

# SOIL RESOURCE MANAGEMENT AND CONSERVATION DIVISION DEPARTMENT OF AGRICULTURE



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# INTRODUCTION

- 1. Department of Agriculture is the custodian for soil maps and land use maps.**
- 2. Soil survey of West Malaysia was started in 1950's.**
- 3. Present land use survey of West Malaysia was initiated in 1960 with cooperation from Canadian Government.**

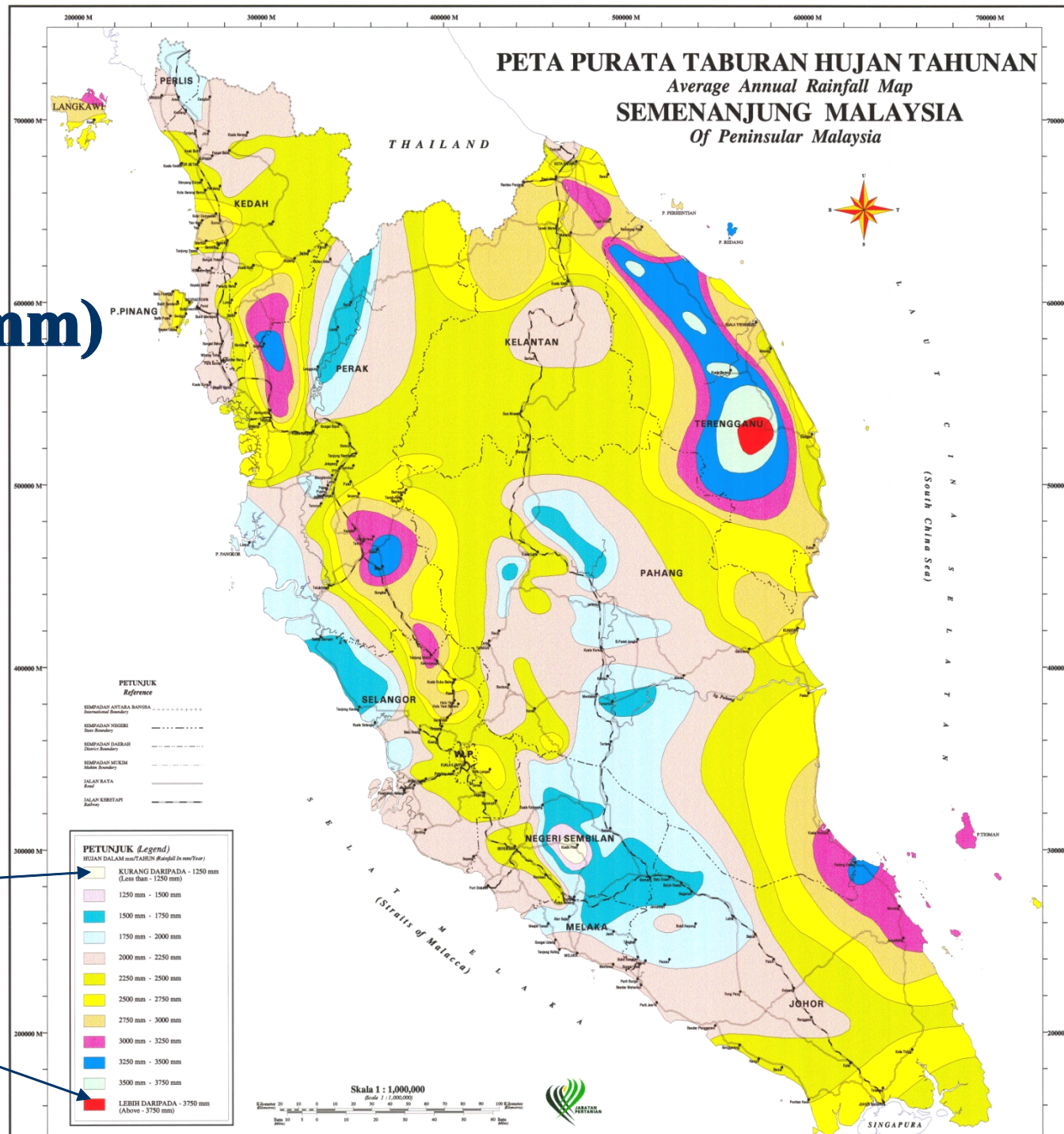


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PERTANIAN

# Rainfall (mm)

< 1,250 mm

> 3,750 mm





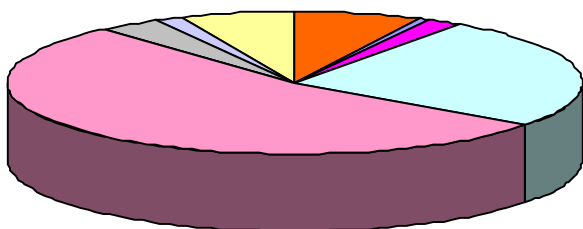




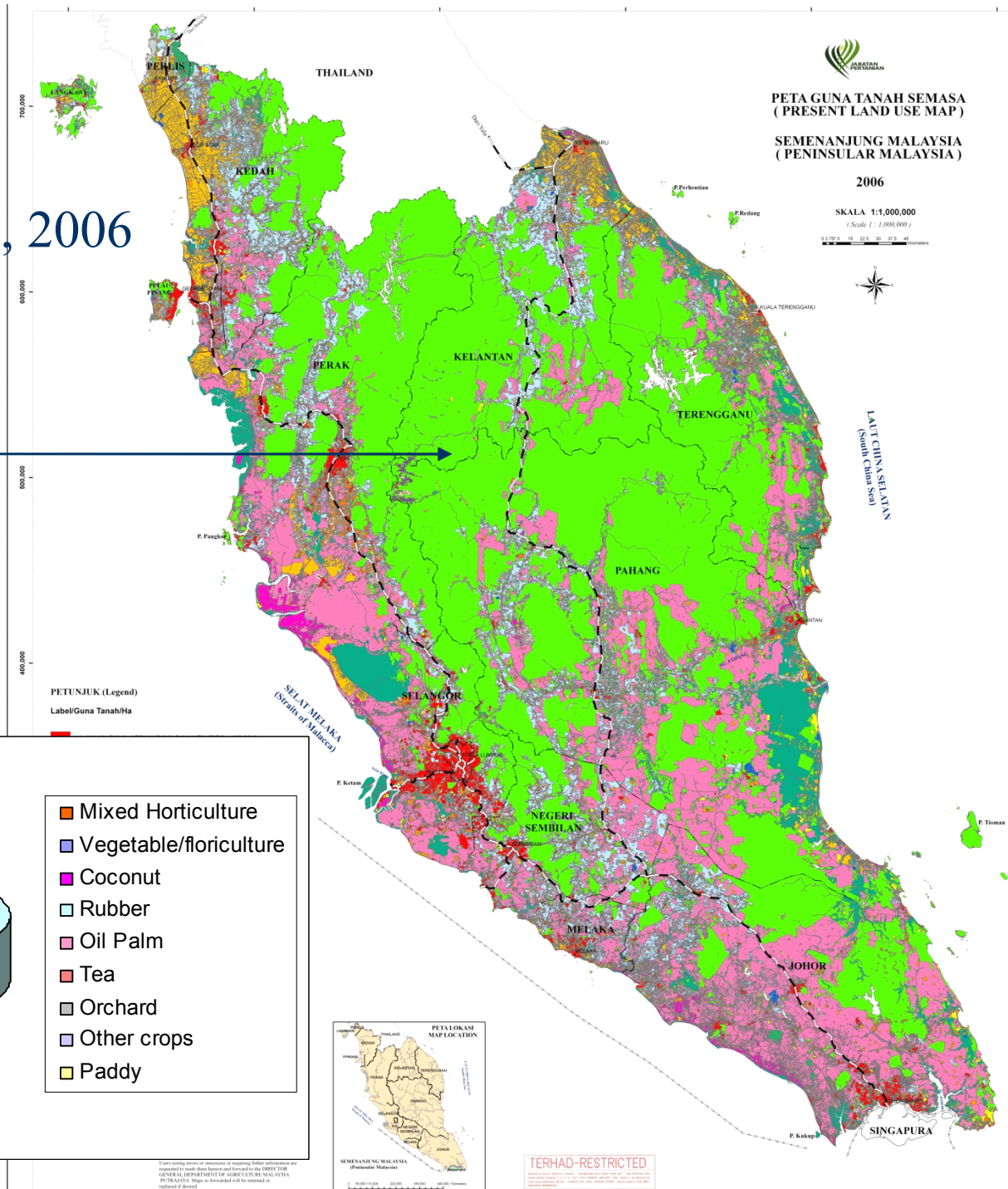
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# PRESENT LAND USE, 2006

Major Land Use	%
Urban, utilities etc	4.3
Agriculture	40.1
Grass/schrub	2.3
Forest	52.1
Rivers, lakes etc	1.2
Total	100.0



- Mixed Horticulture
- Vegetable/floriculture
- Coconut
- Rubber
- Oil Palm
- Tea
- Orchard
- Other crops
- Paddy



PETA GUNA TANAH SEMASA  
(PRESENT LAND USE MAP)

SEMANJUNG MALAYSIA  
(PENINSULAR MALAYSIA)

2006

SKALA 1:1,000,000

(Scale 1 : 1,000,000)

0 10 20 30 40 Kilometers



LALIT CHINA SELATAN  
(South China Sea)

PETUNJUK (Legend)  
Label/Guna Tanah/Ha



TERHAD-RESTRICTED

Every printing error or omission of existing figure information are considered to be the responsibility of the DIRECTOR GENERAL DEPARTMENT OF AGRICULTURE MALAYSIA. THE PUBLISHERS. Maps or illustrations will be returned or replaced if desired.

