Proceedings of the training-of-trainers workshop on the AFOLU GHG inventory

Bangladesh Forest Department

23 – 27 April 2017

UN-REDD PROGRAMME

Food and Agriculture Organization of the United Nations

UNDP

UN environment

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The UN-REDD Bangladesh National Program is implemented by the Bangladesh Forest Department under the leadership of Ministry of Environment and Forests. United Nations Development Program (UNDP) and Food and Agriculture Organization (FAO) are the two implementing partners.

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Disclaimer

EXECUTIVE SUMMARY

A five-day training workshop on GHG inventory for the AFOLU sector was held at the Bangladesh Bureau of Statistics from 23 to 27 April 2017. The workshop was organized under the UN-REDD National Programme with support from FAO and Forest Department. Representatives from four national universities including IFESCU, Khulna, SUST, BSMRAU, as well as Forest Department and Department of Environment participated in the workshop. In total, 13 participants (11 male and 2 female) followed the workshop.

The overall objective of this activity was to provide training-to-trainers and develop GHG national experts who would then be equipped to train others, including undergraduate and graduate students. This workshop aimed to contribute to the strengthening of academic capacities on issues related to GHG inventory for the AFOLU sector. The workshop included several presentations, group discussions and exercises in which participants had to calculate emissions and removals of CO_2 and non-CO_2 gases that derive from human activities associated with the AFOLU sector.

Participants highlighted the data gaps as well as the unavailability of reliable data that hinder the quality of national GHG inventory. In addition, participants recognized the need to improve the availability and robustness of country-specific emission factors.

CONTENTS

1. INTRODUCTION

The preparation of a GHG inventory (GHG-I) is an essential element towards a greener economy while reducing GHG emissions and climate change. Capacity building is considered an integral part of all activities related to the preparation and maintenance of a GHG-I. A critical barrier to accurate GHG-I is the limited availability of national GHG expertise, as well as the lack of stable and skilled team that has the capacity to work on various reporting schemes including national communications, biennial updated reports, nationally determined contributions, etc.

Since 2012, FAO in collaboration with the Bangladesh Forest Department has implemented several training workshops (Akhter, 2015; Akhter & Shaheduzzaman, 2012; Islam, Poultouchidou, Akhter, & Henry, 2016; Poultouchidou, Birigazzi, & Akhter, 2016a, 2016b) on GHG inventory for the AFOLU sector. The objective of these workshops was to train individuals from various governments departments and academic institutions on how to compile GHG data for the AFOLU sector. All training activities followed the IPCC guidance and guidelines and are in line with international reporting requirements under the UNFCCC.

However, the capacity building efforts are not enough to ensure the sustainability of the GHG inventory technical expertise. FAO in collaboration with the Forest Department plan activities to strengthen academic capacities on GHG inventory and scale up the number of skilled human resources. The ultimate objective of these activities is to create a critical mass of people equipped with the necessary knowledge and skills on the GHG compilation for the AFOLU sector.

In this context, capacity building activities have been planned and implemented involving national universities with forestry and environmental sciences degree programs. This is important as universities have the potential to become capacity building providers who can train and educate on a regular and long term basis undergraduate and graduate students. The involvement of universities in these activities include curricula improvements through the integration of GHG issues and implementation of training-of-trainers workshops to maintain and increase the number of GHG expertise who would then be able to train others including university students.

In this context, FAO in collaboration with the Bangladesh Forest Department organized a five-day training-of-trainers workshop on AFOLU GHG inventory. The workshop was implemented from 23 to 27 April 2017 at the Bangladesh Bureau of Statistics (BBS) in Dhaka. In total 13 representatives from four national universities, forest department and Department of Environment participated in the workshop. The list of participants and the agenda of the workshop are given in Appendix.

2. OBJECTIVES

The general objective of this training-of-trainers GHG workshop is to develop GHG national experts who would then be equipped to train others, including undergraduate and graduate students. The specific objectives of this workshop were to

- Train academic teachers on how to compile AFOLU GHG data following the UNFCCC Guidance and IPCC Guidelines;
- Familiarize participants with the challenges when preparing and updating the national GHG inventory for the AFOLU sector;
- Establish a team of qualified GHG trainers;
- Maintain and enhance the number of skilled national GHG expertise
- Enhance academic capacities on issues related to AFOLU GHG inventory.

