**Hylobatidae**	*Hoolock hoolock*	Western Hoolock Gibbon	Ulluk
	RODENTIA			
10	**Sciuridae**	*Ratufa bicolor*	Black Giant Squirrel	Boro Kathbirali
11		*Hylopetes alboniger*	Particoloured Flying Squirrel	Uranto Kathbirali
12		*Callosciurus pygerythrus*	Irrawarddy Squirrel	Badami Kathbirali
13		*Dremomys lokriah*	Orange-bellied Himalayan Squirrel	Komola-book Kathbirali
14	**Muridae**	*Bandicota bengalensis*	Lesser Bandicoot Rat	Indur
15		*Bandicota indica*	Large Bandicoot Rat	Boro Indur
16		*Rattus rattus*	Common House Rat	Ghorer Indur
17	**Hystricidae**	*Hystrix indica*	Indian Crested Porcupine	Shojaru
	LAGOMORPHA			
18	**Leporidae**	*Lepus nigricollis*	Indian Hare	Kharghush
	SORICOMORPHA			
19	**Soricidae**	*Suncus murinus*	House shrews	Chika
	CHIROPTERA			
20	**Pteropodidae**	*Cynopterus sphinx*	Short-nose Fruit Bat	Bocha Kola Badur
21		*Pteropus giganteus*	Indian Flying Fox	Kola Badur
22		*Rousettus leschenaultia*	Fulvous Fruit Bat	Kola Badur
23	**Hipposideridae**	*Megaderma lyra*	Greater false Vampire	Daini Chamchika
	PHOLIDOTA			
24	**Manidae**	*Manis crassicaudata*	Indian Pangolin	Banrui
25		*Manis pentadactyla*	Chinese Pangolin	China Banrui
	CARNIVORA			
26	**Felidae**	*Catopuma temminckii*	Asian Golden Cat	Sonali Biral
27		*Felis chaus*	Jungle Cat	Ban Biral
28		*Panthera pardus*	Leopard	Chita Bagh
29		*Panthera tigris*	Royal Bengal Tiger	Bagh
30		*Pardofelis marmorata*	Marbled Cat	Chopjukto Biral
31		*Prionailurus bengalensis*	Leopard Cat*	Chita Biral
32		*Prionailurus viverrinus*	Fishing Cat	Mecho Biral

Sl. no.	ORDER/Family	Scientific Name	Common Name	Bengali Name
33		*Neofelis nebulosa*	Clouded Leopard	Lam Chita
34	**Viverridae**	*Arctictis binturong*	Binturong	Gecho Bhaluk
35		*Paradoxurus hermaphroditus*	Common Palm Civet	Gandho Gukul
36		*Paguma larvata*	Himalayan Palm Civet	Mukhoshpora Nongar
37		*Viverra zibetha*	Large Indian Civet	Baghdash
38	**Herpestidae**	*Herpestes auropunctatus*	Small Indian Mongoose	Nakul
39		*Herpestes edwardsii*	Common Mongoose	Boro Beji
40		*Herpestes urva*	Crab eating Mongoose	Kakra-bhuk Beji
41	**Canidae**	*Canis aureus*	Asiatic Jackal	Pati Shial
42		*Vulpes bengalensis*	Bengal Fox	Khenk Shial
43		*Cuon alpinus*	Wild Dog	Dhole
44	**Mustelidae**	*Arctonyx collaris*	Hog Badger	Shukarakar Bager
45	**Ursidae**	*Helarctos malayanus*	Sun Bear	Malayshio Bhaluk
46		*Ursus thibetanus*	Asian Black Bear	Kalo Bhaluk
	ARTIODACYTLA			
47	**Suidae**	*Sus scrofa*	Wild Boar	Buno Shukur
48	**Bovidae**	*Bos gaurus*	Gaur*	Goyal
49		*Capricornis sumatraensis*	Asiatic Serow	Ban Chagal
50	**Cervidae**	*Axis axis*	Spotted Deer	Chittra Harin
51		*Axis porcinus*	Hog Deer	Pera Harin
52		*Munticus muntjak*	Barking Deer*	Maya Harin
53		*Rusa unicolor*	Samber	Samber

* Species recorded from camera trap. Gaur (*Bos gaurus*) captured in a camera trap is most probably domesticated as some domesticated cows also were seen on that camera trap.

ANNEXURE C: MASTER INVENTORY LIST OF FAUNA: INSECTS

ID no.	Order	Family	Scientific name
1	Coleoptera	Chrysomelidae	*Aulacophora foveicollis*
2		Curculionidae	*Cosmopolites sordidus*
3	Dictyoptera	Meloidae	*Mylabris* sp. *
4		Blattellidae	*Blattella* sp.
5		Mantidae	*Mantis* sp.
6			*Mantis religiosa*
7	Diptera	Calliphoridae	*Chrysomya megacephala*
8			*Rhinia* sp.
9		Muscidae	*Musca domestica*
10		Sarcophagidae	*Sarcophaga* sp.
11		Syrphidae	*Allobaccha* sp.
12			*Allograpta* sp.
13			*Dideopsis* sp.
14			*Dideopsis aegrotus*
15			*Episyrphus balteatus* *
16			*Eristalis* sp.
17			*Eristalis quinquelineactus*
18			*Helophilus bengalensis*
19			*Paragus sp.*
20			*Paragus serratus*
21			*Mesembrius bengalensis*
22		Tachinidae	*Posena siberita*
23	Ephemeroptera	Heptageniidae	*Ironodes nitidus*
24	Hemiptera	Dinidoridae	*Aspongopus sp.*
25	Homoptera	Cicadidae	*Neotibicen sp.*
26	Hymenoptera	Apidae	*Apis cerena*
27			*Apis dorsata*
28			*Amegilla sp.*
29			*Amegilla andrewsi*
30			*Amegilla fimbriata*
31			*Amegilla niveocincta**
32			*Thyreus sp.*
33			*Trigona sp.*
34			*Xylocopa sp.*
35			*Xylocopa aestuans*
36			*Xylocopa auripennis*
37			*Xylocopa varipuncta* *
38		Eumenidae	*Delta conica*
39		Helictidae	*Lasioglossum albescens*
40			*Nomia elliotii*
41			*Nomia iridescens*
42		Megachilidae	*Megachile umbripennis*
43		Scoliidae	*Elis grossa*
44			*Scolia opalina*
45		Vespidae	*Odyerus* sp.
46			*Odynerus bipustulatus*
47			*Polistes* sp.

ID no.	Order	Family	Scientific name
48			*Polybia stigma*
49	Isoptera	Termitidae	*Microcerotermes* sp.
50			*Odentotermes* sp.
51	Lepidoptera	Arctiidae	*Syntomoides imaon*
52		Crambidae	*Omphisa fuscidentalis**
53		Danaidae	*Danaus chrysippus*
54			*Danaus genutia genutia*
55			*Euploea mulciber mulciber*
56			*Euploea deione*
57			*Parantica aglea aglea*
58		Hesperidae	*Choaspes benjaminii formosana*
59			*Gerosis sinica*
60			*Hyarotis adrastus praba*
61			*Notocripta curvifascia*
62			*Oriens gola pseudolus*
63			*Oriens goloides*
64			*Parnara guttatus mangala*
65			*Pelopidus* sp.
66			*Pelopidus conjuncta conjuncta*
67			*Saustrus gremius gremius*
68			*Tagiades litigiosa*
69		Lycaenidae	*Castalius rosimon rosimon*
70			*Cheritra freja evansi*
71			*Hypolycaena erylus*
72			*Loxura atymnus continentalis*
73		Nymphalidae	*Aridne merione*
74			*Athyma inarina*
75			*Hypolimnas bolina*
76			*Lebadea martha Martha*
77			*Junonia almana*
78			*Junonia atlites*
79			*Junonia hierta*
80			*Junonia lemonias*
81			*Lebadea martha Martha*
82			*Limenitis procris*
83			*Mycalesis mineus*
84			*Neptis hylas*
85			*Phalantha phalantha*
86			*Symbrenthia lilaea*
87			*Tanaecia lepidea lepidea*
88		Papilionidae	*Atrophaneura varuna astorion*
89			*Chilasa clytia clytia*
90			*Pachliopta aristolochiae*
91			*Papilio memnon agenor*
92			*Papilio demoleus*
93			*Paplio polytes*
94			*Troides helena cerberus*
95			*Troides aecus aecus*

ID no.	Order	Family	Scientific name
96		Pieridae	*Catopsilia pyranthe*
97			*Catopsilia Pomona*
98			*Delias aglaia aglaia*
99			*Delias descombesi descombesi*
100			*Eurema blanda sylhetana*
101			*Eurema hecabe*
102			*Leptosia nina nina*
103		Riodinidae	*Zemeros flegyas indicus*
104		Satyridae	*Mycalesis mineus*
105			*Melanitis phedima bela*
106			*Ypthima huebneri*
107			*Ypthima baldus*
108			*Ypthina inica*
109		Uraniidae	*Micronia* sp.
110	Odonata	Calopterygidae	*Matrona nigripectus*
111			*Neurobasis chinensis*
112			*Vestalis gracilis*
113		Chlorocyphidae	*Aristocypha quadrimaculata*
114		Coenagriidae	*Agriocnemis lacteola*
115			*Copera marginipes*
116			*Copera vittata*
117			*Ceriagrion coromandelianum*
118		Euphaeidae	*Euphaea ochracea*
119			*Euphaea masoni*
120		Libellulidae	*Brachythemis contaminata*
121			*Brachydiplax sobrina*
122			*Camacinia gigantea*
123			*Crocothemis servilia*
124			*Neurothemis fulvia*
125			*Orthetrum cancellatum*
126			*Orthetrum sabina*
127			*Trithemis aurora*
128			*Trithemis festiva*
129	Orthoptera	Acrididae	*Acrida exaltata*
130			*Atractomorpha psittacina*
131		Gryllidae	*Gryllus* sp.
132			*Gryllus confirmatus*
133			*Gryllides* sp.
134		Tetrigidae	*Euparatettix* sp.
135	Phasmatodea	Phasmatidae	*Phobaeticus* sp.

