4. Annual activity plan for year 3 (2014)

Output and Activity	Annual activity program by month (2014)											
	1	2	3	4	5	6	7	8	9	10	11	12
Output 1: Community nursery established in each pilot site												
Activity 1.1 Running of the project coordination group												
Activity 1.3 Meeting of the Steering Committee												
Activity 1.7 Study of seed phenology and list of species with information about attributes												
Activity 1.11 Research in the nursery												
Output 2: Models of forest restoration plots established in each pilot site												
Activity 2.2 Survey of community envision												
Activity 2.6 Monitoring and maintenance of the forest restoration and research areas												
Activity 2.7 Forest restoration												

4. Annual activity plan for year 3 (2014), cont.

Output and Activity	Annual activity program by month Year 3 (2014)											
	1	2	3	4	5	6	7	8	9	10	11	12
Output 3: Knowledge and experience on multi- functional forest restoration published and disseminated to relevant stake holders and general public												
Activity 3.1 Study on the policy and legislative framework for the forest restoration												
Activity 3.2 Publishing project results titled "Technical Note on Forest Restoration"												
Activity 3.3 Production of a TV spot on forest restoration												
Activity 3.4 Organizing a workshop on "forest restoration for livelihood improvement and biodiversity conservation												

5. Lessons learned

- It take years before economic benefits of forest restoration can be revealed and this can discourage local communities to participate with the project without short term economic benefits.

  => introducing agroforestry system

  => planting of plants/treed producing NTFPS

  => improving livelihood through diversification of income

- Forest rehabilitation is not just about the forests but also about people depending on the forests for livelihood and income generation. A holistic approach has to be adopted when planning for forest rehabilitation.

Thank you

Chiang Mai, Thailand May 7, 2014

APFNet

Fifth Annual Meeting of the APFNet Focal Points

APFNet Project Progress of

Forest Cover and Carbon Mapping in the Greater Mekong Subregion and Malaysia

Sukan Pungkul
Royal Forest Department, Thailand
Li Zengyuan, Pang Yong
Chinese Academy of Forestry, Beijing, China

APFNet

Outline

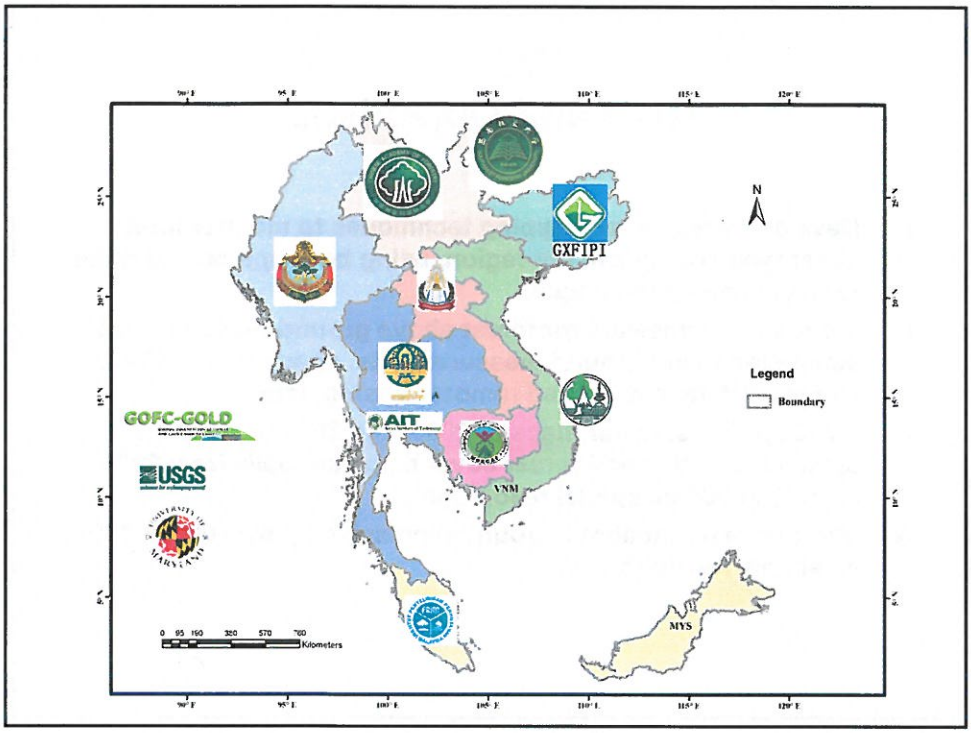
1. Project introduction
2. Project progress
3. Project outputs
4. Summary

Outline

1. Project introduction
2. Project progress
3. Project outputs
4. Summery

Project Introduction

- Period: Sep, 1, 2011 ~ Feb. 28, 2014
- Supported by APFNet
- Participants list: 14 organizations from 8 countries
  - Institute of Forest Resources Information Techniques, CAF, China
  - Cambodia- Forestry Administration
  - Guangxi Forest Inventory & Planning Institute (GFIPI), China
  - Faculty of forestry, National University of Laos
  - Malaysia- Forest Research Institute Malaysia (FRIM)
  - Planning and Statistics Division, Forest Department, MOECAF, Myanmar
  - Royal Forest Department , Thailand
  - Viet Nam- Forest Inventory & Planning Institute
  - Southwest Forestry University, China
  - Department of Geographical Sciences, University of Maryland, USA
  - Geoinformatics Center, Asian Institute of Technology (AIT), Thailand
  - Institute of Agricultural Resources and Regional Planning, CAAS, China
  - U.S. Geological Survey , USA
  - Global Observation of Forest and Land Cover Dynamics (GOFC-GOLD)