3. SUMMARY OF THE TRAINING

3.1 Summary of the theoretical part of the workshop

The following points summarize the important concept and issues that were covered during the theoretical sessions of the workshop.

The AFOLU sector is responsible for ~10 – 12 $GtCO_2eq\ yr^{-1}$ of anthropogenic GHG emissions mainly from deforestation and agricultural emissions from livestock, soil and nutrient management. However, the AFOLU sector is the only sector with sources and sinks of greenhouse gases and therefore can be part of the solution to climate change mitigation through sustainable land management practices.

According to the Initial National communication submitted to the UNFCCC by Bangladesh in 1994, the AFOLU sector was responsible for 73% of total national emissions. In 2005, The second national communication reported that 52% of total national emissions derived from the AFOLU sector. Therefore, in Bangladesh the AFOLU is a sector with great mitigation potential.

When it comes to the compilation and maintenance of the national GHG inventory several challenges are identified in Bangladesh. These difficulties are related to the availability of reliable data, lack of robust institutional arrangements, absence of official institutional arrangements for data sharing, insufficient documentation and archiving, lack of national GHG experts that retain over time, lack of knowledge regarding the application of the IPCC methodology.

It is important to provide accurate estimates of GHG emissions and removals. This will enable the country to identify the major sources and sinks of greenhouse gases, make more informed policy decisions with respect to appropriate response measures, provide information on the utilization of natural resources as well as information to address other environmental issues. In addition, compilation of a national GHG inventory will enable the country to identify the national data gaps that if filled may be beneficial for other purposes.

A complete national GHG inventory should be able to capture **all the land categories** (forestland, cropland, wetland, grassland, settlements, other land) in the country without duplication.

IPCC identifies three approaches for land representation. **Approach 1** (probably the most common) uses area datasets likely to have been prepared for other purposes such as forestry or agricultural statistics. **Approach 2** provides a national or regional-scale assessment of not only the losses or gains in the area of specific land categories but what these changes represent (i.e., changes from and to a category). **Approach 3** requires spatially explicit observations of land use and land-use change

According to the IPCC methodology, three tiers are provided that describe the level of methodological complexity. **Tier 1** methods are the simplest to use for which equations and default parameters values are provided in the IPCC Guidelines. **Tier 2** methods use country-specific emissions factors that are more appropriate for the climatic regions, land-use systems and livestock categories in the country. **Tier 3** methods include models and inventory measurement systems tailored to address national circumstances.

The **IPCC principles** that each GHG compiler should follow when conducting a national GHG inventory are: transparency, accuracy, consistency, completeness and comparability.

