



TRAINING REPORT ON NATIONAL FOREST INVENTORY



07-09 February 2018, Islamabad

Table of Contents

Introduction.....	1
Day 1.....	1
Inventory planning – Lecture	1
Calculating sample size for strata – Exercise	2
Field measurement methods – Lecture	2
Field data calculation in MS Excel – Demo and Exercise	2
Day 2.....	3
Carbon Mapping and Forest Reference Level – Lecture	3
Calculation of Forest Reference Level/Forest Reference Emission Level – Exercise	3
Field Measurement Practices and GPS exercise – Exercise.....	3
Day 3.....	4
Calculation of Forest Reference Level/Forest Reference Emission Level – Exercise (Continued).....	4
Feedback.....	4
From the participants.....	4
Annexes.....	5
Annex-I: Agenda of the Training	5
Annex-II: List of Participants.....	6
Annex-III: Feedback from Participants	9

Introduction

Pakistan is implementing REDD+ Readiness Preparation Proposal (R-PP), a grant received from the World Bank, which is acting as a trustee of the Readiness Fund for the Forest Carbon Partnership Facility (FCPF). This is being implemented under the supervision of Office of Inspector General of Forests (OIGF), Ministry of Climate Change (MoCC), whereby IGF is also acting as the National Project Director of the R-PP project. As per the approved workplan of R-PP, national and provincial trainings on different REDD+ relevant thematic areas (Satellite Land Monitoring System, National Forest Inventory and greenhouse gas inventory) have to be convened to enhance the technical capacities of relevant stakeholders both at national and provincial levels. One of the major objective of REDD+ readiness phase is the strengthening of institutional capacities of relevant academic, training and research institutions.

Under the component of capacity building therefore, National REDD+ Office conducted a training of National Forest Inventory from 7-9 February 2018 in Grand Regency Hotel, Islamabad. Agenda of the training is attached as **Annex-I**. Different stakeholders from provincial forest departments, Academia and Civil Society Organizations participated in the training. Overall, 17 participants were trained on the subject training. List of participants is attached as **Annex-II**.

Day 1

The training started with the recitation of Holy Quran. Dr. Ghulam Akbar formally welcomed all the participants of the training. After that Mr. Anwar Ali briefly discussed about the different modules.

Inventory planning – Lecture

A lecture was delivered by Mr. Anwar Ali on Inventory Planning which includes Stratification, Plot size, Clustering, Spatial Autocorrelation, designing plot sample, Improving accuracy. Sampling design includes stratification, sample plot shape and size, the sample size and plot allocation. All the aspects of



sampling design are related to each other. For example, stratifications increase the efficiency of sampling by decreasing the variation within the strata, which lowers the plot size needed to achieve certain accuracy. Second part of inventory planning is the inventory design. The participants actively participated in the interactive session.

Calculating sample size for strata – Exercise

For the exercise session on the inventory planning, the participants calculated the optimal sample size using a set of example data. The data consisted of six strata with average aboveground biomass and standard deviation of the average, as well as the average sample plot size and total area of each stratum. The training participants calculated the optimal sample size for entire inventory and individual stratum, following the given instructions. Optimal sample size takes into consideration both the area of each stratum and the different variation of aboveground biomass in different forest types.

Moreover, the participants learned that the optimal sample size is not the final result, but the sample size should be added with 10 – 20 % of extra plots for assurance that the final measured and quality checked number of plots will be at least equal to the optimal sample size.

Field measurement methods – Lecture

A presentation was delivered by Dr. Irfan Ashraf, Associate Professor, Arid Agriculture University, Rawalpindi, on data measurement in field. He explained about the work flow which could be followed during the field exercise. He also explained the processes of accuracy, bias and precision. He also elaborated various



Intergovernmental Panel on Climate Change (IPCC) land use classes. He also acquainted the participants with different field measurement techniques ranging from Diameter at Breast Height (DBH) measurements to the height measurements of the trees.

Field data calculation in MS Excel – Demo and Exercise

The participants acquainted themselves with the data entry process for single plots. Data analysis for various carbon pools were also explained to the participants.

Day 2

Carbon Mapping and Forest Reference Level – Lecture

Mr. Anwar Ali, explained the concepts of activity data and emission factors and how they are utilized for calculation of emission reductions and removals in the context of REDD+. He also explained the concepts of Forest Reference Levels/Forest Reference Emission Levels, which serve as the benchmarks for countries for assessing their progresses in implementing REDD+ activities.

Calculation of Forest Reference Level/Forest Reference Emission Level – Exercise

The exercise was supervised by the trainer and facilitators. The participants calculated the emission factors for different land uses, which they used for calculating the emission reductions and removals for different REDD+ activities.



