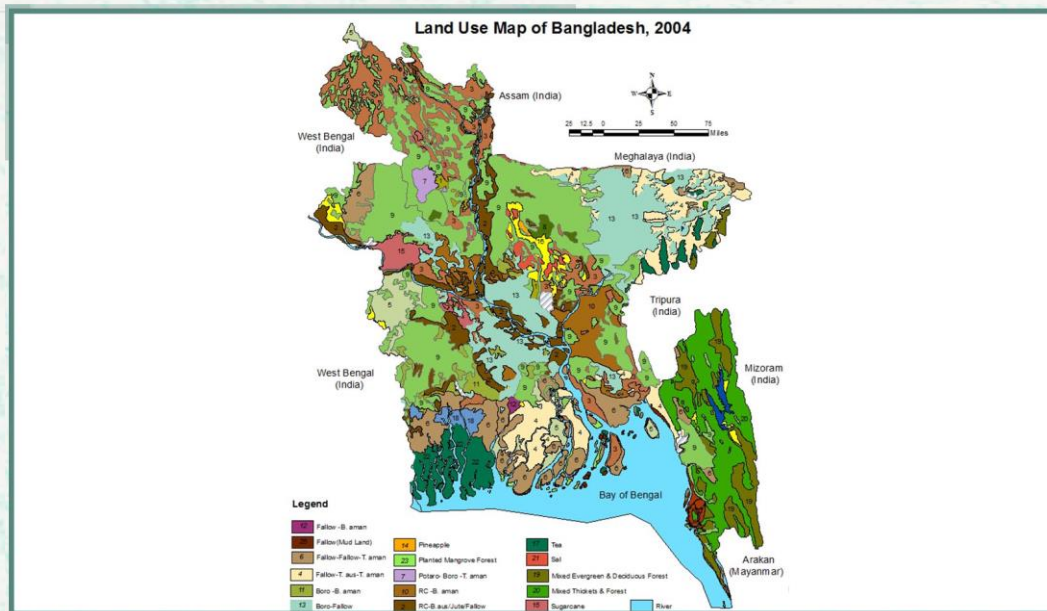




# Proceedings of training on translation and harmonization of SRDI land use map legend into LCCS (v.3)



**Bangladesh Forest Department**  
**15-17 February 2016**



The Forest Department of Bangladesh leads actions to improve forest management and conservation, adopting forward thinking, innovative approaches in its management of approximately 1.55 million hectares of land across the country.

In 2015, the Forest Department began a process to establish a National Forest Inventory and Satellite Land Monitoring System for improved forest and natural resource management. The process supports national objectives related to climate change mitigation and provides information in support of the UN-REDD programme aimed at Reducing Emissions from Deforestation and Forest Degradation (REDD+). The process also addresses domestic information needs and supports national policy processes related to forests and the multitude of interconnected human and environmental systems that forests support.

The activities implemented under the Bangladesh Forest Inventory process are collaboration between several national and international institutions and stakeholders. National partners from multiple government departments and agencies assist in providing a nationally coordinated approach to land management. International partners, including the United States Agency for International Development (USAID) and the Food and Agriculture Organization of the United Nations (FAO) are supporting the development of technical and financial resources that will assist in institutionalizing the process.

The results will allow the Forest Department to provide regular, updated information about the status of trees and forests for a multitude of purposes including for assessment of role of trees for firewood, medicines, timber, and climate change mitigation.

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**Disclaimer**

This report is designed to reflect the activities and progress related to the project GCP/GD/058/USAID “Strengthening National Forest Inventory and Satellite Forest Monitoring System in support of REDD+ in Bangladesh”. This report is not authoritative information sources – it does not reflect the official position of the supporting international agencies including USAID or FAO and should not be used for official purposes. Should readers find any errors in the document or would like to provide comments for improving its quality they are encouraged to contact one of above contacts.

## **Executive Summary**

From 15 to 17 February 2016, FAO and SRDI conducted a training on 'Translation and Harmonization of SRDI Land Use Map Legend in to LCCS (v.3)' toward the integration of forest and other land use mapping activities' with the trainers support from Bangladesh Society of Geoinformatics (BSGI) as a part of capacity building program and technical cooperation at SRDI premises, Dhaka. The aim of the training was to present and share knowledge of common practices of land cover and land use mapping in Bangladesh and leading the methodology of land cover classification system (LCCS) developed by FAO and to translate map legend using this system. An overview and hands on exercise of LCCS has been taught to the develop and understand the current land use map of SRDI. Total six participants attended in three days training from BFD and SRDI.

## Table of Contents

Executive Summary.....	2
Introduction.....	4
Inauguration Session.....	4
Different land cover and land use legends integration.....	5
Definition problem/gaps in legend harmonizing from existing maps .....	8
Conclusion:.....	8
List of participants .....	9
Annex -1: SRDI Land Use Map 2004 Legends.....	10
Annex – 2: BFD National Forest Assessment 2005 Legends.....	14
Annex – 3: SRDI Land Use 2004 LCCS Diagram .....	15
Annex – 4: National Forest Assessment 2005 LCCS Diagram .....	16

## **Introduction**

In the context of the project “Development of National Land Cover Database and accuracy assessment” Bangladesh Society of Geo-informatics (BSGI) aims to introduce Land Cover Classification Systems v.3 (LCCS 3) developed by FAO to the leading land cover and land use map producing organizations. Since there is no national reference system for land cover/land use mapping exist in the country, so it is important to study different sources of maps to make a common system. Several national organizations (BFD, SRDI, BARC, SPARRSO, SOB, etc.) have been producing Land Cover or related maps for Bangladesh that integrates the different definitions and legends. Besides, the land cover/land use map produced by different organizations used different raw (type and time) data, classification methods, scale, projection systems etc. Moreover every organization produces land cover or related maps based on the organizational requirements. Therefore we need a central database including common definitions and legends.