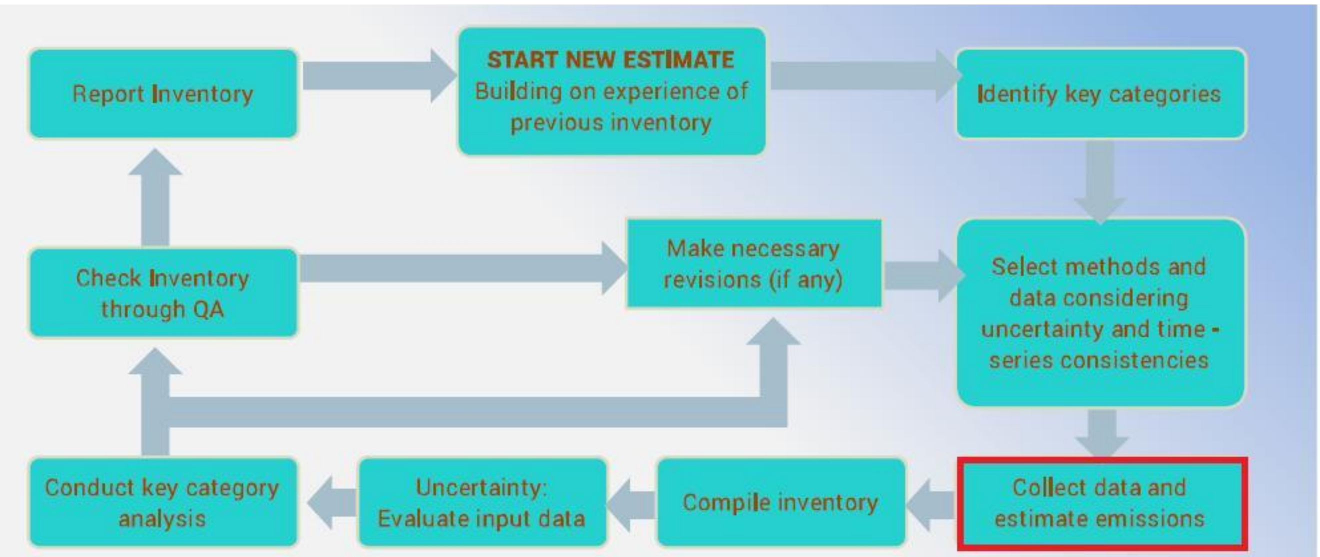

Figure 1: Steps to be followed when compiling a national GHG inventory.

Key category analysis is an important element of a national GHG inventory. It is the process of identifying the main categories that originate GHG emissions and removals. Key categories represent the significant portion of a country's total emissions. By identifying these key categories, Parties can prioritize their efforts and resources in order to improve their overall estimates. Such a process will lead to improved quality, as well as greater confidence in the emissions/removal estimates that are calculated.

The data used in a national GHG inventory should be in line with the principles and approaches of IPCC Guidelines, accompanied by documentation describing the conditions of its derivation and be unbiased and as accurate as possible. All the data used in the national inventory should be **robust**, **applicable** and **well documented**.

The Gain-Loss method and the Stock change method are used to calculate carbon stock changes in biomass. In the **Gain-Loss method** the biomass carbon loss is subtracted from the biomass carbon increment In the **Stock change method** the biomass carbon stock is assessed for a given forest area at two points in time. Biomass change is the difference between the biomass at time t_2 and time t_1, divided by the number of years between the inventories.

Emissions and removals from Forestland. Equations 2.9, 2.10, 2.12, 2.13, 2.14, 2.7 in IPCC 2006 Guidelines for the estimation of annual change in carbon stock in **biomass pool.** Equation 2.26 in IPCC 2006 Guidelines for the estimation of carbon emissions due to drainage of forest **organic soils**. Equation 2.27 in IPCC 2006 Guidelines for the estimation of non-CO_2 gases from **fires**.

Emissions and removals from Cropland. Equation 2.7 in IPCC 2006 Guidelines for estimating changes in carbon in cropland biomass. Equation 2.25 and 2.26 in IPCC 2006 Guidelines for estimating changes in soil carbon stocks in mineral and organic soils respectively.

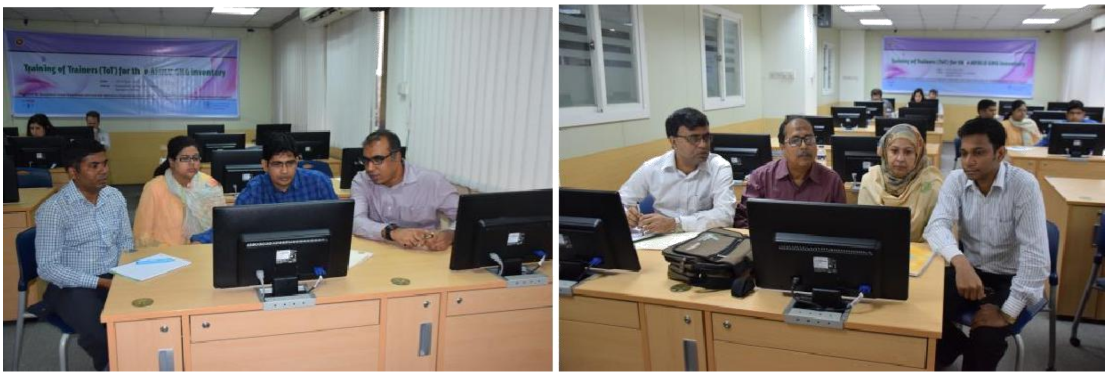

Figure 2. Group exercises during the workshop were implemented.

Emissions and removals from livestock. Equations 10.19 and 10.20 in IPCC 2006 Guidelines for estimating methane emissions from enteric fermentation. Equation 10.22 in IPCC 2006 Guidelines for estimating methane emissions from manure management. Equation 10.25, 10.26 and 10.27 in IPCC 2006 Guidelines for estimating direct and indirect N_2O emissions from manure management. Equation 10.28 for estimating the amount of manure nitrogen that leached from manure management system.