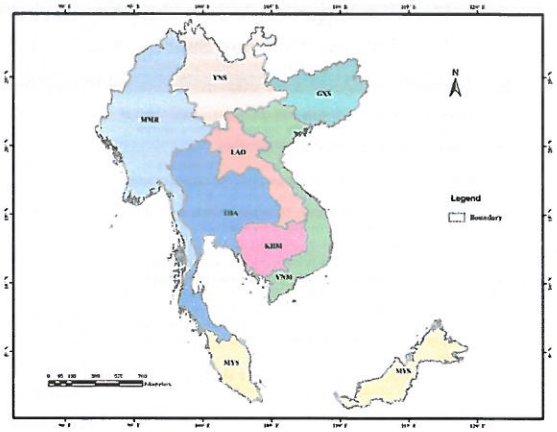


Geographic location of the project

Range from E92.2° to E112.0° , N0.8° to N29.2°

Total land area of 317,242,000 ha & total forest area of 148,128,000 ha reported by FRA 2010

Total population of 348 million



Includes Cambodia, the People's Republic of China (Yunnan province and Guangxi province), Lao People's Democratic Republic, Myanmar, Thailand, Viet Nam, and Malaysia.

Project
Goal and Objectives

I. **Develop forest cover mapping techniques to monitor forest cover type changes in the region, using both optical and radar remote sensing techniques.**

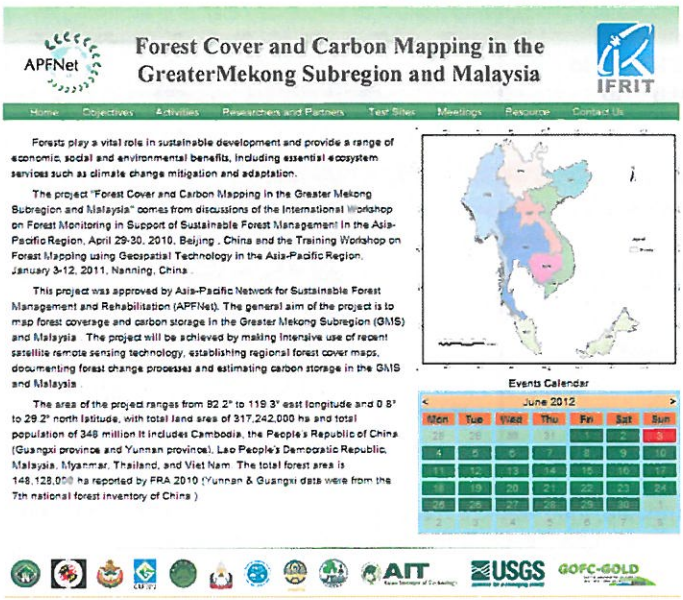
II. **Develop a framework for forest above ground biomass (AGB) estimation using ground measurements, spaceborne LIDAR sampling data and imaged remote sensing data.**

III. **Produce forest cover maps of 2005, and 2010 at 30-50 m. spatial resolution and forest cover maps annually from 2005 to 2010 at 500 m. spatial resolution .**

IV. **Produce a forest above ground biomass map for 2005 at 500 m. spatial resolution.**

Project website

http://apfrm.net



Outline

1. Project introduction
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Overall Status

Economy	Status				
	Forest cover map in 2005 and 2010	Field measurement for biomass	Field measurement for classification	report	Remark
Cambodia	Completed level 1	Submitted			
China-Guangxi	Submitted	Submitted	Submitted		Checked and feedback by IFRIT
China-Yunnan	Submitted	Submitted	Submitted		Checked and feedback by IFRIT
Lao PDR	Submitted	Submitted	Submitted		Checked and feedback by IFRIT
Malaysia	Need to submit the forest cover map in raster format	Submitted	Submitted	Submitted the completion report	
Myanmar	Submitted 2010 classification map, 2005 is under process				Checked and feedback by IFRIT
Thailand	Refining forest cover map	Completed and preparing to submit	Completed and preparing to submit	Writing	
Vietnam	Need to submit the forest cover map in raster format	Submitted	Submitted		

Main Activities

Date	Venue	Workshop
September 13-15, 2011	Beijing, China	Inception workshop
June 5-8, 2012	Vientiane, Lao PDR	Progress & Training Workshop
Nov. 30 – Dec. 2, 2012	Bangkok, Thailand	Mid-term Progress & Evaluation Workshop
May 8-10, 2013	Kunming China	3rd Progress Workshop
November 4-6, 2013	HoChiMinh, Viet Nam	4th Progress Workshop
June 17-20, 2014	Beijing, China	Completion Workshop

