



TỔNG CỤC LÂM NGHIỆP

VIETNAM ADMINISTRATION OF FORESTRY

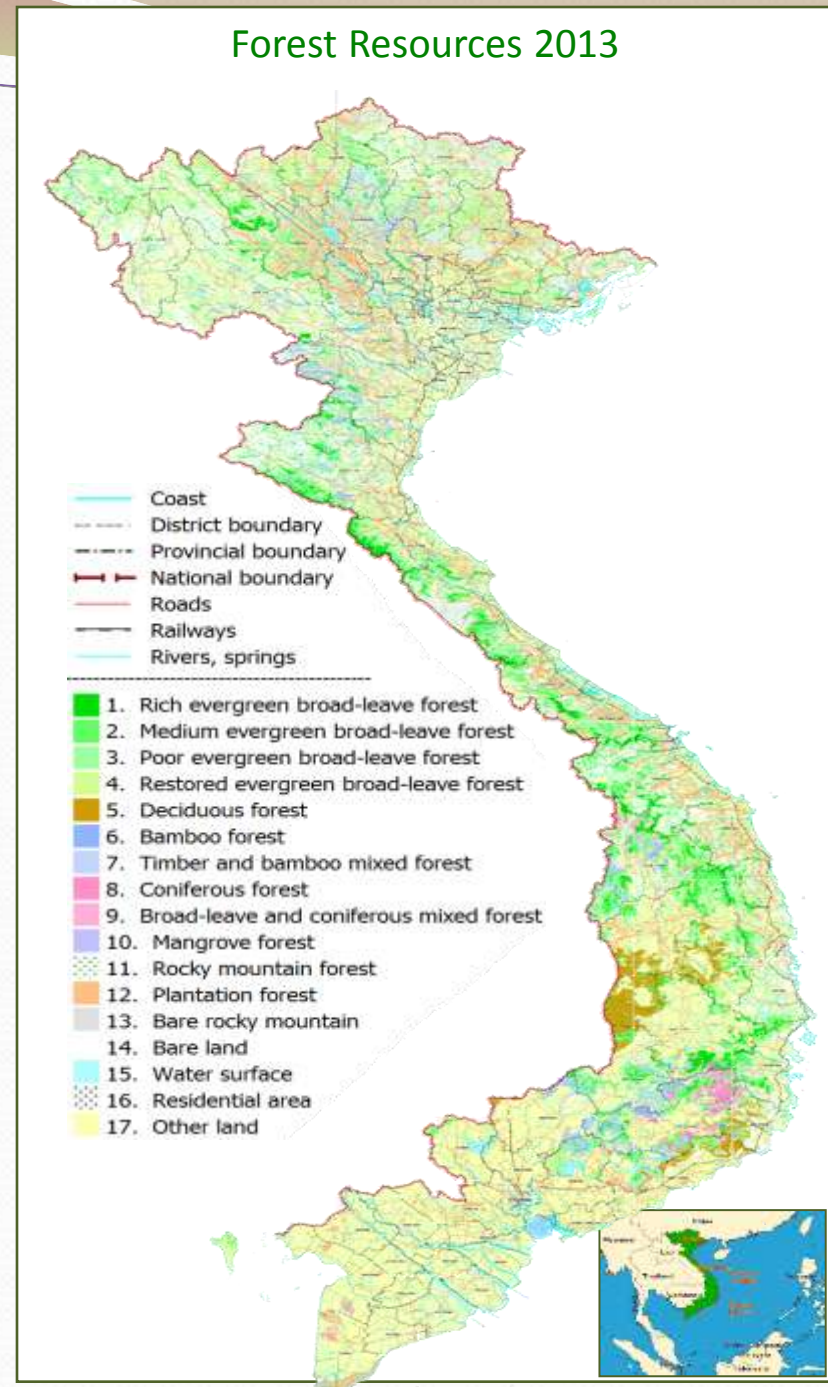


Bộ Nông nghiệp và
Phát triển nông thôn

VIETNAM' NATIONAL FOREST MONITORING SYSTEM

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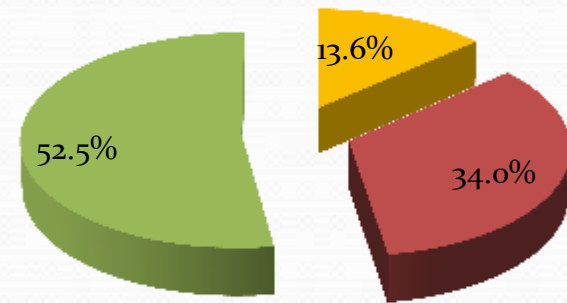
1. Overview of Vietnam Forest Resources



1.1. Forest land-use planning

Forest land planned for forestry till 2020: 16.2 millions ha equivalent to 44% of the natural land area and divided into 3 categories:

- Special-use forest: 2.2 millions ha;
- Protection forest: 5.5 millions ha;
- Production forest: 8.5 millions ha.



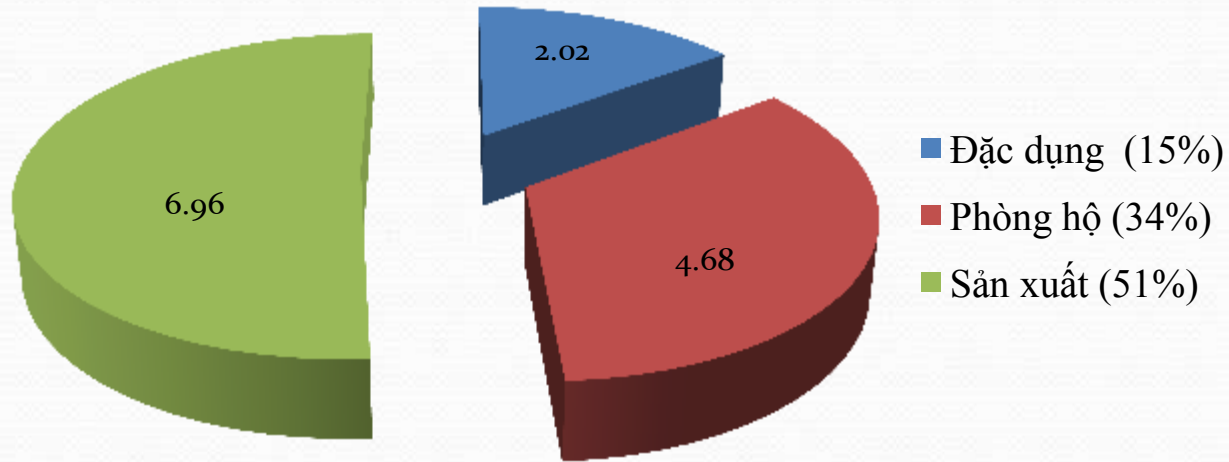
- Rừng đặc dụng
- Rừng phòng hộ
- Rừng sản xuất