The main objective the training was to build capacity to the professionals of SRDI and BFD on land cover and land use mapping using LCCS and exploring harmonization possibilities with land use maps produced at national level as well as to integrate national reference system.

The specific objectives were:

- To introduce Land Cover Classification Systems (LCCS v3) developed by FAO to SRDI
- To provide technical assistance to translate existing maps of SRDI and BFD
- To explore harmonization possibilities of SRDI and BFD maps

## **Inauguration Session**

The training was inaugurated by Mr. Khandker Moyeenuddin, Director of SRDI, Dhaka. Mr. Moyeenuddinn emphasized the importance of the up-to-date land cover and land use map for the nation. Mr. Md. Nazmul Hasan, PSO, SRDI briefly discussed the background about the SRDI developed land cover map and necessity of harmonization for their internal and other external maps. Dr. Laskar Muqsudur Rahman from FAO expressed the national concern for a common mapping system. Mr. Mohammad Abdul Hadi of BSGI firstly discussed about the contents of the training and later talked about the common difficulties those a user regularly faces while working with different maps from different organizations.

### *Day 1: Overview of Common Practices of Land Cover Mapping in Bangladesh and LCCS v3*

In the first session of the training, Mr. Hadi presented common practices of land cover mapping in Bangladesh highlighting understanding of Land Cover, Land Cover Mapping: Common practices, Organizations producing Land Cover or related maps for Bangladesh, Example Land Cover Map, comparisons of different land cover maps between different organizations, Example Map of a Land Cover Map, Challenges of land cover representations and finally initiatives that we needed.

Second sessions of the training covered

- LCCS3 software installation
- Step by steps how to create legends in LCCS3 with demo data

### *Day 2: Development land covers land use definition and legends from existing maps*

The first session of the covered to create existing map legend from SRDI Land Use 2004 and NFA 2005 map and update attribute. Later the trainers and participants openly discusses what are the properties of a legend can be identified and where to change and update.

In the second session, the participants from SRDI have started to create legends (LCCS files) for 'Land Use Map 2004' by one group and 'Land Use Map 1997' by another group. The participants from BFD involved preparing LCCS file for NFA 2005 map.

### *Day 3: Review and update*

In the first session the participants continued to prepare legend files.

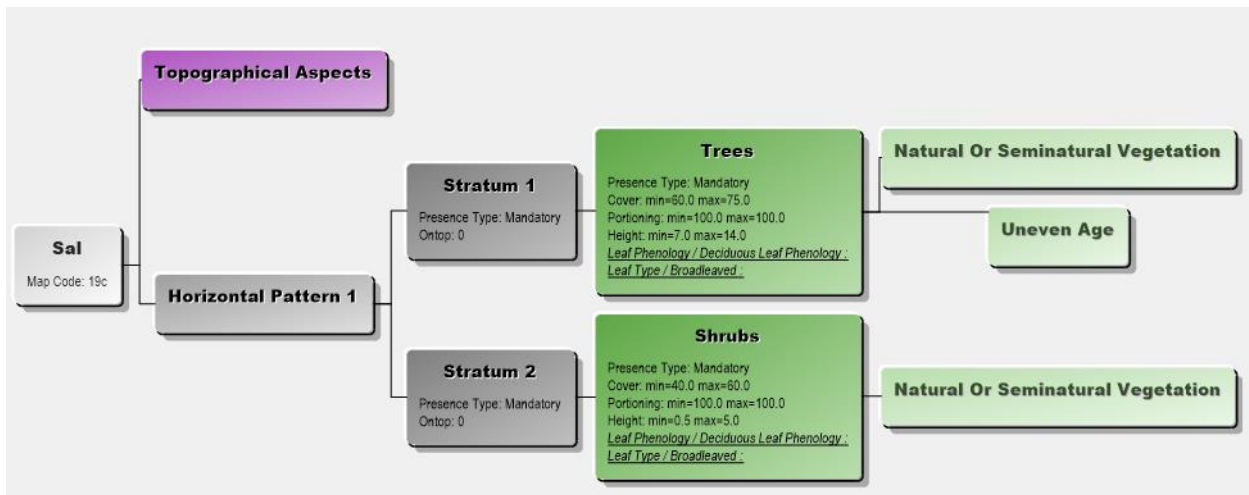
In the second session, the resource persons discussed on the difficulties faced by the participants while preparing the LCCS file. The sessions also discussed how to integrate harmonization of the legends the participants have prepared from different organization.