Note: '*' Indicates newly recorded species from Bangladesh

ANNEXURE D: VCF-WISE BIRDS BASED ON CANOPY AND TYPES

Sl.	Name of the VCF	Canopy	Name of the Bird	Breeding Season
1	Moyain Para	Upper	Oriental Pied Hornbill	April-May
		Middle	Common Hill Myna	April-July
		Undergrowth	Red Junglefowl	January-October
2	Basanta Pangkhua Para Reserve	Upper	Vernal Hanging Parrot	January-April
		Middle	Red-breasted Parakeet	January-April
		Undergrowth	Large-tailed Nightjar	March-May
3	Betchari Christian Para	Upper	Hair-crested Drongo	March-June
		Middle	Common Emerald Dove	Throughout year
		Undergrowth	Tricoloured Munia	May-November
4	BadolsoriVadisora	Upper	Greater Goldenback	March-May
		Middle	Green Imperial Pigeon	March-June
		Undergrowth	Barred Buttonquail	June-October
5	Bamer Bagchari	Upper	Oriental Pied Hornbill	April-May
		Middle	Rose-ringed Parakeet	January-July
		Undergrowth	Greater Necklaced Laughing thrush	March-August
6	Beganachari	Upper	Lineated Barbet	March-June
		Middle	Stork-billed Kingfisher	January-September
		Undergrowth	Puff-throated Babbler	February-June
7	Sapsori Para	Upper	Large Cuckooshrike	January-October
		Middle	Red-breasted Parakeet	January-April
		Undergrowth	Blue-naped Pitta	April-August
8	Krok Kyong Mouza Para Ban	Upper	Oriental Pied Hornbill	April-May
		Middle	Common Hill Myna	April-July
		Undergrowth	Barred Buttonquil	June-October
9	Hajasora & Beleisori	Upper	Blue-winged Leafbird	May-September
		Middle	Common Hill Myna	April-July
		Undergrowth	Kalij Pheasant	March-October
10	Kaindya Egoijjachari	Upper	Blue-winged Leafbird	May-September
		Middle	Eastern Spotted Dove	April-July
		Waterbody	Indian Pond Heron	January-August
11	Maischari	Upper	Yellow-footed Green Pigeon	March-June
		Middle	Common Hill Myna	April-July
		Undergrowth	Red Jungle fowl	January-October
12	Shamoni Shati Bhila Natun Mag Para	Upper	Lineated Barbet	March-June
		Middle	Common Green Magpie	April-May
		Undergrowth	Red Junglefowl	January-October
13	Itchari	Upper	Vernal Hanging Parrot	January-April
		Middle	Black-hooded Oriole	March-August
		Undergrowth	Chestnut Munia	May-November

Sl.	Name of the VCF	Canopy	Name of the Bird	Breeding Season
14	Banjogichara	Upper	Oriental Pied Hornbill	April-May
		Middle	Common Emerald Dove	Throughout year
		Undergrowth	Kalij Pheasant	March-October
15	Nuton Bucha Para Ban	Upper	Great Hornbill	February-April
		Middle	Common Hill Myna	April-July
		Undergrowth	Red Junglefowl	January-October
16	Numlai Headman Para Kua Ban	Upper	Blue-winged Leafbird	May-September
		Middle	White-rumped Shama	March-August
		Undergrowth	Blue eared Kingfisher	March-June
17	Arachori Para Ban	Upper	Vernal Hanging Parrot	January-April
		Middle	Common Hill Myna	April-July
		Undergrowth	Puff-throated Babbler	February-June
18	Tuktong Para Ban	Upper	Oriental Pied Hornbill	April-May
		Middle	Rose-ringed Parakeet	January-July
		Undergrowth	Tickell's Thrush	April-August
19	Mongbai Tong Rua Rejak Tah	Upper	Oriental Pied Hornbill	April-May
		Middle	Common Hill Myna	April-July
		Undergrowth	Red Junglefowl	January-October
20	Owakchackku Para Ban	Upper	Hair-crested Drongo	March-June
		Middle	Common Emerald Dove	Throughout year
		Undergrowth	Jungle Myna	February-July

ANNEXURE E: TABLE FOR INDICATOR PLANTS

Sl.	VCF Name	Indicator Species			
		Scientific name	Local/tribal name	Status	Habit
1	Kaindya Egojyasori (Sagorbanda) Service VCF, Rangamati	Wrightia arborea (Dennst.) Mabb.	Dudh-koraiya, Dudhkurush, Indrajab, Shet-kurchi	Occasional	Tree
2	Bonjogisora, VCF, Rangamati	Boehmeria glomerulifera Miq.	Urmurpata (Chakma), Mrangna (Marma), Aruleng (Murang), Holemfry (Tripura)	-	Shrub
3	Basanta Pangkhua Para Reserve VCF, Rangamati	Boehmeria glomerulifera Miq.	Urmurpata (Chakma), Mrangna (Marma), Aruleng (Murang), Holemfry (Tripura)	Common	Shrub
4	Bamer Bagchori VCF, Rangamati	Cheilocostus speciosus (König) Specht	Keu, Kedogi (Chakma name)	-	Herb
5	Begenasori VCF, Rangamati	Maesa indica (Roxb.) A.DC.	Sain Khuing Trang, Thah Mong Su (Marma)	Common	Shrub
6	Sapsori Para VCF, Rangamati	Costus speciosus (Koenig) Sm.	Premdaba, Prayan Chondu (Marma); Pekhum (Tripura); Oal Sup (Murang)	-	Shrub
7	Hajasora O Bileisori Mon Para VCF, Rangamati	Ficus hispida L.f.	Dhumur gula (Chakma), Fah shai ba (Marma), Luhuk, (Murang), Thainjang (Tripura)	Common	Tree
8	Badol Sori Vadi Sora VCF, Rangamati	Molineria capitulata (Lour.) Herb.	Milnipata (Chakma), Wailfa (Marma), Wa leng (Marma)	-	Herb
9	Arachari Para Ban (VCF), Rangamati	Boehmeria nivea (L.) Gaudich.	Kankhura, Ramie, China grass	Occassional	Shrub
10	Itchari VCF, Khagrachari	Melastoma malabathricum L.	Masmatairum, Koyi ing saw (Marma), Ak-Mio (Murang)	-	Shrub
11	Betchari Christian Para VCF, Khagrachari	Leea indica (Burm. f.) Merr.	Kukur jiwa, Achila gach, Kra, Kre, Si Sa Kalo (Marma)	Common	Shrub
12	Maischari VCF, Khagrachari	Glochidion lanceolarium (Roxb.) Dalz.	Kechchua, Bhauri; Kakra, Tsekaban (Marma)	Endangered (EN)	Tree
13	Moyain Para VCF, Khagrachari	Anogeissus anceolat (Wall. Ex B.Clarke) Prain	Hingori, Kosi	-	Shrub
14	Shamoni Shati Bhila Natun Mag Para VCF, Khagrachari	Ixora nigricans R.Br. ex Wight & Arn.	Dikranga Chuillya (Chakma, Tripura), Rongma; Frareko (Marma)	Occasional	Shrub
15	Krok Kyong Mouza Para Ban (VCF), Bandarban	Boehmeria glomerulifera Miq.	Urmurpata (Chakma), Mrangna (Marma), Aruleng (Murang), Holemfry (Tripura)	-	Shrub

Sl.	VCF Name	Indicator Species			
		Scientific name	Local/tribal name	Status	Habit
16	Nuton Bucha Para Ban (VCF), Bandarban	Thysanolaena maxima (Roxb.) Kuntze	Jharu phul (Chakma)	Common	Shrub
17	Tuktong Para Ban, Bandarban	Alpinia zerumbet (Pers.) B.L. Burtt & R.M.Sm.	Bara elachi	Occasional	Herb
18	Owakchackku Para Ban (VCF), Bandarban	Clerodendrum viscosum Vent.	Veg (Chakma); Kho pa che, Khun kha baong (Marma)	Occasional	Shrub
19	Numlai Headman Para Kua Ban (VCF), Bandarban	Boehmeria malabarica Wedd.	Malabar phul	Vulnerable (VU)	Shrub
20	Mongbai Tong Rua Rejak Tah (VCF), Bandarban	Didymosperma gracilis Hook.f.	Gracifuli	Common	Shrub

ANNEXURE F: TABLE FOR INDICATOR ANIMALS

Sl.	VCF	Location	Indicator Sp.		Status	
			Common Name	Sci Name	BD	Global
1	Moyain Para	Khagrachari	Leopard cat	*Prionailurus bengalensis*	NT	LC
2	Basanta Pangkhua Para Reserve	Rangamati	Barking Deer	*Munticus muntjak*	EN	LC
3	Betchari Christian Para	Khagrachari	Red Jungle fowl	*Gallus gallus*	LC	LC
4	Badol Sori Vadi Sora	Rangamati	Asian Elephant	*Elephas maximus*	CR	EN
5	Bamer Bagchori	Rangamati	Black Giant Squirrel	*Ratufa bicolor*	VU	NT
6	Begenasori	Rangamati	Blue-throated Lizard	*Ptyctolaemus gularis*	EN	NE
7	Sapsori Para	Rangamati	Indian Pangolin	*Manis crassicaudata*	CR	EN
8	Krok Kyong Mouza Para Ban	Bandarban	Great Hornbill	*Buceros bicornis*	VU	NT
9	Hajasora & Beleisori Mon Para	Rangamati	Capped Langur	*Tracchypithecus pileatus*	EN	VU
10	Kaindya Egojyasori	Rangamati	Indian Porcupine	*Hystrix indica*	LC	LC
11	Maischari	Khagrachari	Elongated Tortoise	*Indotestudo elongata*	CR	EN
12	Shamoni Shati Bhila Natun Mag Para	Khagrachari	Red Jungle fowl	*Gallus gallus*	LC	LC
13	Itchari	Khagrachari	Phayre's Leaf Monkey	*Trachypithecus phayrei*	CR	EN
14	Bonjogisora	Rangamati	Kalij Pheasant	*Lophura leucomelanos*	VU	LC
15	Nuton Bucha Para Ban	Bandarban	Burmese Python	*Python molurus*	VU	VU
16	Numlai Headman Para Kua ban	Bandarban	Barking Deer	*Munticus muntjak*	EN	LC
			Gaur	*Bos gaurus*	CR	VU
17	Arachari Para Ban	Rangamati	Streaked Spiderhunter	*Arachnothera magna*	LC	LC
18	Tuktong Para Ban	Bandarban	Oriental Pied Hornbill	*Anthracoceros albirostris*	LC	LC
19	Mongbai Tong Rua Rejak Tah	Bandarban	Kalij Pheasant	*Lophura leucomelanos*	VU	LC
20	Owakchackku Para Ban	Bandarban	Reticulated Python	*Python reticulatus*	CR	NE