1.2. Status of forests 2013

Million ha

Forest categories	Total	Special-use	Protection	Production	Non-forestry
Total	13,95	2,08	4,67	7,00	0,21
Natural	10,40	2,00	4,01	4,35	0,04
Planted	3,56	0,08	0,65	2,65	0,17



Status of forests 2013

Forest and forest land types	Areas (ha)	3 categories of forest			Forest outside of plan (ha)
		Special used forest (ha)	Protection forest (ha)	Production forest (ha)	
Forested	13,954,454	2,081,790	4,665,531	7,001,018	206,114
A. Natural forests (74,5%)	10,398,160	1,999,442	4,012,435	4,350,488	35,795
1. Woody stands (60%)	8,429,476	1,561,410	3,209,753	3,632,953	25,359
2. Bamboo stands	517,694	51,982	143,113	320,220	2,378
3. Mixed stands	672,971	143,399	226,494	300,980	2,097
4. Mangrove	57,716	13,984	42,723	842	166
5. Lime-stone cast forests	720,303	228,666	390,350	95,493	5,794
B. Planted (25,4%)	3,556,294	82,348	653,096	2,650,530	170,319
1. Matured	1,915,080	59,153	407,264	1,372,140	76,523
2. Non-matured	1,076,072	16,036	153,105	819,054	87,877
3. Bamboo	86,652	196	6,656	79,005	795
4. Perennial trees (NTFPs and rubber)	416,529	2,771	56,556	353,296	3,905
5. Planted mangrove & melaleuca	61,961	4,191	29,516	27,035	1,220

MAP OF FOREST IN 2013





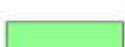











Forest cover: 40,96% (13,954,454 ha)

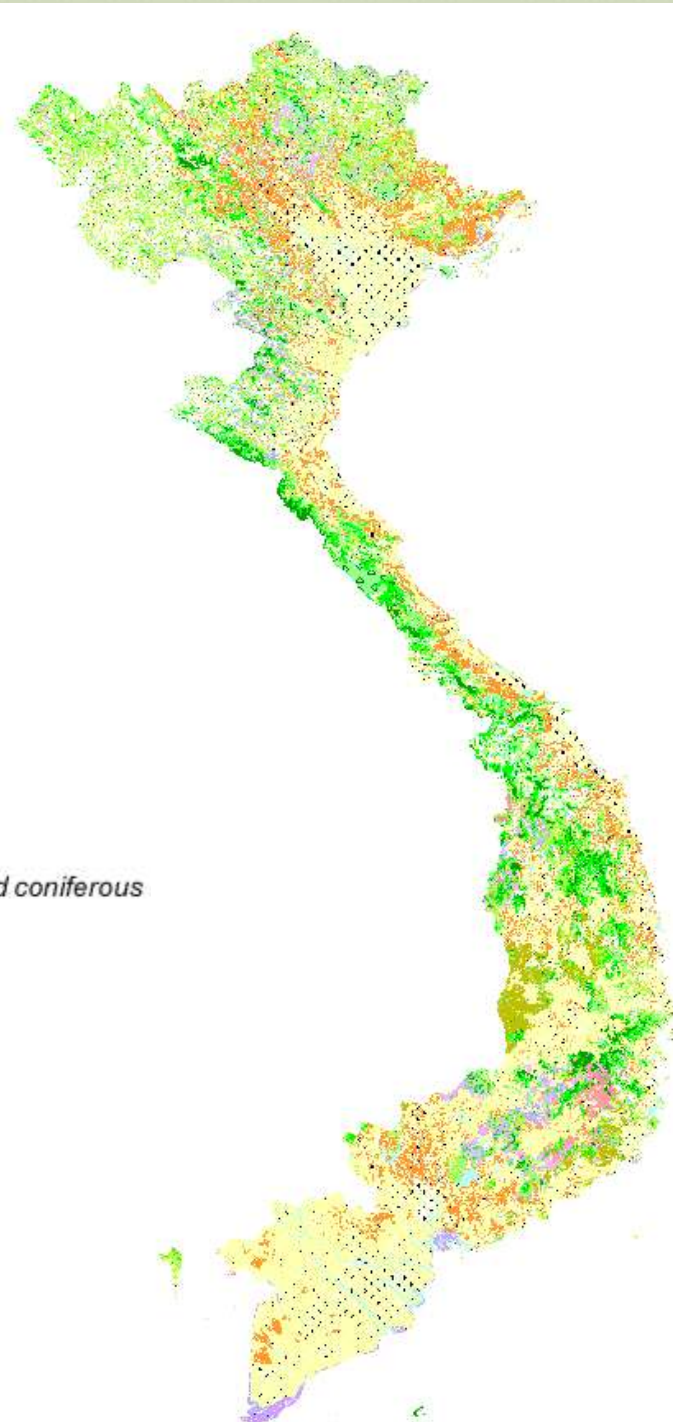
In which:

