Training proceedings on Forest Reference Emission Levels and/or Forest Reference Levels

28-30 November 2016
Forest Department, Dhaka

Food and Agriculture Organization of the United Nations

UN-REDD PROGRAMME

Bangladesh Forest Inventory Project Management Unit, Forest Department,
Ban Bhaban, Agargaon, Dhaka-1207

The UN-REDD Programme, implemented by FAO, UNDP and UNEP, has two components: (i) assisting in developing countries to prepare and implement national REDD strategies and mechanisms; (ii) supporting the development of normative solutions and standardized approaches based on sound science for a REDD instrument linked with the UNFCCC. The programme helps empower countries to manage their REDD processes and will facilitate access to financial and technical assistance tailored to the specific needs of the countries.

The application of UNDP, UNEP and FAO rights-based and participatory approaches will also help ensure the rights of indigenous and forest-dwelling people are protected and the active involvement of local communities and relevant stakeholders and institutions in the design and implementation of REDD plans.

The programme is implemented through the UN Joint Programmes modalities, enabling rapid initiation of programme implementation and channelling of funds for REDD efforts, building on the in-country presence of UN agencies as a crucial support structure for countries. The UN-REDD Programme encourage coordinated and collaborative UN support to countries, thus maximizing efficiencies and effectiveness of the organizations' collective input, consistent with the "One UN" approach advocated by UN members.

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Disclaimer

This report is designed to reflect the activities and progress related to the Bangladesh Forest Inventory process. This report is not authoritative information sources – it does not reflect the official position of the supporting international agencies including Forest Department, UNDP and FAO should not be used for official purposes. Should readers find any errors in the document or would like to provide comments for improving the quality they are encouraged to contact one of above contacts.

EXECUTIVE SUMMARY

The first training on Forest Reference Emission Levels (FREL) and/or Forest Reference Levels (FRL) was held at the Bureau of Statistics in Dhaka, on 28-30 November 2016. The objective of the training was to build national capacities on the development of FRELs/FRLs under REDD+. Eleven participants (10 male and one female) attended the training. Five of participants were from the Forest Department, two from the Department of Environment, two participants from public Universities and one participant from SPARSO.

The training was divided in three one-day sessions. On the first day of the training, a brief introduction to FREL/FRL and the key elements of FREL/FRL was presented. The second day of the training was focused on the data that are needed to construct a FREL/FRL, the importance of scale and issues to be considered when developing a FREL/FRL. During last day of the training participants did a group exercise with the aim to construct sub-national FREL/FRLs for the five zones (Coastal, Hill, Sal, Village, Sundarbans) of Bangladesh.

The evaluation results showed that the training met the participants' expectations in terms of the content and learning outcomes and the training materials were adequate and useful. Most of the participants stated that they were confident to be able to carry out the tasks described in the training without supervision.

CONTENTS

1. INTRODUCTION

Bangladesh is currently implementing the National Programme under the UN-REDD Programme. One of the objectives of the national programme is to support the development of FRELs/FRLs for Bangladesh. FRELs/FRLs will act as a benchmark to assess the effectiveness of the national REDD+ project. Defining accurate FREL/FRLs will ensure that reduced emissions of GHGs and enhancements of forest carbon stocks are real and verifiable.

Decision 4/CP.15 recognizes that developing country Parties should establish FRELs/FRLs in a way that is transparent taking into account historic data, and adjusting for national circumstances. According to decision 12/CP.17, FRELs/FRLs should be consistent with the national greenhouse gas inventory and should be updated periodically as appropriate, taking into account new knowledge, new trends and any modification in scope and methodologies.

At this stage, it is difficult to ascertain how Bangladesh's FRELs/FRLs will be developed in a way that will both reflect historical data as well as present and future national circumstances. However, decision 12/CP.17 specifies that the development of FRELs/FRLs will be performed following a step-wise approach enabling Parties to improve them by incorporating improved data, methodologies and where appropriate additional pools, noting the importance of adequate and predictable support as referenced by decision 1/CP.16. Countries are requested to establish FRELs/FRLs at a national level with sub-national approaches as interim measures. Therefore, Bangladesh needs to consider the use of historical data, and possible adjustments for national circumstances, in accordance with relevant decisions of the UNFCCC.