G. TABLE FOR DISTRICT WISE LIST OF VCFs

RANGAMATI

Sl.	Name of the VCF	Size (in Acres)	Mouza	Union	Upazila	Contact Person	Cell #	Project intervention
1	Boro Kattoli Duluchari Parabon	100	2 No Baro Kattoli	Langadu sadar	Langudu	Anjan Kumar Dewan	01853920199	
2	Bengichora Para Bon	100	2 No Baro Kattoli	Langadu sadar	Langadu	Anjan Kumar Dewan	01853920199	Covered
3	Kalabanya Para Bon	250	2 No Baro Kattoli	Langadu sadar	Langadu	Anjan Kumar Dewan	01853920199	
4	Pagli Chora Para Bon	300	2 No Baro Kattoli	Langadu sadar	Langadu	Anjan Kumar Dewan	01853920199	
5	Madhya Kharikata Para Bon	120	2 No Baro Kattoli	Langadu sadar	Langadu	Anjan Kumar Dewan	01853920199	Covered
6	Madhya Chora VCF	100	3 No Langadu	Langadu sadar	Langadu	Dayal Chandra Karbari	01597665110	Covered
7	Bame chara VCF	120	3 No Langadu	Langadu sadar	Langadu	Dayal Chandra Karbari	01597665110	
8	Doshbengye sora VCF	100	5 No Challyatoli	Vasanyadam	Langadu	Bindumoy Chakma	01552724394	
9	Duluchari Pankoda Chora VCF	100	7 No Doluchori	Bogachattor	Langadu	Sunil Kanti Chakma	01558669689	Covered
10	Marakheya Sora VCF	300	8 No Guisori	Bogachattor	Langadu	Chironton Talukder	01553747729	
11	Badalchori Badichora Grameen Bon O Poribesh Sanrakshan Samity	300	15 No Nolua	Bogachattor	Langadu	Binoy Karbari	01828823784	Covered
12	Rangipara VCF	70	388 No Rangipara	Bogachattor	Langadu	Newton Chakma	0155374772	Covered
13	Ranjit Para VCF	300	11 No Petanya Machra	Bogachattor	Langadu	Tarit Kanti Karbari	01879861474	Covered
14	Harinaghat VCF	500	12 No Gobchori	Vasanyadam	Langadu	Mukul Kanti Chakma	01553906947	
15	Kakpajjya Gorustang Pangkhoa Para Bon	450	18 No Kakpajjya	Gulshaka	Langadu	Biakthang Pankhua	01875999419	

Sl.	Name of the VCF	Size (in Acres)	Mouza	Union	Upazila	Contact Person	Cell #	Project intervention
16	Baro Mallya Nutun Para VCF	150	18 No Kakpajjya	Gulshaka	Langadu	Biakthang Pankhua	01875999419	
17	Atarakchara Tibira Chori VCF	700	27 Atarokchora	Atarokchora	Langadu	Sashanka Sekhar Chakma	01557807863	Covered
18	Boro Ultachori Shilchora Para Bon	100	57 No Ultachori	Atarokchora	Langadu	Bimalkanti Chakma	01557666992	
19	Ban chara VCF	50	3 No Langadu	Langudu	Langadu	Champa Chakma	01537442536	
20	Vhangamura Jadi Tug	94	119 Vajjatoli	Kaptai Sadar	Kaptai	Thoai Aung Marma	0189616045	Covered
21	Debta Highcourt VCF	20	120 Vajjatoli	Kaptai Sadar	Kaptai	Nabin Kumar Tanchangya	01559633688	
22	Kilasori Bhabona kandra Para	23	130 Barudgola	Kaptai Sadar	Kaptai	Kanya Devi Tanchangya	01531971283	Covered
23	Golokdhan Para	20	130 Barudgola	Kaptai Sadar	Kaptai	Debadatta Tanchangya	01557385925	
24	Munthar Para	15	130 Barudgola	Kaptai Sadar	Kaptai	Ramthang Pankhua	01554281949	
25	Suvodhan Para	60	130 Barudgola	Kaptai Sadar	Kaptai	Vimsen Tanchangya	01554725954	Covered
26	Kudukchari Para VCF	25	130 Barudgola	Kaptai Sadar	Kaptai	Bipin Bihari Chakma	01553829720	
27	Barud gola Mouza Bon	50	130 Barudgola	Kaptai Sadar	Kaptai	Kalachan Tanchangya	01559714849	
28	Gaskatachara Modhya Para VCF	45	122 Kutubdia	Kaptai Sadar/ Belaichari union	Belaichari /Kaptai	Sadhan Chakma/ Gulloko Tanchangya		
29	Hatimara O Tombo Para Sarbik Gram Unnoyan Samabai Samiti	200	100 No Wagga Mouza	Wagga	Kaptai	Arun Talukder	01811460606	
30	Tombo Para Mimya Ekujya Tozude Sarbik Gram Unnoyan Samobai Samiti	200	100 No Wagga Mouza	Wagga	Kaptai	Arun Talukder	01811460606	
31	Tripurachari Ekota Sarbik Unnoyan Samobai Samiti	200	100 No Wagga Mouza	Wagga	Kaptai	Ilias Tanchangya	01814248517	
32	Sapchari Koraphool Sarbuk Gram Unnoyan Samabai Samiti	200	100 No Wagga Mouza	Wagga	Kaptai	Jitto Mohon Tanchangya	01831868464	

Sl.	Name of the VCF	Size (in Acres)	Mouza	Union	Upazila	Contact Person	Cell #	Project intervention
33	Sapchari Moin Para Sarbik Gram Unnoyan Samiti	200	100 No Wagga Mouza	Wagga	Kaptai	Indralal Tanchangya	01551922795	
34	Kathaltali Eel Sarbik Gram Unnoyan Samabai Samiti	200	100 No Wagga Mouza	Wagga	Kaptai	Jitto Mohon Tanchangya	01831868464	
35	Gorjonia Friends Sarbik Gram Unnoyan Samabai Samiti	200	100 No Wagga Mouza	Wagga	Kaptai	Ranjit Tanchangya	01882832946	
36	Pagli Upor Para Rekha Sarbik Gram Unnoyan Samabai Samiti	200	100 No Wagga Mouza	Wagga	Kaptai	Chitrasen Tanchnagya	01874781674	
37	Pagli Madhyom Para Rekha Sarbik Gram Unnoyan Samabai Samiti	200	100 No Wagga Mouza	Wagga	Kaptai	Chitrasen Tanchnagya	01874781674	
38	Bottoli Projonmmo Sarbik Gram Unnoyan Samabai Samiti	200	100 No Wagga Mouza	Wagga	Kaptai	Arun Talukder	01811460606	
39	Choto Gabachara Arasori Amtola Parabon	100	336 Arachari Mouza	Chitmorom	Kaptai	Kholamohon Tanchangya / Chakrabahon Karbari		Covered
40	Vangamuro Paraban	60	336 Arachari Mouza	Chitmorom	Kaptai	Kholamohon Tanchangya / Noajoy Karbari		Covered
41	Jurochari Paraban	50	336 Arachari Mouza	Chitmorom	Kaptai	Kholamohon Tanchangya / Chikondhon Tanchangya		
42	Chaikhyong Para VCF	100	332 Gingmorong	Gainda	Rajastholi	Mong Nu tse Marma		
43	Korbanchari Para VCF	80	335 Dhunnu Chara	Ghilla Chari	Rajastholi	Nandan Karbari	01826875709	
44	Arachari Headman Para Ban	100	335 Dhunnu Chara	Ghilla Chari	Rajastholi	Hla Thoai Khiyang	01824778086	Covered
45	Dhannu Chari Para Ban	80	335 Dhunnu Chara	Ghilla Chari	Rajastholi	Hla Thoai Khiyang	01824778086	Covered

Sl.	Name of the VCF	Size (in Acres)	Mouza	Union	Upazila	Contact Person	Cell #	Project intervention
46	Arachari Mukh Para VCF	50	323 Gingmorong	Gainda	Rajastholi	Mong Nu tse Marma		
47	Khaing Tak Para VCF	50	332 Gingmorong	Gainda	Rajastholi	Mong Nu tse Marma		
48	Silchari Tanchangya Para VCF	200		Ghilachari	Rajastholi	Ananda Karbari		
49	Silchari Khiyang Para VCF	80	337 Dhunnu Chara	Ghilachari	Rajastholi	Hla Thoai Khiyang	01824778086	
50	Kainda Ekujyasori (Sagarbanda) VCF	200	129 Kainda Mouza	Balukhali	Rangamati Sadar	Premlal Karbari	01551708317	Covered
51	Kainda Badolhat Chara VCF	30	129 Kainda Mouza	Balukhali	Rangamati Sadar	Premlal Karbari	01551708317	Covered
52	Kainda Badolchari VCF	30	129 Kainda Mouza	Balukhali	Rangamati Sadar	Nabadwip C. Dewan / Ponchoka Karbari	01820566068	
53	Basonto Pangko Para Para Bon	90	128 Basonto	Balukhali	Rangamati Sadar	Chialjol Pangkhua	01557317679	Covered
54	Vija Kiching Para Bon	50	128 Basonto	Balukhali	Rangamati Sadar	Chialjol Pangkhua	01557317679	Covered
55	Tongtullya VCF	200	59 Bandukbhanga Mouza	Bandukbhanga	Rangamati Sadar	Raja Devashish Roy		Covered
56	Devachara VCF	500	59 Bandukbhanga Mouza	Bandukbhanga	Rangamati Sadar	Raja Devashish Roy		Covered
57	Duluchari VCF	100	Mogban	Mogban	Rangamati Sadar			
58	Dimukya Chara VCF	300	59 Bandukbhanga Mouza	Bandukbhanga	Rangamati Sadar	Lahor Bikash Chakma	01837584020	
59	Nama Karbari Para VCF	500	61 Maischari Mouza	Naniarchar Union	Naniarchar	Paran Chandra Chakma	01556708112	Covered
60	Jadukha Chara VCF	300	64 Jadukha Chara Mouza	Naniarchar Union	Naniarchar	Provat Chandra Chakma	01556708110	Covered
61	Horinath Chara VCF	185	65 Gobochari Mouza	Naniarchar Union	Naniarchar	Doyamohon Chakma	01590137067	
62	Gobo Chari VCF	120	65 Gobochari Mouza	Naniarchar Union	Naniarchar	Sunil Kumar Chakma	01820355968	
63	Noadam VCF	35	61 No Maischari Mouza	Naniarchar Union	Naniarchar	Manek Sen Chakma	01861959591	