# FUNCTION

- 1. To carry out soil survey of Peninsular Malaysia and production of soil maps. The main aim is to determine soil types of Peninsular Malaysia for agriculture planning purposes.**
- 2. To carry out land use survey and production of land use maps for planning purposes.**
- 3. To provide advisory services on soil conservation towards sustainable agriculture with special emphasis on controlling erosion and environmental pollution due to agriculture development.**

- 4. To provide advisory services on soil fertility with special emphasis on proper management of soil and fertilization towards higher crop productivity on different types of soil.**
- 5. Evaluation of Soil Resource for planning purposes (agriculture, urban development, biodiversity etc).**
- 6. To provide analytical services on soil, foliar, agriculture products, fertilizer and water as a support function for other sections.**

# SOIL SURVEY ACTIVITIES

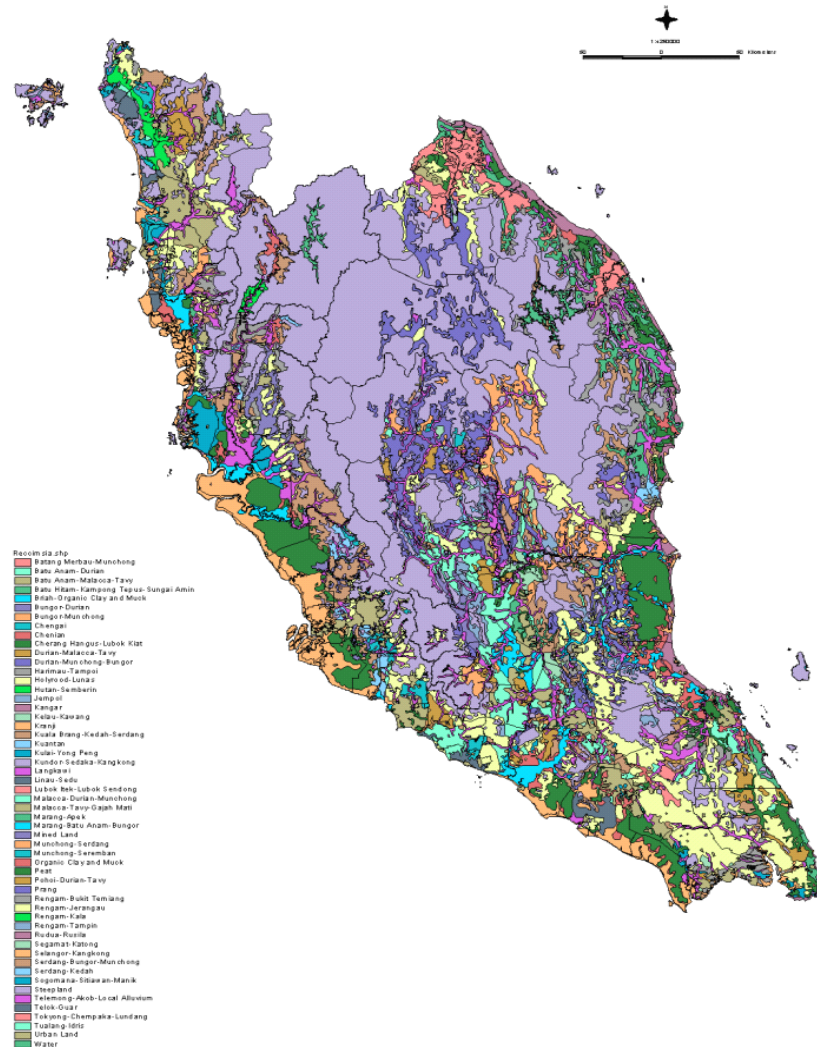


# LOCAL SOIL SERIES

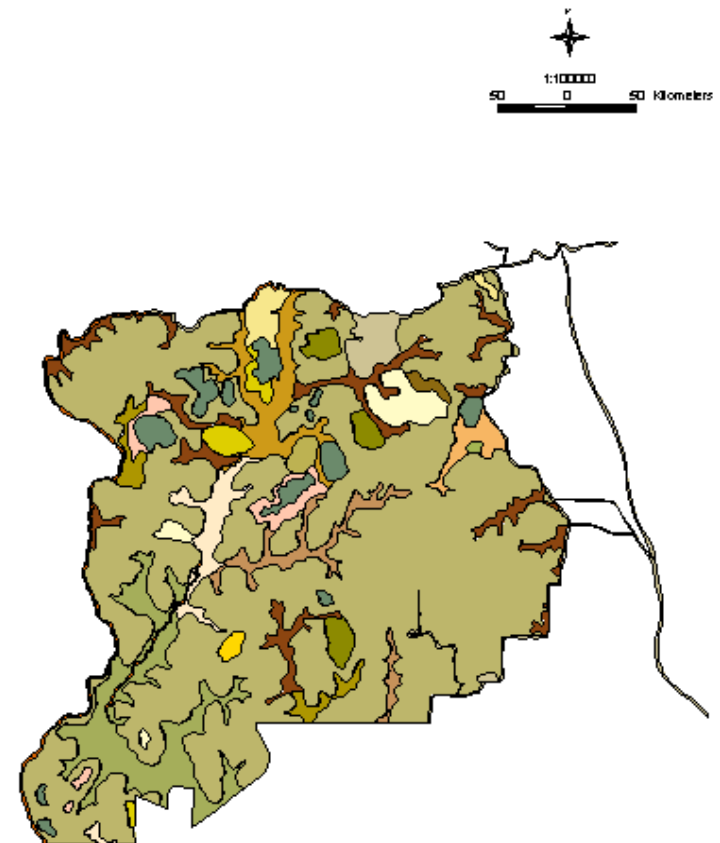


# SOIL MAPS

**RECONNAISSANCE SOIL MAP of  
PENINSULAR MALAYSIA**



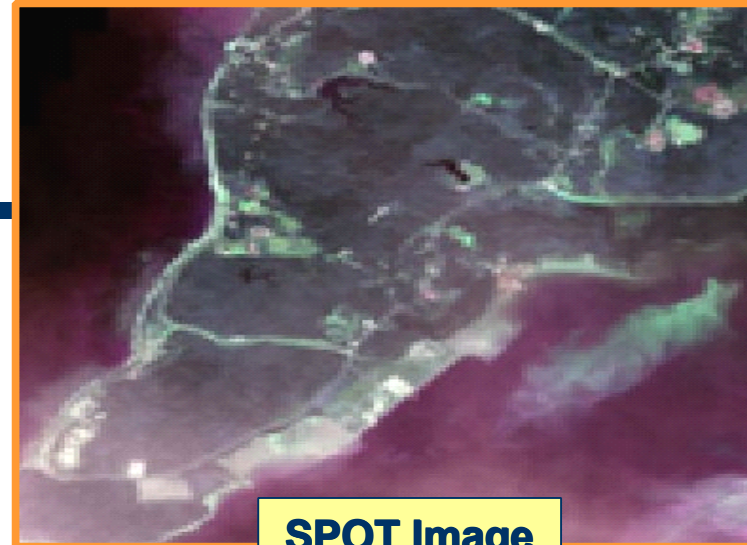
**SEMI DETAILED SOIL MAP of  
PUTRAJAYA**