2. OBJECTIVES

The objective of the training was to build national capacities on the development of FRELs/FRLs for REDD+. The specific objectives were:

1) Provide information on international guidance that has been provided on the construction of FREL/FRLs for REDD+;
2) Provide an overview of FRELs/FRLs that have been developed in other countries;
3) Discuss key elements that need to be considering when developing a potential FREL/FRL for Bangladesh such as
    a. National objectives: identify policies and measures related to forest land area changes;
    b. Data analysis: Assessment of historic forest cover and change; capacity to assess current and future emissions;
    c. Scope: Identification of pools and gases to include in a FREL/FRL;
    d. Structure: What are options for REL/RL methodologies?
    e. Scale: National, subnational and/or nested?
4) Begin to identify capacity gaps and data needed for the establishment of a FREL/FRL;
5) Construct a REL/RL activity for developing RELs/RLs for the country.

3. SUMMARY OF THE TRAINING

On the **first day** of the training, the objective was to provide an overview of the forestry sector in Bangladesh and development of a National Forest Monitoring System as well as the evolution of REDD+ mechanism and it's Importance for climate change negotiation.

A brief introduction to the FREL/FRLs and the key elements that need to be considered when constructing a FREL/FRL to assess mitigation performance for the forestry sector was also addressed. In addition, the choice of five REDD+ activities (reducing deforestation, reducing degradation, sustainable management of forests, enhancement of forest carbon stocks and conservation of forest carbon stocks) that need to be included in the FREL/FRL is fundamental. So, during the first day it was discussed that, the choice of these activities should be based on expected changes in forest carbon stocks that would be the outcome of implementing the REDD+ strategy.

During the first day, two group exercises were carried out by the participants. The objective of the first exercise was to familiarize the participants with the COP decisions of the UNFCCC related to the National Forest Monitoring System and FREL and through a quiz based on Decision11/COP19 and Decision 12/COP17. During the second exercise, the participants had to identify and define the country-specific forestry activities that are taking place in Bangladesh, and match these activities with REDD+ activities. The results of this exercise showed that most of participants identified that reduced deforestation, enhancement of forest carbon stocks and forest conservation should be considered when developing the FREL/FRL of Bangladesh.

	Number of forest strata	Forest stratification for emission factor estimates
Brazil	1 Multiple	Amazon Fund: Single conservative carbon stock estimate UNFCCC: Carbon map
Costa Rica	Multiple	Two forest types and multiple successional stages
DRC	2	Primary and secondary forests (by canopy cover)
Ghana	2	Open (degraded forest and shaded cocoa farms) and closed (intact) forest
Guyana	1 6	Single conservative carbon stock estimate (Norway funds) Potential for future change map (UNFCCC)
Nepal	Multiple (8)	Four forest types and structural class (intact, degraded)
Republic of Congo	3	Secondary, primary and swamp forest

Figure 1. Examples of forest stratification used in other countries.

On the **second day** of the training, the theory was focused on data (e.g. emission factors and activity data) needed to construct a FREL/FRL. Emission factors are being developed through the implementation of the Bangladesh Forest Inventory and in addition, a literature search has identified a range of potential default EFs that may be used. All these emission factors have been compiled in one database with country-specific values.

However, a decision should be made on how to stratify forests in a way that captures the most significant carbon stock changes (while reducing complexity and uncertainties when developing data for the FREL/FRL).

Examples of data, land cover change matrix developed by other countries (e.g. Vietnam, Mexico, Guyana, Ecuador) and stratification methods used as presented in the figure 1 was also presented to the participants. The experience of developing reference levels for the protected areas of Bangladesh were discussed and the participants expressed that such experience can be useful in developing a FREL/FRL for Bangladesh.

In addition, the scale of the FREL/FRL which should (a) cover the entire country or (b) be consistent with priority areas identified for action within the REDD+ strategy was discussed with the participants. During the workshop, there was general agreement that developing separate reference levels for each of the five zones (Hill, Sal, Coastal, Sundarbans, and Village) would be a good approach, since forest dynamics are very different in each of these zones, as are the likely interventions. Examples of the scale of FREL that has been chosen in various countries was also presented (Figure 2).