Sl.	Name of the VCF	Size (in Acres)	Mouza	Union	Upazila	Contact Person	Cell #	Project intervention
64	Rangi Para VCF	200	65 Gobochari Mouza	Naniarchar Union	Naniarchar	Kiron Jyoti Chakma	01828715659	
65	Ronu Karbari para VCF	70	76 No Bagchari Mouza	Sabekkhong Union	Naniarchar	Tanoy Dewan	01863232843	
66	Na Katachara VCF	50	127 No Keronchari Mouza	Kengrachari Union	Belaichari	Aung Cha Khoi Marma	01557579273	Covered
67	Bangal Kaba Headman Para VCF	50	127 No Keronchari Mouza	Kengrachari Union	Belaichari	Sunik Jyoti Talukder	01880189605	
68	Bangal Kata VCF	200	124 No Naraichari Mouza	Kengrachari Union	Belaichari	Shanti Bijoy Chakma	01556701034	Covered
69	Gaskatachara Dozori Para VCF	80	122 No Kutubdia Mouza	Belaichari union	Belaichari	Gopal Chandra Chakma	0155677678	Covered
70	Naraichari VCF	300	121 No Kengrachari Mouza	Kengrachari Union	Belaichari	Samatosh Chakma	01828870980	
71	Hazachara O Belaichari Moun Para VCF	250	126 No Belaichari Mouza	Belaichari union	Belaichari	Matiram Karbari	01531136357	Covered
72	Bilisar VCF	20	126 No Belaichari Mouza	Belaichari union	Belaichari	Matiram Karbari	01531136357	
73	Digholchari Hazachara Para VCF	70	127 No Belaichari Mouza	Belaichari union	Belaichari	Bimoli Chakma	01557109191	
74	Sapchari VCF	125	121 No Kengrachari Mouza	Kengrachari Union	Belaichari	Shantimoy Chakma	01591161392	Covered
75	Bottoli Tanchangya Para Bon	22	142 No Dubajarul	Moidong	Jurachari	Anjol Tanchangya	01536707393	Covered
76	Ghilatoli VCF	100	133 No Jurachari	Jurachari	Jurachari	Santosh Dewan	01553118600	Covered
77	Nolbonnya VCF (Chora Bon)	60	137 No Panchari	Moidong	Jurachari	Pradip Chakma	01557043351	Covered
78	Amtoli VCF	85	133 No. Jurachari	Jurachari	Jurachari	Alonga Moni Chakma	01557195569	
79	Beltoli VCF	100	137 No Panchari	Moidong	Jurachari	Ful Chandra Karbari	01559708776	
80	Shilchori Para Bon	200	133 No Jurachari	Jurachari	Jurachari	Santosh Dewan	01553118600	
81	Bamer Moidong Para VCF	85	137 No Panchari	Moidong	Jurachari	Shanti moy Chakma	01552472776	

Sl.	Name of the VCF	Size (in Acres)	Mouza	Union	Upazila	Contact Person	Cell #	Project intervention
82	Kathaltali Para VCF	70	137 No Panchari	Moidong	Jurachari	Rohini Chakma	01536429971	Covered
83	Jamurachori Para VCF	50	137 No Panchari	Moidong	Jurachari	Prodip Chakma	01557043351	
84	Bhitor Balukhali Para	100	133 No Jurachari	Jurachari	Jurachari	Joy Bijoy Chakma	01554114611	
85	Dubajarul VCF (Mouza Bon)	100	142 No Dubajarul	Moidong	Jurachari	Bhuvan Talukder	01554283996	
86	Bonjogichora Mouza Bon	100	145 No Bonjogichora	Bonjogichora	Jurachari	Santosh Chakma	01532363148	Covered
87	Chigonchora Para Bon	30	137 No Panchari	Moidong	Jurachari	Shantimoy Chakma	01552472776	
88	Choto Boroidiya VCF	80	150 No. Dumdumya	Dumdumya	Jurachari	L. T. Pankgkhua	01553760973	
89	Lulangchori Para Bon (Mouza Bon)	100	147 No Lulangchori	Jurachari	Jurachari	Ananda Mitra Dewan	01535805219	Covered
90	Naksotali VCF	80	150 No. Dumdumya	Dumdumya	Jurachari	L. T. Pankgkhua	01553760973	
91	Bame Panchari Para Bon	200	136 No Ereichaori	Bonjogichora	Jurachari	Ritesh Chakma	01552637294	
92	Jurachori Mouza Bon (133 No.)	200	133 No Jurachari	Jurachari	Jurachari	Santosh Dewan	01553118600	
93	Cibe Chara Para VCF	100	133 No Jurachari	Jurachari	Jurachari	Polton Chakma	01558275814	
94	Ol Lonkor VCF	50	165 Lonkor Mouza	Sajek	Baghaichari	Nurkimma Pangkhua	01552746049	
95	Khagrachari Parabon	100	167 Ruilui Mouza	Sajek	Baghaichari	Lal Thanga Lusai	01552726497	
96	Purbo Khagrachari VCF	60	167 Ruilui Mouza	Sajek	Baghaichari	Sadhan Kumar Karbari	01835640515	
97	Pascim Khagrachari VCF	20	167 Ruilui Mouza	Sajek	Baghaichari	Reboti Mohon Karbari	01878859505	
98	Talchara VCF	50	167 Ruilui Mouza	Sajek	Baghaichari	Biswamoy Chakma	01823468539	
99	Simana Chara VCF	50	167 Ruilui Mouza	Sajek	Baghaichari	Lal Thanga Lusai	01552726497	
100	Bazu Para VCF	50	167 Ruilui Mouza	Sajek	Baghaichari	Lal Thanga Lusai	01552726497	
101	Konglak Parabon	50	168 Konglak Mouza	Sajek	Baghaichari	Chwimi Thanga Pankhua	01557157623	
102	Boro Konglak Para Bon	50	168 Konglak Mouza	Sajek	Baghaichari	Moflal Karbari	01831892316	
103	Sialdai Lui headman Para VCF	500	169 Sialdai Lui Mouza	Sajek	Baghaichari	Jopoithang Tripura	01556565489	

Sl.	Name of the VCF	Size (in Acres)	Mouza	Union	Upazila	Contact Person	Cell #	Project intervention
104	Jogra Kizing Para VCF	30	169 Sialdai Lui Mouza	Sajek	Baghaichari	Riten Chakma	01648092421	
105	Betling Para Ban	18	171 Betling Mouza	Sajek	Baghaichari	Roalthat Pangkhua	01828802069	
106	Purbo Choinal Chara Para Bon	50	171 Betling Mouza	Sajek	Baghaichari	Ananda Sagar Karbari	01872683164	
107	Sajek Tuichui Mouza Bon	100	170 No Tuichui Mouza	Sajek	Baghaichari	Gorendra Tripura	01876508237	
108	Khaisya Para VCF	50	170 No Tuichui Mouza	Sajek	Baghaichari	Gorendra Tripura	01876508237	
109	Arun Para VCF	80	170 No Tuichui Mouza	Sajek	Baghaichari	Charu Bikash Tripura	01866853927	
110	Devachari VCF	100	165 No Longkor Mouza	Sajek	Baghaichari	Bibrokanti Karbari	01833075369	
111	Paschim Choinal Cahra VCF	30	167 Ruilui Mouza	Sajek	Baghaichari	Subol Kisto Karbari	01827455641	
112	Tarabanya VCF	30	165 Lonkor Mouza	Sajek	Baghaichari	Nurkimma Pangkhua	01552746049	
113	Longkor Lamba Chara VCF	60	165 Lonkor Mouza	Sajek	Baghaichari	Bir Kumar Karbari	01823468776	
114	Thombag VCF	80	149 Guichari	4 Vhusan chara	Barkal	Bodhisatta Talukder		
115	Guichari Mukh VCF	130	149 Guichari	4 Vhusan chara	Barkal	Bodhisatta Talukder		
116	Chandobi Ghat Para	70	149 Guichari	4 Vhusan chara	Barkal	Shiv Ratan Karbari		
117	Thega cadara Chora Para Bon	250	149 Guichari	4 Vhusan chara	Barkal	Ratna Sen Karbari	01856839161	
118	Khubbang VCF	300	149 Guichari	4 Vhusan chara	Barkal	Shyamal Kanti Chakma		
119	Bhalukyachari Tin Dozori VCF	100	158 Moudong Mouza	4 Vhusan chara	Barkal	Joysen Karbari	01858403203	
120	Jarul Chari VCF	80	158 Moudong Mouza	4 Vhusan chara	Barkal	Dipen Dewan	01813666997	
121	Dane Jarul Chari VCF	70	158 Moudong Mouza	4 Vhusan chara	Barkal	Dipen Dewan	01813666997	
122	Rokbibo Chara VCF	90	157 Choto haringa Mouza	4 Vhusan chara	Barkal	Buddha Moni Karbari	01872397234	Covered