## **Different land cover and land use legends integration**

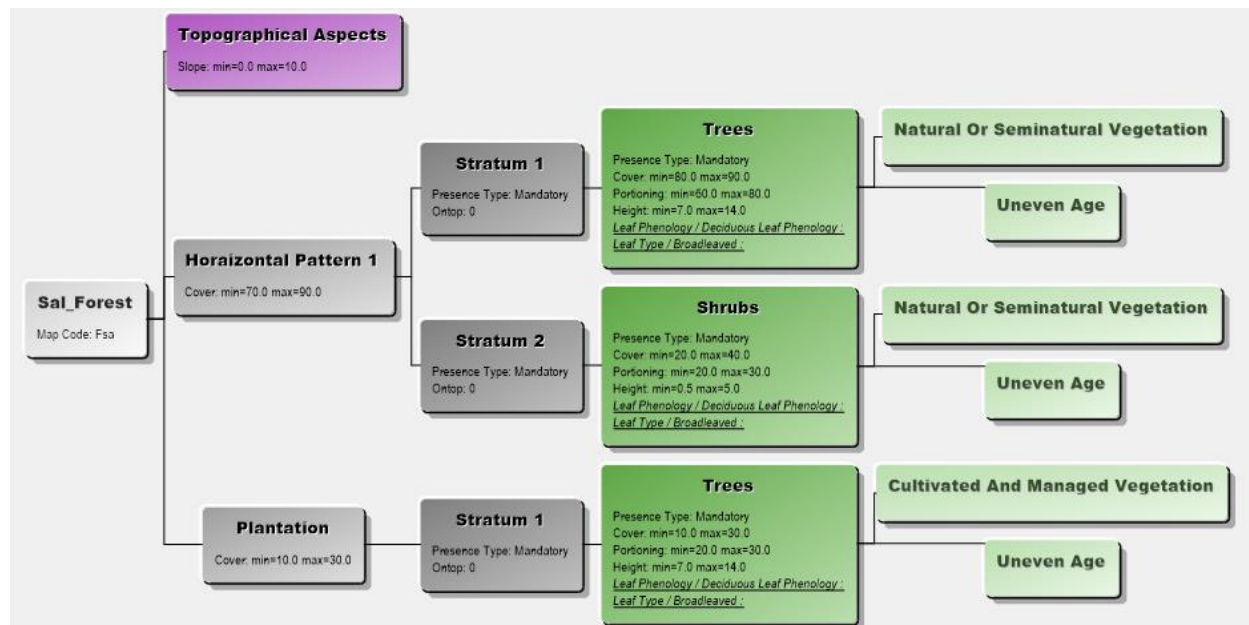
Two separate sessions were dedicated to this item and moderated by the resource persons from BSGI. After the translation of the map legends, the technicalities of the legend integration between the existing SRDI land use maps and BFD National Forest Assessment 2005 maps can be shown in the following way:

### *Legend example 1: Sal Forest*

LCCS Diagram of SRDI Land Use 2004 Map (Code: 19c)



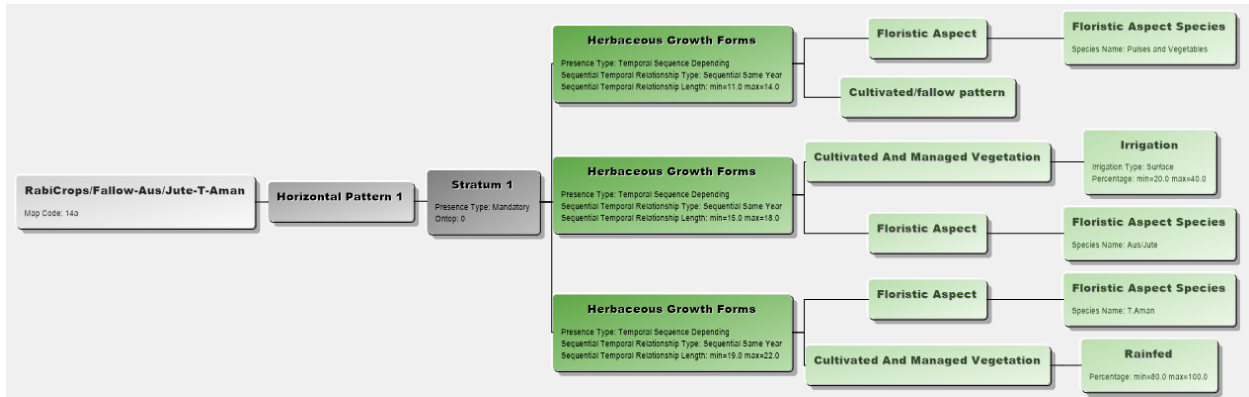
LCCS Diagram of NFA 2005 Map (Code: FSa)