Scale	Country		
National	Ecuador, Guyana, Mexico, Rep. of Congo, Costa Rica, Ethiopia, Indonesia, Paraguay, Vietnam, Zambia		
Quasi-national	Malaysia (only includes one land use type)		
Sub-national	Administrative	Chile	22% national territory
	Biome (Amazon)	Brazil	49% national territory
		Colombia	40% national territory
		Peru	61% national territory

Figure 2. Examples of scale of FREL used in other countries.

During the second day group exercise, participants were introduced to the IPCC GPG 2003 methods of estimating GHG emission from LULUCF sector using the gain and loss approach. The participants expressed that they can use the approach use for the exercise to estimate the GHG emission and sinks for forest management.

The objective of the **third day** of the training was to learn about the various methods used to construct a FREL/FRL considering the reference period and the construction approach including historical average, projection of historical trend and adjustments for national circumstances

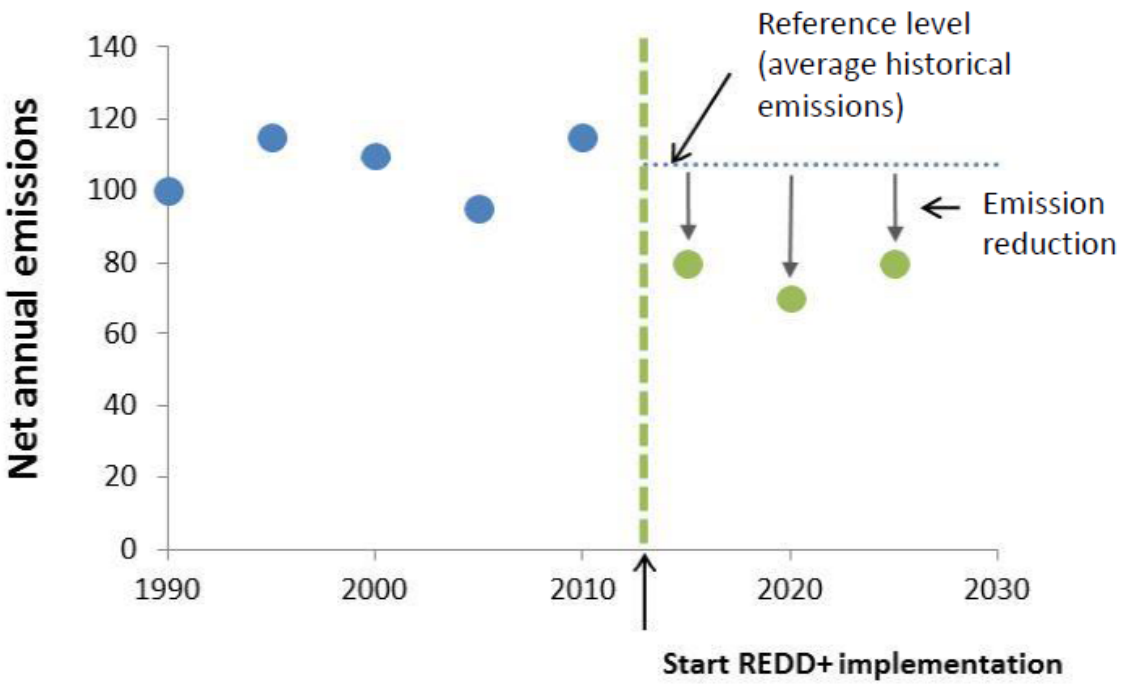

Figure 3: Graphical representation of forest reference level.

In the afternoon exercise of the third day, the participants worked in groups to develop subnational FRELs for the five zones of Bangladesh. The results from this group exercise are presented in figure 4 to 6.