Sl.	Name of the VCF	Size (in Acres)	Mouza	Union	Upazila	Contact Person	Cell #	Project intervention
123	Kukichara Shage legachara VCF	30	157 Choto haringa Mouza	4 Vhusan chara	Barkal	Sumoti Karbari	01882374956	
124	Choto Horinga Bajeisora VCF	80	157 Choto haringa Mouza	4 Vhusan chara	Barkal	Jagdish Chakma	01875506248	
125	Jung Sora VCF	80	157 Choto haringa Mouza	4 Vhusan chara	Barkal	Jagdish Chakma	01875506248	
126	Bajei sora VCF	100	157 Choto haringa Mouza	4 Vhusan chara	Barkal	Jagdish Chakma	01875506248	Covered
127	Bamei Kuki Chara VCF	120	157 Choto haringa Mouza	4 Vhusan chara	Barkal	Jagdish Chakma	01875506248	Covered
128	Bogachari VCF	165	148 Vhusan chara Mouza	4 Vhusan chara	Barkal	Tapos Dewan	01837838702	Covered
129	Indramoni Karbari Para VCF	95	148 Vhusan chara Mouza	4 Vhusan chara	Barkal	Tapos Dewan	01837838702	
130	Pitti Sora VCF	60	148 Vhusan chara Mouza	4 Vhusan chara	Barkal	Tapos Dewan	01837838702	
131	Duluchari VCF	40	149 Dummatalang Mouza	5 Boro Horinga Union	Barkal	Ujjal Kanti Dewan/ Dilip Kumar Chakma		
132	Lotibas Chara VCF	100	149 Dummatalang Mouza	5 Boro Horinga Union	Barkal	Ujjal Kanti Dewan		Covered
133	Maddhom Kukichara VCF	20	149 Dummatalang Mouza	5 Boro Horinga Union	Barkal	Ujjal Kanti Dewan/ Shanti Ranjan Karbari		
134	Nanda Chara VCF	52	149 Dummatalang Mouza	5 Boro Horinga Union	Barkal	Ujjal Kanti Dewan/ Manish C. Karbari		
135	Baro Haoringa VCF	75	149 Dummatalang Mouza	5 Boro Horinga Union	Barkal	Ujjal Kanti Dewan/ Bindu Karbari		
136	Tolchara VCF	200	162 Siba Boro Horinga Mouza	5 Boro Horinga Union	Barkal	Nilamoy Chakma	01556853995	
137	Bhur Bannya Sora VCF	200	162 Siba Boro Horinga Mouza	5 Boro Horinga Union	Barkal	Nilamoy Chakma	01556853995	

Sl.	Name of the VCF	Size (in Acres)	Mouza	Union	Upazila	Contact Person	Cell #	Project intervention
138	Bandema Sora VCF	300	163 Boro Horinga Mouza	5 Boro Horinga Union	Barkal	Bipuleshwar Chakma / Binoy Chakma		
139	Bamer Mohalchari VCF	300	161 Bamer Mohalchari Mouza	5 Boro Horinga Union	Barkal	Dhanlal Chakma/Gynshri Chakma		Covered
140	Deba Chori VCF	60	160 Toibang Mouza	5 Boro Horinga Union	Barkal	Chitra K. Chakma/Parimal chakma		
141	Rangapani Sora VCF	60	160 Toibang Mouza	5 Boro Horinga Union	Barkal	Chitra K. Chakma/Parimal chakma		
142	Deva Chora VCF	80	158 Moudong Mouza	4 Vhusan Chara	Barkal	Dipen Dewan	01813666997	
143	Garjon Toli VCF	85	151 Garjon Toli Moauza	4 Vhusan Chara	Barkal	Uttam Kumar Talukder	01552608320	
144	Dumuchya Chora VCF	29	151 Garjon Toli Moauza	4 Vhusan Chara	Barkal	Gyana Ranjan Karbari	01879985683	
145	1 No Tripura Chara VCF	80	152 Gorsthan Mouza	4 Vhusan Chara	Barkal	Chandra Sekhar Chakma	01832608022	
146	2 No Tripura Chara VCF	80	152 Gorsthan Mouza	4 Vhusan Chara	Barkal	Chandra Sekhar Chakma	01832608022	
147	Sagila Chora VCF	80	157 Choto haringa Mouza	4 Vhusan Chara	Barkal	Jagdish Chakma	01875506248	
148	Begena Chori VCF	300	20 Begenachori	2 Borkol	Barkal	Diponkor Chakma	01557109555	Covered
149	Na Vangga VCF	300	20 Begenachori	2 Borkol	Barkal	Gandhi Kumar Chakma	01551716423	Covered
150	Chandobi Chora VCF	250	155 Ethbhoria Mouza	3 Aimchara	Barkal	Putul Chakma	01552370116	Covered
151	Bame Bakchoti VCF	150	155 Ethbhoria Mouza	3 Aimchara	Barkal	Putul Chakma	01552370116	Covered
152	Udonya Chora VCF	150	155 Ethbhoria Mouza	3 Aimchara	Barkal	Anandasin Chakma	01850169008	Covered
153	Mitingya Chori VCF	-	22 Kurkutichari Mouza	2 Borkal	Barkal	Sunil Jibon Chakma	01557345532	

Sl.	Name of the VCF	Size (in Acres)	Mouza	Union	Upazila	Contact Person	Cell #	Project intervention
154	Uttar Andermanik VCF	100	175 Korolyachori Mouza	3 Aimachara	Barkal	Kamini Ranjan Karbari/ Bijoy Sing Chakma	01875100147	
155	Dakkhin Andermanik VCF	100	175 Korolyachori Mouza	3 Aimachara	Barkal	Kamini Ranjan Karbari	01875100147	
156	Uttar C.M. Para VCF	50	175 Korolyachori Mouza	3 Aimachara	Barkal	Kamini Ranjan Karbari / Alok Kumar Karbari	01875100147	
157	Dakkhin C.M. Para VCF	50	175 Korolyachori Mouza	3 Aimachara	Barkal	Kamini Ranjan Karbari / Asha Dhon Karbari	01875100147	
158	Dozor Para VCF	50	175 Korolyachori Mouza	3 Aimachara	Barkal	Kamini Ranjan Karbari / Badol Chandra Chakma	01875100147	
159	Kalapuno Chora VCF	50	175 Korolyachori Mouza	3 Aimachara	Barkal	Kamini Ranjan Karbari / Chirojyoti Chakma	01875100147	Covered
160	Nicher Korolya Chori Para VCF	50	175 Korolyachori Mouza	3 Aimachara	Barkal	Kamini Ranjan Karbari / Suroti Ranjan Chakma	01875100147	
161	Upor Korolya Chaori Para VCF	50	175 Korolyachori Mouza	3 Aimachara	Barkal	Kamini Ranjan Karbari/ Anongo Mohon Chakma	01875100147	
162	Perachora Para VCF	50	175 Korolyachori Mouza	3 Aimachara	Barkal	Kamini Ranjan Karbari / Durgamoni karbari	01875100147	

BANDARBAN

SL	Name of VCF/Para ban	Area (Acre)	Mouza	Union	Upazila	Contact person	Phone number	CHTWCA Covered?
1	Yang Ring Mro Para Ban	100	276 no.Torgu	4no.Douchori	Naikyongchari	Yang Ring Mro,	01884978643	Covered
2	Rangkrim Mro Para Ban	50	277 no.Torgu	4no.Douchori	Naikyongchari	Rang Cring Mro,	01552979334	Covered
3	Pung Rao Mro Para Ban	70	278 no.Torgu	4no.Douchori	Naikyongchari	Pung Rao Mro	01715150146	Covered
4	Painchari Mro Para Ban	100	279 no. Torgu	4no.Douchori	Naikyongchari	Lang Ring Mro		
5	Mong Pra Mro Para Ban	100	280 no. Torgu	4no.Douchori	Naikyongchari	Ring Oway Mro		
6	Pung Crat Mro Para Ban	200	281 no. Torgu	4no.Douchori	Naikyongchari	Pung Crat Mro	01533214937	
7	Inn Lee Mro Para Ban	30	282 no.Torgu	4no.Douchori	Naikyongchari	Menchai Mro		
8	Pain khyang Para Ban	400	274 no. Douchari	4no.Douchori	Naikyongchari	Aung chein U Marm		Covered
9	Krokhyang Para Ban	150	227 no. krouk khyang	4no.Douchori	Naikyongchari	Kay Hla ching chak	01870570694	Covered
10	Cling tui Menraow Mro Para Ban	100	Do	4no.Douchori	Naikyongchari	Cling tui Mro		
11	Sinai zhiri Tripura Para Ban	50	281 no. Kowang khyang Zhir	2no.Baisari	Naikyongchari	Tazo chandra Tripura		
12	Fotoi Headman Para Ban	300	Do	2no.Baisari	Naikyongchari	Mentang Mro		
13	Kanchoun Mro Para Ban	30	Do	2no.Baisari	Naikyongchari	LangRoi Mro	01551080845	
14	Moshala Mro Para Ban	100	Do	2no.Baisari	Naikyongchari	Powai Mro	01572261829	
15	Namlai Mro Para Ban	100	Do	2no.Baisari	Naikyongchari	Rang Young Mro	01865463829	
16	Kolo Pahar Mro Para Ban	100	Do	2no.Baisari	Naikyongchari	Kroi long Mro	01751990145	
17	Hati da zhiri Para Ban	50	Do	2no.Baisari	Naikyongchari	U sha ching chak		
18	Chakma Zhiri Mro Para Ban	100	Do	2no.Baisari	Naikyongchari	Lang Ring Mro		
19	Haff Zhiri Mro Para Ban	50	Do	2no.Baisari	Naikyongchari	Inn chong Mro		
20	Boidha Para Ban	50	Do	2no.Baisari	Naikyongchari	Rumdi Mro		
21	MonJoy Para Ban	200	268 no. Raju	3 no Gumdum	Naikyongchari	Robindra Tongchangya	01840227182	Covered
22	Fatrazhiri Para Ban	50	269 no. Raju	4 no Gumdum	Naikyongchari	Kay Hla Tongchangya	01821972458	Covered
23	Garjonbonia Tongchangya Para Ban	70	270 no. Raju	5 no Gumdum	Naikyongchari	Upandra Tonchangya	0183152138	

