



# Project on Capacity Building for Restoration of Ecosystems in Conservation Areas



**Bromo Tengger Semeru National Park**

**Gunung Ciremai National Park**



**Gunung Merapi National Park**

**Manupeu Tanah Daru National Park**



**Sembilang National Park**

**Ministry of Forestry  
Japan International Cooperation Agency**

Manggala Wanabakti Bld. Block IV/6th, Wing B No. 617  
Jl. Jend. Gatot Subroto Jakarta 10270 – INDONESIA  
<http://www.jica.go.jp/project/english/indonesia/008/index.html>



## Background

Indonesian forests provide rich biodiversities and ecosystems. Forest lands in Indonesia cover around 233 millions hectars. However, these forests are in danger of deforestation and degradation with 1.08 million hectars annual loss during periode 2000 – 2005. The conservation areas account for about 12% of the total forests in Indonesia, and National Parks account for 60% of the conservation areas. They are recognized as significant not only in Indonesia but Internationally, and it is an urgent task to conserve them. Additionally, many National Parks are facing problems arising from exotic and invasive species. We have to conserve original ecosystems inside National Park areas.

The Indonesian Ministry of Forestry and Japan International Cooperation Agency (JICA) commneced Project on Capacity Building for Restoration of Ecosystems in Conservation Areas in March, 2010 to strengthen capacity of relevant stakeholders for restoration of degraded ecosystems in conservation areas, specifically National Parks.

## Scope of the Project

The target areas in this the Project are degraded ecosystems in National Parks. The Project intends to address issues of restoration of degraded lands through comprehensive approach covering three aspects, i.e. instiitutional-aspect, technical-aspect and financial-aspect. Furthermore, the Project utilizes the knowledge by combining the past and ongoing projects/trials, those developed with JICA's assistance and also indigenou and traditional knowledge.

### 1. Terms

March 2010 – March 2015 (5 years)

### 2. Executing Agency

Directorat General of Forest Protection and Nature Conservation

### 3. Supporting Agency

Japan International Cooperation Agency (JICA)

### 4. Project Purpose

Capacity of relevant stakeholders for restoration or degraded ecosystems in conservation area is strengthened



## 5. Outputs

- (1) Institutional framework for restoration of degraded ecosystems in conservation area is enhanced.
- (2) Restoration plans in the project sites are developed.
- (3) Restoration activities in the project sites are implemented.

## 6. Activities

### (1) Activities at the central level (in Jakarta)

- (i) Review governmental rules and regulations relevant to restoration of degraded ecosystems in conservation areas.
- (ii) Identify useful technologies for restoration including those developed with JICA's assistance.
- (iii) Review the existing technical guidelines relevant to restoration.
- (iv) Examine potential financial resources including GERHAN, Restoration Fund, private investment and donor assistances, etc.
- (v) Make a Guide Book entitled "Species of Restoration Plants".
- (vi) Prepare a draft of Restoration Guideline.

### (2) Activities in the Project Sites

#### (2)-1. Restoration Plans in the Project Sites

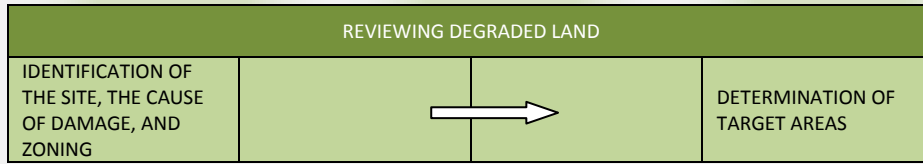
- (i) Organize working group(s) at each Project site, which is responsible for planning and implementation of restoration activities.
- (ii) Identify the target areas for restoration activities in the project sites.
- (iii) Prepare draft restoration plans.
- (iv) Holding workshop(s) attended by stakeholders to discuss about the draft of restoration plans.
- (v) Make documents of the planning process.