Field Measurement Practices and GPS exercise – Exercise

A field visit to Jasmine garden was arranged for an exercise on how field data should be collected using different equipments and how GPS coordinates should be collected. The participants also learned how to conduct DBH measurements with calliper and measurement tape as well as height measurements using Vertex IV and Vertex V equipment.



Day 3

Calculation of Forest Reference Level/Forest Reference Emission Level – Exercise (Continued)

The exercise calculating the emission factors and activity data leading to removals and emission reductions/emissions continued during this day. The participants developed profound understanding of the processes and concepts by going through the exercises.

Feedback

From the participants

Participants provided some very good feedbacks for the training. Most of the participants were of the strong view that the training had met its objectives and they would be able to apply the knowledge gained through the training to their respective job capacities upon their return. Participants also emphasized that the sessions were interactive which enabled them to develop profound understanding regarding the complex topics involved in forest inventory. **Annex-III** has the detailed summary of participant feedback.

The training ended with the certificate distribution ceremony.

Annexes

Annex-I: Agenda of the Training

Training Agenda: Forest Inventory (07-09 February, 2018)	
Day 1 - Wednesday, 07 February, 2018	
8:00 – 9:00	Registration
9:00 - 9:15	Welcome Remarks by NPD/NRC
9:15 – 9:30	Introduction to Training Module & Expectations of Participants
	Trainer/Facilitator: Anwar Ali/Irtaza Qureshi
9:30 – 10:30	Inventory planning (Stratification, Plot size, Clustering, Spatial autocorrelation, designing plot sample, Improving accuracy)
	Trainer/Facilitator: Anwar Ali/Irtaza Qureshi
10:30 – 11:00	Calculating sample size for strata (Exercise)
	Trainer/Facilitator: Anwar Ali/Irtaza Qureshi/Mohammad Qasim
10:00-11:20	Tea/ Coffee Break
11:20-12:00	Calculating sample size for strata (Exercise continues)
	Trainer/Facilitator: Anwar Ali/ Irtaza Qureshi/Mohammad Qasim
12:00-13:30	Field Measurement Methods (Lecture)
	Trainer/Facilitator: Dr. Muhammad Irfan Ashraf
13:30 – 14:30	Lunch/ Prayers
14:30 - 16:40	Field data calculation in MS Excel (Demo & Exercise)
	Trainer/Facilitator: Anwar Ali/ Irtaza Qureshi/Mohammad Qasim
16:40 – 17:00	Tea/ Coffee Break
Day 2 - Thursday, 08 February, 2018	
9:00 – 9:15	Recapitulation of First Day
	By the participants
9:15 – 9:45	Carbon Mapping (Lecture and Demonstration)
	Irtaza Qureshi/Mohammad Qasim
9:45 – 10:30	Forest Reference Emission Level (Lecture)
	Trainer/Facilitator: Dr. Muhammad Irfan Ashraf
10:30 – 11:00	Tea/ Coffee Break
11:00 – 13:30	Calculation of Forest Reference Level (Exercise)
	Trainer/Facilitator: Anwar Ali/Irtaza Qureshi/Mohammad Qasim
13:30 – 14:30	Lunch/ Prayers
14:30 – 16:40	Field Measurement + GPS Exercise (Outside)
	Trainer/Facilitator: Anwar Ali/Irtaza Qureshi/Mohammad Qasim
16:40 – 17:00	Tea/ Coffee Break

Day 3 - Friday, 09 February, 2018

9:00 – 10:30	Estimating Emission Factors for Deforestation (Lecture + Exercise)
	Trainer/Facilitator: Anwar Ali/Irtaza Qureshi/Mohammad Qasim
10:30 – 11:00	Tea/ Coffee Break
11:00 – 12:30	Estimating Emission Factors for Forest Degradation (Lecture + Exercise)
	Trainer/Facilitator: Anwar Ali/Irtaza Qureshi/Mohammad Qasim
12:30 – 13:00	Accounting for Emission Reductions (Exercise)
	Trainer/Facilitator: Anwar Ali/Irtaza Qureshi/Mohammad Qasim
13:00 – 14:00	Lunch/ Prayers
	Trainer/Facilitator: Anwar Ali/Irtaza Qureshi/Mohammad Qasim
14:00-14:40	Closing and Certificate Distribution
16:40 – 17:00	Tea/ Coffee Break

Annex-II: List of Participants



Training on National Forest Inventory
February 07-09, 2018
Venue: Regency Hotel, Islamabad
Attendance Sheet