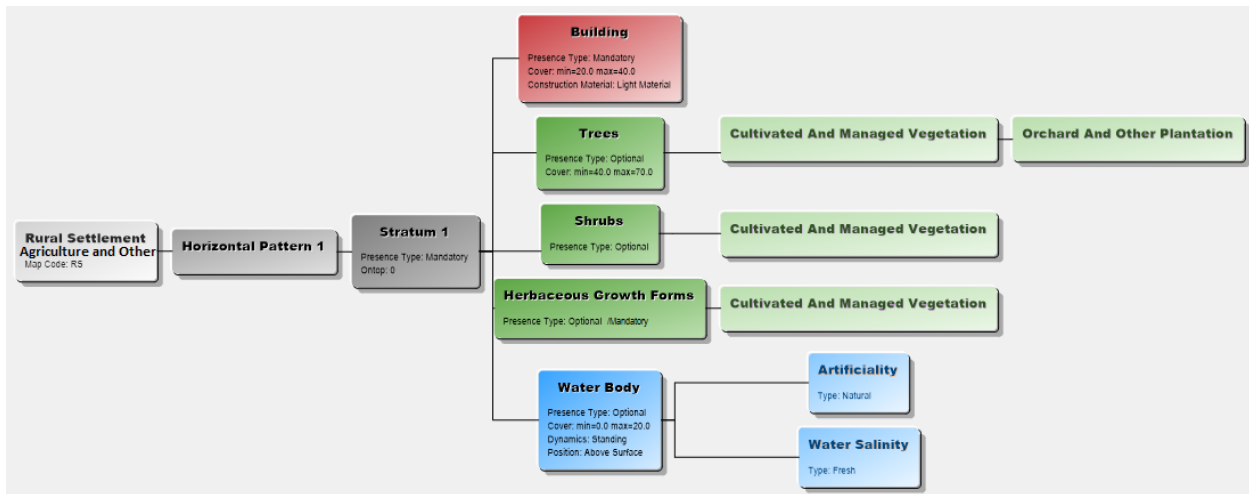


Legend example 2: Triple Cropland/Agriculture land

LCCS Diagram of SRDI Land Use 2004 Map (Code: 14a)

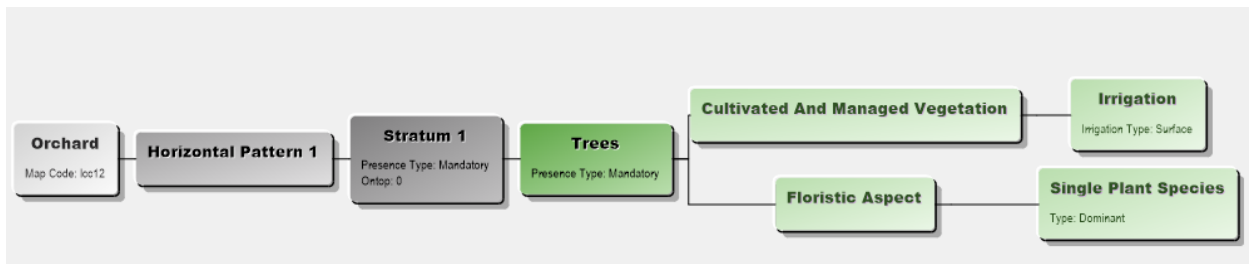


LCCS Diagram of NFA 2005 Map



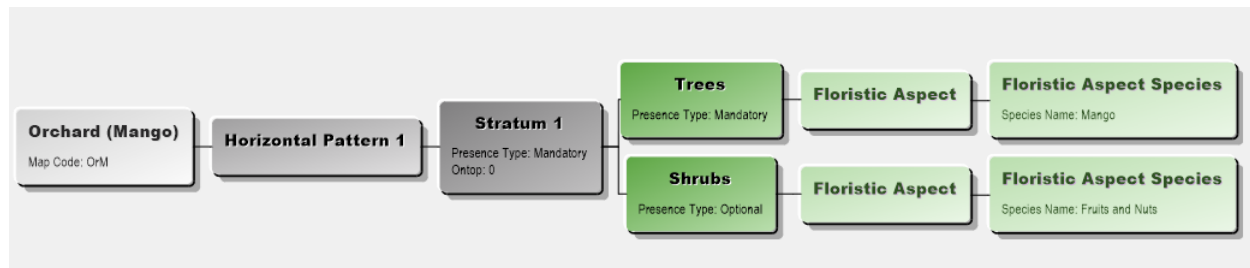
Legend example 3: Orchard or Perianal Crops (like sugarcane)

LCCS Diagram of SRDI Land Use 2004 Map (Code: 16a/16b)





## LCCS Diagram of NFA 2005 Map (Mango or other orchards)



### Definition problem/gaps in legend harmonizing from existing maps

- The main challenge to develop land cover definition and legend has been identified in agricultural land cover (due to variation in crop rotation, etc.)
- Some land cover definition should be changed in existing SRDI land cover map, for example water definition by SRDI '12 months of water presence in the land' whereas, in haor or baor area where water presence is more than 7 months some cases 9 months and the made legend as Rice-fallow which could be Rice-water-water (Paddy rice)
- As per the legend of SRDI (e.g. Rabi crops/Fallow-Aus/Jute-T.Aman) cropping pattern overlap with many other legends which is the critical issue for translate. The pattern dominates in each category can be defined a class to resolve however it is also a problem in many cases.

### Conclusion:

As per the organizational needs the land use maps are prepared in different organizations. Definition of the legends of the map depicted particular interest and many cases that does not reflect national requirements. The classes of forest map represented many different forest classes whereas agriculture classes are merged with rural settlement and other classes on the other hand SRDI maps presented plenty of agricultural rotation pattern and this is the main difficulties to harmonize the translated legends. The recommendation of the training is to prepare a national reference system and afterwards the harmonization can be performed.