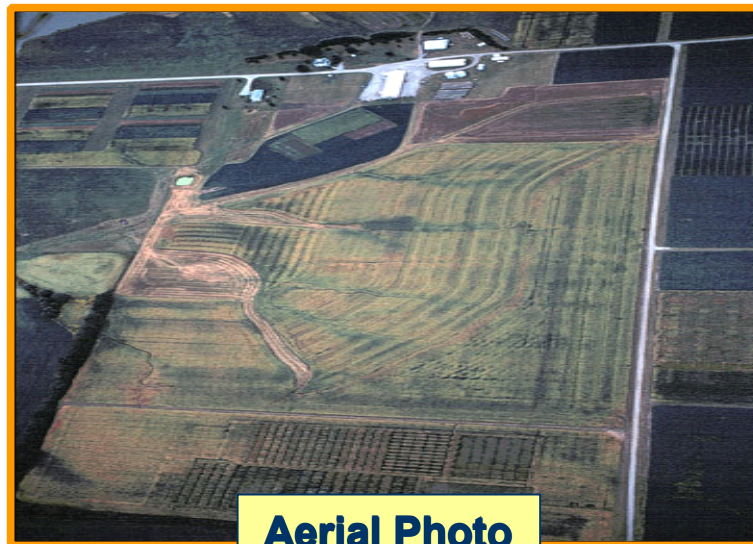
## SATELLITE IMAGES & AERIAL PHOTO



**Landsat Image**



**SPOT Image**



**Aerial Photo**

# UPDATING LAND USE MAP

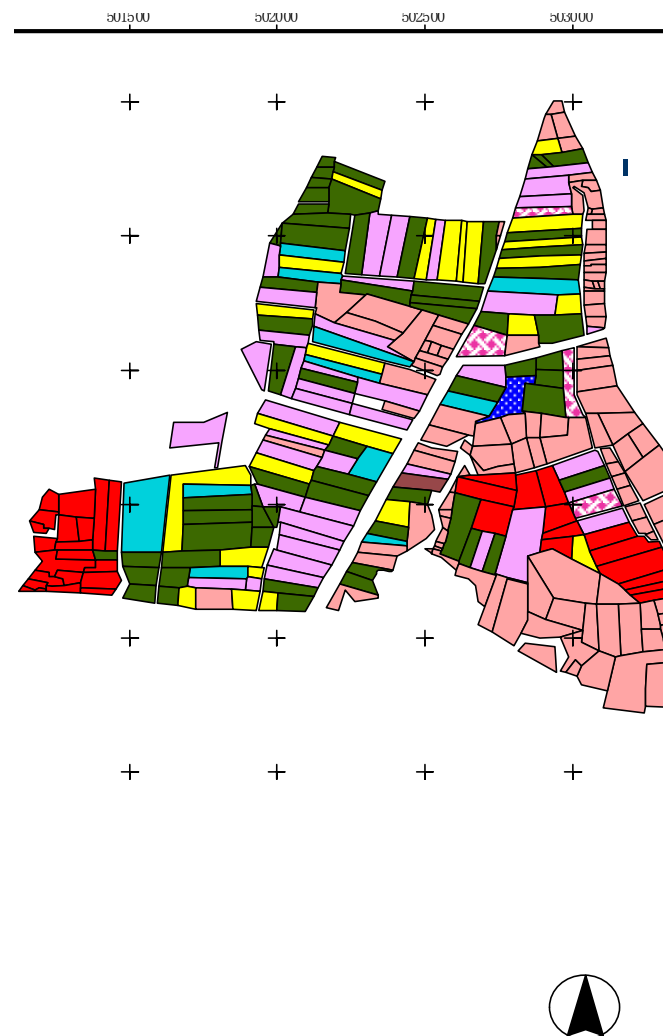


## Yield Map Sg. Nibong, Besut, Terengganu.

**0-2 ton/ha**

**6-8 ton/ha**

**12-14 ton/ha**



# SOIL CONSERVATION



**Bench Terraces**



**Vertiver Grass**

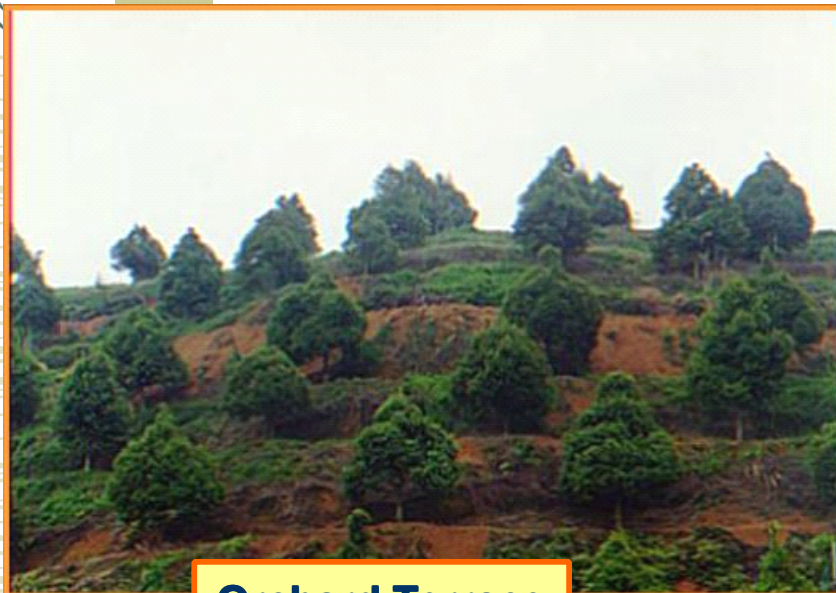
## SOIL CONSERVATION PRACTICES



**Round Bench Terrace**



**Mulching**



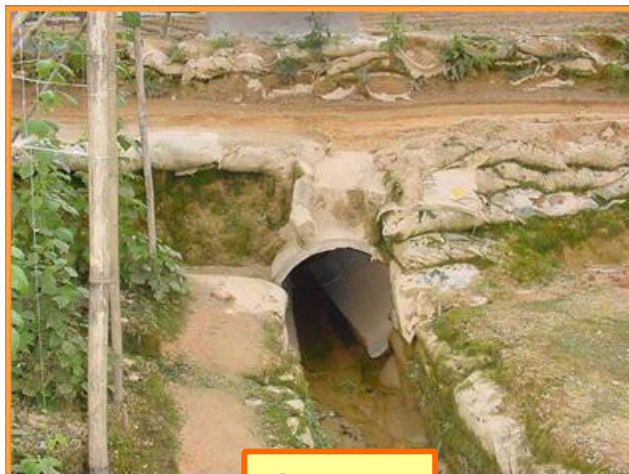