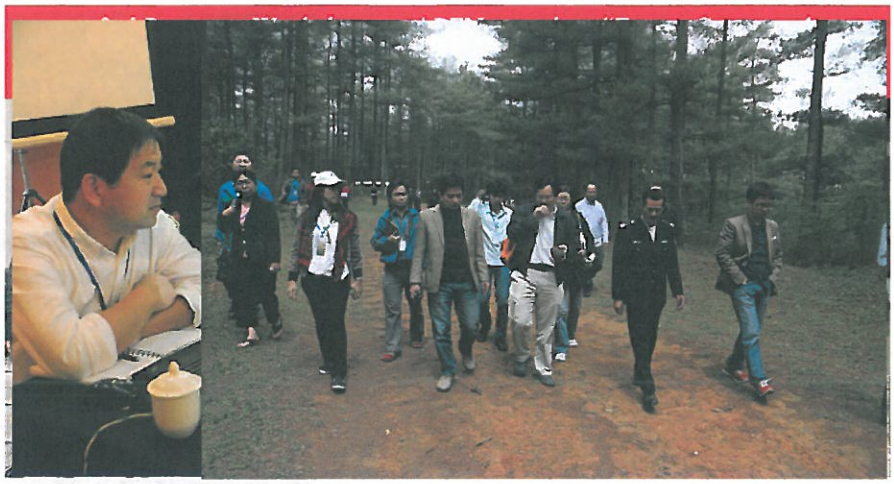
Project inception workshop Beijing, China Sep.13-14, 2011

Progress & Training Workshop in Vientiane, Laos June 5th– 8th 2012

Mid-term Progress & Evaluation Workshop in Bangkok, Thailand November 30 to December 2, 2012

3rd Progress Workshop

in Kunming, Yunnan Province of China
May 8-10, 2013



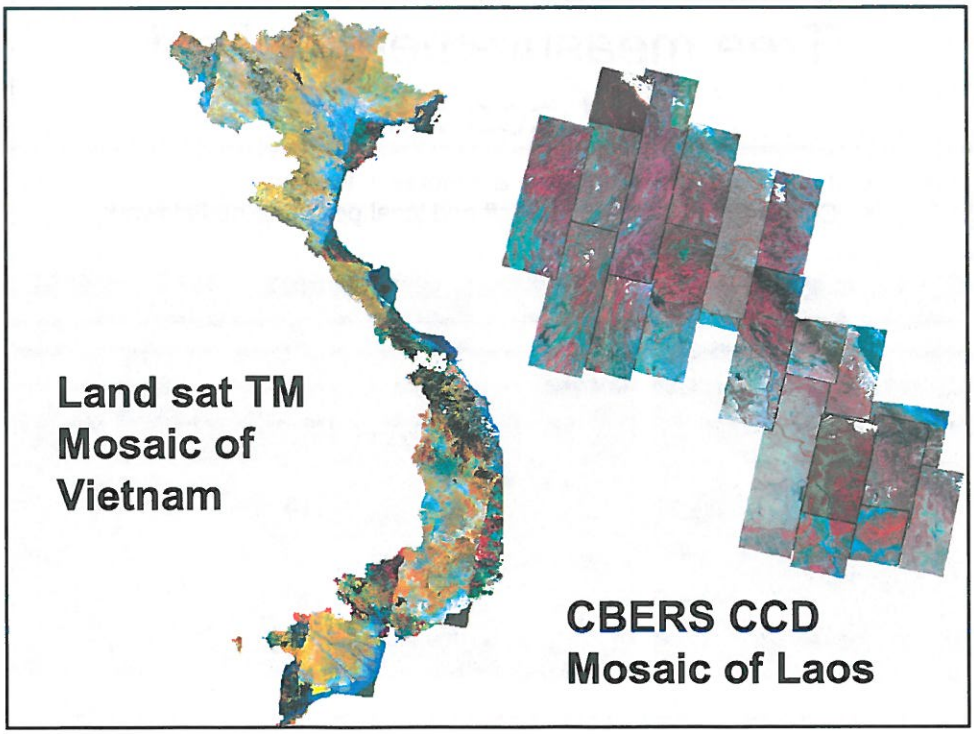
4th Progress Workshop

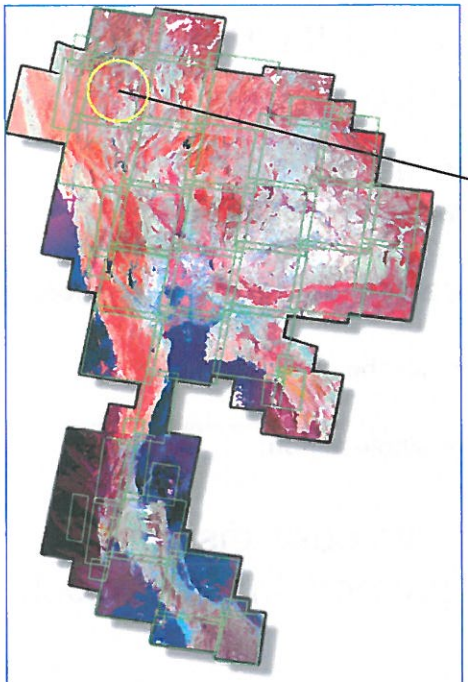
in HoChiMinh, Viet Nam
November 4-6, 2013

Remote sensing data collection and distribution

- Build remote sensing database of
  - Fine resolution RS data for test sites of 2010 circa:
    - RapidEye, SPOT
  - Mid-resolution RS data of 2005 and 2010 for whole region:
    - Landsat, CBERS, HJ
  - Coarse resolution RS data for the whole region:
    - MODIS, MERIS, FY
  - Spaceborne Lidar data for whole region:
    - ICESat GLAS

All of these data have been distributed to corresponding partners in this project.