- Natural forest 10,398,160 ha

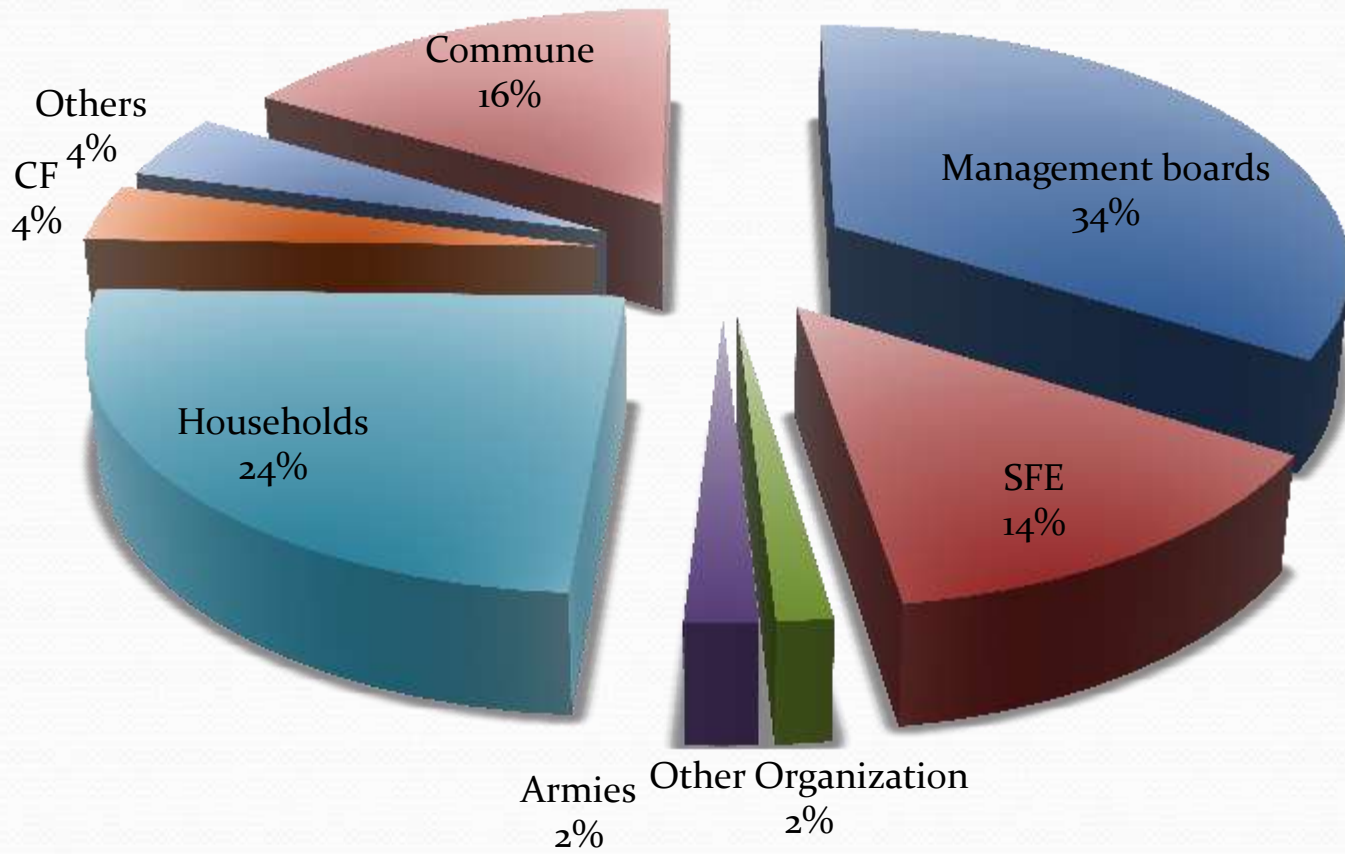
- Plantation 2,750,199 ha

LOẠI ĐẤT, LOẠI RỪNG - FOREST TYPES

	Rừng lá rộng thường xanh giàu <i>Natural evergreen broadleaved - Rich</i>		Rừng hỗn giao lá rộng, lá kim <i>Natural mixed broadleaved and coniferous</i>
	Rừng lá rộng thường xanh trung bình <i>Natural evergreen broadleaved - Medium</i>		Rừng ngập mặn <i>Mangrove</i>
	Rừng lá rộng thường xanh nghèo <i>Natural evergreen broadleaved - Poor</i>		Rừng trên núi đá <i>Limestone forest</i>
	Rừng lá rộng thường xanh phục hồi <i>Natural rehabilitated</i>		Rừng trồng <i>Plantation</i>
	Rừng tự nhiên lá rộng rụng lá <i>Natural deciduous</i>		Núi đá trọc <i>Limestone</i>
	Rừng tự nhiên tre nứa <i>Natural bamboo</i>		Đất trống <i>Bare land</i>
	Rừng tự nhiên hỗn giao gỗ, tre nứa <i>Natural mixed wood and bamboo</i>		Khu dân cư <i>Residential area</i>
	Rừng tự nhiên lá kim <i>Natural coniferous</i>		Đất khác <i>Other land</i>