3.2 Summary of the practical part of the workshop

Exercise on Institutional arrangements: In this exercise participants got familiar with the list of national organizations that have a key role when compiling a national AFOLU GHG inventory. In addition, participants learned how to assign roles and responsibilities to various entities involved in the preparation of GHG inventory.

Exercise on Data Compilation: In this exercise, participants learned how to enter data on emission factors into the IPCC emission factor database. As an example, the following scientific articles was used: *Hossain, M. S., Mohammad Raqibul Hasan; Bose, Arun; Limon, Sharif Hasan; Chowdhury, Md Rezaul Karim; Saha, Sanjoy. (2012). Allometry, above-ground biomass and nutrient distribution in Ceriops decandra (Griffith) Ding Hou dominated forest types of the Sundarbans mangrove forest, Bangladesh. Wetlands Ecology and Management, 20(6), 539-548. doi:10.1007/s11273-012-9274-2.*

Exercise on Land Representation: The objective of this exercise was to familiarise participants with the three IPCC approaches and IPCC land categories. The participants learned how to work on land area data, harmonize the national land cover classes into the IPCC classes and develop a land -use change matrix.

Exercise on estimating emissions/removals from forestland remaining forestland: In this exercise, participants learned how to calculate the carbon stock changes in biomass pool using the gain-loss method. Firstly, participants calculated the annual increase in biomass carbon stocks due to biomass growth and the annual decrease in carbon stocks due to biomass loss. The following equations were used in this exercise:

$\Delta C_G = A * G_{TOTAL} * CF$

$L_{wood\text{-}removals} = H * BCEFR * (1+R) * CF$

$L_{fuelwood} = [FG_{trees} * BCEFR * (1+R) + FG_{part} * D] * CF$ $L_{disturbances} = A * BW * (1+R) * CF * fd$

$DC_L = L_{wood\text{-}removals} + L_{fuelwood} + L_{disturbances}$

Exercise on estimating emissions from deforestation (forestland converted to cropland): In this exercise participants learned how to calculate the carbon stock changes in biomass and soil pool when forest land converted to cropland. It was estimated that the annual changes in carbon stocks from biomass was -2,667,954.44 tonnes C yr^{-1} while the annual change in carbon stocks in mineral soils was 130675.99 tonnes C yr^{-1} .

Exercise on estimating removals from afforestation (Land converted to forestland): In this exercise participants learned how to calculate the annual increase in biomass carbon stocks due to biomass growth when cropland, wetland, settlements and other land are converted to forestland. In total the annual increase in biomass carbon stocks was estimated to be 806,808.53 tonnes C yr^{-1} . In addition, participants calculated the changes in carbon stocks in dead wood and litter (dead organic matter pool). The carbon stock changes from this pool was estimated to be 16854.63 tonnes C yr$^{-1.}$ **.** The annual changes in carbon stocks in mineral soils was estimated to be - 28532.95 tonnes C yr^{-1}.

	Sector	Agriculture, Forestry and Other Land Use						
	Category	Land Converted to Forest Land: Annual increase in carbon stocks in biomass (includes above- and below-ground biomass)						
	Category code	3B1b						
	Sheet	1 of 4						
	Equation	Equation 2.2	Equation 2.9	Equation 2.10			Equation 2.9	
Land-use category		Subcategories for reporting year	Area of land Converted to Forest Land	Average annual above-ground biomass growth	Ratio of below-ground biomass to above-ground biomass	Average annual biomass growth above and below-ground	Carbon fraction of dry matter	Annual increase in biomass carbon stocks due to biomass growth
Initial land use[1]	Land use during reporting year		(ha)	(tonnes dm ha^{-1} yr^{-1})	[tonnes bg dm (tonne ag dm)$^{-1}$]	(tonnes dm ha^{-1} yr^{-1})	[tonnes C (tonne dm)$^{-1}$]	(tonnes C yr^{-1})
			National statistics or international data sources	Tables 4.9, 4.10 and 4.12	zero (0) or Table 4.4	$G_{TOTAL} = G_W * (1+R)$	0.5 or Table 4.3	$\Delta C_G = A * G_{TOTAL} * CF$
			A	G_W	R	G_{TOTAL}	CF	ΔC_G
CL	FL	Tropical moist forest	33108.51061	9	0.24	11.16	0.5	184745.49
		Tropical rainforest	79484.67192	7	0.37	9.59	0.5	381129.00
Sub-total								**565874.49**
GL	FL	(a)						
		(b)						
Sub-total								
WL	FL	Tropical moist forest	13454.11287	9	0.24	11.16	0.5	75073.95
		Tropical rainforest	16347.92508	7	0.37	9.59	0.5	78388.30
Sub-total								**153462.25**
SL	FL	Tropical moist forest	414.2903073	9	0.24	11.16	0.5	2311.74
		Tropical rainforest	1872.660542	7	0.37	9.59	0.5	8979.41
Sub-total								**11291.15**
OL	FL	Tropical moist forest	301.6272112	9	0.24	11.16	0.5	1683.08
		Tropical rainforest	15536.50965	7	0.37	9.59	0.5	74497.56
Sub-total								**76180.64**
Total								**806808.53**