Mosaic of LANDSAT 5 TM for Thailand

Chaing Mai

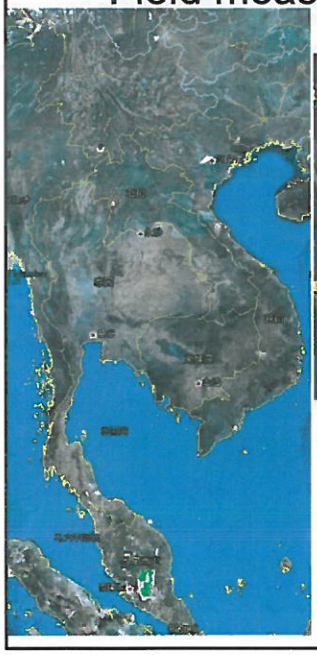
Tree measurement at field of Laos PDR

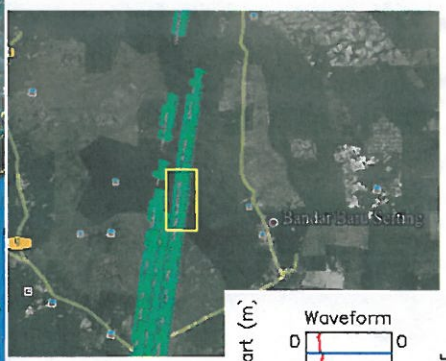
- Tree species was identified and noted in the field
- Collaboration with district staff and local people to do fieldwork

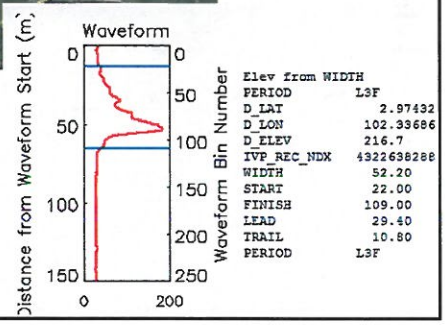
Thailand Site Visiting

Deputy director of Royal Forest Department, acting Thailand Project Director
Inspection for GLAS footprint plot measurement in mangrove forest study site at Trad Province, East of Thailand.

Field measurements in Pasoh, Malaysia







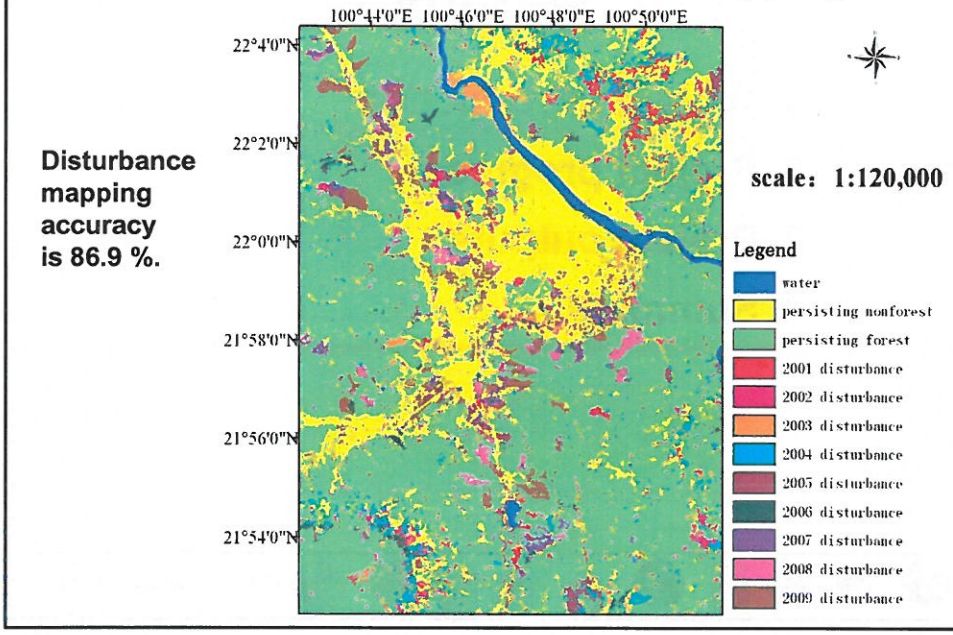
Algorithm development

- Forest cover mapping algorithms development,
- Forest change detection algorithms development,
- Forest carbon storage estimation algorithms development.

