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**Data/Information Requirement
for Forest Monitoring in Thailand**



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Outline

- 1. Thailand's Forest Situation**
 - 2. Responsible agencies in Forest Monitoring**
 - 3. Driving Force for Data/Information Requirement**
 - 4. Data/Information Requirement for Forest Monitoring in Thailand**
 - 5. Conclusion**
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Thailand's Forest Situation

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- In 1989, all logging concessionaires were revoked, while natural forest areas were rapidly assigned as protect areas (national parks and wildlife sanctuary).
 - In the same time private reforestation areas were also increased due to lacking of timber supply.
 - Also, public awareness about environmental problems were increased according to national and international pressure.
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Thailand's Forest Situation

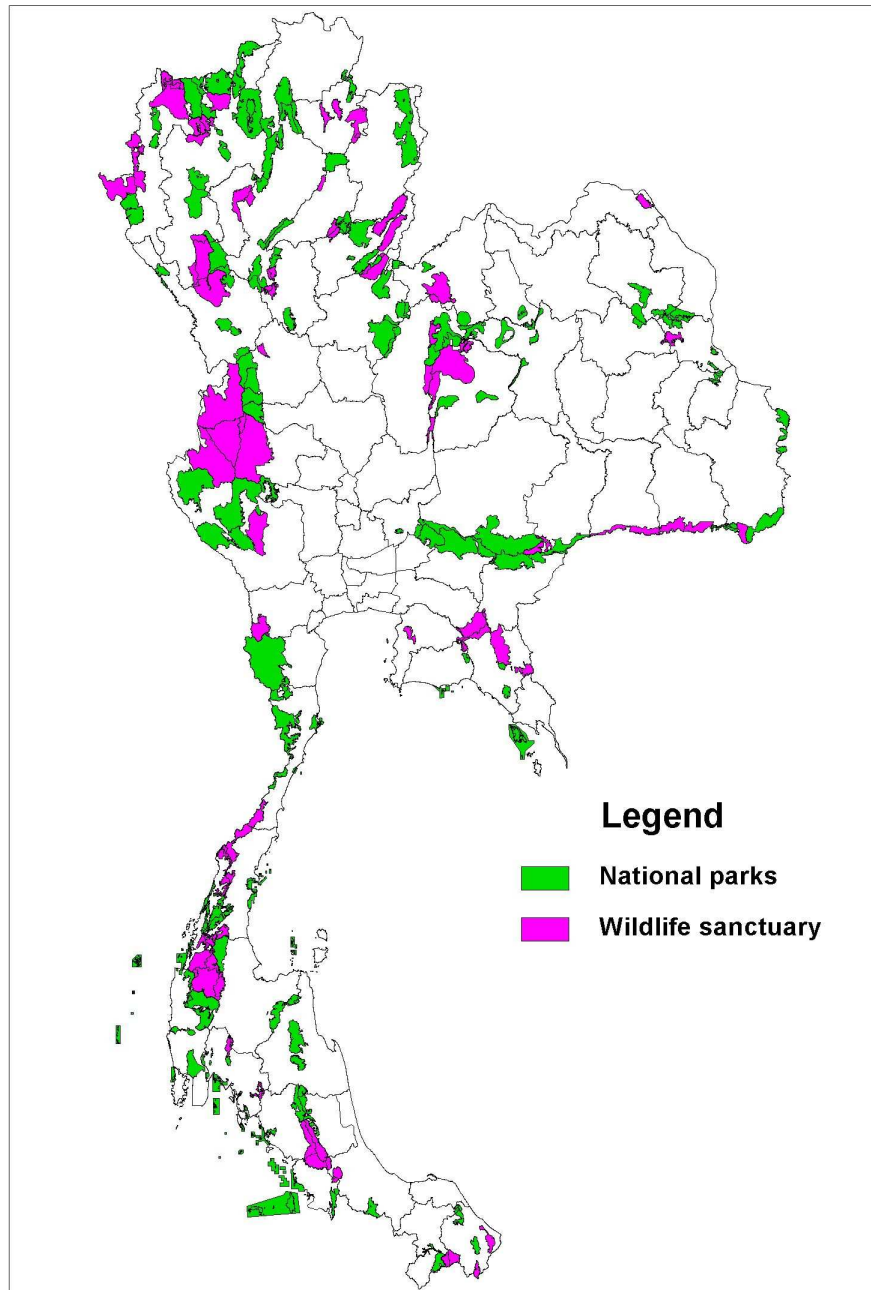
1

- In 2002, government agencies were reorganized by the Government Reform Law. Royal Forest Department under Ministry of Agriculture and Cooperative was restructured and separated into three departments, namely, **Royal Forest Department, Department of National Parks, Wildlife and Plant Conservation and Department of Marine and Coastal Resources.** This reform effects to forest monitoring activities in Thailand.
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Responsible agencies in Forest Monitoring