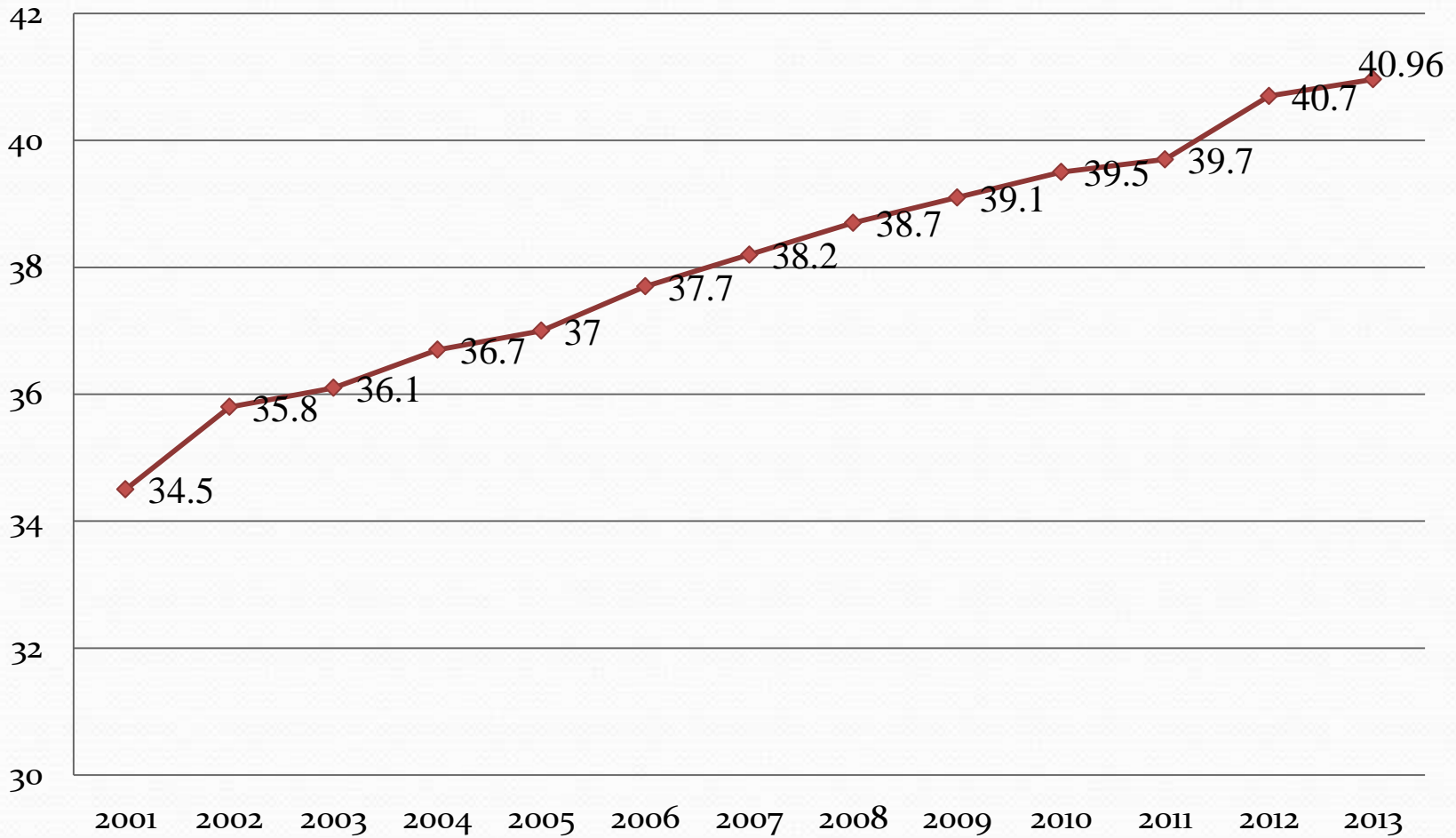


1.3. Forest area by owner groups



1.4. Change of forest coverage

%



CHANGE OF FOREST COVER 1990-2013

1990

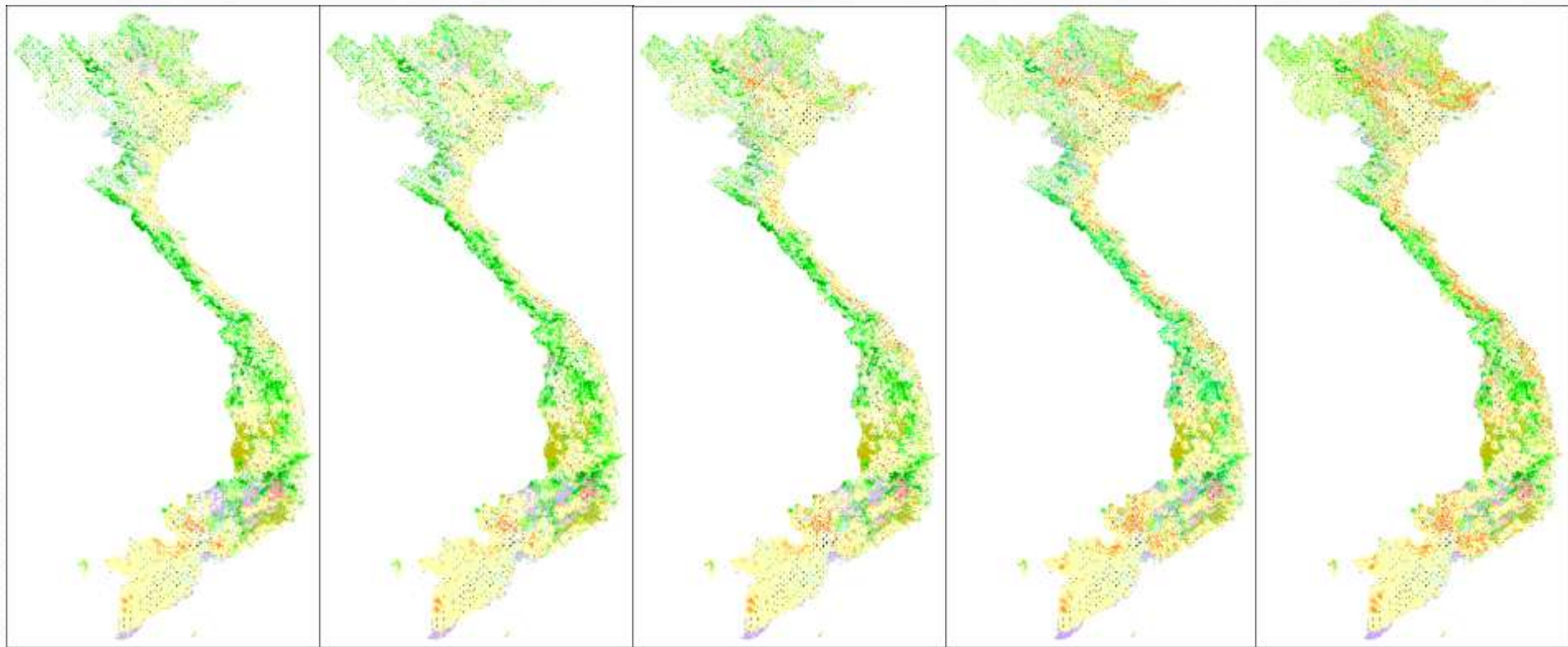
1995

2000

2005

2010

2013



27.2%
40,96%

28.2%

34.3%

37.0%

39.5%

1.5. Change of forest stock nation-wide

Year	Forest stock			
	Standing wood stock (1000 m3)			Bamboo (million stem)
	Total	Naturally grown	Planted	
1995	583.656	569.114	14.542	-
2000	782.010	751.426	30.584	5.336
2005	811.679	758.134	53.545	9.008
2010	935.327	861.810	73.517	8.211

F Source: Monitoring of nation-wide forest change

2. NATIONAL FOREST MONITORING SYSTEM IN VIETNAM

I. National Forest Inventory Monitoring and Assessment Program

funded by Vietnam Ministry of Agriculture and Rural Development
(MARD) Period 1991 - 2010

Establishment of database belongs to “National Program on Forest Resources Change Monitoring and Evaluation” was carried out from 1991 by the Vietnam Forest Inventory and Planning Institute (FIPI) across the whole country .