SL	Name of VCF/Para ban	Area (Acre)	Mouza	Union	Upazila	Contact person	Phone number	CHTWCA Covered?
24	Baispari Dokhin Tongchangya Para Ban	50	271 no. Raju	6 no Gumdum	Naikyongchari	Moung polai Tongchangya	01533237992	
25	Tongbro Tongchangya Para Ban	100	272 no. Raju	7 no Gumdum	Naikyongchari	Moung Khi cha Tongchagya	0153268150	
26	Boraitoli Para Ban	70	273 no. Raju	8 no Gumdum	Naikyongchari	Ching Sa Mong Tongchagya	01632700317	
27	Gach Bonia Para Ban	30	274 no. Raju	9 no Gumdum	Naikyongchari	Milon Tongchagya	01839415340	
28	Baichang Tripura Para Ban	100	282 no. Kamichara	4no.Douchori	Naikyongchari	Aviram Tripura	01835269527	
29	Naikhangchari Noton Para Ban	100	Do	4no.Douchori	Naikyongchari	Rumju ha Tripura	01858451800	
30	Aliyanzhiri Para Ban	150	227 no. krouk khyang	4no.Douchori	Naikyongchari	Thowaiching aung Chak	01852495637	
31	Bocha Para Ban	100	302no.Lulang	01no.Gozalia	Lama	Nipio Mro	01789823346	Covered
32	Dola Para Ban	60	302no.Lulang	01no.Gozalia	Lama	Ruitong Mro		Covered
33	Kathal chara Para Ban	30	284no Yangcha	3no.Fasiyakhali	Lama	Simon Tripura	01825596433	
34	Owa Cra U Para Ban	200	284no Yangcha	3no.Fasiyakhali	Lama	Ching thowai Tripura	01881637585	
35	Fuityazhiri Para Ban	200	284 no. Yangcha	3no.Fasiyakhali	Lama	Aung Cha Mro	01879751835	
36	Rouza Para Ban	100	285 no. Sangu	3no.Fasiyakhali	Lama	Menrum Mro		
37	Raja Para Ban	50	286 no. Sangu	3no.Fasiyakhali	Lama	Camp Mro		
38	Rangle Noya Para Ban	100	287 no. Sangu	3no.Fasiyakhali	Lama	Rangle Mro	01536037234	
39	Sochai Mro Para Ban	25	288 no. Sangu	3no.Fasiyakhali	Lama	Men Pio Mro		
40	Bodhuzhiri Para Ban	70	305 no Gozalia	1no.Gozalia	Lama	Mojon Tripura	01872113513	Covered
41	Sing Young Mro Para Ban	20	305 no Gozalia	1no.Gozalia	Lama	Thung Pra Mro		Covered
42	Noya Para Ban	25	301no. Soroi	5no.Soroi	Lama	Pale Mro		
43	Moyur Mro Para Ban	100	302 no. Lulang	1no.Gozalia	Lama	Mangya Mro		
44	Kapru Mro Para Ban	25	304 no. Lemu Palong	5no.Soroi	Lama	Kapru Mro		
45	Gazon Para Ban	50	303 no. Duluzhiri	5no.Soroi	Lama	Gazon Tripura	01871600051	Covered
46	Haliram Tripura Para Ban	30	359 no. Sakudu	4no.Boli Para	Thanchi	Alram Tripura		Covered
47	Ramri Tripura Para Ban	25	Do	4no.Boli Para	Thanchi	Shadumoni Tripura		
48	Tuk tong Para Ban	70	360 no. Kowaikhyang	3no.Thanchi	Thanchi	Manchen Mro		Covered
49	Kya U Ching Para Ban	45	Do	3no.Thanchi	Thanchi	Re thong Mro		
50	Wack Chakku Para Ban	35	Do	3no.Thanchi	Thanchi	Lukia Mro		Covered
51	Ada Mro Para Ban	25	369no.Singfa	1no.Remakre	Thanchi	Reyoung Mro		

SL	Name of VCF/Para ban	Area (Acre)	Mouza	Union	Upazila	Contact person	Phone number	CHTWCA Covered?
52	Uchamong Paraban	25	369 Singfa	Remarkree	Thanchi	Mong PrueChai Marma		
53	Young Nong Mro Paraban	25	369 Singfa	Remarkree	Thanchi	Chong Nong Mro		
54	Prue Cha Aung Paraban	25	369 Singfa	Remarkree	Thanchi	Keyzai Hla Marma		
55	Boro Modak Bitor Paraban	50	370 Madhuchara	Remarkree	Thanchi	Chaching Prue Marma		Covered
56	Kemong Headman Paraban	25	370 Madhuchara	Remarkree	Thanchi	Kemong Marma		
57	Panedong Paraban	25	371 Remarkree	Remarkree	Thanchi	Adomong Marma		
58	Dolian Headman Paraban	30	371 Remarkree	Remarkree	Thanchi	Langring Mro		
59	Chai Hla U Paraban	25	371 Remarkree	Remarkree	Thanchi	Chong Hla Prue Marma		
60	Palok mro Paraban	30	290 Mango	Chaikhyong	Alikadam	Palok Mro/Lalnet Mro	01851239851	
61	Pamia Mro Paraban	50	290 Mango	Chaikhyong	Alikadam	Pamia Mro		Covered
62	Ruipa Mro Karbari Paraban	25	290 Mango	Chaikhyong	Alikadam	Youngring Mro		
63	Jalai Tripura Paraban	25	290 Mango	Chaikhyong	Alikadam	Zohon Tripura		
64	Gobinda Tripura Paraban	25	290 Mango	Chaikhyong	Alikadam	Gobindra Tripura		
65	Menwai Mro Paraban	30	290 Mango	Chaikhyong	Alikadam	Menwai Mro		
66	Mencrem mro Paraban	25	290 Mango	Chaikhyong	Alikadam	Mencream Mro		Covered
67	Rowipong Mro Paraban	25	290 Mango	Chaikhyong	Alikadam	Rowipong Mro		
68	Reyok Mro Paraban	100	290 Mango	Chaikhyong	Alikadam	Reyok Mro		
69	Tinwai Mro Paraban	25	291 Tainfa	Alikadam	Alikadam	Tinwai Mro		
70	Kaiwai Mro Paraban	25	Do	Alikadam	Alikadam	Kaiwai Mro		
71	Crasi Mro Paraban	25	Do	Alikadam	Alikadam	Singra Mro		
72	Gunaram Tripura Paraban	25	Do	Alikadam	Alikadam	Gunaram Tripura		
73	AgulaTripura Paraban	30	Do	Alikadam	Alikadam	Agula Tripura		Covered
74	Ramdon mro Paraban	25	Do	Alikadam Sadar	Alikadam	Ramdon Mro	01879917237	Covered
75	Chonglod mro Paraban	25	Do	Alikadam Sadar	Alikadam	Chonglod Mro		
76	Ura Mro Paraban	25	Do	Alikadam Sadar	Alikadam	Ura Mro		
77	Aoidoling Mro Paraban	25	Do	Alikadam Sadar	Alikadam	Aoidolong Mro		
78	Augustin Tripura Paraban	25	Do	Alikadam Sadar	Alikadam	Augustin Tripura		
79	Chandramoni Tripura	25	Do	Alikadam Sadar	Alikadam	Chandramoni Tripura		
80	Dishajhon Tripura	25	Do	Alikadam Sadar	Alikadam	Dushajhon Tripura	01551176346	
81	Menkong Mro Paraban	25	Do	Alikadam Sadar	Alikadam	Mengkong Mro		

SL	Name of VCF/Para ban	Area (Acre)	Mouza	Union	Upazila	Contact person	Phone number	CHTWCA Covered?
82	Jagot Chandra Tripura Paraban	30	292 Saifra	Kurukpata	Alikadam	Chathui Prue Marma		
83	Haziram Tripura Paraban	30	Do	Kurukpata	Alikadam	Haziram Tripura	01536003455	
84	Raitumoni Karbari Paraban	30	Do	Kurukpata	Alikadam	Bobirat Karbari		
85	Kongchong Mro Paraban	30	392 Saifra	Kurukpata	Alikadam	Kongchong Mro		
86	Parao Mro Para	30	Do	Kurukpata	Alikadam	Parao Mro		Covered
87	Zonachandra Tripura Paraban	30	Do	Kurukpata	Alikadam	Zonachandra Tripura		
88	Robirob Tanchangya Paraban	30	Do	Kurukpata	Alikadam	Robirob Tanchangya		
89	Rohini Mohon paraban	50	287 Toain	Noapara	Alikadam	Rohinimohon Tanchangya	01825114118	
90	Basudev Chakma Paraban	45	Do	Noapara	Alikadam	Basudev Chakma		
91	Druprueziri Paraban	35	Do	Noapara	Alikadam	Drapu		
92	Kendro Mro Paraban	50	Do	Noapara	Alikadam	Kendro Mro		
93	Pladong Mro Paraban	52	Do	Noapara	Alikadam	Pladong Mro		
94	Hlachong Aung Paraban	50	Do	Noapara	Alikadam	Hlachang Marma		Covered
95	Daingye Mro Paraban	25	Do	Noapara	Alikadam	Daiye Mro		
96	Rowangchari Paraban	230	338 Rowangchari	Rowangchari	Rowangchari	Mongzohi Marma	01559008206	
97	Talukder Paraban	40	Do	Rowangchari	Rowangchari	Sadamong Marma	01887224513	Covered
98	Tulachari paraban	25	Do	Rowangchari	Rowangchari	Khefa Marma		
99	Aungzai Paraban	40	Do	Rowangchari	Rowangchari	Safoching Marma		
100	Soanlu Paraban	25	Do	Rowangchari	Rowangchari	Saptlai Bawm	01553001991	
101	Paglachara Para Ban	30	Do	Rowangchari	Rowangchari	Aunggoth Tong		
102	Chuanbil Paraban	100	343 Alikhyong	Alikhyong	Rowangchari	Munshang Bawm	01882045007	Covered
103	Baroshila Paraban	200	Do	Alikhyong	Rowangchari	Maying Prue Marma	0179313884	
104	Mongbaithon Paraban	45	349 Garao	Rowangchari	Rowangchari	Wthowaiprue Marma	01829765387	Covered
105	Durnibar Paraban	30	Do	Rowangchari	Rowangchari	Lalthang Khum Bawm	01557070682	Covered
106	Ramther Natun Paraban	40	Do	Rowangchari	Rowangchari	Lalthuan Bawm	01554668905	
107	Garaose Punarbason Paraban	40	Do	Rowangchari	Rowangchari	Chowthoai prue Marma	01762154910	
108	Chingyeamukh Paraban	25	Do	Rowangchari	Rowangchari	Mongfo hlaMarma		
109	Abichalito Paraban	25	Do	Rowangchari	Rowangchari	Anglian Bawm	01554364528	
110	Garao Pransa Paraban	30	Do	Rowangchari	Rowangchari	Thuaiang Ptue Khiang	01585281181	