#### (2)-2. Implementation of restoration activities

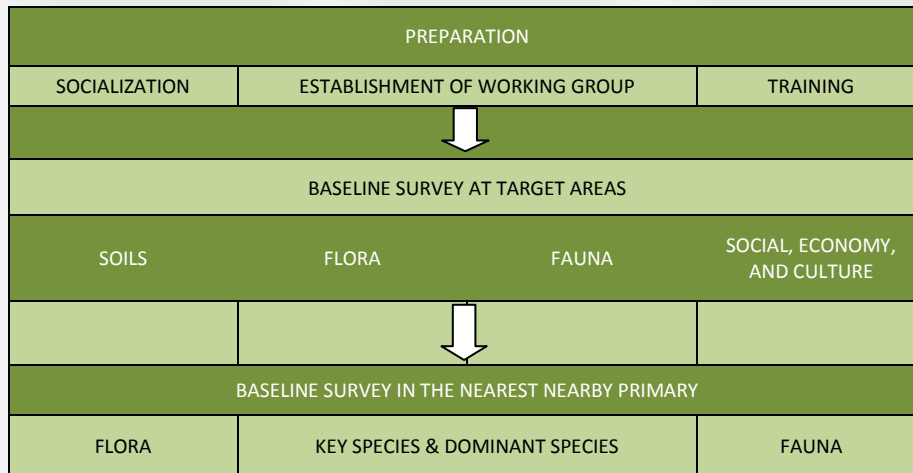
- (i) Conduct training for restoration to working groups.
- (ii) Implement the restoration activities in the project sites.
- (iii) Monitor, evaluate, and review the restoration activities.