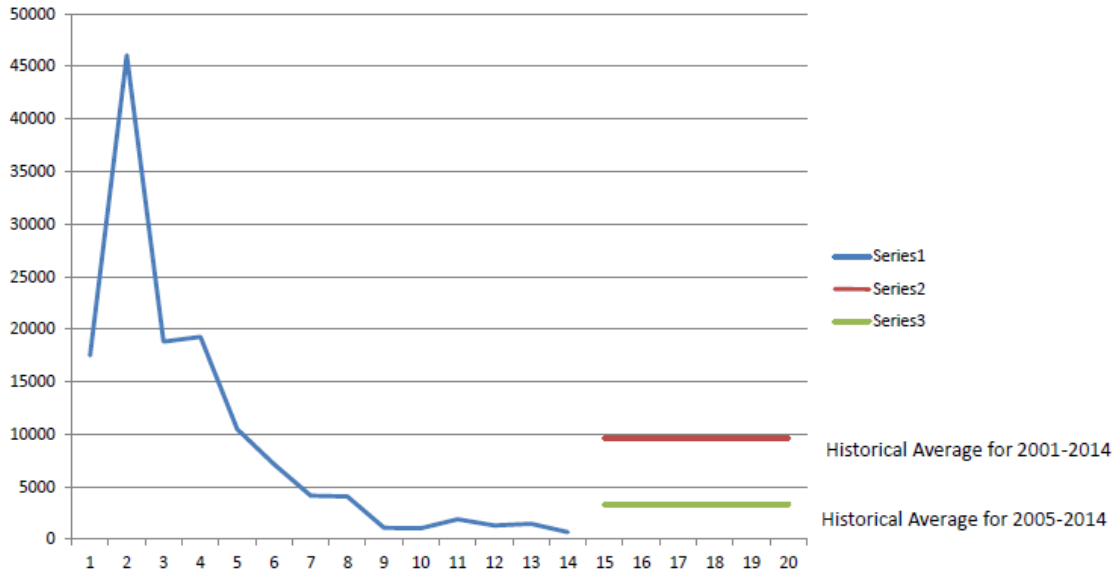

Figure 4: Results obtained from the exercise on the construction of FREL for the Coastal zone.

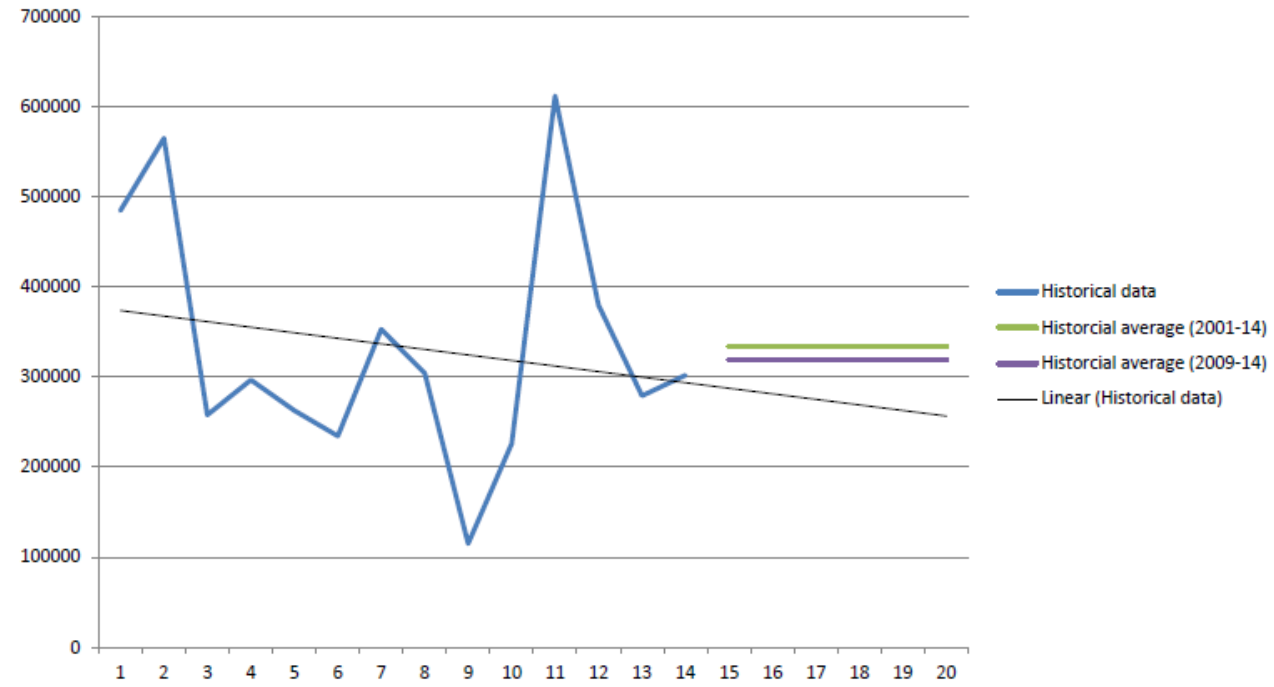

Figure 5: Results obtained from the exercise on the construction of FREL for the Hill zone.