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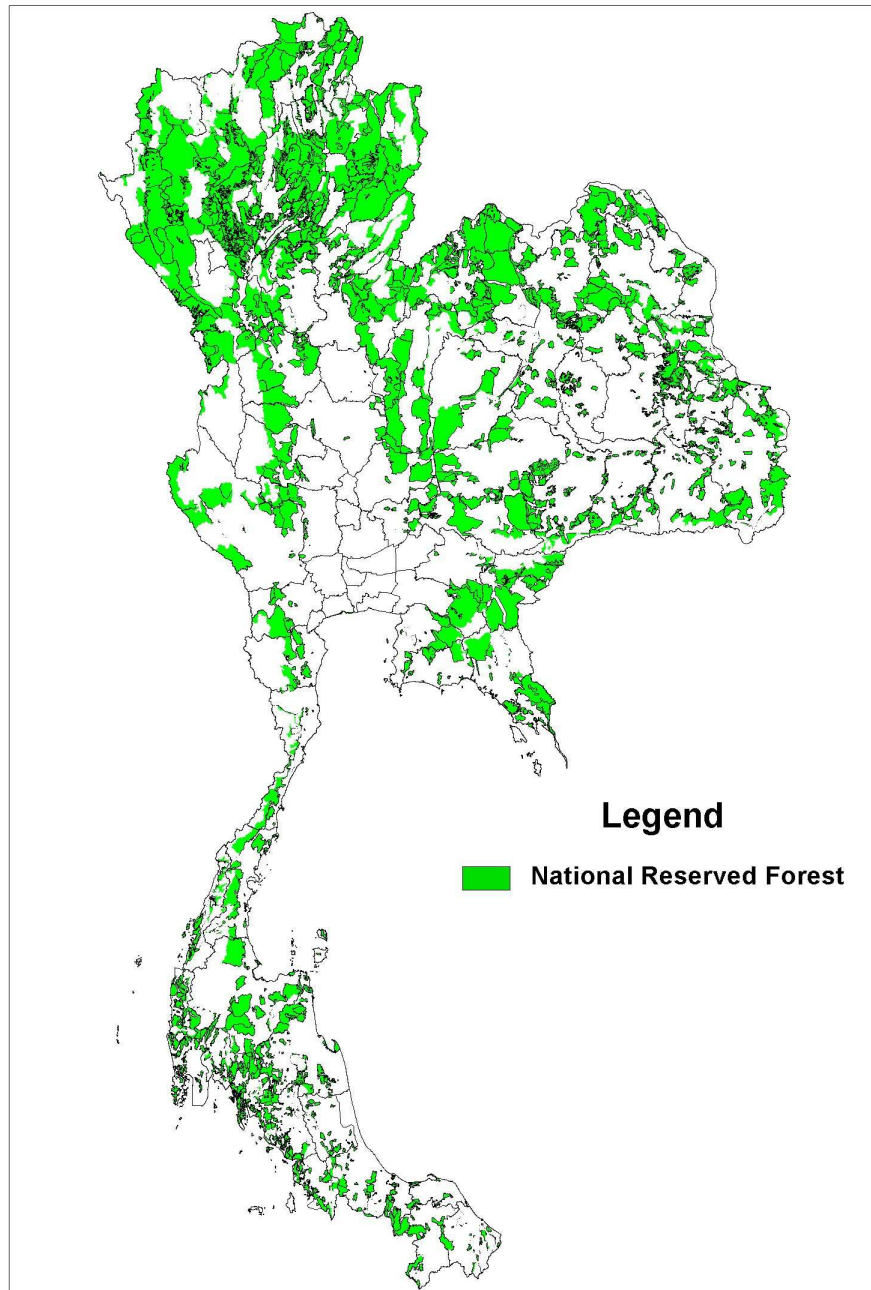
1. Department of National Parks, Wildlife and Plant Conservation (**DNP**)
 - National Park Act
 - Wildlife Conservation Act
 2. Royal Forest Department (**RFD**)
 - National Reserved Forest
 3. Department of Marine and Coastal Resources (**DMCR**)
 - Mangrove Land Use Zonation by Cabinet Resolution
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Responsible area of **DNP**