## BASIC APPROACH FOR FORMULATING GUIDELINES

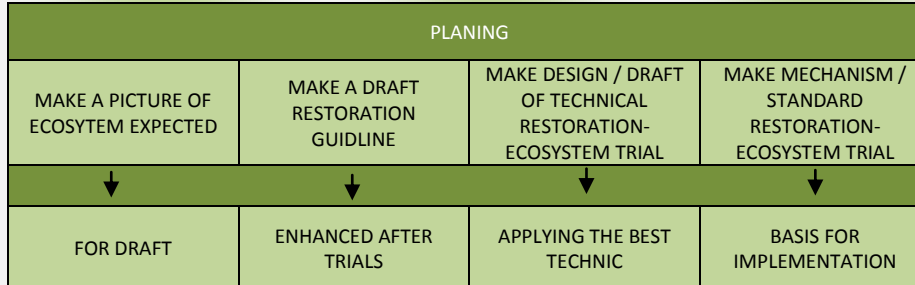
### STAGE I



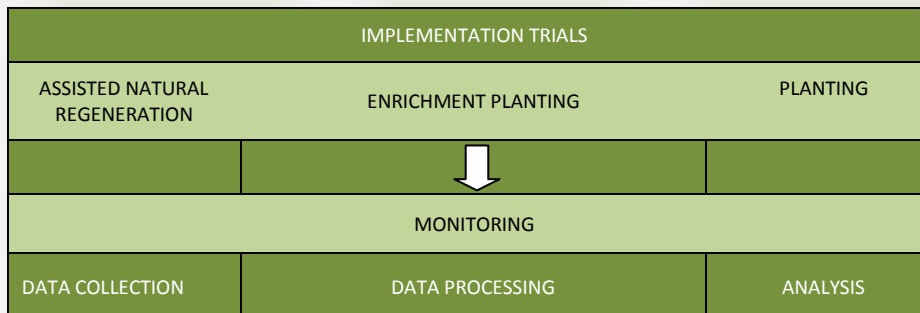
### STAGE II



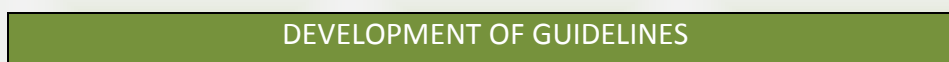
### STAGE III



### STAGE IV



### STAGE V

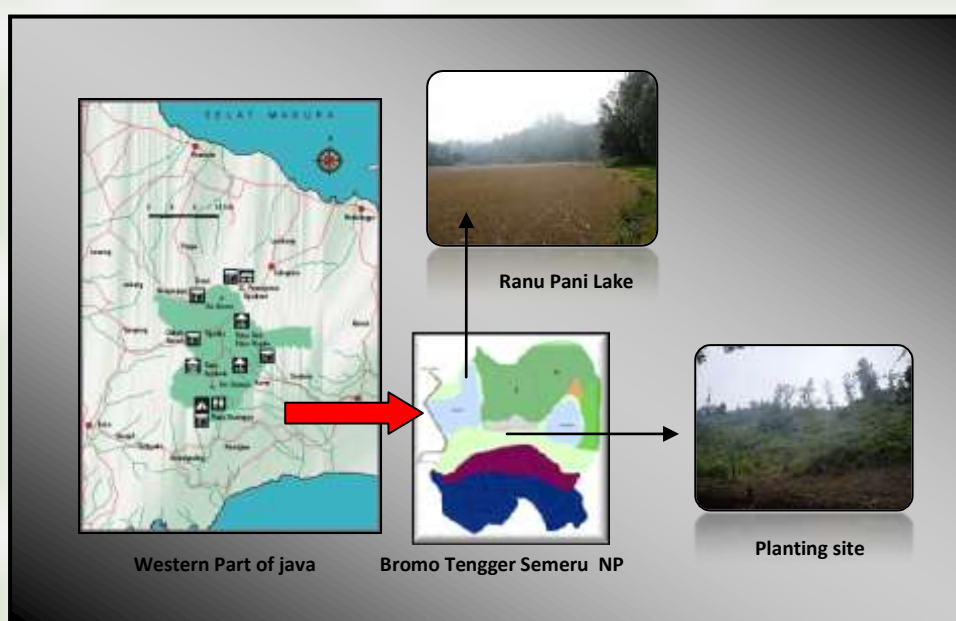




## 7. Project Site

### (1) Bromo Tengger Semeru National Parks

Location : Ranu Pane Lake and the surrounding area  
 Area : 100 Hectars  
 Ecosystems : Tropical Mountain Rain Forests  
 Collaboration : Sumitomo Forestry Co., Ltd



Restoration Trial Map at Bromo Tengger Semeru National Park

Bromo Tengger Semeru National Park has an unique ecosystem. With sea of sand at an altitude of 2.050 masl. There are several lakes at an altitude of 2,300 masl including Ranu Pani Lake.

This lake is surrounded by enclave areas with majority of vegetable farmers without terraces, which results in degradation of the ecosystem in the Ranu Pani Lake. There is occurrence of sedimentation and eutrophication due to excessive use of chemical fertilizer. Invasive species, *Salvinia molesta* covers the entire lake surface.



Research Place



Making Bricks Without Combustion

So far the following activities have been implemented in the partnership between the Bromo Tengger Semeru National Park office and JICA:



1. Training of making bricks without combustion from mud of sedimentation,
2. Making trench retaining sediment on the Ranu Pani Lake, and
3. Elimination of *Salvinia* by manual works together with society, college students, volunteers, and naturelovers.

- Survey and field study, for:
- Establish a working group and implement the training,
- Construction of the nursery ,
- Gathering of seed from National Park areas,
- Nursery operation,
- Identification of target restoration sites, and
- Implementation of restoration through assisted natural regeneration, enrichment planting, and planting.



Nursery

This area is heavily damaged by invasive species, *Eupatorium odoratum* and *Acacia decurens*. Some activities also implemented consists of:

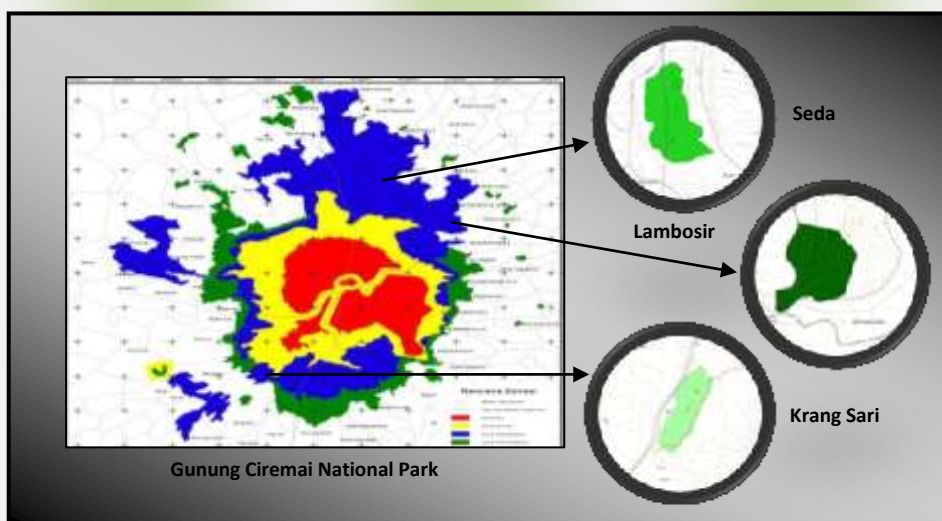
In addition to two activities, there is a collaboration. With Japanese company, Sumitomo Forestry Co. LTD, for training for forest fire control.