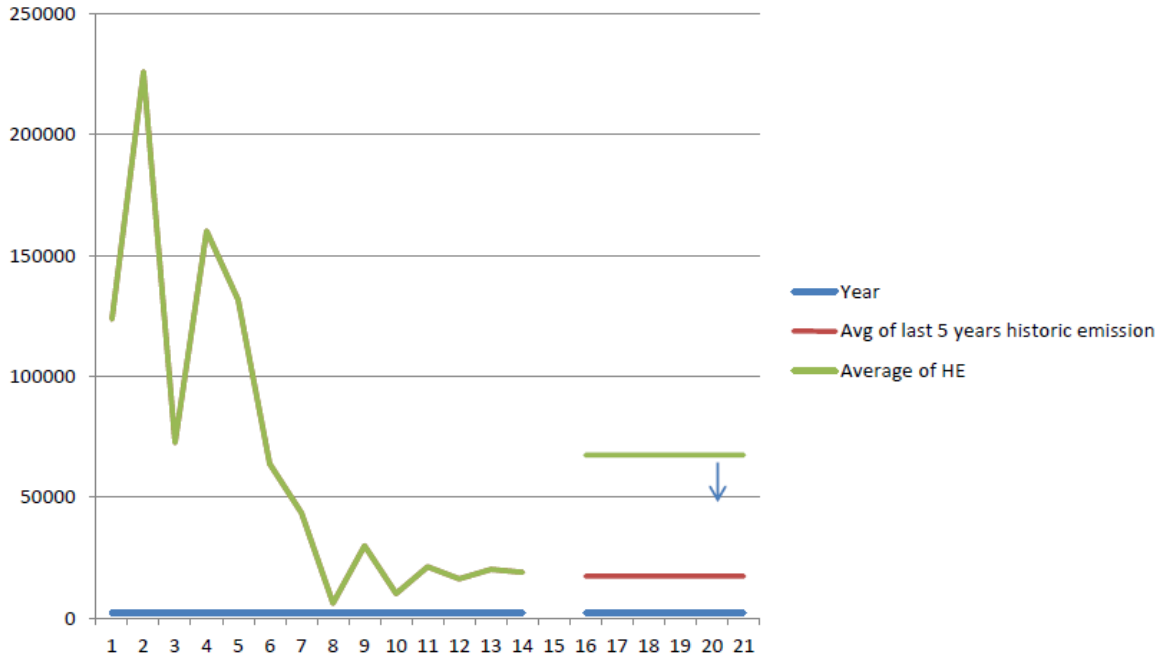

Figure 5: Results obtained from the exercise on the construction of FREL for the Sal zone.