SL	Name of VCF/Para ban	Area (Acre)	Mouza	Union	Upazila	Contact person	Phone number	CHTWCA Covered?
111	Paikhyong Paraban	30	341 Paikhyong	Rowangchari	Rowangchari	Shapther Bawm	0188167804	
112	Kayplalong Paraban	30	Do	Rowangchari	Rowangchari	Pruethuai Khiyang	01532457702	
113	Rownin Paraban	25	Do	Rowangchari	Rowangchari	Lalrim Moy Bawm	01552457714	
114	Bijoy Paraban	35	339 Bekhyong	Rowangchari	Rowangchari	Kasaw ang Marma	01556995488	
115	Sundari Paraban	35	317 Kachalong	Rowangchari	Rowangchari	Chinsamong Marma		
116	Aungtong Paraban	35	Do	Rowangchari	Rowangchari	Rewanang Khumi	01820431499	
117	Mongcrowmukhi	35	Do	Rowangchari	Rowangchari	Loking Khumi		
118	Aunglai Paraban	100	364 Galengya	Galengya	Ruma	Menrof Mro	01857414705	
119	Menrot Headman Paraban	200	Do	Galengya	Ruma	Menrof Mro	01857414705	
120	Mangtong Paraban	100	Do	Galengya	Ruma	Menkong Mro		Covered
121	Menrula Paraban	50	Do	Galengya	Ruma	Langchom mro		covered
122	Inchang Thongray Paraban	100	Do	Galengya	Ruma	Inchang Mro		
123	Ruitu Mro Paraban	150	Do	Galengya	Ruma	Menlay Mro		
124	Pantala Headman Paraban	80	354 Pantala	Ruma Sadar	Ruma	Namdui Mro		
125	Pantala Paraban	70	Do	Ruma Sadar	Ruma	Kolaaung Marma		
126	Korang Paraban	80	Do	Ruma Sadar	Ruma	Palay Mro		
127	Rumana paraban	100	358 Ruma	Ruma Sadar	Ruma	Bathuai aung Marma	01552502003	
128	Darzeling Paraban	100	Do	Ruma Sadar	Ruma	Benzamin Bawm		Covered
129	Lungmaoshing Paraban	200	Do	Ruma Sadar	Ruma	Min Nak Bawm		
130	Saibat Paraban	60	Do	Ruma Sadar	Ruma	Mangchuan Bawm		
131	New Rumana Paraban	50	Do	Ruma Sadar	Ruma	Kaponi Bawm		
132	Tangnuam Paraban	30	366 Sangu	Ruma Sadar	Ruma	Alasim Bawm		
133	Polika Paraban	50	353 Koladi	Ruma Sadar	Ruma	Krapuching Marma		Covered
134	Mangllaigro Paraban	50	Do	Ruma Sadar	Ruma	Shaiching Thui Marma	01556572516	
135	Naitong Paraban	50	Do	Ruma Sadar	Ruma	Medo Marma		Covered
136	Arjun Paraban	50	Do	Ruma Sadar	Ruma	Arjun Tripura		Covered
137	Salopi Paraban	800	374 Remarkree Pransa	Remarkree Pransa	Ruma	Laljing Khum Bawm		
138	Tamloi Paraban	700	Do	Remarkree Pransa	Ruma	Rual Song Bawm		
139	Baklai Paraban	600	Do	Remarkree Pransa	Ruma	Thonglian bawm		
140	Thaikhong Paraban	600	Do	Remarkree Pransa	Ruma	Samkhup Bawm		

SL	Name of VCF/Para ban	Area (Acre)	Mouza	Union	Upazila	Contact person	Phone number	CHTWCA Covered?
141	Chaikhyong Paraban	500	Do	Remarkree Pransa	Ruma	Zinktoan Bawm		
142	Luyangmual Paraban	50	Do	Remarkree Pransa	Ruma	Lalzingkhum		
143	Sungsong Paraban	500	Do	Remarkree Pransa	Ruma	Robert Bawm		
144	Dulchan Mro Paraban	400	Do	Remarkree Pransa	Ruma	Paring Mro		
145	Thing Doltey Paraban	600	Do	Remarkree Pransa	Ruma	Boylian Thang		
146	Rumtong Paraban	32	372 Nating	Remarkree Pransa	Ruma	Pelu Mro		
147	Menron Paraban	50	Do	Remarkree Pransa	Ruma	Dula Mro		
148	Lingpung Paraban	25	Do	Remarkree Pransa	Ruma	Lingpu Mro		
149	Zadipai paraban	700	Do	Remarkree Pransa	Ruma	Daktom Bawm		
150	MTS Paraban	100	Do	Remarkree Pransa	Ruma	Singchong Mro		
151	Fainong Paraban	50	Do	Remarkree Pransa	Ruma	Fainong Mro		Covered
152	Ranghiha Paraban	50	Do	Remarkree Pransa	Ruma	Hantorang Tripura		Covered
153	Kanaon paraban	30	350 Paindu	Paindu	Ruma	Laldom Khum Bawm		
154	Ganga Marma Paraban	60	Do	Paindu	Ruma	Kawse Prue		
155	Mungwalpi Paraban	60	357 Drubukhyong	Paindu	Ruma	Laltom Khum		
156	Basatang Paraban	200	Do	Paindu	Ruma	Zanglian Bawm		
157	Happyhill Paraban	30	Do	Paindu	Ruma	Lallung aoi Bawm		
158	Zubrong Paraban	200	252 Khomkhyong	Paindu	Ruma	Rainem Bawm	01556529424	
159	Khamtong Paraban	50	Do	Paindu	Ruma	Musi		
160	Ronin Paraban	200	Do	Paindu	Ruma	Minkhup Bawm		
161	Monuam Paraban	100	Do	Paindu	Ruma	Rowalai Bawm		

KHAGRACHARI

SL	Name of VCF	VCF Area	Mouza	Union	Upazila	Contact person	Contract number	Status	Remarks
1	Dane dhan pata VCF	150 .00 acre	48 no dane dhan pata Mouza	5 no Babuchara Union	Dighinala	Arun Bikash Chakma	01863606377	Covered	Enlisted at VCF NETWORK
2	Modhyo dhan pata VCF	800.00 acre	47 no modhyo dhan pata Mouza	5 no Babuchara Union	Dighinala	Gopa devi Chakma	01853042020	Covered	Enlisted at VCF NETWORK
3	Nunchari Mouza bon	80.00 acre	33 no Nunchari Mouza	5 no Babuchara Union	Dighinala	Rintu Chakma	01881358908	Covered	Enlisted at VCF NETWORK
4	Pablakhali Mouza Bon	700.00 acre	52 no Pablakhali Mouza	3no kobakhali Union	Dighinala	Tridib kanti Dewan	01553245822	Covered	Enlisted at VCF NETWORK
5	Bagaichari Rabichandra karbari para bon	50.00 acre	50 no Bagaichari Mouza	5 no Babuchara Union	Dighinala	Tuntu Moni Chakma	01644246820	Covered	Enlisted at VCF NETWORK
6	Bagaichari Jarulchari (Dozor) para Bon	240.00 acre	49 no Jarulchari & 50 no Bagaichari Mouza	5 no Babuchara Union	Dighinala	Apon Chakma	01818220669	Covered	Enlisted at VCF NETWORK
7	Bagaichari Nitoygan dhonuyt karbari para Bon	120 .00 acre	51 no Dighinala Mouza	4 no Dighinala Union	Dighinala	Indra Kumar Chakma	01559668029		Enlisted at VCF NETWORK
8	Chatarachara Mouza Bon	200.00 acre	34 no Chatarachara Mouza	5 no Babuchara Union	Dighinala	Konica Chakma	01827725725		Enlisted at VCF NETWORK
9	Shiriti Bikash karbari para Bon	90.00 acre	51 no Dighinala Mouza	4 no Dighinala Union	Dighinala	Shiriti Bikash Chakma	01835775079		Enlisted at VCF NETWORK
10	Dilchan karbari para Bon	200.00 acre	51 no Dighinala Mouza	4 no Dighinala Union	Dighinala	Himaongshu Chakma	01874796702		Enlisted at VCF NETWORK
11	Shaluya Karbari Para Bon	250.00 acre	46 no Dhanpata Mouza	5 no Babuchara Union	Dighinala	Suresh Monio Chakma	01820747310		Enlisted at VCF NETWORK
12	Chinalchara Para Bon	50.00 acre	51 no Dighinala Mouza	4 no Dighinala Union	Dighinala	Arjay priyo Chakma	01557087942		Enlisted at VCF NETWORK
13	Shilchari Garami Sadharon Bon Songrokan Committee	100.00 acre	51 no Dighinala Mouza	4 no Dighinala Union	Dighinala	Sorob Chakma	01846163980		Enlisted at VCF NETWORK

SL	Name of VCF	VCF Area	Mouza	Union	Upazila	Contact person	Contract number	Status	Remarks
14	Banchara para Bon Songrokan Committee	200.00 acre	51 no Dighinala Mouza	4 no Dighinala Union	Dighinala	Proga Joty Chakma	01820710560		Enlisted at VCF NETWORK
15	Dane dhan pata Tarum Bon	40.00 acre	48 no dane dhan pata Mouza	5 no Babuchara Union	Dighinala	Sanchita Chakma	0182892983		Enlisted at VCF NETWORK
16	Ultachari Sadhon Chandra karbari para Bon	200.00 acre	35 no Duluchari Mouza	5 no Babuchara Union	Dighinala	Ashis Chakma	01862756709		Enlisted at VCF NETWORK
17	Bagaichari Dhanomoni karbari para Bon	40.00 acre	50 no Bagaichari Mouza	5 no Babuchara Union	Dighinala	Jatin Bikash Chakma	01866564696		Enlisted at VCF NETWORK
18	Jarulchari Shishu Ranjan Karbari Para Bon	35.00 acre	49 no Jarulchari Mouza	5 no Babuchara Union	Dighinala	Sunil Kanti Chakma	01861185695		Enlisted at VCF NETWORK
19	Direndra Headman Para	100	46 no. dhonpata mouza	5 no Babuchara Union	Dighinala	Jyusna Chakma	01536426451		
20	Ultachari Syamacharan Karbari Para bon	500	35 No. Duluchari Mouza	5 no Babuchara Union	Dighinala	Niloboron Chakma	01832729171		
21	Rupadhan Krabari Para Bon	200	46 no. dhonpata mouza	5 no Babuchara Union	Dighinala	Pritiranjan Chakma	01884207690		
22	Kukichara Mouzabon	100	36 no Kukichara Mouza	5 no Babuchara Union	Dighinala	Gongadhon Chakma	01859359955		
23	Dhakhin Tarabunia Para bon	50	54 no. Tarabunia Mouza	3 No, Kobakhali Union	Dighinala	Shadan Chandra Chakma	01828833035		
24	Shadon Kumara Karbari Para	250	46 no. dhonpata mouza	5 no Babuchara Union	Dighinala	Shadan Kumar Chakma	01828833035		
25	Jatna Kumar Karbari Para	200	51 No. Diginala Mouza	dighinala Union	Dighinala	Samar Ranjan Chakma	01553316058		Enlisted at VCF NETWORK
26	Boro naile para bon Reserve	25 no acre	83 no Durung Mouza	1 no laxmichari Union	Laxmichari	Nipan kanti Chakma	01777282253	Covered	Enlisted at VCF NETWORK
27	Nirbogazo Chara Reserve	200.00 acre	89 no Laxmichari Muza	1 no laxmichari Union	Laxmichari	Gayano lal Talukdar	01553756713	Covered	Enlisted at VCF NETWORK