Monitoring of the forest in two aspects. There are:

+ Forest areas

+ Forest qualities

- Monitoring of forest areas by using of different satellites images (Land Sat, Spot (1-5), ALOS)

- Forest qualities by set up the sample plots system on the forest areas.

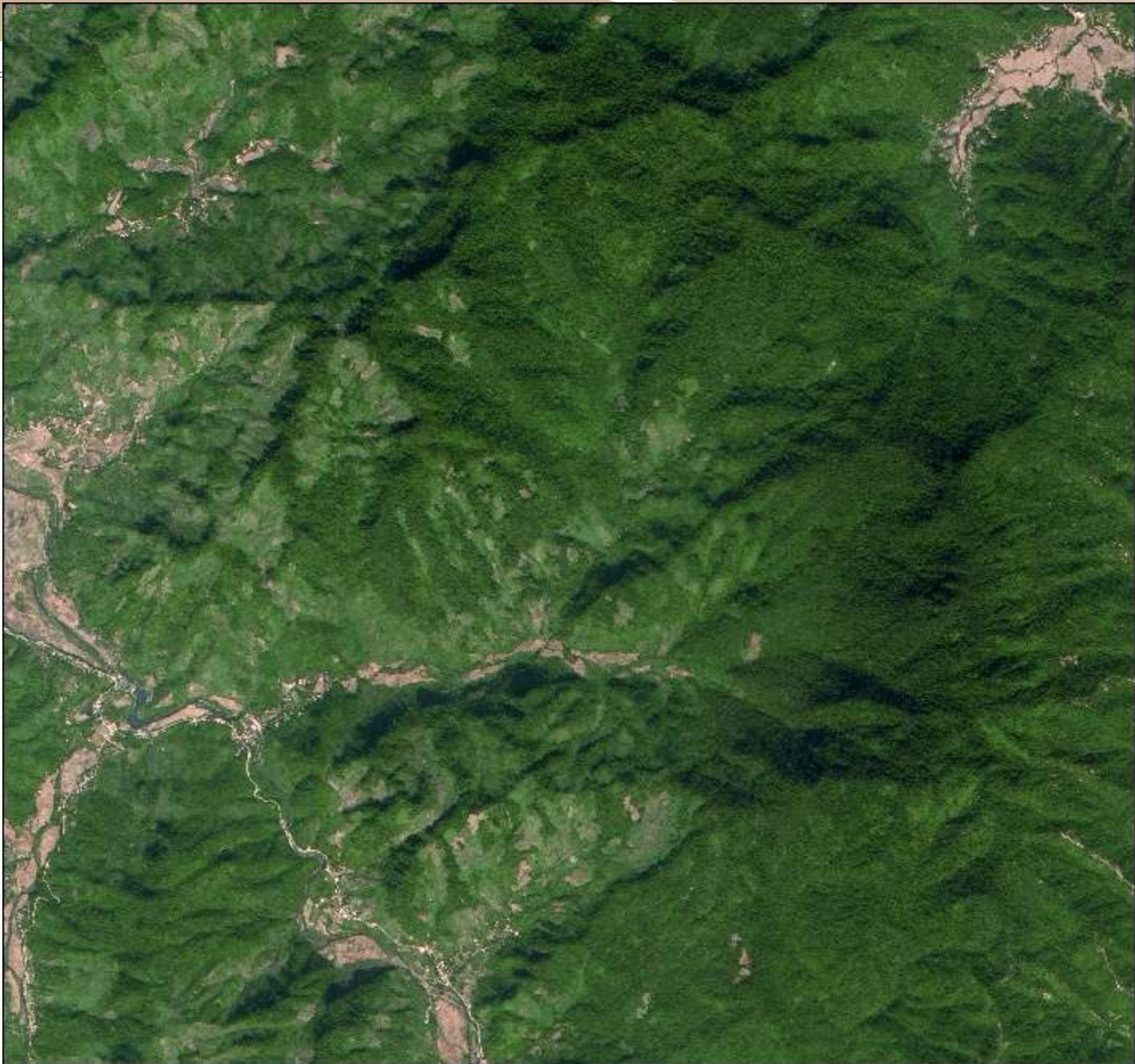
MAKING FOREST COVER

Period	Image	Interpretation method	Scale of map	Mapped area
1991-1995	Landsat TM	- Visual on printed images	1/100,000	Entire country
1996-2000	SPOT 3	- Visual on printed images	1/100,000	Entire country
2001-2005	Landsat ETM+	- Digital classification	1/100,000	Entire country
2006-2010	SPOT 5	- Visual on screen	1/25,000	Entire country
2011-2015	SPOT5	Automatic	1/10.000	Entire country

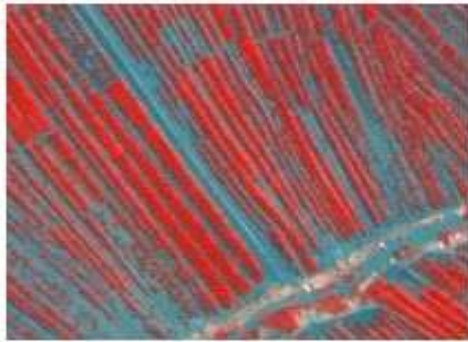
Mapinfo, Micristation, Arcview, AcrGis, ERDAS, ENVI, eCognition

SPOT 5

02 Nov.
2010



INTERPRETATION KEY FOR SPOT 5



Spot5 image, spatial resolution of 2,5m

Acquired date : 17- 5 - 2005

Shrimp pond in Rhizophora plantation

Location: Đat Mui – Ngoc Hien

Clearly distributing as the dark red line in-between light blue.