S.No	Name & Designation	Organization	Contact No/ Email Address	Signature		
				Day 1	Day 2	Day 3
1	Agzeela Mobeen Research Officer Forest GIS Lab.	Punjab Forest Department.	03226051174 amobeeen@hotmail.com	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
2	ANSIR RASOOL Section Officer (R/N) FW&F Deptt. Punjab	FW&F Deptt. Punjab.	ansirrasool@gmail.com 0321-4678414	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
3	Wassem Abbas (S.D.F.O)	KP Forest Deptt.	Working Plan Office, Abbottabad 0332-9298117	<i>[Signature]</i> 7.2.18	<i>[Signature]</i> 8.2.18	<i>[Signature]</i> 9.2.18
4	Jam Shaid Ali	Sashad Awami Forestry IITshahad (SAFI)	0399afi572@gmail.com 03456035649	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
5	Jamaid Shahid	Shan Food (PVT) LTD	Jam. Jamaid4981@yahoo.com 0332-5335389	<i>[Signature]</i>		



Ministry of Climate Change



S.No	Name & Designation	Organization	Contact No/ Email Address	Signature		
				Day 1	Day 2	Day 3
6 ✓	Maria Batool (Interne)	Bahauddin Zakariya University, Multan	Mariamah.k714@gmail.com 0334-6158588	Maria	Maria	Maria
7 ✓	S. Naeem Abbasi (SDFO)	Forest Dept GB	snaeemgfd7@gmail.com 03129701447	S. Naeem	S. Naeem	S. Naeem
8 ✓	M. Waqar Azeem (Interne)	University of agriculture, Faisalabad	waqarazeem838@gmail.com	M. Waqar	M. Waqar	M. Waqar
9 ✓	IMRAN KHAN (Sub Divisional Forest Officer)	Forest & wildlife Dept. G.B.	Imran.khan7fo193@gmail.com	Imran	Imran	Imran
10 ✓	Majrood Ahmad	Sindh Forest Dept.	majroodmamon@yahoo.com	Majrood	Majrood	Majrood
11 ✓	S. Ghayoor ali shah	REDD + interne	sajisayed72@gmail.com	S. Ghayoor	S. Ghayoor	S. Ghayoor



Ministry of Climate Change



S.No	Name & Designation	Organization	Contact No/ Email Address	Signature		
				Day 1	Day 2	Day 3
12 ✓	Waheed Kazmi Assistant Conservator of Forests	AJK Forest Department	0345-9103490 Kazmiwaheed590@gmail.com	Waheed	Waheed	Waheed
13 ✓	Jan-e-Alam, SDFO	KP Forest Dept.	0314-4255999	Jan-e-Alam	Jan-e-Alam	Jan-e-Alam
14 ✓	Aghas Khan DFO	FATA Forest Dept.	03005965855	Aghas	Aghas	Aghas
15 ✓	Syed Mazhar Hussain	AJK FORESTS	0344-5925512	Syed Mazhar	Syed Mazhar	Syed Mazhar
16 ✓	Jan Mehtammad Soomro	Sindh Forest Dept.	0316-6229999	Jan Mehtammad	Jan Mehtammad	Jan Mehtammad
17	Maria Batool					
18	ABDUL MATEEN BURESHI	REDD+ INTERN (AJK)	03238501343	Abdul Mateen	Abdul Mateen	Abdul Mateen



Ministry of Climate Change



19	Irtaza Qureshi DFO	Ajko Forest Department	irtaza_83@hotmail.com 0345-5920663			
20	Muhammad Essa Jan Qureshi Divisional Forest Officer Pishin Balochistan	Balochistan Forest & Wildlife Department	0332-3095410			
21	Anwar Ali PD, Carbon Stock Ass	PFI	03335068176 anwerforester@gmail			
22	Syed Mahmood Nasir	Ministry of Climate Change				
23	Dr. Ghulam Akbar	NRC	0345 822 8526			
24	Muhammad Afra Syed	GIS Expert	03245029271			
25	Haid Khan YAKAR	Balochistan Forest and Wildlife D.	0333-5921824 0333-5921824			
26	Sumayyah Aleem Khan RA	Nat. REDD+ Office				



Ministry of Climate Change



S. No.	Name & Designation	Organization	Contact no/ Email address	Day 1	Day 2	Day 3
27	Abif Ali Khan (PhD scholar)	PMAS - AAUR	0332-5230530 andian251@gmail.com			
28	Dr. M. Infaan Ashraf	PMAS - AAUR	0333-6741315			
29	Fazal-illahi DFO	FOREST DEPT.	03009034468			
30	M - Usman	Ministry of Climate Change	0331-5242398			
31	Mubbashra Sultāw	International REDD+ office				

Annex-III: Feedback from Participants