Forest Fire Control

## (2) Gunung Ciremai National Park

- Location : There are three places for trials: ie. ecosystems degraded by forest fire, former volcanic eruption, and encroachment
- Area : Karang Sari 10 Hectars; Seda 5 Hectars; Lambosir 60 Hectars (JICA 10 Hectars dan PT. Yamaha Musik Indonesia 50 Hectars)
- Ecosystems : Tropical Mountain Rain Forests
- Collaboration : PT. Yamaha Musik Indonesia



Restoration Trial Map at Gunung Ciremai National Park



Mt. Ciremai is known as the highest mountain in West Java, with an altitude 3,078 masl. Restoration trials are conducted in three region, consisting of:

1. Block of Seda, with an altitude of 900-987 masl.



Pondok Jaga and Nursery at Seda

2. Block of Lambosir, with an altitude of 737-925 masl. This area is degraded due to forest fire.



Pondok Jaga and Nursery at Lambosir

3. Block of Karang Sari, with an altitude of 1,100-1,175 masl. This area is degraded due to land clearing for agriculture and plantations.



Pondok Jaga and Nursery at Karang Sari

Activities that have been implemented at three location consists of:

- Survey and field study, for:
  - The cause of damage,
  - Condition of geography an vegetation,
  - Composition of plants species, and
  - Socio-economic condition of the target restoration areas.
- Establish working group and implement the training,
- Construction of the nursery ,
- Gathering of seed from National Park areas,
- Nursery operation,
- Identification of target restoration sites, and
- Implementation of restoration through assisted natural regeneration, enrichment planting, and planting.



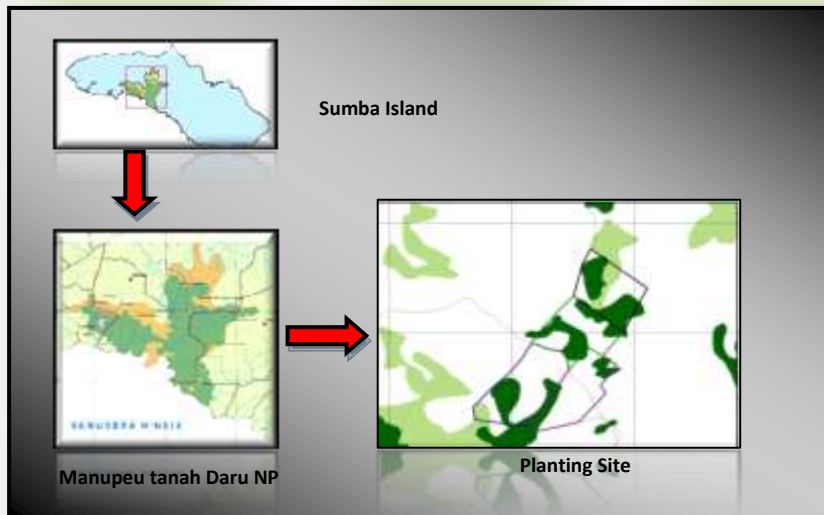
Planting Ceremony 2011

Lambosir Block, Gunung Ciremai National Park Office, JICA and PT. Yamaha Musik Indonesia make a collaboration for the restoration of 60 hectares.



### (3) Manupeu Tanah Daru National Park

Location : Ecosystems degraded by forest fire and cattle grazing  
 Area : 87 Hectars  
 Ecosystems : Tropical Monsoon Forests



Restoration Trial Map at Manupeu Tanah Daru National Park

This location is degraded due to forest fires and cattle grazing. Activities that have been implemented at this location consists of:

- Survey and field study, for:
  - The cause of damage,
  - Condition of geography an vegetation,
  - Composition of plants species, and
  - Socio economic condition of the target restoration.
- Establish a working group and implement the training,
- Construction of the nursery ,
- Gathering of seed from National Park areas,
- Nursery operation,
- Identification of target restoration sites, and
- Implementation of restoration through assisted natural regeneration, enrichment planting, and planting.