**Orchard Terrace**



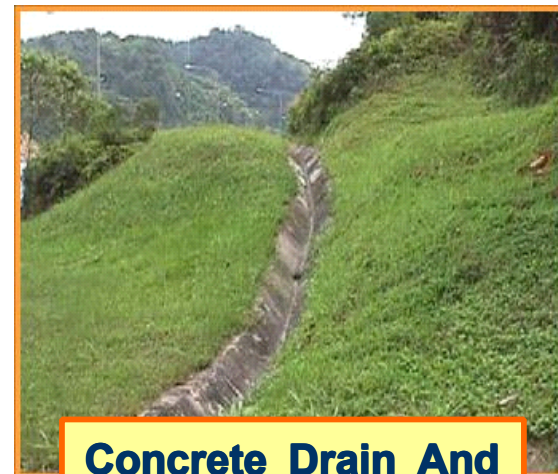
**Vertiver Grass and Contour Ditches**



**Silt Trap**



**Culvert**



**Concrete Drain And  
Cover Crop**

## LAND EVALUATION

- ◆ **Main Activities : Digitizing, editing, production and supply of maps, manages data security.**
- ◆ **Processing soil data, land use data and other derived maps in digital forms for specific purposes.**
- ◆ **Softwares : ArcGIS ArcInfo, ArcGIS ArcView.**