SL	Name of VCF	VCF Area	Mouza	Union	Upazila	Contact person	Contract number	Status	Remarks
28	Durchari para Reseve Bon	50.00 acre	80 no Durchari Mouza	2 no Dulayatali Union	Laxmichari	Sanjit Kumar Talukdar	01838498417	Covered	Enlisted at VCF NETWORK
29	Jaduchari Para Bon Reserve	50.00 acre	92 no Lelang Mouza	3 no Barmachari Union	Laxmichari	Suisala Chowdhury	01728335117		Enlisted at VCF NETWORK
30	Orabanya Balutila Reserve	80.00 acre	85 no Barmachari Mouza	3 no Barmachari Union	Laxmichari	Sathoyai Chowdhury	01758628148		Enlisted at VCF NETWORK
31	Ultachari Para Bon Songrokhan Committee	100.00 acre	84 no Muktachari Mouza	3 no Barmachari Union	Laxmichari	Santi Mohan Chakma	01845273514		Enlisted at VCF NETWORK
32	Kurum Banga Para Bon	120.00 acre	219 no Dulayatuli Mouza	2 no Dulayatali Union	Laxmichari	Ulapur Chowdhury	01786524459		Enlisted at VCF NETWORK
33	Tindukchari para Bon	200.00 acre	22 no Tindukchari Mouza	3 no Sindukchari Union	Guimara	Unu Mong Marma	01559710754	Covered	Enlisted at VCF NETWORK
34	Goyaichari Akhbari Para Bon	500.00 acre	216 no Goyaichari Mouza	3 no Sindukchari Union	Guimara	Aongyjai Marma	01559053430	Covered	Enlisted at VCF NETWORK
35	Boroitali Mouza Bon	100 acre	212 no Boroitali Mouza	Halfchari Union	Guimara	Chanmohoan Tripura	01830915713	Covered	
36	Kamalchari Mukh mouza Bon	316.00 acre	264 no Bhoyachari Mouza	2 no Kamalchari Union	Khagrachari	Binoy Bahu Chakma	01856833153	Covered	Enlisted at VCF NETWORK
37	Jaduram para Bon	21.00 acre	263 no Kamalchari Mouza	2 no Kamalchari Union	Khagrachari	Barjo Nath Tripura	01820721709	Covered	Enlisted at VCF NETWORK
38	Itchari Mouza Bon Songrakon Committee	150.00 acre	260 no Itchari Mouza	2 no Kamalchari Union	Khagrachari	Binimoy Chakma	01820717400	Covered	Enlisted at VCF NETWORK
39	Betchari Chirstan para Bon	100.00 acre	264 no Bhoyachari Mouza	2 no Kamalchari Union	Khagrachari	Air Chakma	01878337651	Covered	Enlisted at VCF NETWORK

SL	Name of VCF	VCF Area	Mouza	Union	Upazila	Contact person	Contract number	Status	Remarks
40	Kamalchari Headmen para Bon	30.00 acre	263 no Kamalchari Mouza	2 no Kamalchari Union	Khagrachari	Suinu Marma	01832218086	Covered	Enlisted at VCF NETWORK
41	Joytdhar para Mouza Bon	100.00 acre	260 no Itchari Mouza	2 no Kamalchari Union	Khagrachari	Redoy Kumar Chakma	01554519968		Enlisted at VCF NETWORK
42	Shikam Haduk VCF	100	238 No Gachban Mouza	Vaibonchara Union	Khagrachari	Choyan Tripura	01552609180	Covered	
43	Ratnamoni Karbari Para	100	263 no Kamalchari Mouza	2 no. kamalchari union	Khagrachari	Surbindu Chakma	01879699360		
44	Mongalchan Karbari Para Bon	17	263 no Kamalchari Mouza	2 no. Kamalchari union	Khagrachari	Bihari Tripura			
45	Apa Betchari VCF	100	264 no Bhoyachari Mouza	2 no. Kamalchari union	Khagrachari	Gyanobikash Chakma	01553107819		
46	Betchari Modya Parabon	50	264 no Bhoyachari Mouza	2 no. Kamalchari union	Khagrachari	Sunil Kanti Chakma/Kirtimoy	01558918239		
47	Datvanga Chara VCF Dokkhin Betchari Chritian Para	50	260 no Itchari Mouza	2 no. Kamalchari union	Khagrachari	Ananda Chakma	01825421875		
48	Sahamoni Santi Vila Mog para Bon	130.00 acre	243 no Changi Mouza	1 no. Changi Union	Panchari	Santimoy Chakma	01869490134	Covered	Enlisted at VCF NETWORK
49	Muiyan Para Bon	400	241 no Latiban Mouza	4 no. Lotiban Union	Panchari	Gopal Kirisno Tripura	01551654350	Covered	
50	Noboratna Karbari Para BON	50	246 NO Choto Panchhari Mouza	5 no. Ultachari union	Panchari	Noboratna Tripura	01556569489		
51	Poddhani Para Reserve Bon	50	246 NO Choto Panchhari Mouza	5 no. Ultachari union	Panchari	Birobala Tripura	01821845753		
52	Subol Karbari Para	20	246 NO Choto Panchhari Mouza	5 no. Ultachari union	Panchari	Subol Karbari	01535855649		

SL	Name of VCF	VCF Area	Mouza	Union	Upazila	Contact person	Contract number	Status	Remarks
53	Rohindra Karbari Para	35	246 NO Choto Panchhari Mouza	5 no. Ultachari union	Panchari	Arun Bikash Tripura	01552731601		
54	Jal Kumar Karbari para Bon	200.00 acre	203 no Aoviya Mouza	6 no Matiranga Union	Matiranga	Rupindra Tripura	01821935284		Enlisted at VCF NETWORK
55	Jarichandra Karbari para Bon	250.00 acre	203 no Aoviya Mouza	6 no Matiranga Union	Matiranga	Chandi Mohan Tripura	01553127248		Enlisted at VCF NETWORK
56	Pomang para Bon	90.00 acre	151 no Taindong Mouza	1 no Taindong Union	Matiranga	Tika Busan Tripura	01554017111	Covered	Enlisted at VCF NETWORK
57	Bandarshing Para Bon	90	191 No. Taindong	1 no Taindong Union	Matiranga	Debabrata Chakma	01554044267	Covered	
58	Rangapani chara Para Bon	150.00 acre	249 no kayangghat Mouza	3 no Kayanggat Union	Mohalchari	Jeebon Bikash Talukdar	01866396636		Enlisted at VCF NETWORK
59	HajaChara para Bon	80.00 acre	248 no Mubachari Mouza	2 no Mubachari	Mohalchari	Sunirmal Chakma	01874989122		Enlisted at VCF NETWORK
60	Maischari Mouza Bon	100.00 acre	255 no Maischari Mouza	4 no Maischari Union	Mohalchari	Niranjan Tripura	01860730714	Covered	Enlisted at VCF NETWORK
61	Ultachari Bihar Para Bon	200	249 NO. KEYANGHAT	3 No. Keyanghat Union	Mohalchari	Arun Kanti Chakma	01840198354	Covered	Enlisted at VCF NETWORK
62	Korrollyachari Sarnath Bonobihar Para Bon	300	249 no kayangghat Mouza	3 No. Keyanghat Union	Mohalchari	Niharbindu Talukder	01585466915	Covered	Enlisted at VCF NETWORK

ANNEXURE H: SUCCESS STORY

Community-based management of Village Common Forests

The CHT's forests provide both tangible (food, timber, fuelwood, NTFPs including bamboo, medicinal plants, wild animals, insects, birds, water, etc.) and intangible benefits (ecosystem functions and services including recreation, cultural values, fertile soils) to the ethnic communities who have traditionally been managing small patches of neighboring forests known as Village Common Forests. In most of the villages/paras the tribal culture, lifestyle and livelihood are closely associated with forests and encompassing water bodies. The loss of biodiversity and degradation of ecosystems are now being addressed by local communities mobilized and organized as VCF management committees to take up forest survey, boundary demarcation, pillar posting, mapping and management planning after resolution of boundary conflicts and disputes in VCFs.

Jarulchari VCF of 240 acres, located in Babuchara union under Dighinala upazila of Khagrachari Hill District is one such VCF which is located 24 km away from Dighinala upazila Headquarter. The two villages in it's catchment area consist of around 126 households of Chakma community. Prior to the formation of VCF management committee, no effective community management and by-laws for VCF conservation existed and as a result the forests and encompassing water bodies were degrading in the absence of community protection.

Members of VCF Management Committee and CHTWCA on VCF Field inspection

Community mobilization and organization of local communities in terms of VCF management committee was taken up under CHTWCA through a local NGO (Zabrang Kalyan Samity) by involving local people from the two villages. With technical support from Zabrang and traditional leaders including Headman and Karbaries, the VCF management committee organized biweekly community meetings and resolved VCF related conflicts and completed survey, boundary demarcation, boundary pillar installation, mapping, signboard and bill board installation, capacity development training, and management plan preparation and implementation. They formed a forest health monitoring committee and engaged local community including youth for forest protection.

Signboard with conservation message and information

BCF Boundary Pillar Posting by Community People

The organized community people are now protecting their VCF, are aware on climate change and adaptation, know the importance of women's participation in VCF decision-making process, manage VCF related documents including the management plan, established saving practices among VCF community members, and are taking part in livelihood activities for increased income and reducing VCF dependency.

Consequently, nobody enters to the VCF for collection of wood, fuelwood and NTFPs including bamboo and wild animals without prior permission of the VCF management committee. As a result of effective community forest protection and monitoring, the forests and encompassing streams have started regenerating with ground flora and birds, and water. The VCF management committee has formed bamboo harvesting practices for distribution of bamboo culms to the members of VCF management committee. Local villagers use water flowing from the VCF for their consumption and other community use.

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UNDP

Strengthening Inclusive Development in Chittagong Hill Tracts
A Project of Ministry of Chittagong Hill Tracts Affairs and UNDP Bangladesh