Field observation

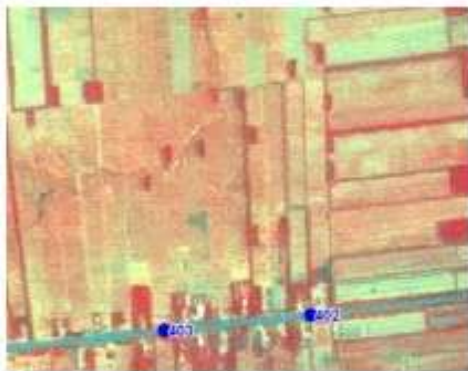
Shrimp pond in Rhizophora plantation

Distribution : Đat Mui – Ngoc Hien

Species : Rhizophora apiculata

Average measurement: $\bar{H} = 9,5m$ $\bar{D} = 9 cm$

Figure 06: Paddy field



Spot5 image, spatial resolution of 2,5m

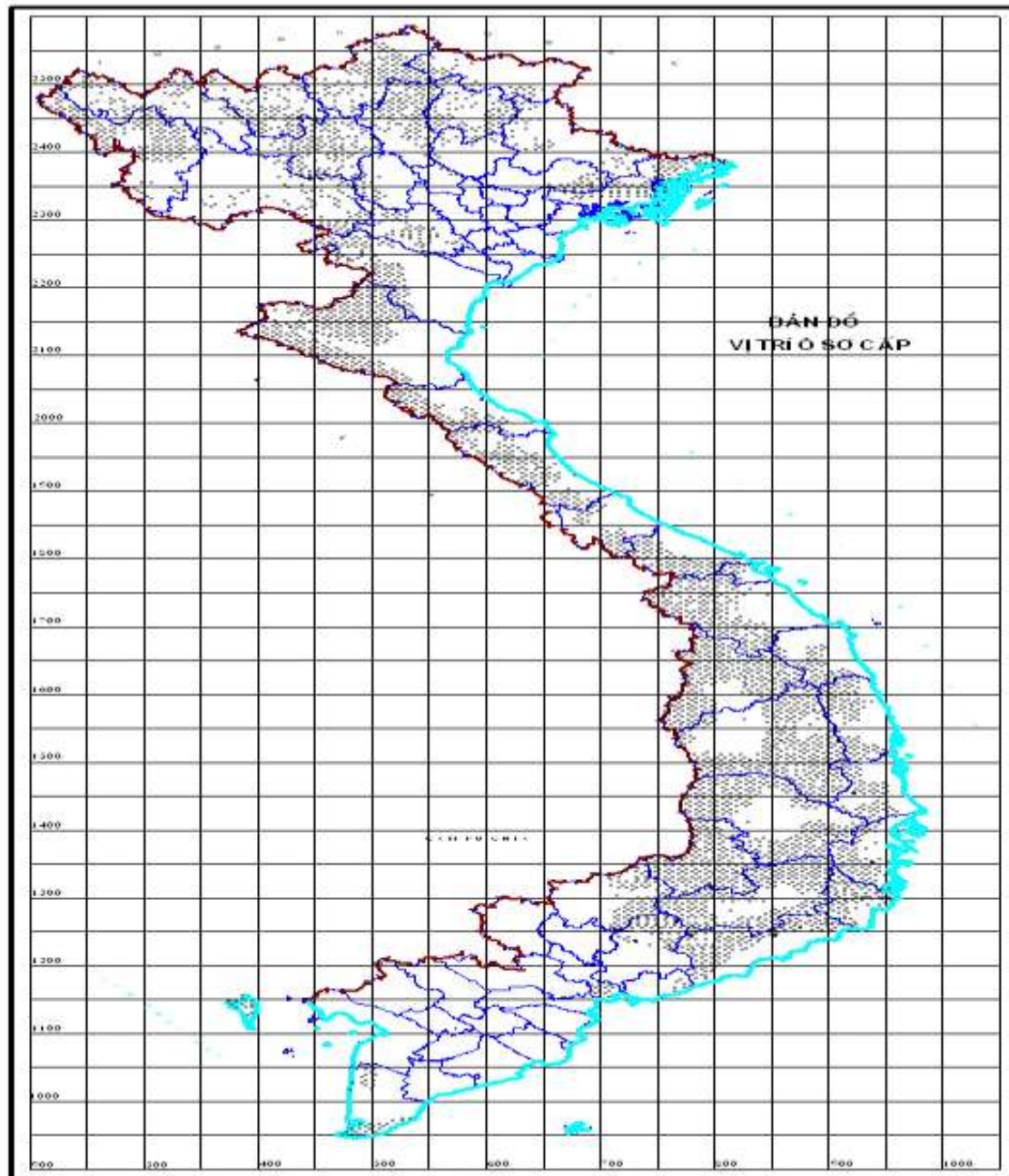
Acquired date: 18 - 6 - 2005

Paddy field

Location: Khanh Tien, U Minh – Ca Mau

Light pink background, Clearly Distributing in rectangle shape.

1. Permanent Sample plot design:



Location of sample plots



Fig. 1: Sample plot map

Sample plot number:..... National No:.....

Provincial No:Timed survey:.....

Sample coordination in UTM (Indian): X.....Y.....

Sample coordination in VN 2000 : X..Y.....

BẢN ĐỒ Ồ SƠ CẤP CHUKỖ IV

Số hiệu ồ: Toàn quốc: 127-81

Nội tỉnh: 39

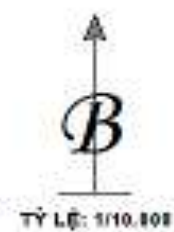
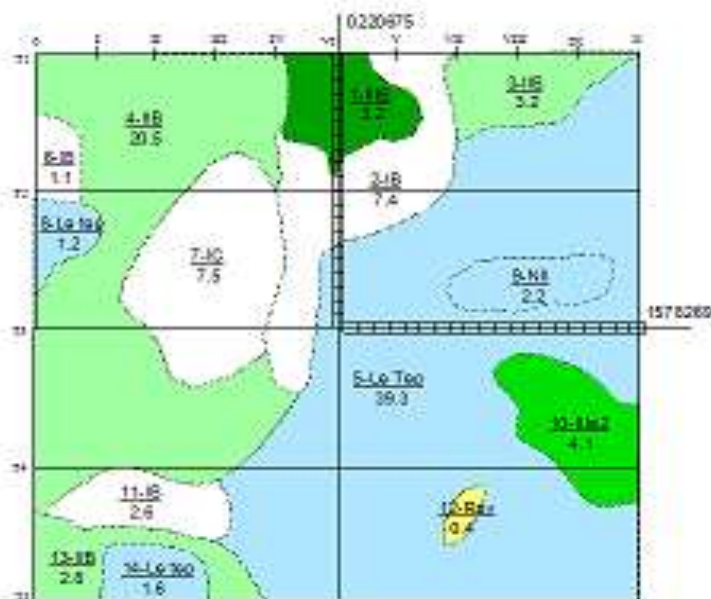
Điều tra lần thứ: 4