## List of participants

Sl. No	Name	Designation	Organization	Email
1	Dilruba Karim	Senior Scientific Officer	SRDI	<a href="mailto:d_karim99@yahoo.com">d_karim99@yahoo.com</a>
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3	Farzana Shahrin	Senior Scientific Officer	SRDI	<a href="mailto:shahrin_srdi@yahoo.com">shahrin_srdi@yahoo.com</a>
4	Mohammed Ruhul Islam		SRDI	<a href="mailto:ruhul_islamb@yahoo.com">ruhul_islamb@yahoo.com</a>
5	Afroza Begum	Research Officer	BFD	
6	Asma Islam	Draftsman, RIMS	BFD	<a href="mailto:asmafd1967@gmail.com">asmafd1967@gmail.com</a>

## Annex -1: SRDI Land Use Map 2004 Legends

Mapping unit	Area (ha) & (Percentage)	Main Landuse	Secondary Landuse	Area(ha)	Percentage
<b>1</b>		<b>VEGETABLES ROTATION</b>			
<b>1a</b>	72,100 (0.49 %)	<b>R.vegetables-K.vegetables</b>	Rc-B.Aus/Jute-T.aman/F Rc-Boro-T.aman Sugarcane;Orchard	<b>33740</b> 14750 13280 10330	<b>0.23</b> 0.10 0.09 0.07
<b>1b</b>	3,500 (0.02 %)	<b>R.vegetables-K.vegetables</b>	Rc-B. aus/Jute-T.aman/F; Sugarcane;Orchard	<b>2900</b> 600	<b>0.02</b> minor
<b>2</b>		<b>RABI CROPS ROTATION</b>			
	1,49,800 (1.02%)	<b>Rabi crops-B. aus/Jute-Fallow</b>		<b>88,240</b>	<b>0.60</b>
<b>2a</b>			Boro-T. aman; Rc-B. aus/F-T. aman; Sugarcane; R. veg-K. veg Boro-B. aman; F-mixed Aus/Jute/ Sesame & B.Aman; Boro-F Betelvine; Orchard	35,110 17,600 8,850	0.24 0.12 0.06
<b>2b</b>	3,26,200 (2.22%)	<b>Rabi crops-B. aus/Jute/Fallow</b>	Boro-T. aman; Rc-Aus/Jute-F-T. Aman Rc-Aus/Maize K. veg-F Rc-Boro-B. aman; Rc-B. aman/DTA	<b>1,95,270</b> 58,620 48,700 23,610	<b>1.33</b> 0.40 0.33 0.16
		<b>Rabi crops-Fallow-Fallow</b>		<b>61,880</b>	<b>0.42</b>
<b>3</b>	1,62,100 (1.10%)		Groundnut-F R. veg-Jute/F-F; Rc/Boro-DTA/B. aman Rc/F-Boro-T. aman Rc-UBA; Boro-F Sugarcane; Reed(Kashban); Fallow	41,220 19,153 14,757 14,760 10,330	0.28 0.13 0.10 0.10 0.07
<b>4</b>		<b>TRANSPLANTED AMAN ROTATION</b>			
<b>4a</b>	11,90,100 (8.06%)	<b>Rabi crops/Fallow-Aus/Jute-T. aman</b>	Boro-T. aman R-veg-K. veg; Sugarcane; Groundnut-F; Rc-Sesame-T. aman Belelvine; Perennial crop; Ginger; Turmeric; Orchard Boro-B. aman/DTA; F-B. aman/UBA	<b>67,3130</b> 3,20,720 1,26,910 48,690 20,650	<b>4.56</b> 2.17 0.86 0.33 0.14
<b>4b</b>	2,33,00 (0.16%)	<b>Rabi crops/Fallow-Aus/Jute-T. aman</b>	Boro-T. aman; Rc/Boro-UBA Shrimp-T. aman; F-T. aman R. veg-K. veg; Rc/F-T. aus-T. aman Sugarcane; Orchard	<b>10,030</b> 4,420 2,950 2,950 2,950	<b>0.07</b> 0.03 0.02 0.02 0.02
<b>4c</b>	1,06,600 (0.73%)	<b>Rabi crops-Di. aus-T. aman</b>	F/Rc-F-T. aman Boro-T. aman; Rc-T. aus-Taman	<b>72,790</b> 20,530 13,280	<b>0.50</b> 0.14 0.09
<b>4d</b>	33,300 (0.23%)	<b>Fallow-T. aus-T. aman</b>	Rc/T. aus-T. aman; Boro-T. aman Sugarcane; Orchard; Forest Boro-F	<b>17,100</b> 8,800 4,400 3,000	<b>0.12</b> 0.06 0.03 0.02
<b>5</b>		<b>RABI CROPS/FALLOW-JUTE/FALLOW-T. AMAN</b>			
<b>5a</b>	20,200 (0.14%)	<b>Rabi crops/Fallow-Jute/ Fallow-T. aman</b>	Boro-T. aman; F-T. aman Sugarcane; Orchard; Tea; Stone collection	<b>10,030</b> 5,800 4,370	<b>0.07</b> 0.04 0.03
<b>5b</b>	2,34,700 (1.59%)	<b>Rabi crops/Fallow-Jute/ Fallow-T. aman</b>	Boro-T. aman; Rc/Tobacco-F-T. aman Rc/F-T. aus-T. aman Sugarcane; Orchard; R. veg-K. veg	<b>1,10,670</b> 51,650 26,560 23,690 22,130	<b>0.75</b> 0.35 0.18 0.16 0.15
<b>5c</b>	1,40,800 (0.95%)	<b>Rabi crops/Fallow-Fallow-T. aman</b>	Rc/F-T. aman/Di- aus-T. aman Boro-T. aman; F-T. aman Coconut; Betelnut; Orchard; Mulbery; R. veg-K-veg	<b>70,830</b> 47,720 17,730 4,520	<b>0.48</b> 0.32 0.12 0.03
<b>6</b>	7,53,00 (0.51%)	<b>Potato-Boro-T. aman</b>	Boro-T. aman; Rc-T. aus-T. aman; Rc-F-T. aman R. veg-K. veg; Maize-F; Orchard	<b>50,170</b> 20,660 4,470	<b>0.34</b> 0.14 0.03