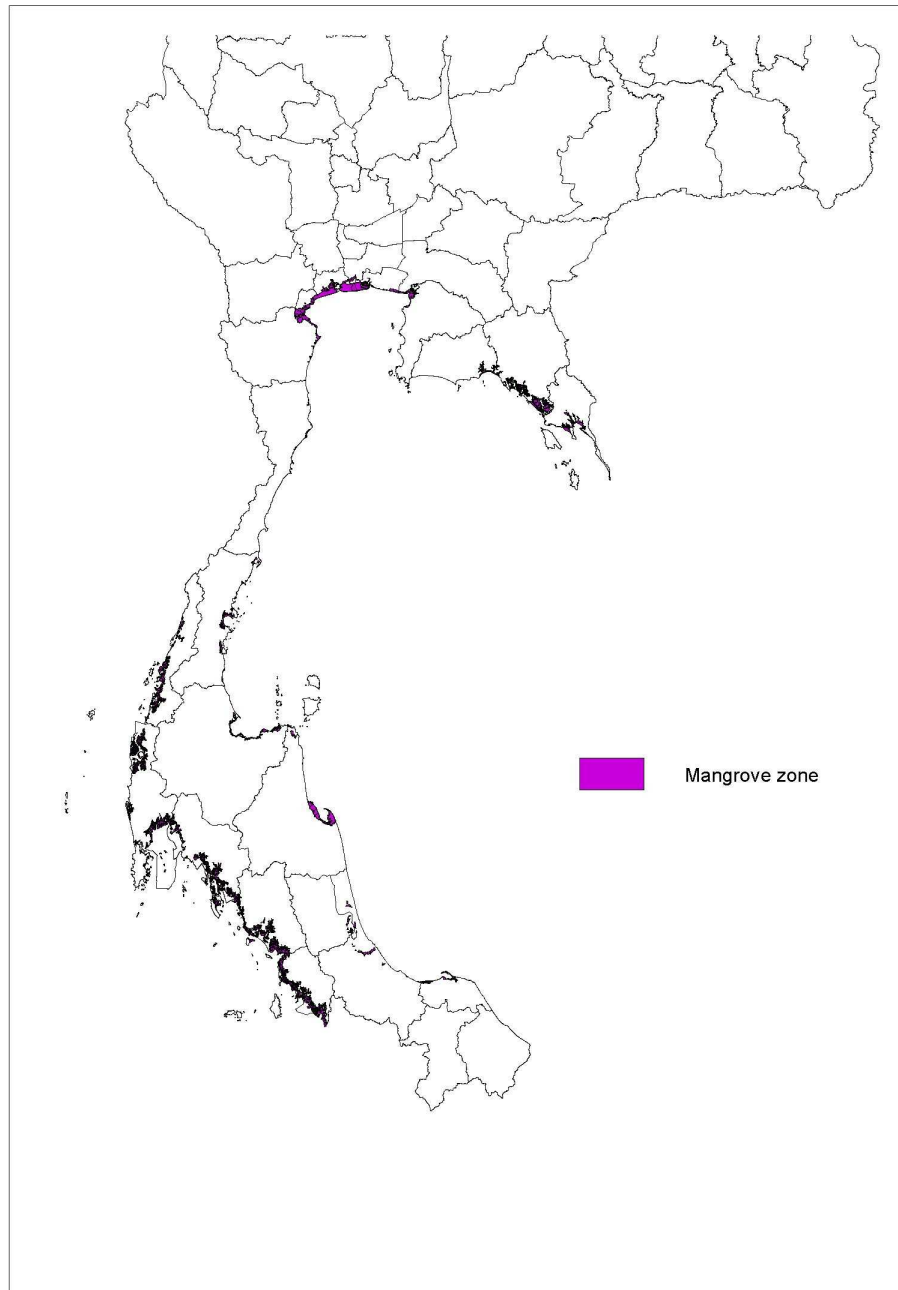
1. National Parks

2. Wildlife Sanctuary



Responsible area of **RFD**

1. National Reserved
Forest



Responsible area of **DMCR**

1. Mangrove Land
Use Zonation by
Cabinet Resolution

Driving Force for Data/ Information Requirement



Lund and Smith (1997) mentioned that **the information requirements of the public land administrator have been growing**. For example, in the 1950s the emphasis was on timber production on forest land in the United States. In the 1960s, interest in recreation, range, and wildlife management gained recognition. In the 1970s, there was an energy shortage. The need for biomass data developed. The 1980s brought about concerns about global warming and carbon sequestration. Interest in ecosystem management, non-wood forest products (NWFP), and biodiversity blossomed in the 1990s. In the year 2000, we will need to understand how forests relate to other lands and uses.

