Report on
Training of Stakeholders on Adaptation to Change including Climate Change Issues
Bandarban, Chittagong Hill Tracts

Prepared by:
Farid Uddin Ahmed, Executive Director
Abdul Mannan, Program Officer (M & E)
Farhana Khan Pushpa, Asst. Program Officer (Training & Communication)

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Introduction

Arannayk Foundation (AF) organized second training on the above mentioned topic in Hotel Plaza at Army Para, Banadarban during 20-23 January 2014. This training was organized for participants from government organizations, academicians and media personalities only. Arannayk Foundation solicited nominations from relevant Governmental Organization, academic institutes like colleges and schools and press club of Bandarban for the training. During solicitation of nomination, details about the collaboration between AF and the ICIMOD and expected output were presented. It helped the organizations to send nomination of right persons for the training. The AF received nominations for 30 persons from different organizations (pls see the attached list). However, there was demand from the press club to include few more journalists in the training but as the number of participants exceeded the expected number we could not entertain their request.

Logistic

Each participant was provided with a bag, note pad, pen and name tag at the very beginning of the training. Soft copies of the training materials along with the printed copies of all the training sessions’ lectures were also provided at the final day of the training. Arrangements were made for their accommodation, food and other logistics.
Inaugural
The training program started with an inaugural ceremony on Monday, January 20, 2014. The Chairman, Bandarban Hill District Council was invited to inaugurate the Inaugural Session as Chief Guest and Member of the Hill District Council Mr. S.K. Moung as Special Guest but due to reception of new State Minister for Chittagong Hill Tracts, both of them could not participate. In absence of them, the inaugural ceremony was started with a short introduction of Arannayk Foundation through a video documentary on AF (corporate video – 20 minutes) that described vision, mission, objectives and activities of AF in general and presentation of second documentary on AF’s activities in Chittagong Hill Tracts’ especially in Khagrachari District. Later on a brief description of ICIMOD, its mission, vision, objectives and activities were shared with the participants.

![Image of participants watching video documentary](image)

**Picture-2: Participants watching video documentary on AF’s activities in Chittagong Hill Tracts**

The inauguration ceremony concluded with self introduction, where each of the participants, resource persons and facilitators introduced themselves. However, for better understanding the participants were grouped into eight different categories such as Gender, Age, Educational Qualifications, Working experiences, experience as trainer, etc. The following table depicts the profile of participants under different categories:

<table>
<thead>
<tr>
<th>Category</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male: 50</td>
</tr>
<tr>
<td></td>
<td>Female: 30</td>
</tr>
<tr>
<td>Age</td>
<td>20-30: 40</td>
</tr>
<tr>
<td></td>
<td>31-40: 30</td>
</tr>
<tr>
<td>Educational</td>
<td>Graduate: 60</td>
</tr>
<tr>
<td></td>
<td>Postgraduate:40</td>
</tr>
<tr>
<td>Working experience</td>
<td>1-2 years: 30</td>
</tr>
<tr>
<td></td>
<td>2-3 years: 20</td>
</tr>
<tr>
<td>Experience as trainer</td>
<td>1-2: 10</td>
</tr>
<tr>
<td></td>
<td>3-4: 5</td>
</tr>
</tbody>
</table>
Table 1: Profile of participants

<table>
<thead>
<tr>
<th>Theme</th>
<th>Participant’s number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>26</td>
</tr>
<tr>
<td>Female</td>
<td>4</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>Above 35</td>
<td>13</td>
</tr>
<tr>
<td>Below 35</td>
<td>17</td>
</tr>
<tr>
<td>Educational qualifications</td>
<td></td>
</tr>
<tr>
<td>Bachelors</td>
<td>4</td>
</tr>
<tr>
<td>Masters or above</td>
<td>26</td>
</tr>
<tr>
<td>Working experience</td>
<td></td>
</tr>
<tr>
<td>Below 5 years</td>
<td>5</td>
</tr>
<tr>
<td>Above 5 years</td>
<td>25</td>
</tr>
<tr>
<td>Educational Background</td>
<td></td>
</tr>
<tr>
<td>Science</td>
<td>23</td>
</tr>
<tr>
<td>Others</td>
<td>7</td>
</tr>
<tr>
<td>Experience as trainer</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>8</td>
</tr>
<tr>
<td>No</td>
<td>22</td>
</tr>
<tr>
<td>Experience as trainee</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>23</td>
</tr>
<tr>
<td>No</td>
<td>7</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>25</td>
</tr>
<tr>
<td>Unmarried</td>
<td>5</td>
</tr>
</tbody>
</table>

After inaugural, Mr. Mannan set the ground rules for the training through participatory method. The ground rules included maintaining discipline in time management, keeping cell phone in silence mode, raising issues by one at a time and listening to others, taking urgent phone call out of training room, etc.
Technical Sessions

The training program was divided into seven technical sessions. In each day, there were three technical sessions. Third day was field visit and group works including presentation of group works. Fourth day had one motivational session followed by a group presentation on feedback of the participants regarding the training.