[1] If data by initial land use are not available, use only "non-FL" in this column.

Figure 3: Annual change in carbon stocks in biomass pool when cropland, wetland, settlements, and other land converted to forestland.

Exercise on estimating emissions from biomass burning in forestland and cropland: In this exercise participants learned how to calculate emissions of CH_4, CO, N_2O, NOx from fires taking place in forestland and cropland. The data used in this exercise were collected from Global Fire Emissions Database available at http://www.globalfiredata.org/ .

Equation		Equation 2.2	Equation 2.27								
Land-use category		Subcategories for reporting year[1]	Area burnt	Mass of fuel available for combustion[2]	Combustion factor[2]	Emission factor for each GHG		CH_4 emissions from fire	CO emissions from fire	N_2O emissions from fire	NO_x emissions from fire
Initial land use	Land use during reporting year		(ha)	(tonnes ha^{-1})	(-)	[g GHG (kg dm burnt)$^{-1}$]		(tonnes CH_4)	(tonnes CO)	(tonnes N_2O)	(tonnes NO_x)
				Table 4.7	Table 2.6	Table 2.5		L_{fire}-CH_4 = $A * M_B * C_f * G_{ef} * 10^{-3}$	L_{fire}-CO = $A * M_B * C_f * G_{ef} * 10^{-3}$	L_{fire}-N_2O = $A * M_B * C_f * G_{ef} * 10^{-3}$	L_{fire}-NO_x = $A * M_B * C_f * G_{ef} * 10^{-3}$
			A	M_B	C_f	G_{ef}		L_{fire}-CH_4	L_{fire}-CO	L_{fire}-N_2O	L_{fire}-NO_x
FL	FL	Tropical rain forest				CH_4	6.8	1370.88			
						CO	104		20966.4		
						N_2O	0.2			40.32	
			2000	280	0.36	NO_x	1.6				322.56
		Tropical dry forest				CH_4	6.8	1654.848			
						CO	104		25309.44		
						N_2O	0.2			48.672	
			5200	130	0.36	NO_x	1.6				389.376
		Tropical mountain systems				CH_4	6.8	146.88			
						CO	104		2246.4		
						N_2O	0.2			4.32	
			1200	50	0.36	NO_x	1.6				34.56
		Tropical moist deciduous forest				CH_4	6.8	489.6			
						CO	104		7488		
						N_2O	0.2			14.4	
			800	180	0.5	NO_x	1.6				115.2
Total						CH_4		3662.208			
						CO			56010.24		
						N_2O				107.712	
						NO_x					861.696

[1] For each subcategory, use separate line for each non-CO_2 greenhouse gas.

[2] Where data for M_B and C_f are not available, a default value for the amount of fuel actually burnt ($M_B * C_f$) can be used (Table 2.4). In this case, M_B takes the value taken from the table, whereas C_f must be 1.

Figure 4: Emissions derive from vegetation fires from forestland remaining forestland.