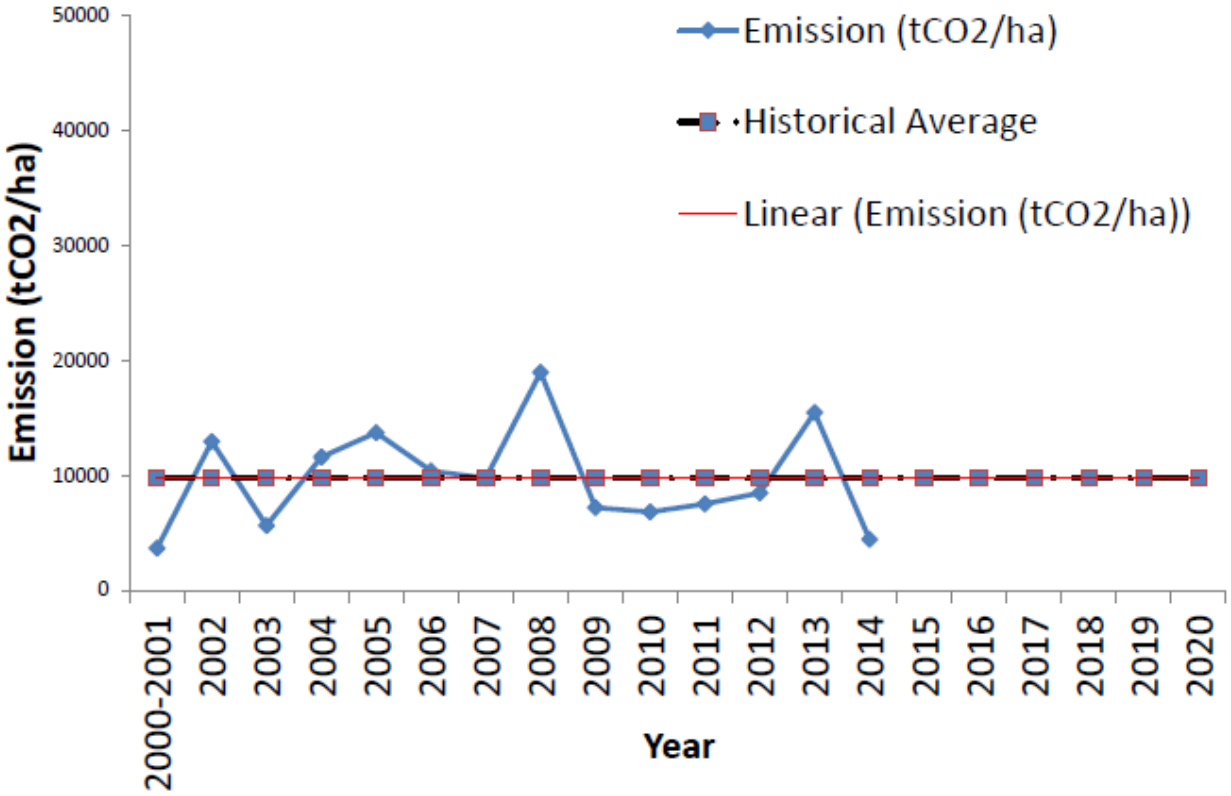

Figure 6: Results obtained from the exercise on the construction of FREL for the Sundarbans.

It should be noted that the construction methodology may also differ depending on the purpose for developing the FREL/FRL (e.g. for domestic reasons, UNFCCC reporting, NDC achievement, or to obtain finance).

During the training workshop, there was a debate regarding tree outside of forest in Bangladesh. The participants expressed that, most of the tree cover loss observed in Bangladesh from the natural forest like hill forests and sal forest, but there has been also tremendous tree cover gain in the homestead forest popularly known as village forests. Participants stated that to construct a FREL, Bangladesh should consider the trees in the non-forest areas.

The participants also performed an exercise using the tree cover loss data for the Banstail range of Tangail. The objectives of that group exercise were to calculate the tree cover area and area loss, to calculate the average annual tree cover area change, to project the tree cover area change with the change in social factors like population.

4. RECOMMENDATIONS FOR NEXT STEPS

The probable steps suggested during the group exercise or discussion in this training to develop the FREL/FRL in Bangladesh are as follows:

- Currently, Bangladesh is in the process of developing a national REDD+ strategy. The FREL/FRL should be consistent with, and informed by, the emerging strategy. Bangladesh needs to choose the **scope of five REDD+ activities** to include in the FREL/FRL—and the choice should be based on expected changes in forest carbon stock that would be the outcome of implementing the REDD+ strategy.

- A **scale** will also need to be chosen and should be either: (a) at national scale or (b) sub-national. Developing separate reference levels for each of the five zones (Hill, Sal, Coastal, Sundarbans, and Village) would be a good approach, since forest dynamics are very different in each of these zones, as are the likely interventions.

- A decision will need to be made on what **forest definition** to use for estimating forest-related emissions and removals for the national GHG inventory and for development of a FREL/FRL. A consistent definition of forest (as well as other land use classifications) should be used to develop **activity data**, or historical, quantified information on forest changes.

- A **reference period** will need to be chosen and several land cover change assessments may be required given most of the five zones have experienced changing dynamics over the past 10 to 15 years.