Figure-3: Mr. Sudibbya Kanti Khisa conducting the session

First Technical Session started with presentation on the ‘overview on Changes in Chittagong Hill Tracts in general & Bandarban in particular over time’. Mr. Sudibbya Kanti Khisa with his vast experience of past 40 years led the session with a guided presentation on the topic. After the guided presentation, the participants had a group exercise for ‘identifying the changes & existing adaptation practices in Bandarban’. The participants were divided into four groups. The groups had in-depth discussion and identified key changes. Each group made the presentations.
The presentation was followed by discussing on various topics such as plantation vs. natural forest, good and bad effect of Jhum cultivation, changes in Jhum cultivation over time in the region, etc. Mr. Khisa quoted FAO’s Global Forest Resource Assessment to distinguish between plantation and forests while Mr. Farid assisted him sharing the good and bad effect of shifting cultivation citing example from ICIMOD’s publication on shifting cultivation (2006). The outcome of the discussion was that plantation is not an alternative to natural forests. Plantation does not support or ensure habitat for wildlife as well as sustained seepage water supply like natural forests. Shifting cultivation, commonly called jhum cultivation in CHT cannot be blamed as a system but due to increased population and limited amount of land, the fallow period of shifting cultivation is reduced resulting in unsustainable shifting cultivation.

The second technical session was on the ‘Drivers of changes & overview of Climate change’. The session was led by Mr. Farid Uddin Ahmed. He mentioned the major drivers of changes which included infrastructure development (roads, bridges etc.), increase in population, modernization of agriculture, industrialization etc. Key issues of Climate Change as discussed included green house gases, global warming, deforestation, etc.
The session was followed by an interactive discussion where the participants explained how they have been facing the changes and adapting to these. Socio-cultural adaptation was one of the key points that the participants mentioned. Since all of the participants were well aware of most of the elementary issues related to Climate Change, this discussion got more emphasis when Mr. Ahmed discussed some more pertaining issues like CBD, CDM, Gene Bank, REDD+ which helped the participants to know more in-depth about Climate Change issues.

The first day ended with a visit to a private initiative ‘Natural Park’ in Bandarban. It was an optional visit. All participants did not join but representatives from press, Forest Department and some teachers visited the site with enthusiasm. The visitors had a very good lesson from the visit. The size of the park is 20 ha. The owner of the park has delineated the area into production site and conservation site. In production site, he has planted fast growing exotic species like Acacia auriculiformis and bamboo. Both the species gave him quick return. He planted some teak in the past but during marketing after 10 years, it was found that it did not fetch enough money compared to Acacia auriculiformis. On the contrary he has observed that teak does not allow other vegetation to come underneath. Top soil is eroded during monsoon and the growth of trees planted subsequently does not attain proper growth. Moreover, Acacia and Eucalyptus show profuse coppicing. So, in his production area he has replaced all his teak with Acacia and Eucalyptus.
In conservation site, he has just protected the area from any disturbances. The visitors observed several indigenous species in the conservation which are critically endangered in CHT. The main lesson that the visitor had includes mere protection is enough to bring back natural forests and habitat for wildlife. Government has allotted forest land to many people in Bandarban. They can make a production site to ensure sustained income but rest of the sites may be conserved for recreation, water, wildlife and other economic return. Bamboo is one of the most highly economic plants in the area.

**Technical Session on Impact of Changes on Ecosystem**

The second day started with the technical session on the ‘Impacts of climate change on ecosystem’. This session was conducted by Prof. Dr. Kamal Hossain. He introduced the subject
with a guided presentation followed by discussion. Being a silviculturist by profession he visited the hill districts several times since beginning of his carrier in early 80s. Through his slides, he showed how the area looked like in early 80s and what changes have occurred over time. He showed photographs of few rare but important species which used to provide habitat for different wildlife. Those trees have become extremely rare now. He cited an example of civit (*Swintonia floribunda*) which used provide shelter or make nest of a duck. But now those trees are rarely found. Similarly there are only 110 Banspata trees (*Podocarpus nerifolius*) in the country. It has become critically endangered. He also shared conservation activities of one of his project supported by Arannayk Foundation through which he is conserving 32 endangered species in the university campus.