# LAND EVALUATION

## **BASE MAPS**

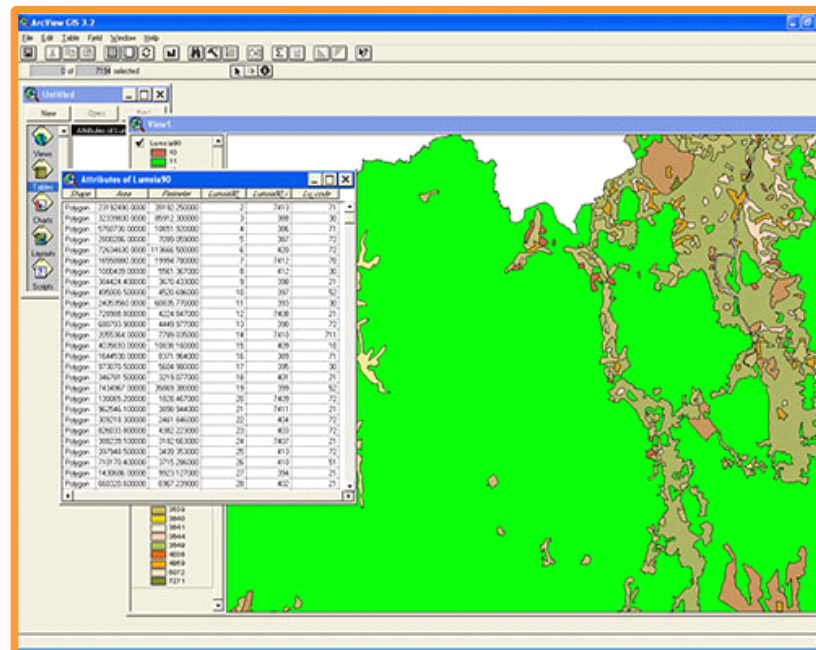
- ◆ **Soil Maps of Peninsular Malaysia (Reconnaissance and Semi-Detail Soil Maps)**
- ◆ **Land Use Map of Peninsular Malaysia**