- A decision should be made on the **forest stratification** s as to capture the most significant carbon stock changes

- Finally, it was agreed that, Bangladesh it should plan in advance to submit a FREL/FRL to the UNFCCC. Submissions are usually requested in January of each year, followed by a year-long technical assessment process. So, participants opined that, Bangladesh should take necessary steps like adopting a consistent forest definition to reflect national circumstances, as well as the development of historical activity data and emission factors to submit a FREL/FRL to UNFCCC, and if possible to get finance from the financing institutes such as the Green Climate Fund.

APPENDIX 1. AGENDA

Monday 28 November 2016			
	Event	**Organization**	**Speaker**
09.00 – 09.15	Registration		
09.15 – 09.20	Opening remarks	UN-REDD	Mr. Nasim Aziz (UN-REDD programme manager)
09.20 – 09.30	Participants short introduction		All
09.30 – 10.00	Overview of the forestry sector in Bangladesh	Forest Department	Mr. Mozaharul Islam (former UN-REDD focal point)
10.00 – 10.30	National Forest Monitoring System in Bangladesh: Description of the current monitoring system	Forest Department-RIMS	Mr. Zaheer Iqbal (head of FD-RIMS)
10.30 – 10.45	**Tea Break**		
10:45 – 11:15	REDD+: Evolution, Importance for Climate Change negotiation and Status	UN-REDD	Mr. Nazmul Islam
11.15 – 12.00	Basic intro to FREL/FRL • What is a FREL/FRL and what purposes can it serve? • Why is it useful for a country to develop a FREL/FRL? • Examples of different FREL/FRL for different purposes	UN-REDD	Ms. Donna Lee
12.00- 12.30	Quiz: UNFCCC decisions on NFMS and FREL	UN-REDD	Ms. Anatoli Poultouchidou and Ms. Donna Lee
12.30 – 13.30	**Lunch**		
13.30 – 14.00	Introduction to the key elements to construct a FREL Scope • What REDD+ activities to include? • UNFCCC guidance • What are countries including in their FREL/FRL and why? • Considerations for choosing a "scope"	UN-REDD	Ms. Donna Lee
14.00 – 14.15	Questions & discussion		
14:15 – 14:30	Forest definition in the context of Bangladesh Questions	FAO	Mr. Rashed Jalal
14.30 – 14.40	Why forest definition matters for developing a FREL/FRL	UN-REDD	Ms. Donna Lee
14.40 – 14.50	Questions		
14.50 – 15.00	**Break**		
15.00 – 17:00	Group work: Discussion on the scope (what are the REDD+ activities that	UN-REDD	ALL Ms. Mariam Akhter

	Bangladesh could consider)		
Tuesday 29 November 2016			
09.00 – 09.15	Recap of discussions from first day and introduction to second day		
09.15 – 09.45	Activity data and emission factors in the context of Bangladesh	UN-REDD	Ms. Anatoli Poultouchidou, Mr. Nazmul Islam
09.45 – 10.15	• How UNFCCC requirements differ from financing initiatives • What countries have chosen and why	UN-REDD	Ms. Donna Lee
10.15 – 10.30	**Break**		
10.30 – 11.00	Experience in determining emission factors for Protected areas	CREL	Mr. Ruhul Mohaiman (Forestry Officer)
11.00 – 12.00	Group discussion and exercise	UN-REDD	Mr. Nazmul Islam
12.00 – 12.30	Questions		
12.30 – 13.30	**Lunch**		
13.30 – 14.00	Presentation on scale • National or subnational? • Issues with choosing scale • Examples from other countries	UN-REDD	Ms. Donna Lee
14.00 – 14.30	Zones for Forest Monitoring	UN-REDD	Ms. Mariam Akhter
14.30 – 16.15	Group discussion Exercise – building a FREL for one protected area	CREL/UN-REDD	Mr. Ruhul Mohaiman, Ms. Anatoli Poultouchidou and Mr. Nazmul Islam
16.15 – 16.30	Review of data available for the exercise for the third day	UN-REDD	Ms. Anatoli Poultouchidou and Mr. Nazmul Islam
Wednesday 30 November 2016			
09.00 – 09.15	Recap of discussions from second day		
09.15- 10.00	Construction methods Putting it all together: Creating a reference level Examples from other countries	UN-REDD	Ms. Donna Lee
10.00 – 10.30	Forest Gain and Loss in Bangladesh (2000-2014) using the Global Forest Change Dataset	FAO	Ms. Zarin Khan
10.30 – 10.45	Questions		
10.45 – 11.00	**Tea break**		
11.00 – 12.30	Group work construct a FREL/FRL using country specific data from Bashtail forest range	UN-REDD	Ms. Donna Lee , Ms. Anatoli Poultouchidou and Mr. Nazmul Islam
12.30 – 13.30	**Lunch break**		
13.30 – 15.30	Continue with group exercise	UN-REDD	Ms. Donna Lee , Ms. Anatoli Poultouchidou and Mr. Nazmul Islam
15.30 – 15.45	**Tea break**		
15.45 – 16.15	Process for submitting a FREL/FRL to the UNFCCC - Technical assessment - Why is it useful for a country to submit a FREL/FRL? - Submitting REDD+ “results” and the technical analysis	UN-REDD	Ms. Donna Lee