Pondok Jaga



Working Group Training



Nursery



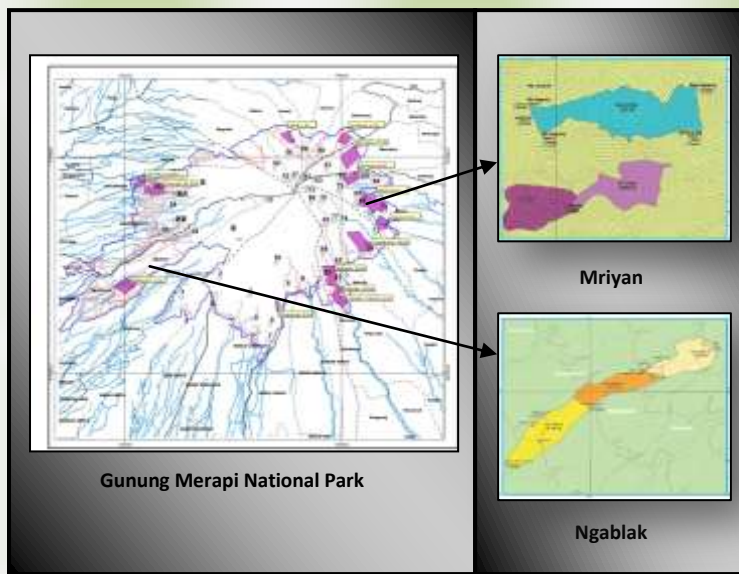
Planting Site





#### (4) Gunung Merapi National Park

- Location : Ecosystems degraded by gravel extractim, the eruption of Mt. Merapi, and invasive species
- Area : Ngablak Village Magelang District (40 Hectars) and Mriyan Village Boyolali District (20 Hectar)
- Ecosystems : Tropical Mountain Rain Forests



Restoration Trial Map at Gunung Merapi National Park

In the area of Gunung Merapi National Park, trials for restoration have been implemented, there are Ngablak Village, Magelang District and Mriyan Village, Boyolali District. Ngablak area is the restoration of damaged ecosystems due to sand mining. A very thin soil solum is a challenge to test restoration at this locations. The restoration area will be 40 Hectars, located at an altitude of 750 masl.



Pondok Jaga

Restoration areas in Mriyan are at an altitude of 1,300-1700 masl. This location is covered by a lot of the excotic species, *Acacia decurens*. The following activitie have been implemented in the partnership between Gunung Merapi National Park Office and JICA:



Nursery

- Survey and field study, for:
  - The cause of damage,
  - Condition of geography an vegetation,
  - Composition of plants species, and
  - Social economic condition of the target restoration areas.
- Establish a working group and implement the training,
- Construction of the nursery ,
- Gathering of seed from National Park areas,
- Nursery operation,
- Identification of target restoration sites, and
- Implementation of restoration through assisted natural regeneration, enrichment planting, and planting

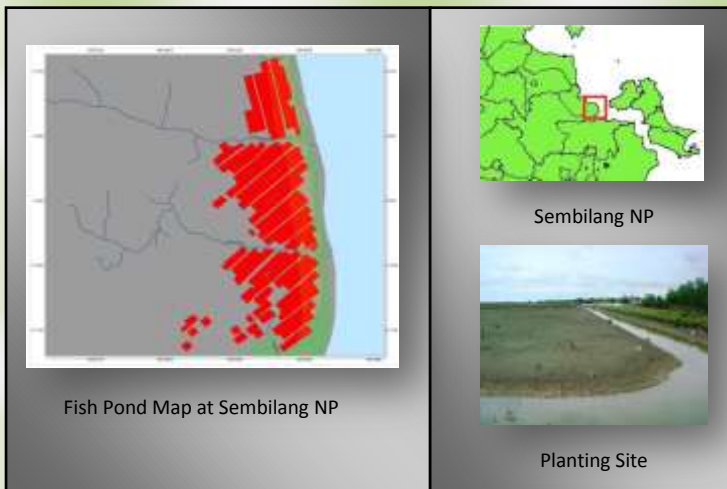


Planting Site and Working Group Training



## (5) Sembilang National Park

Location : Mangrove ecosystems degraded by constructions of fish ponds  
 Area : 200 Hectars  
 Ecosystem : Mangrove



Nursery

office implements a trial restoration in the abandoned fish ponds as large as 200 hectares.