## **DERIVATIVE MAPS (PENINSULAR MALAYSIA)**

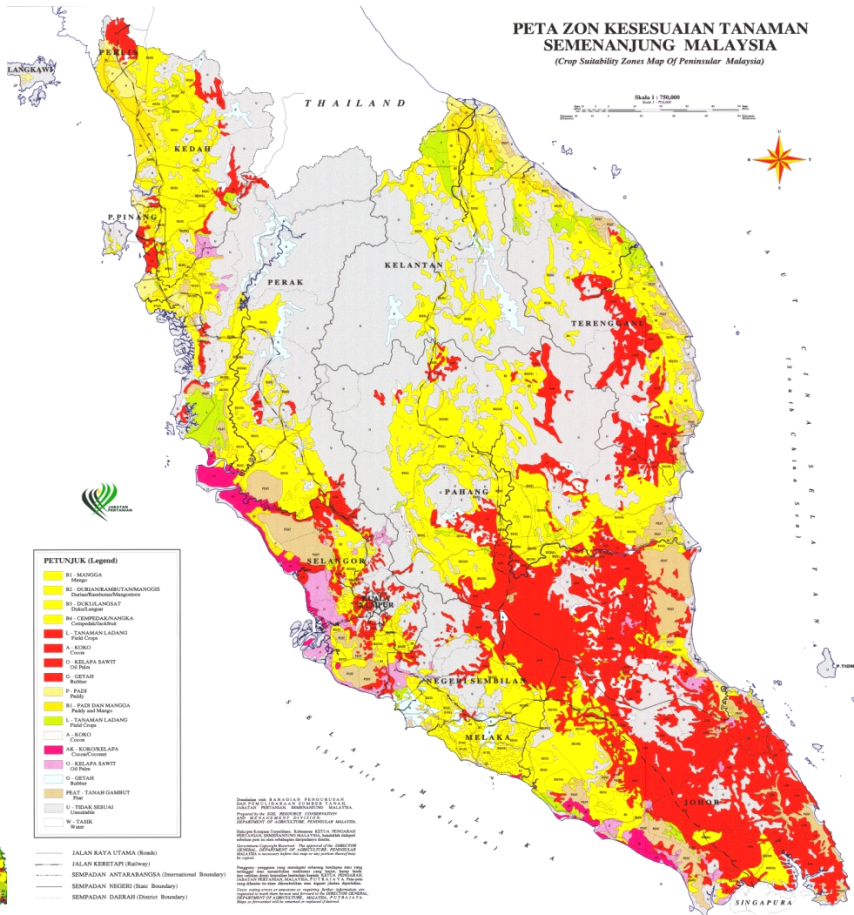
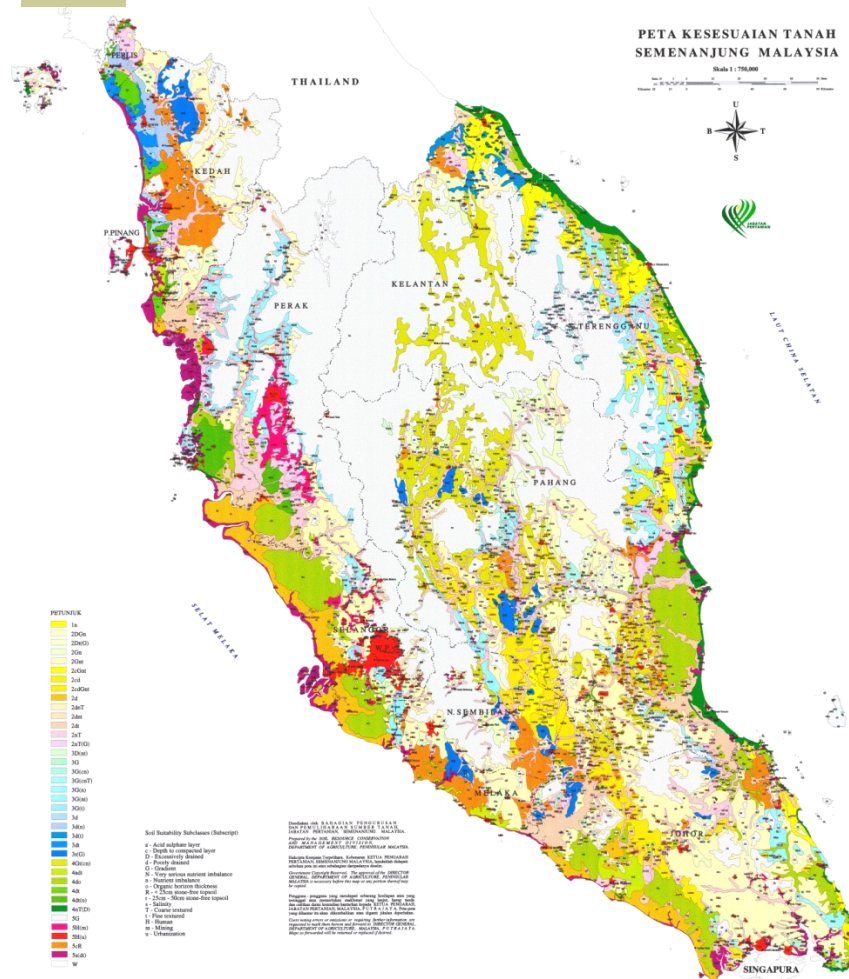
- ◆ **Soil Erosion Risk Map**
- ◆ **Hydrological Soil Map**
- ◆ **Soil Physiographic Map**
- ◆ **Soil Textures Map**
- ◆ **Soil Suitability Map**
- ◆ **Crop Suitability Zones Map**
- ◆ **Agro-Ecological Regions Map**
- ◆ **Agro-Climatic Map**
- ◆ **Agriculture Rainfall Index Map**
- ◆ **Ultisols and Uxisols Map**
- ◆ **Great Group Soil Map**
- ◆ **Soil-Crop Suitability Map**
- ◆ **Soil Erodibility (K-Value) Map**