Exercise on estimating emissions from enteric fermentation and manure management: In this exercise, participants learned how to calculate CH_4 emissions from manure management from livestock. It was estimated that the annual methane emissions from manure management was in total 78.38 Gg CH_4 yr^{-1} . In addition, participants learned to calculate the direct and indirect N_2O emissions from manure management

Sector	Agriculture, Forestry and Other Land Use				
Category	Methane Emissions from Enteric Fermentation and Manure Management				
Category code	3A1 and 3A2				
Sheet	1 of 1				
Equation	Equation 10.19		Eq. 10.19 and 10.20	Equation 10.22	
Species/Livestock category	Number of animals	Emission factor for Enteric Fermentation	CH_4 emissions from Enteric Fermentation	Emission factor for Manure Management	CH_4 emissions from Manure Management
	(head)	(kg $head^{-1}$ yr^{-1})	(Gg CH_4 yr^{-1})	(kg $head^{-1}$ yr^{-1})	(Gg CH_4 yr^{-1})
		Tables 10.10 and 10.11	$CH_{4\ Enteric} = N_{(T)} * EF_{(T)} * 10^{-6}$	Tables 10.14 - 10.16	$CH_{4\ Manure} = N_{(T)} * EF_{(T)} * 10^{-6}$
T	$N_{(T)}$	$EF_{(T)}$	$CH_{4\ Enteric}$	$EF_{(T)}$	$CH_{4\ Manure}$
Dairy Cows	3598200	58	208.70	5	17.99
Other Cattle	20389800	27	550.52	2	40.78
Buffalo	1457000	55	80.14	5	7.29
Sheep	3206000	5	16.03	0.2	0.64
Goats	25439000	5	127.20	0.22	5.60
Poultry	304172000			0.02	6.08
Total			982.58		78.38

[1] Specify livestock categories as needed using additional lines (e.g. llamas, alpacas, reindeers, rabbits, fur-bearing animals etc.)

Figure 5: CH_4 emissions from manure management.

Exercise on key category analysis: In this exercise participants learned how to perform a key category analysis and identify which categories have the greatest emissions.

Table 1: Amount of $GgCO_2$ -eq yr^{-1} emitted from each IPCC category.

IPCC category	value	Unit	conversion factor	Gg C02 equivalent/year	Absolute value Gg C02 equivalent/year	Comulative sum	%
CH_4 emissions from Enteric Fermentation	982.58	(Gg CH_4 yr^{-1})	34	33407.7268	33408	33408	59.5%
FL>CL (biomass)	-2667954.44	tC/yr	3.7	-9782.499618	9782	43190	76.9%
FL >FL	1766470.88	tC/yr	3.7	6477.059876	6477	49667	88.4%
L>FL (biomass)	806808.53	tC/yr	3.7	2958.297952	2958	52625	93.7%
CH_4 emissions from Manure Management	78.38	(Gg CH_4 yr^{-1})	34	2664.81188	2665	55290	98.5%
FL>CL (soil)	130675.99	tC/yr	3.7	479.145294	479	55769	99.3%
Annual direct N_2O emissions from Manure Management	461108.78	kg N_2O yr^{-1}	298	137.4104163	137	55906	99.6%
L>FL (soils)	-28532.95	tC/yr	3.7	-104.6208069	105	56011	99.7%
Indirect N_2O emissions due to volatilization from Manure Management	277337.11	kg N_2O yr^{-1}	298	82.64645736	83	56094	99.9%
L>FL (DOM)	16854.63	tC/yr	3.7	61.80031865	62	56156	100.0%
Total Sum					56156		

4. RECOMMENDATIONS FOR NEXT STEPS

- The professors will discuss the possibility of integrating a course on GHG inventory for the AFOLU sector in the University curricula.

- It will be investigated the possibility of funding graduate students from each of the four universities involved in the training to carry out project on GHG data collection or data generation for the LULUCF sector.

- Fill the gap on data collection. Put in place data collection for the following activities:

    - Wood removals
    - Biomass Growth rate
    - Management practices
    - Data on forest disturbances
    - Biomass burning