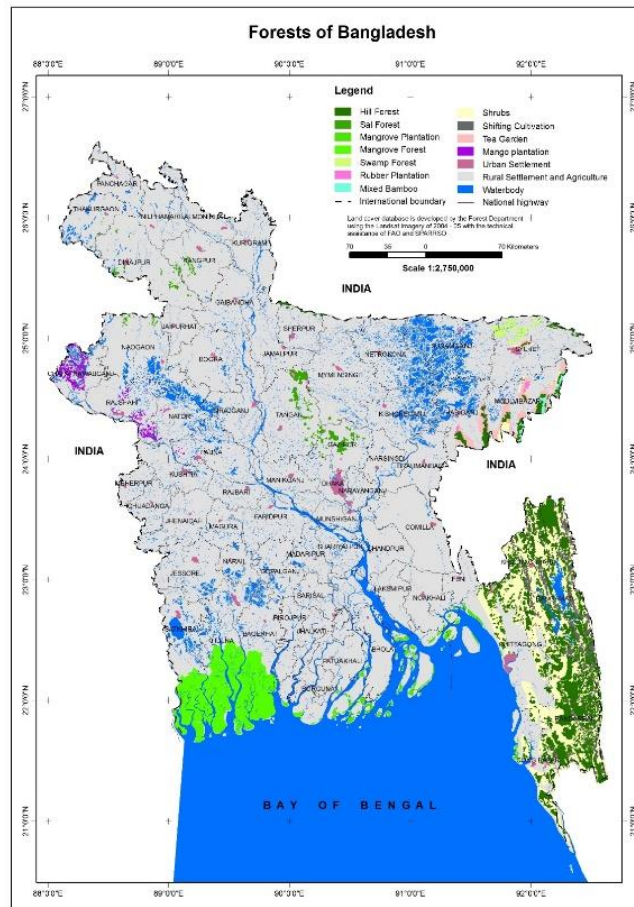
7	75,100 (0.50%)	<b>Boro-T. aus-T. aman</b>	Rc.-T. aus/Jute-F;Pisciculture Boro-T. aman; Rc-F-T. aman	<b>4,52,70</b> 17,930 11,900	<b>0.30</b> 0.12 0.08
8		<b>FALLOW-AUS-T. AMAN</b>			
8a	5,18,200 (3.51%)	<b>Fallow-T. aus-T. aman</b>	Rc-T. aus/F-T. aman; F-B. aus/B. aman Boro-T. aman; Boro-F R. veg-K. veg; Orchard; Forest	<b>2,96,860</b> 1,35,760 7,96,80 5,900	<b>2.01</b> 0.92 0.54 0.04
8b	3,69,000 (2.50%)	<b>Fallow-T. aus-T. aman</b>	Rc-F-T. aman Boro-T. aman; F-T. aman; Rc-T. aus-T. aman F-B. aus/Jute-T. aman; Orchard; Sugarcane; Betelvine	<b>1,91,930</b> 88,540 59,020 29,510	<b>1.30</b> 0.60 0.40 0.20
8c	37,200 (0.25%)	<b>Fallow-DI. aus-T. aman</b>	Boro-T. aman; Rc-T. aus-T. aman; Rc-UBA/B. aman F-T. aman; F-T. aus-T. aman	<b>19,390</b> 11,910 5,900	<b>0.13</b> 0.08 0.04
9		<b>BORO-T. AMAN</b>			
9a	5,84,000 (3.96%)	<b>Boro-T. aman</b>	Rc-Jute/Sesame/Chilli-T. aman Rc-Boro-T. aman; F-T. aman R. veg-K. veg Sugarcane; Orchard;	<b>3,68,560</b> 1,03,300 88,540 17,700 5,900	<b>2.50</b> 0.70 0.60 0.12 0.04
9b	19,64,200 (13.31%)	<b>Boro-T. aman</b>	Rc-Boro-T. aman Orchard; Sugarcane; R. veg-K. veg; Betelvine Rc-Jute/F-T. aman Rc-Boro-DTA; Boro-F Rc-T. aus-T. aman; Rc-F-T. aman	<b>12,97,140</b> 2,80,380 1,34,280 1,32,810 90,010 29,580	<b>8.79</b> 1.90 0.91 0.90 0.61 0.20
9c	12,20,700 (8.27%)	<b>Boro-T. aman</b>	Rc-T. aus-/Jute-T. aman; F-T. aman Boro-F; Rc-UBA; Rc-F-B. aman R. veg-K. veg Orchard; Sugarcane; Turmeric; Betelnut; Betelvine	<b>6,64,060</b> 4,89,930 50,480 13,280 2,950	<b>4.50</b> 3.32 0.34 0.09 0.02
9d	30,200 (0.21%)	<b>Boro-T. aman</b>	Boro-F Rc-F-F/Jute-T. aman Shrimp-T. aman; Boro-Shrimp-F-T. aman	<b>15,730</b> 6,070 4,020 4,380	<b>0.11</b> 0.04 0.03 0.03
9e	34,400 (0.23%)	<b>Boro-T. aman</b>	Rc-T. aus-T. aman; Boro-T. aus-T. aman; F-T. aman R. veg-K. veg; Orchard Shrimp-F; Saltbed	<b>17,970</b> 10,530 2,950 2,950	<b>0.12</b> 0.07 0.02 0.02
10		<b>FALLOW-FALLOW-T. AMAN</b>			
10a	1,05,700 (0.72%)	<b>Fallow-Fallow-T. aman</b>	Boro-T. aman; Rc-F-T. aman; Rc-T. aus-T. aman; R. veg-K. veg Sugarcane; Orchard; Betelvine	<b>67,380</b> 29,470 8,850	<b>0.46</b> 0.20 0.06
10b	1,78,400 (1.20%)	<b>Fallow-Fallow-T. aman</b>	Boro-T. aman; Rc-F-T. aman Orchard F-T. aus-T. aman	<b>1,03,800</b> 59,520 10,660 4,420	<b>0.70</b> 0.40 0.07 0.03
10c	2,70,100 (1.83%)	<b>Fallow-Fallow-T. aman</b>	Srimp-T. aman; Boro-T. aman Rc-T. aman; F-Sesame-T. aman; Betelvine	<b>1,66,750</b> 73,780 29,570	<b>1.13</b> 0.50 0.20
10d	4,77,700 (3.23%)	<b>Fallow-Fallow-T. aman</b>	F-T. aus-T. aman Rc-F-T. aman; R. veg-K. veg Rc-Di. aus-T. aman; Boro-T. aman; Boro-F Planted Mangrove forest	<b>3,24,650</b> 63,950 56,640 29,510 2,950	<b>2.20</b> 0.43 0.38 0.20 0.02