Toạ độ tâm ỒS theo bản đồ UTM: - X: 0220.910

Y: 1576.850

Toạ độ tâm ỒS theo bản đồ VN 2000: - X: 0220.675

Y: 1578.269



CHỈ DẪN

Rừng giàu	
Rừng trung bình	
Rừng non	
Rừng HG gỗ +TN	
Rừng trồng	
Rừng tre nứa	
Đất trống	
Đất nông nghiệp	
Ranh giới lô	
SHLô - Trạng thái lô	
Diện tích	1 - B 32.0

Người điều tra: Trần Đình Hưng

Ngày điều tra: 07 - 10 - 2007

Đơn vị: TTSTR & TVLN - Phân viện ĐTQHR NTB & TN

Người kiểm tra:

2. *Sample plot measurements:*

- *Natural Forest stand*

(1) Verifying the forest status in 100 ha sample plot

(2) Data collection in sub-plots: Data collection is only defined in forest land and bare land.

In each sample plot, 40 sub-plots were established in 2 measuring strips (20 sub-plots, with a size of 500m² for each (25m x 20m) (Fig.1).

- Sampling centre identification: Based on the permanent landmark systems and coordination from previous surveys, defining by GPS device and map.

- Two measuring strips were established: Strip 1 in northern direction, strip 2 in the eastern direction (if there are some special cases such as Rock Mountain, big river, pond,... the direction was changed to opposite direction). Established 20 sub-plots per measuring strip.

- Setting up the forest status verifying strip system (from T1 - T5). From strip to next strip is 250 m based on the measuring strip (normally Northern strip).

- *Tree measurement in woody natural forest:* All tree species with DBH \geq 6cm were assessed on their quality

- *NTFP:* defining the specialty of certain region, if other products are popularly used by local people was also identified.

- *Tree regeneration*

- *Plantation measurement:*

+ Plantation with average DBH \geq 6cm, assessed like wood natural forest.

+ Plantation with average DBH $<$ 6cm, only counting the average DBH, height, name and total individual in the plot.

- *Mangrove forest: measure like plantation.*

- *Bamboo forest*

(3) Surveying the social-economic conditions of the nearest commune of the sample plot (minority group, average cattle/household, average income, and habit of using wood, Non-Timber Forest Product (NTFPs) ...).

B. Permanent sample plots for eco. Research (PSP):

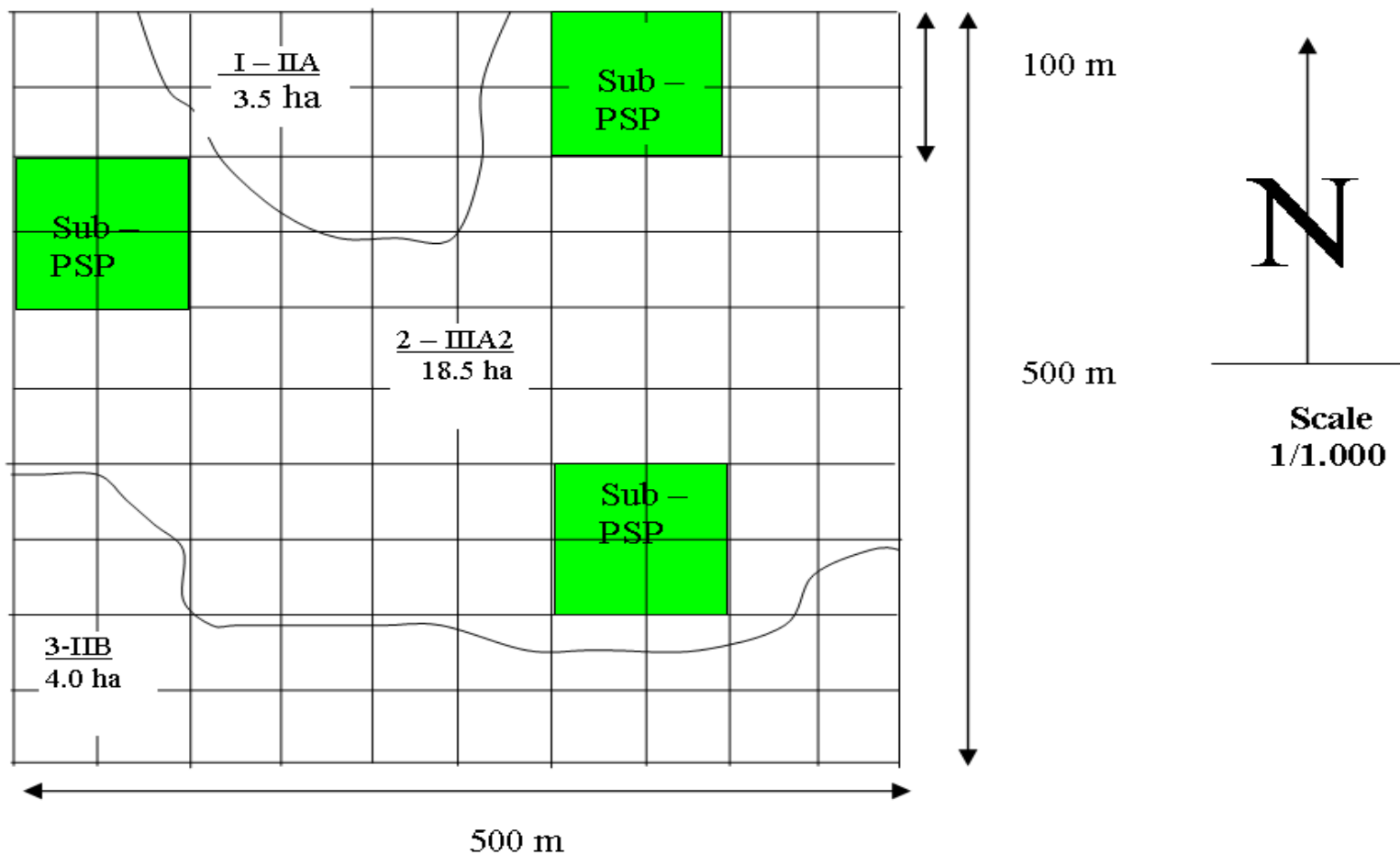
The objective of permanent plot survey is to find out the basis of natural rules of forest in the inter-relationship and forest relation with the environment factors for forest sustainable use and management.