16.30 -17.00	Closing remarks		
	Remarks by FAO	FAO	Mr. Matieu Henry (CTA)
	Remarks by the CCF	Forest Department	Mr. Md. Yunus Ali (CCF)

APPENDIX 2. PARTICIPANT LIST

No.	Name	Gender	Organization	E-mail address
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11	Ms Marufa Akhter	F	Forest Department	maruhaakhter@gmail.com

APPENDIX 3. EVALUATION

		Frequency	Percentage
1	Male	6	86%
	Female	1	14%
2	**How often do you participate in training related to forest monitoring?**		
	First time	6	86%
	1-3 every year	1	14%
	More than 3 per year	0	0%
	Regularly (approximately one per month)	0	0%
3	**I would describe my self as?**		
	A professor/academic	2	29%
	A student	0	0%
	Forest Department staff	3	43%
	Government staff (outside Forest Department)	2	29%
	NGO staff	0	0%
	Private consultant	0	0%
	Other	0	0%
4	**My professional background relates most closely to:**		
		TRUE	
	Forester	5	71%
	GIS/RS	0	0%
	Statistics	0	0%
	Social survey/assessment	0	0%
	Economics	0	0%
	Natural Resource Management	1	14%
	Ecology	0	0%
	other	1	14%
5	**My years of relevant experience is:**		
	1-2 years	1	14%
	3-5 years	1	14%
	5-7 years	0	0%
	8-10 years	2	29%
	More than 10 years	3	43%
6	**The training was relevant to my daily work**		
	Strongly agree	1	14%
	Agree	5	71%
	Neutral	0	0%
	Disagree	1	14%
	Strongly disagree	0	0%
7	**I had enough previous knowledge to understand the content of the event**		
	Strongly agree	2	29%
	Agree	3	43%
	Neutral	1	14%

	Disagree	1	14%
	Strongly disagree	0	0%
8	**The training met my expectations in terms of the content and learning outcomes**		
	Strongly agree	3	43%
	Agree	4	57%
	Neutral	0	0%
	Disagree	0	0%
	Strongly disagree	0	0%
9	**The learning resources provided were adequate and useful**		
	Strongly agree	5	71%
	Agree	2	29%
	Neutral	0	0%
	Disagree	0	0%
	Strongly disagree	0	0%
10	**The resource person presented information in a way that i could understand and was easy to follow**		
	Strongly agree	4	57%
	Agree	3	43%
	Neutral	0	0%
	Disagree	0	0%
	Strongly disagree	0	0%
11	**I feel confident to be able to carry out the tasks described in the training without supervision.**		
	Strongly agree	0	0%
	Agree	5	71%
	Neutral	0	0%
	Disagree	2	29%
	Strongly disagree	0	0%
12	**I was pleased with the venue/meeting room/snacks etc**		
	Strongly agree	1	14%
	Agree	6	86%
	Neutral	0	0%
	Disagree	0	0%
	Strongly disagree	0	0%
13	**Are there other people/agencies/organizations that you think should have been included in the training?**		
	Yes, the NGOs representatives and the environment journalists etc.		
	1 or 2 retired professionals who are expert in natural resource management and ability to learn and accept new techniques.		
14	**Any other comments?**		
	Should be more longer period for training (At leat 5 days)		
	Hard copy of training materials may be provided before the start of each presentation so that participant can have more attention to the topic concerned.		
	Require a consistent practice on the same topic.		