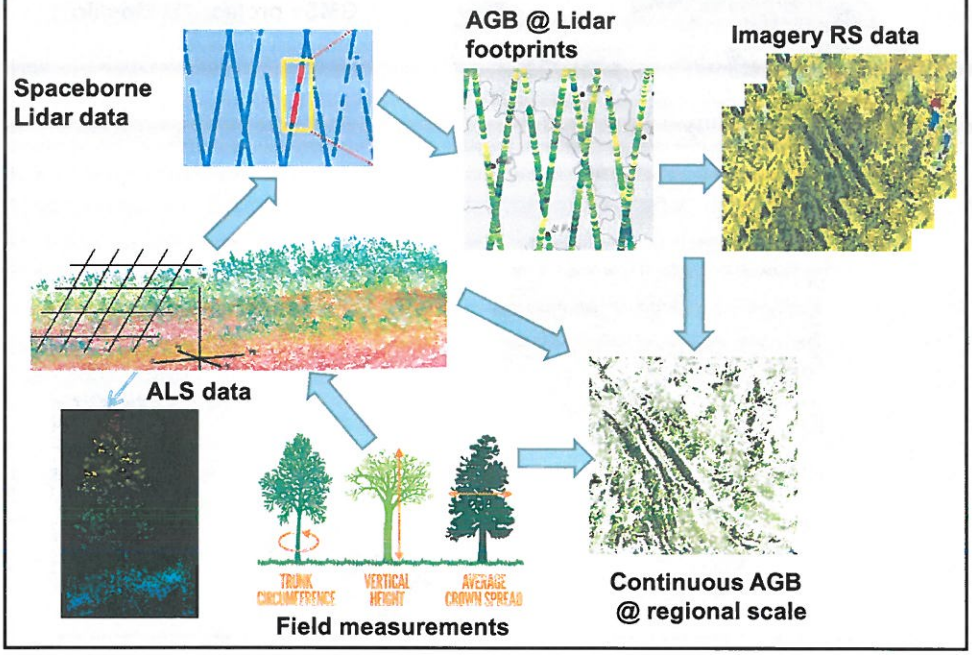
Hierarchical classification system

Level I	Level II	Level III	Level VI*
1Forest	1Needleleaf forest	1Evergreen Needleleaf Forest	1Nature
			2Plantation
		2Deciduous Needleleaf Forest	1Nature
			2Plantation
	2Broadleaf forest	1Evergreen Broadleaf Forest	1Nature
			2Plantation
		2Deciduous Broadleaf Forest	1Nature
			2Rubber 3Dipterocarp 4Other plantation
	3Mixed forest		
	4Bamboo		
	5Wetland forest	1Mangrove Forest	
		2Peat Swamp Forest	
		3Fresh Water Swamp Forest	
	6Gallery Forest		
2Non-Forest	1Shrub land		
	2Savannahs		
	3Grassland		
	4Crop land		
	5Urban and Built-Up		
	6Water		
3Cloud/snow	1Other unclassified		
4No data			
Notes	Open to add other types		