**Technical session on Impact of changes on livelihood**

![Picture-8: Dr. Md. Mohiuddin while having an interactive discussion with the participants](image)

This session on ‘Impact of changes on livelihood’ was led by Dr. Md. Mohiuddin. He started this session with a guided presentation on the topic, followed by an interactive discussion. Dr. Mohiuddin in his presentation described how the economy of the tribal people is linked with agriculture and how it is affected due to Climate Change. The participants also shared their experiences on changes on various issues like water flow, temperature, culture etc.
Technical Session on Impact of change on Biodiversity

The technical session on the ‘Impacts of climate change on Biodiversity’ was led by Prof. Dr. Kamal Hossain. Prof. Kamal cited examples of impact of climate change on biodiversity in different countries like Costa Rica and India. He also cited examples of exotic species for adaptation to change.

Field visit

A field visit was arranged for the participants to widen their understanding on adaptation changes. The selected site was a village common forest of Tulachari at Rowangchari. All the resource persons, facilitators and the participants visited the site. The VCF or Village Common Forest (VCF) was conserved by a community who were assisted by the Arannayk Foundation through a NGO named Tahzing Dong. They are supporting 45 households who are very poor. They did not have access to drinking water. The project supported them to establish a Gravitational Flow System of water (GFS) within the community. They could see the benefit of conserving forests for water and non-timber forest produce like bamboo, wild fruits and medicinal herbs. The participants were divided into 3 groups so that they could talk to 15 farm families each. They could also see the impact of deforestation in neighboring areas. The community people started growing vegetables and rearing poultry birds, goats and cattle. Based on the visit, the groups had developed participatory micro level adaptation plan for the community to address the changes including climate change.

Picture-9: Participants starting towards the Village Common Forest of Tulachari
Through visiting and discussing with the community people the groups found out the mechanism and benefits of GFS. The system used the action of gravity to move the water downhill from a water source to the village. In this system, water collected from upstream water sources like spring, storing the water through artificial reservoir construction and flow the water through pipeline along hill slope and establishing a water collection and use point in the base of the hill which is easily accessible for community people.

The community is getting benefit by the GFS. They had to collect water from the stream and river and had to go far away to collect water. They were facing problem using the dirty stream and river water as it produces water borne diseases. The situation became worse at rainy season when stream and river become polluted by overflowing of sediments. There are 45 Marma households. Especially women of the village are benefited from this initiative as water point is located nearby their houses. They depend on GFS for drinking water, small scale agriculture and horticulture and daily household purposes. Water borne diseases are also reduced now.
The groups noted the changes and impact on livelihood. They presented micro level adaptation plan for the community to address the changes including climate change. Each of the groups was asked to focus on three major topics, which included: deforestation, water and livelihood. The importance of conserving VCFs got visible emphasis. They also emphasized on planting native tree species including bamboo and cane in denuded forested areas, protection and restoration of diverse local tree species in core and buffer zone for proper management to stop deforestation.
For improving livelihood further, the participants suggested for introduction of more alternative income generating activities, sanitation system, solar system, modernization of Jhum cultivation, create access to TV and improved communication and development of local market. Additionally they mentioned about creating more training opportunities including critical input for various communities of Bandarban so that they can help and conserve the resources as well as disseminating their knowledge amongst others.

**Motivational session**

This session took place on the fourth day of training conducted by Mr. Farid Uddin Ahmed in which he identified the potential intervention areas to adapt to changes. The importance of natural forests from the context of Hindu-Kush Himalayan region was discussed focusing on the perspective of Bandarban. Mr. Ahmed shared how the people of Nepal are actively participating following the motto of ‘forestry by the people, for the people, of the people’ and compared it with the current social forestry practices of Bangladesh.

![Participants listening to Mr. Ahmed while the motivational session](image)

Mr. Ahmed highlighted the roles of teachers and media as the change makers who can immediately disseminate their knowledge to the students and society through build a responsible generation. Mr. Farid also discussed the role of other stakeholders for acting as role model for their communities to conserve forests and adapt to changes. The gender related issues were discussed and all the participants shared their views on this issue. He also identified some of the alternative income generating activities for the change affected communities.
These include crab fattening, mushroom cultivation, small scale fisheries, sea weed business, etc.

Those examples were cited based on the market situation. It was found that in the market crabs were sold for Tk 150 per kg whereas in Satkhira (south-western Bangladesh), it is sold at Tk 800. The reason for such difference is the size of crab. In Satkhira, crabs fattening is very common. Weak or rejected crabs are nurtured for a month. Such crabs grow too fast which are sold at Tk 800. He suggested introducing the technology in the area. He also noted that sea weeds are sold in the local market. It’s cheaper but nutritious. He observed that such sea weeds were collected from Cox’s Bazar and indigenous communities are aware about its nutrition. Similarly oyster mushroom was found selling in the market. Those products could be marketed and people could earn better income.