5. REFERENCE

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APPENDIX 1. AGENDA

Venue	Bangladesh Bureau of Statistics	
Sunday 23 April 2017		
09.15 – 09.45	Why it is important to monitor GHGs from the AFOLU sector? - GHG emission sources and trends. - Global trends of AFOLU GHG emissions. -Importance of AFOLU sector. -GHG emission reported from AFOLU sector in Bangladesh. - The role of UNFCCC. - Reporting requirements in the context of UNFCCC.	Nazmul Islam UN-REDD FAO
09.45 – 10.15	Quiz	Nazmul
10.15 – 10.30	**Tea Break**	
10.30 – 11.00	- Steps for preparing a national GHG-I for the AFOLU sector - Main elements that should be included in a national GHG-I - Methodological requirements that should be followed when compiling a GHG-I: IPCC Guidelines; Generic methodological approach; Tier methods; TACCC principles	Anatoli Poultouchidou UN-REDD FAO
11.00 – 11.30	Quiz	Anatoli
11.30 – 12.00	Institutional arrangements for a national GHG-I	Nazmul Islam UN-REDD FAO
12.00 – 13.00	Group Exercise	Nazmul & Anatoli
13.00 – 14.00	**Lunch**	
14.00- 14.30	Data compilation	Anatoli Poultouchidou UN-REDD FAO
14.30- 15.00	Quiz	Anatoli
15.00 – 15.15	**Tea Break**	
15.15 – 15.45	- Land representation - IPCC land categories - Uncertainties - Land use database - Land stratification	Luca Birigazzi UN-REDD FAO
15.45 – 16.45	Exercise	Luca
16.45 – 17.00	Wrap up of the day	
Monday 24 April 2017		
09.00- 9.30	Estimating C stock changes in FL remaining FL [degradation and C enhancement]	Luca Birigazzi UN-REDD FAO
9.30-10.30	Group exercise	Luca
10.30 – 10.45	**Tea break**	
10.45 – 11.15	Estimating C stock changes in FL converted to other land [deforestation]	Anatoli Poultouchidou UN-REDD

		FAO
11.15 – 12.15	Exercise	Anatoli
12.15 – 12.45	Estimating C stock changes in other land converted to FL [enhancement]	Luca Birigazzi UN-REDD FAO
12.45 – 13.45	**Lunch**	
13.45 – 14.45	Exercise	Luca
14.45 – 15.15	Estimating emissions from forest vegetation fires	Nazmul Islam UN-REDD FAO
15.15 – 16.15	Exercise	
16.15 – 16.30	**Tea break**	
16.30 – 16.45	Wrap up of the day	
Tuesday 25 April 2017		
09.00 – 09.30	Estimating C stock changes in CL remaining CL [equation for living biomass pool]	Luca Birigazzi UN-REDD FAO
09.30 – 10.30	Exercise	Luca
10.30 – 10.45	**Tea break**	
10.45 – 11.15	Estimating C stock changes in CL remaining CL in soils [equation for mineral and organic soils]	Anatoli Poultouchidou UN-REDD FAO
11.15 – 12.15	Exercise	
12.15 – 12.45	Emissions and removals for land converted to CL	Luca Birigazzi UN-REDD FAO
12.45 – 13.45	**Lunch**	
13.45 – 14.45	Exercise	
14.45 – 15.15	Estimating carbon stock change in settlements	Luca Birigazzi UN-REDD FAO
15.15 – 16.15	Exercise: Estimating carbon stock change in settlements	Luca
16.15 – 16.30	**Tea break**	
16.30 – 16.45	Wrap up of the day	
Wednesday 26 April 2017		
09.00 – 09.30	Estimating carbon stock changes in Wetlands: - Land Converted to Wetlands: CO2 Emissions from Land Converted to Flooded land	Nazmul Islam UN-REDD FAO
09.30 – 10.30	Exercise	
10.30 – 10.45	**Tea break**	
10.45 – 11.15	Livestock related emissions	Nazmul Islam UN-REDD FAO
11.15 – 12.15	Exercise	
12.15 – 12.45	Soil related: Rice cultivation, Liming, Urea fertilization	Anatoli Poultouchidou

		UN-REDD FAO
12.45 – 13.45	**Lunch**	
13.45 – 14.15	Exercise	Anatoli
14.15 – 14.45	Key category analysis	Luca Birigazzi UN-REDD FAO
14.45 – 15.45	Exercise	Luca
15.45 – 16.15	Quality control	Luca Birigazzi UN-REDD FAO
16.15 – 17.15	Exercise	Luca
Thursday 27 April 2017		
09.00 – 16.00	**Exercise**	
	Full compilation of GHG for the AFOLU sector For two time periods Approach 2	Luca/Anatoli/Nazmul
16.00 – 16.30	Uncertainty analysis	Luca Birigazzi UN-REDD FAO

APPENDIX 2. PARTICIPANT LIST

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APPENDIX 3. EVALUATION