Annual Forest Disturbance Mapping



Scheme for GMS AGB estimation



Outline

1. Project introduction
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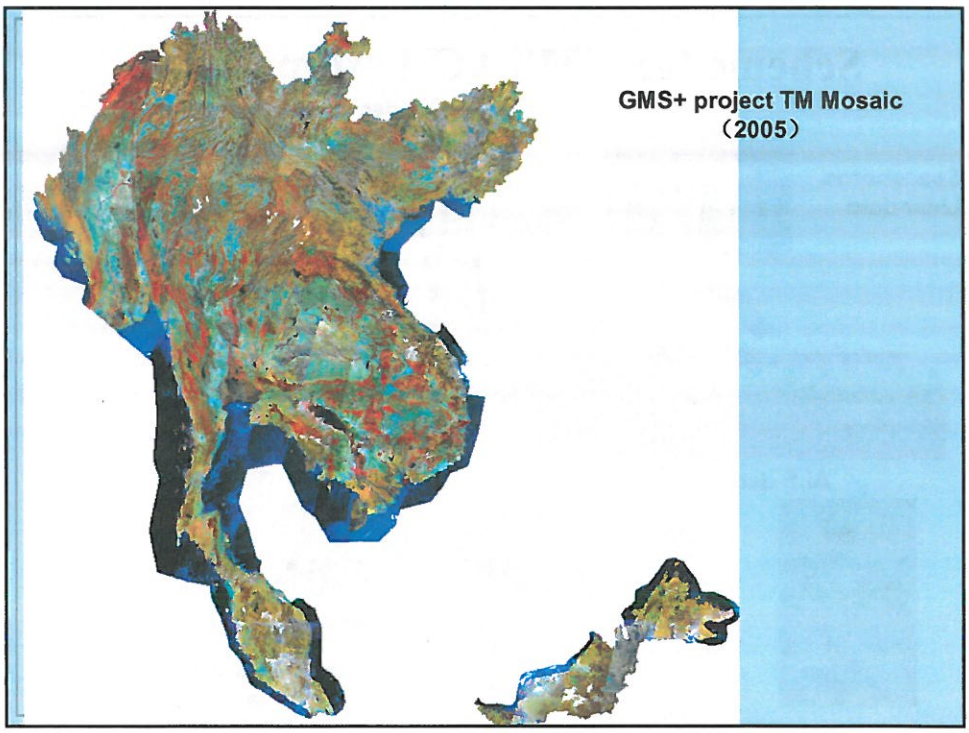
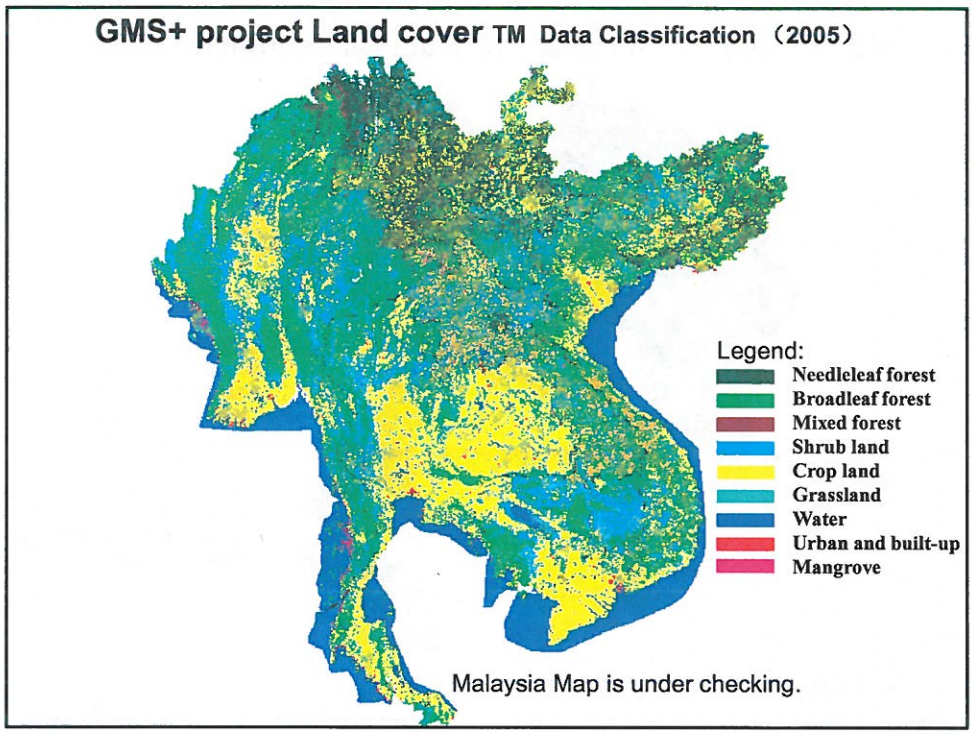
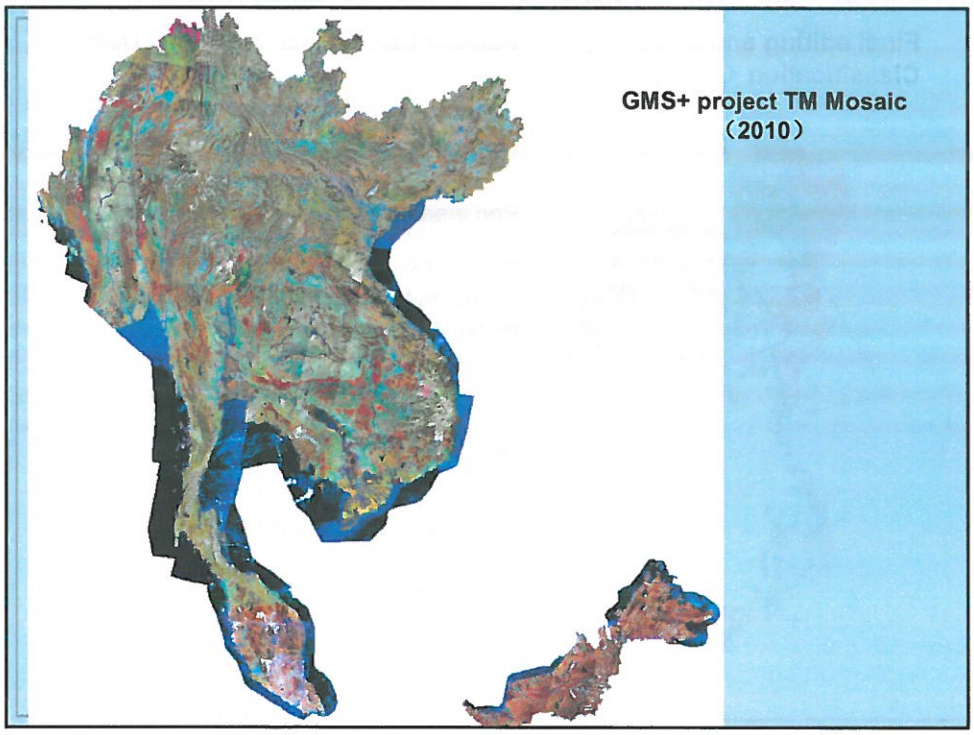
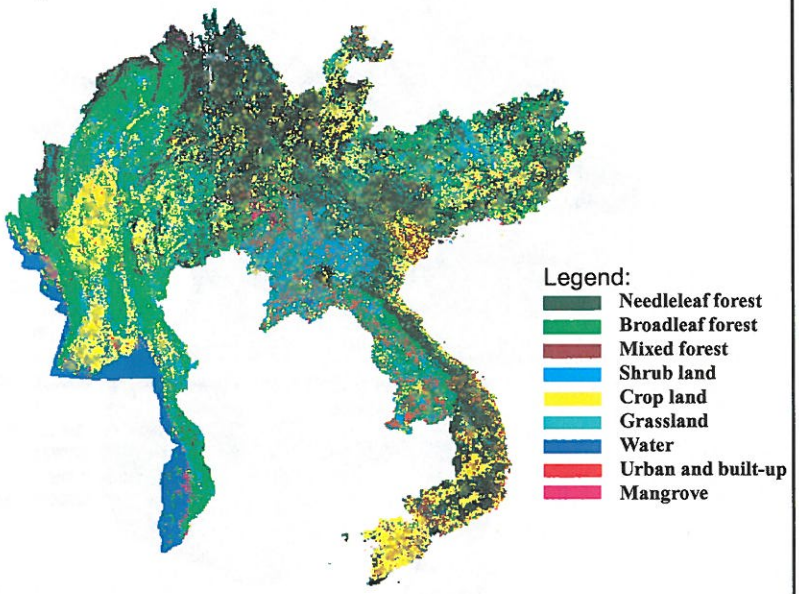