The PSP must represent for forest status of each forest type in certain ecological region. 100 typical permanent sample plots were established. The size of each permanent sample is 25ha (one fourth of SP and normally on the northwestern direction of SP).

1. PSP design

The PSP was chosen from SP system in previous period, the design of PSP as follow:

Fig. 4: Design of permanent sample plot



2. Forest status verification:

Basing on the strips system, the forest status borders are verified, with the forest status area of more than 6 ha is set up three sub-PSPs, if there more than 1 forest status have more than 6 ha, one forest status is set up 3 sub-PSPs.

3. Measuring sample plots (MSP) measurement:

(1) With woody natural forest:

- Measure bole height, total height (0,1 m); Measure of all DBH counted trees; Horizontal diagram drawing; Regeneration; Shrub and grass/herbs investigation; resolved humus:

(2) With bamboo forest:

(3) With mangrove forest:

(4) Soil profile measurement:

II. Annual forest areas monitoring program (NFMP)

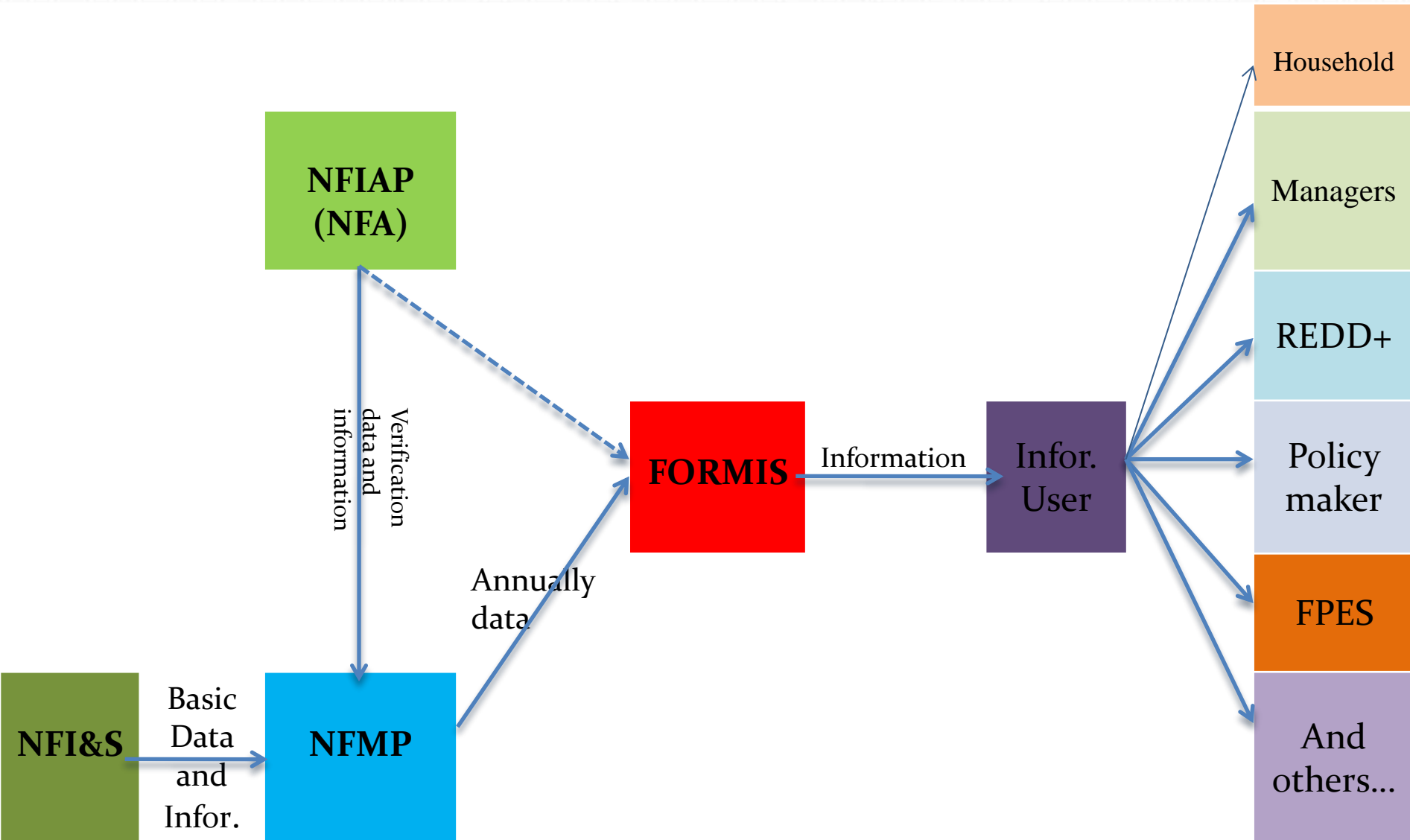
It's done and do by Forest rangers, they do up date the forest changes every year from local level and send to forest protection department for report VNFOREST and public every years. On the base of the map 1/25.000 for communes . Start 2002-now.

III. National forest inventory and statically (NFI&S)

Start to inventory since 2011 on the base of spot 5 satellite images to establish the maps in scale 1/10.000 for commune and 1/50.000 for districts as well as scale 1/100.000 for provinces. It's will use for establishment of forest management plan and FPES as well as Carbon BDS

IV. FORMIS

Forest data and information flow



Thanks for your attention

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Cắt băng khánh thành nhà máy chế biến gỗ SAHABAK.



Người: datvivo.vn