Restoration Trial Map at Sembilang National Park

Mangrove ecosystems in the Sembilang National Park, Banyuasin II District, South Sumatra is the largest area of the western Indonesia covering 77,500 hectares. Condition of mangrove in the region is experiencing the pressures and degradation from year to year since 1994.



Pndok Jaga

Degradation is mainly caused by fish pond development. The area of pond in this

area currently about 930 hectares, while the area of pond in greenbelt area is 238 hectares. JICA in Collaboration with Sembilang National Park



Working Group Training



Planting Site

Activities that have been implemented at this location are as follows:

- Survey and field study, for:
  - The cause of mangroves destruction,
  - The condition of meteorology, geography, soil structure, water quality, vegetation, and tidal,
  - The composition of mangrove species, and
  - Social-economic condition
- Construction of the nursery,
- Nursery operation,
- Identification of target restoration sites,
- Establishing a working group, and
- Implementation of restoration through assisted natural regeneration, enrichment planting, and planting.

## 8. Collaboration

For effective implementation of trial restoration in the project sites, JICA-RECA has been collaborating with private companies, government offices, universities, and international organization as follows:

Organisation	Activities	Location
<b>Puslit Biologi LIPI (Biology Research Center LIPI)</b>	<b>Identification of Restoration Plant Species Invasive Species Control Guide Book and Hebarium Training for Identification and Photo</b>	<b>Five NP</b>
<b>Puslitbang Konservasi dan Rehabilitasi Kementerian Kehutanan (Research &amp; Development Center of Conservation &amp; Rehabilitation)</b>	<b>Monitoring of Natural Regeneration Systems Workshop Organizing</b>	<b>Gunung Ciremai NP</b>
<b>Yamaguchi University (Japan) and Udayana University (Indonesia)</b>	<b>Exchange of information</b>	
<b>UNESCO-Jakarta Office (Regional Science Bureau for Asia and the Pasific)</b>	<b>Exchange of information</b>	
<b>JIFPRO (Japan International Forestry Promotion and Cooperation Center)</b>	<b>Exchange of information</b>	
<b>PT. Yamaha Music Indonesia</b>	<b>Financial Support for Restoration Tree Planting Ceremony</b>	<b>Gunung Ciremai NP</b>
<b>Sumitomo Forestry Co., Ltd.</b>	<b>Financial Support for Restoration Forest Fire Control</b>	<b>Bromo Tengger Semeru NP</b>
<b>REKI (Indonesia Ecosystem Restoration)</b>	<b>Exchange of information</b>	

**Directorat** on Conservation Areas and Protection Forest  
**Gedung M**anggala Wanabakti, Blok VII, Lantai 7  
**Jl. Gat**ot Subroto, Senayan Jakarta Pusat-10270  
**Tlp./fax** (021) 5720229

**Bromo Tengger Semeru National Park Office**  
Jl. Raden Intan No. 6, Kotak Pos. 54  
Malang, Jawa Timur-65100  
**Telp./Fax** (0341) 491828 / 490885

**Gunung Ciremai National Park Office**  
Jl. Raya Kuningan-Cirebon Km. 9, No. 1  
Manis Lor jalaksana, Kuningan-45554  
**Tlp./Fax** (0232) 613152

**Gunung Merapi National Park Office**  
Jl. Kaliurang Km 22,6 Hargobinangun Pakem, Sleman,  
Yogyakarta-55582  
**Tlp./Fax** (0274) 4478664, 4478665

**Manupeu Tanah Daru National Park Office**  
Jl. Adhiyaksa Km. 3 PO. Box 153 Waikabubak, Sumba  
Barat  
**Nusa Tenggara Timur-87212**  
**Tlp. (0387)22286 Fax (0387)22163**

**Sembilang National Park Office**  
Jl. AMD Kel. Talang Jambe Kec. Sukarame,  
Palembang-30152  
**Tlp./Fax (0711) 7839200**

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<http://www.jica.go.jp/project/indonesian/indonesia/008/index.html>

Gedung Manggala Wanabakti Blok IV / Lantai 6, Ruang B 617

Kementrian Kehutanan, Jl. Gatot Subroto Jakarta 10270

Tel: 021-57902954 Fax: 021-5705085