GMS+ project Land cover TM Data Classification （2005）
Legend:
Needleleaf forest
Broadleaf forest
Mixed forest
Shrub land
Crop land
Grassland
Water
Urban and built-up
Mangrove
Malaysia Map is under checking.

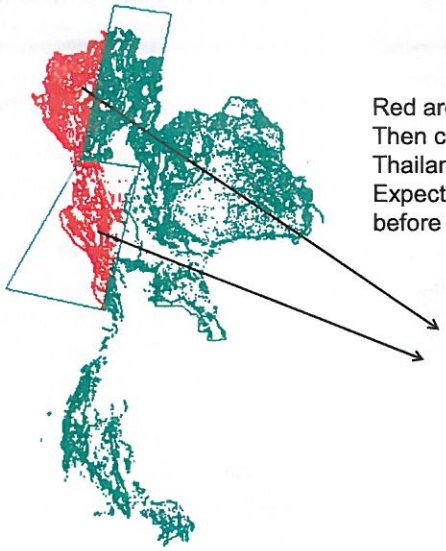

GMS+ project TM Mosaic
（2010）

GMS+ project Land cover TM Data Classification（2010）



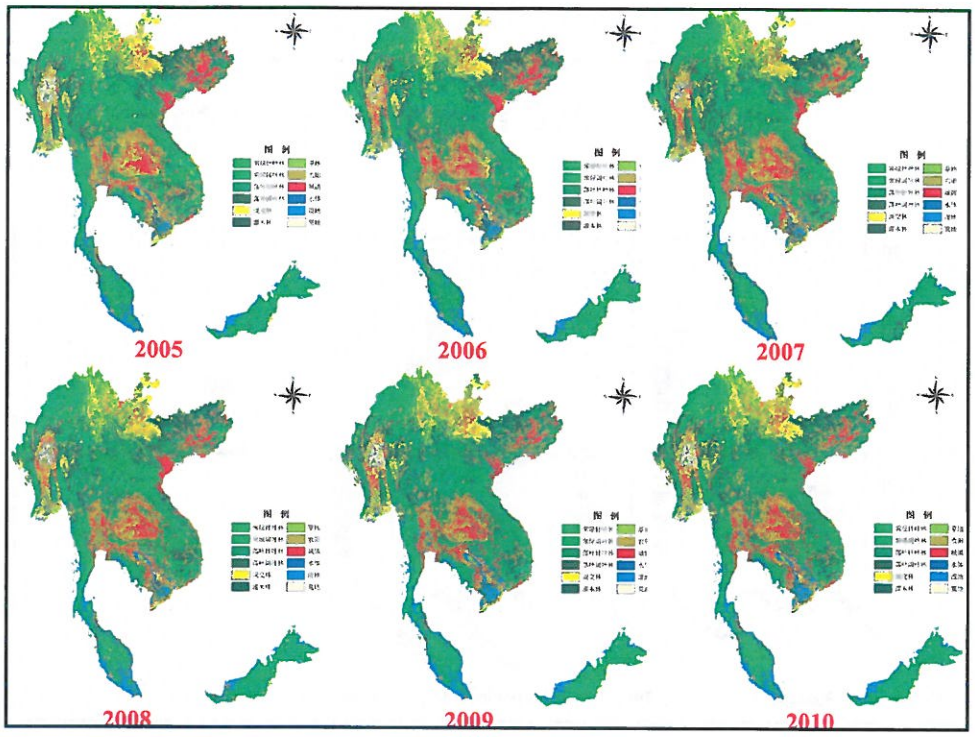
Lack of Cambodia、 Malaysia、 Thailand

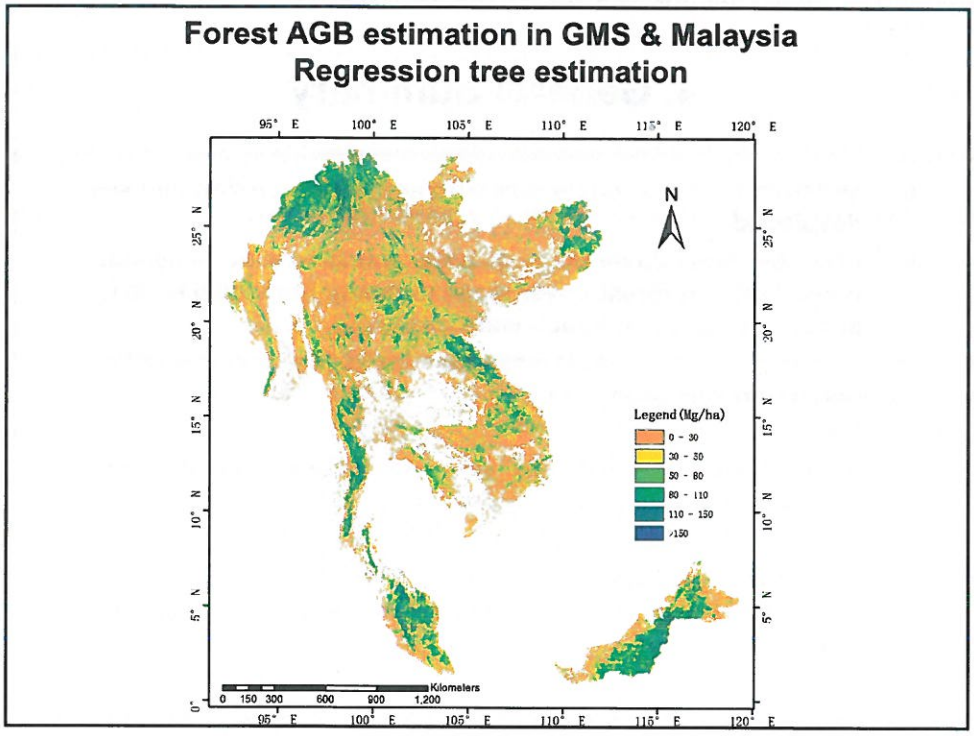
Final editing and checking for Thailand Land cover from TM Data Classification（2010)



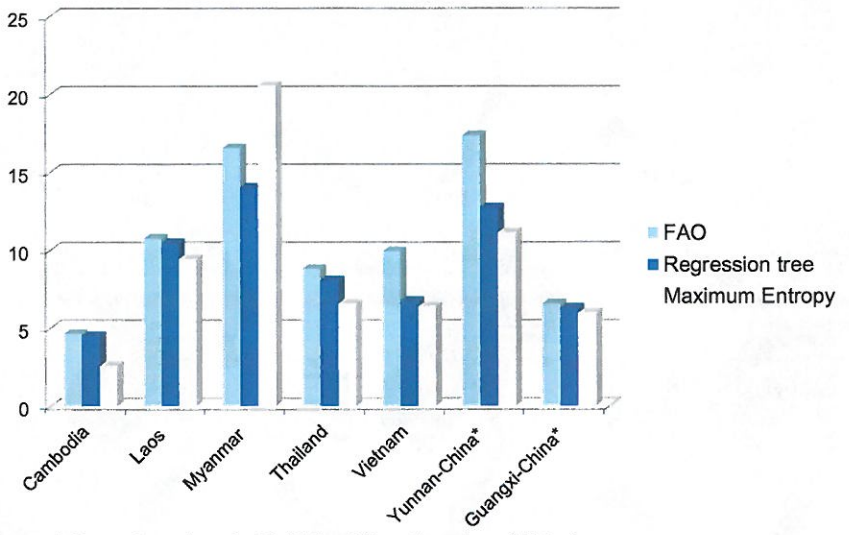
Red area need final checking.
Then combine all parts to produce Thailand forest map 2010
Expect to be completed and submitted before 15 May 2014

Uncompleted area


2005
2006
2007
2008
2009
2010


Forest AGB estimation in GMS & Malaysia
Regression tree estimation
95° E
100° E
105° E
110° E
115° E
120° E
25° N
20° N
15° N
10° N
5° N
0°
N
Legend (Mg/ha)
0 - 30
30 - 50
50 - 80
80 - 110
110 - 150
>150
0 150 300 600 900 1,200
Kilometers

Estimated forest biomass compare with FRA2010 report (million ton)



(* Yunnan & Guangxi was from the 7th National Forest inventory of China)

4. General Summery

I. **Methods for forest cover mapping and carbon estimation were developed.**

II. **Produce forest cover maps of 2005, and 2010 at 30 m spatial resolution and forest cover maps annually from 2005 to 2010 at 500 m spatial resolution were produced.**

III. **Forest above ground biomass map for 2005 at 500 m spatial resolution was produced.**

IV. **More analysis and validation of map products are undergoing.**

① **Final map products are under finalizing**

② **Report are under preparation**

③ **Final meeting: June 17～20, 2014 in Beijing**

④ **Forest coverage and carbon distribution characteristics will be analyzed.**