From open discussion with the participants, the following points were emerged:

A. Many indigenous species are now lost from the forests. Some of the tree species that were found in abundance in the past but now not found easily include the following:

1. Gutgutya
2. Goda
3. Civit
4. Dharmara
5. Garjan
6. Boilam
7. Koroi
8. Chikrassi
9. Telsur
10. Jam
The participants decided to promote cultivation of those species in their plantation area, institution premises and in their homestead.

B. For Chittagong Hill Tracts, three issues were identified as most critical because of changes including climate changes. These include deforestation, availability of water and livelihood for adaptation to changes. The participants suggested the following for adaptation to the changes:

**To reduce deforestation**

1. Conserve village based community reserve and if necessary enrichment plantation has to be done
2. Planting in degraded forests with local species
3. Mass awareness about forest conservation and sustained supply of water needed
4. Forest areas should be delineated for production forestry and conservation forestry. For production forestry local species should be given preference.
5. Impose moratorium on conversion of natural forests

**For increasing availability of Water**

1. Identify potential community reserves, ensure conservation of natural forests and develop GFS for water harvesting
2. Identify plants capable of holding more water and plant those in appropriate sites
3. Bamboo and cane should be planted along the water courses
4. Take measure for harvesting of rainwater for people living in the top hill
5. All water bodies should be conserved and fish cultivation should be promoted in those water bodies
6. Wastage of water should be prevented (in some areas, the water tap was not working properly)
For improving livelihood

1. Identify potential income generating activities and support capacity building of local communities.
2. Support access to soft loan or help in establishing revolving loan fund as has been done for Tulachari community
3. Identify right crop varieties (high yielding and less sensitive to soil nutrition) for jhum cultivation
4. Support the communities with sanitation system
5. Support communities in health care system
6. Support in installing solar system, if rural electricity cannot be arranged
7. Support in education for the children of indigenous communities
8. Support in marketing of produces
9. Family planning program should be promoted

At the end Mr. Ahmed appreciated the initiative of conserving various tree species through private initiatives. He also invited the participants to contact AF if anyone wants to plant critically endangered species in near future in their field and he assured that AF shall support them through providing the planting materials. Five such private planters were identified from the trainees. They were invited to work with AF for scaling up conservation efforts.

Certificate distribution & Concluding session

All the 30 participants were given certificates of participation. The facilitators thanked the resource persons and the participants for their cooperation throughout the training. Participants also gave feedback on the overall training. They highly appreciated the idea of visiting a VCF.
GOB officials mentioned that the visit acted as an ‘eye opener’ for them. Some of the speaker mentioned that though they live close to the site, they were not aware of such a valuable work in Bandarban. They also requested AF-ICIMOD collaboration to guide other communities for conserving VCFs and adapting to Climate Change. Teachers expressed their gratefulness to both AF and the ICIMOD for providing them an opportunity to learn about climate change and other adaptation issues. They promised to disseminate their knowledge to the students.
Training of Stakeholders on Adaptation to Climate Change Issues in Chittagong Hill Tracts
Bandarban
20-23 January 2014

Participants’ Profile

ISHRAT FATEMA
Wildlife & Biodiversity Conservation Officer
Cox’s Bazar North Forest Division

SYEDUL ALAM
Research Assistant (Grade-1)
Bangladesh Forest Research Institute (BFRI)

MOHAMMAD ZIA UDDIN
Senior Upazila Fisheries Officer
Department of Fisheries

ANITA RANY SHUTRODHAR
Research Officer
Bangladesh Forest Research Institute (BFRI)

MD. SAYED ALI
Divisional Forest Officer (DFO)
Forest Department (Lama Forest Division)

MD. OMAR FARUQUE
Agriculture Extension Officer
Department of Agricultural Extension (DAE)

SUNIL BARAN DAS
DLO, Bandarban
DLS

MONGCHENLINE RAKHAIN
Public Relations Officer
Chittagong Hill Tracts Development Board
MOHAMMAD EAKUB
Senior Teacher & Admin Cord
Bandarban Cantt Public School & Collage

RAIS UDDIN
Lecturer (Zoology)
Bandarban Govt. Mohila College

GITA SREE BISWAS
Head Teacher
Bandarban Govt. Girl’s High School

MUHAMMAD ABUL KASHEM
Head master
Balaghata Bilkis Begum High School

MOHAMMAD SHAMSUDDIN
Associate Professor
Bandarban Govt. College

JASIM UDDIN
Assistant Teacher
Rowangchari Govt. high school

HITOSH MOY BARUA
Head Teacher
Chemidalu Para High School

JNAN RANJAN CHAKMA
Head teacher
Bandarban Govt. High School

MD. MOHIM UDDIN
Head Teacher
Mro Residential High School

MD. ABUL BASHAR
Lecturer
Matamuhuri College, Lama