BROADCAST AMAN ROTATION					
<b>11</b>	5,03,400 (3.41%)	<b>Rabi crops-B.aman</b>	Boro-B.aman/DTA;Boro-F Rc-aus/Jute/Sesame-T.aman;Rc-Dhaincha-F Rc-Mixed Aus/Sesame and B.aman; Sugarcane	<b>2,80,580</b> 1,49,040 61,980 11,800	<b>1.90</b> 1.01 0.42 0.08
<b>12</b>		<b>BORO-B.AMAN</b>			
<b>12a</b>	55,100 (0.38%)	<b>Boro-B.aman/DTA</b>	Boro-F;Boro-T.aman;F/Rc-Boro-B.aman/DTA Rc-B.aman;Rc-UBA Sugarcane;Rc-Jute-Aman	<b>2,90,00</b> 17,300 4,400 4,400	<b>0.20</b> 0.12 0.03 0.03
<b>12b</b>	64,800 (0.44%)	<b>Boro-B.aman</b>	F/Rc-B.aman;F/Rc-UBA Boro-F;Boro-DTA;Boro-T.aman	<b>29,400</b> 20640 14,760	<b>0.20</b> 0.14 0.10
<b>12c</b>	93,400 (0.63%)	<b>Boro-B.aman</b>	Boro-Shrimp;Shrimp-F;F-B.aman;F-UBA F(Water logged)	<b>48,900</b> 29,700 14,800	<b>0.33</b> 0.20 0.10
<b>13</b>	22,400 (0.15%)	<b>Fallow-B.aman</b>	F-UBA;Boro-F Rc-F;T.aman;Nursery	<b>12,000</b> 5,940 4,460	<b>0.08</b> 0.04 0.03
<b>14</b>		<b>BORO-ROTATION</b>			
<b>14a</b>	3,32,700 (2.25%)	<b>Boro-Fallow</b>	Rc/F-DTA;Rc-B.aus/Jute/Sesame-F Rc/F/UBA;Boro-T.aman;Rc-Boro-F	<b>1,84,700</b> 1,18,400 29,600	<b>1.25</b> 0.80 0.20
<b>14b</b>	3,66,900 (2.49%)	<b>Boro-Fallow</b>	Rc/F-B.aman;Boro-T.aman Rc-Boro-F	<b>2,19,870</b> 1,18,030 29,000	<b>1.49</b> 0.80 0.20
<b>14c</b>	9,00,900 (6.11%)	<b>Boro-Fallow</b>	Boro-B.aman/DTA Boro-T.aman Boro-UBA;Rc/F-B.aus-T.aman	<b>6,05,760</b> 1,47,570 1,03,300 44,270	<b>4.11</b> 1.00 0.70 0.30
<b>14d</b>	2,20,300 (1.50%)	<b>Boro-Fallow</b>	Grazing grass;water bodies	<b>1,47,020</b> 73,280	<b>1.00</b> 0.50
<b>14e</b>	16,900 (0.11%)	<b>Boro-Fallow</b>	F-B.aman Boro-Shrimp;F-T.aman;Boro-Aus/B.aman	<b>6,200</b> 6,200 4,500	<b>0.04</b> 0.04 0.03
<b>15</b>		<b>ANNUAL CROPS</b>			
<b>15a</b>	9,400 (0.06%)	<b>Pineapple</b>	Turmeric;Banana;Papaya etc. Rc-B.aus/Jute-F-Boro-T.aman Forest	<b>3,140</b> 3,130 3,130	<b>0.02</b> 0.02 0.02
<b>15b</b>	2,21,200 (1.50%)	<b>Sugarcane</b>	Rc-B.aus/Jute/Sesame-T.aman;Boro-B.aman Boro-T.aman R.veg-K.veg;Orchard	<b>88,500</b> 73,700 44,250 14,750	<b>0.60</b> 0.50 0.30 0.10
<b>16</b>		<b>PERENNIAL CROPS</b>			
<b>16a</b>	24,900 (0.17%)	<b>Orchard</b>	Mixed thickets &Forest;Jhum;Rubber Boro-T.aman;Rc-F/T.aus-T.aman Mixed evergreen & deciduous Forest	<b>10,200</b> 5,900 4400 4400	<b>0.07</b> 0.04 0.03 0.03
<b>16b</b>	1,73,300 (1.17%)	<b>Orchard</b>	Rc/F-Aus/Jute/Sesame-T.aman;Boro-T.aman Sugarcane;R.veg-K.veg;Mulbery	<b>88,900</b> 59,200 25,200	<b>0.60</b> 0.40 0.17
<b>16c</b>	95,600 (0.65%)	<b>Tea</b>	Mixed thickets &Forest;Pineapple;Ginger; Turmeric;Banana;Betelnut F-T.aus-T.aman;F-T.aman;R.veg-K.veg	<b>51,450</b> 29,400 14,750	<b>0.35</b> 0.20 0.10