Driving Force for Data/ Information Requirement

					Other's Lands?
				Ecosystems, Biodiversity, Non-Wood Forest Products	Ecosystems, Biodiversity, Non-Wood Forest Products
			Global Warming	Global Warming	Global Warming
		Biomass	Biomass	Biomass	Biomass
	Multiple Resources	Multiple Resources	Multiple Resources	Multiple Resources	Multiple Resources
Timber	Timber	Timber	Timber	Timber	Timber
1950s	1960s	1970s	1980s	1990s	2000+

Figure 1-1: Increase in information needs about forest lands in the United States (Lund and Smith 1997).

Driving Force for Data/ Information Requirement



1. National Policy

- Government policy
- Public awareness
- NGOs

2. International Support (Treaties/Conventions)

- Convention of Biological Diversity (CBD)
 - United Nations Framework Convention on Climate Change (UNFCCC)
 - RAMSAR
 - Etc.
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Data/Information Requirement for Forest Monitoring in Thailand

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1. National Cases

- DNP
- RFD
- DMRC

2. International Support Cases

- Convention of Biological Diversity (CBD)
- United Nations Framework Convention on Climate Change (UNFCCC)

In each case, three components include mandate, data/information requirement and expected output will be explained.

DNP:

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Mandate and Requirement

1. Mandate:

- Monitoring of Protected Area System (NP&WS)
- Forest Fire Monitoring
- Forest Land Encroachment Protection

2. EO Data/Information Requirement

- **Sensor:** Optical and SAR data
- **Spatial resolution:** Medium to high resolution
- **Temporal resolution:**
 - 6 months for PTA and Forest Land Encroachment
 - Daily for forest fire periods (November-April)

3. Expected outputs:

- Forest Cover in PTA and its change
 - Forest Types classification
 - Hotspot of forest fire
 - Forest Land Encroachment rate
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RFD:

4

Mandate and Requirement

1. Mandate:

- Monitoring of Forest Land Encroachment
- Reforestation/Afforestation Program
- Forest Community Program

2. EO Data/Information Requirement

- **Sensor:** Optical and SAR data
- **Spatial resolution:** Medium to high resolution
- **Temporal resolution:**
 - 6 months for Forest Land Encroachment
 - Annually for Re-afforestation and Forest community

3. Expected outputs:

- National Reserved Forest cover and its change
 - Reforestation and Afforestation areas
 - Forest community areas
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DMCR:

4

Mandate and Requirement

1. Mandate:

- Monitoring of Mangrove forest Encroachment
- Reforestation/Afforestation program

2. EO Data/Information Requirement

- **Sensor:** Optical and SAR data
- **Spatial resolution:** Medium to high resolution
- **Temporal resolution:**
 - 6 months for Mangrove Forest Encroachment
 - Annually for Re-afforestation

3. Expected outputs:

- Mangrove forest cover and its change
 - Reforestation and Afforestation areas
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International Support

(Treaty/Convention and Requirement)

4

1. BCD:

- Forest Ecosystem monitoring

2. EO Data/Information Requirement

- **Sensor**: Optical and SAR data
- **Spatial resolution**: High resolution
- **Temporal resolution**: Annually

3. Expected outputs:

- Forest Fragmentation and Structural Indices (i.e. Area, Patch, Edge and Shape metrics)

Capacity building and optimum model with ground information are also required for implementing this task.

International Support

(Treaty/Convention and Requirement)

4

1. UNFCCC:

- Monitoring of Biomass/Carbon Stock

2. EO Data/Information Requirement

- **Sensor:** Optical and SAR data
- **Spatial resolution:** High resolution
- **Temporal resolution:** Annually

3. Expected outputs:

- Biomass/Carbon Statistics
(i.e. Forest area, Volume, Biomass and Carbon stock).

Capacity building and optimum model with ground information are also required for implementing this task with UNFCCC standard.

Summary

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- **Broad range of data/information requirements**
 - multi-spatial resolution
 - multi-temporal resolution
 - monitoring through time
 - **Refinement of existing methods**
 - Optimum method should be investigated and identified for forest monitoring in Thailand.
 - Permanent plots should be identified and allocated for supporting forest monitoring.
 - **Data generalization**
 - Data analysis
 - Information generation
 - Reporting
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Thank you for your attention