<b>17</b>	6,0000 (0.41%)	<b>SALTBED</b>	Shrimp-F; F-T.aman;F/Rc-T.aman; Boro-F Mangrove forest	<b>44,000</b> 16000	<b>0.30</b> 0.11
<b>18</b>	1,08,800 (0.74%)	<b>SHRIMP</b>	F-T.aman;Shrimp-F F-Sesame-T.aman	36,790 7,380	0.25 0.05
<b>19</b>		<b>FOREST</b>			
<b>19a</b>	5,57,200 (3.78%)	<b>Mixed Evergreen &amp; Deciduous Forest (including Reserved Forest)</b>	Jhum;Mixed Thickets & Forest Rubber;Orchard F-T. aus-T. aman;Boro-T. aman;F-Taman;	<b>4,54,320</b> 66,000 29,500 7,380	<b>3.08</b> 0.45 0.20 0.05
<b>19b</b>	9,98,300 (6.76%)	<b>Mixed thickets &amp; Forest</b>	Jhum;Rubber;Tea Orchard;R.veg-K.veg F-T. aus-T. aman;F-Taman;Boro-T. aman;	<b>72,640</b> 1,12,100 1,15,200 35,700	<b>4.92</b> 0.82 0.78 0.24
<b>19c</b>	92,100 (0.62%)	<b>Deciduous Forest(Sal)</b>	Boro-T. aman Orchard;Perennial crop R.veg-K.veg;Boro-F	<b>44,270</b> 29,500 11,800 5,900	<b>0.30</b> 0.20 0.08 0.04
<b>20</b>		<b>MANGROVE FOREST</b>			
<b>20a</b>	4,59,700 (3.11%)	<b>Mangrove Forest</b>		<b>4,59,700</b>	<b>3.11</b>
<b>20b</b>	73,000 (0.50%)	<b>Planted Mangrove Forest</b>	F-T.aman Shrimp-F	<b>63,400</b> 7,300 2,300	<b>0.43</b> 0.05 0.02
<b>21</b>		<b>BEACH</b>			
<b>21a</b>	7,800 (0.06%)	<b>Beach</b>	F/Rc-T. aman;Coconut;Casurina	<b>7,500</b> 320	<b>0.06</b> minor
<b>21b</b>	34,500 (0.23%)	<b>Fallow (Mud land)</b>	Grassland;Planted Mangrove forest	<b>26,560</b> 7,380	<b>0.18</b> 0.05
<b>Miscellaneous Land :</b>		Urban River and Water bodies Kaptai Lake		<b>68,100</b> <b>7,38,400</b> <b>55,000</b>	
		<b>Total</b>		<b>1,47,57,000</b>	<b>100.00</b>



## Annex – 2: BFD National Forest Assessment 2005 Legends



### Forests of Bangladesh 2005

#### LEGEND

Hill Forest	Tea Garden
Sal Forest	Mango plantation
Mangrove Plantation	Urban Settlement
Mangrove Forest	Rural Settlement, Agriculture and Others
Swamp Forest	River
Rubber Plantation	Haor and Baor
Mixed Bamboo	Lakes
Shrubs	Pond
Shifting Cultivation	Highway





# Annex – 4: National Forest Assessment 2005 LCCS Diagram