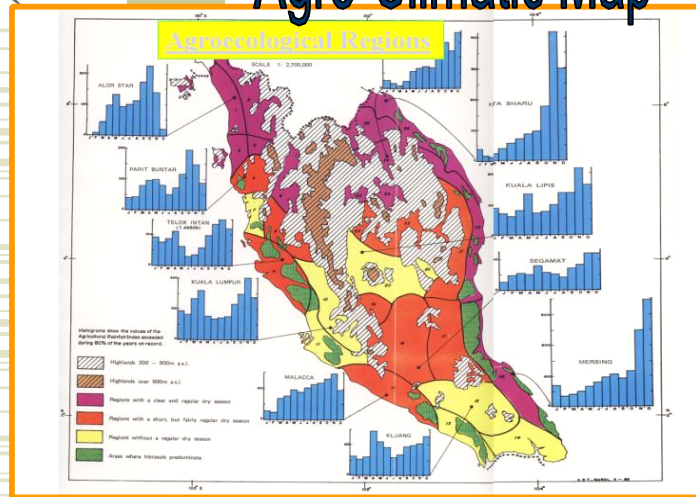
## Spatial Data & Attributes



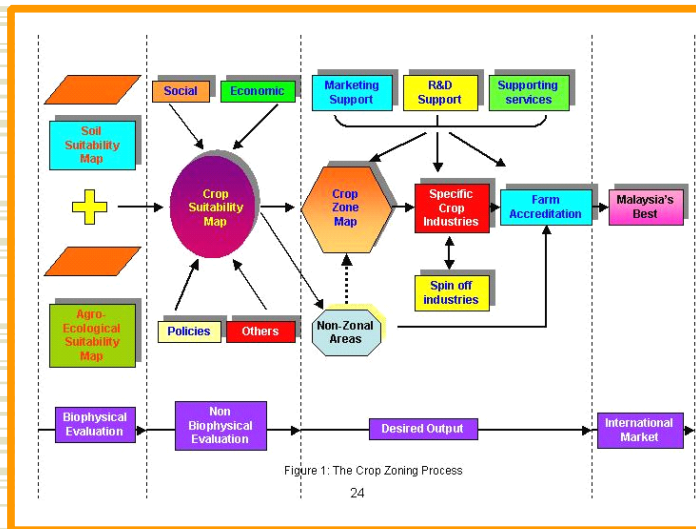
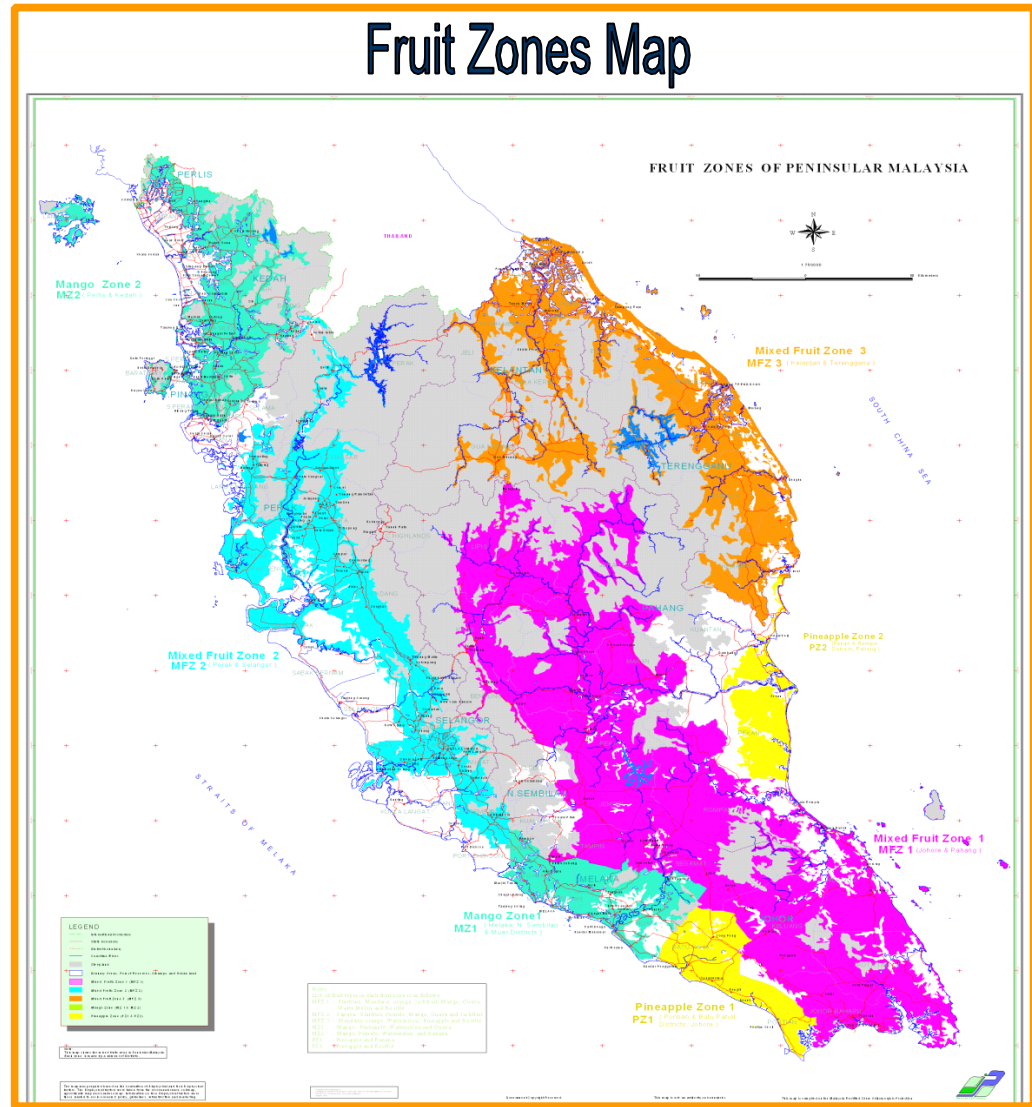




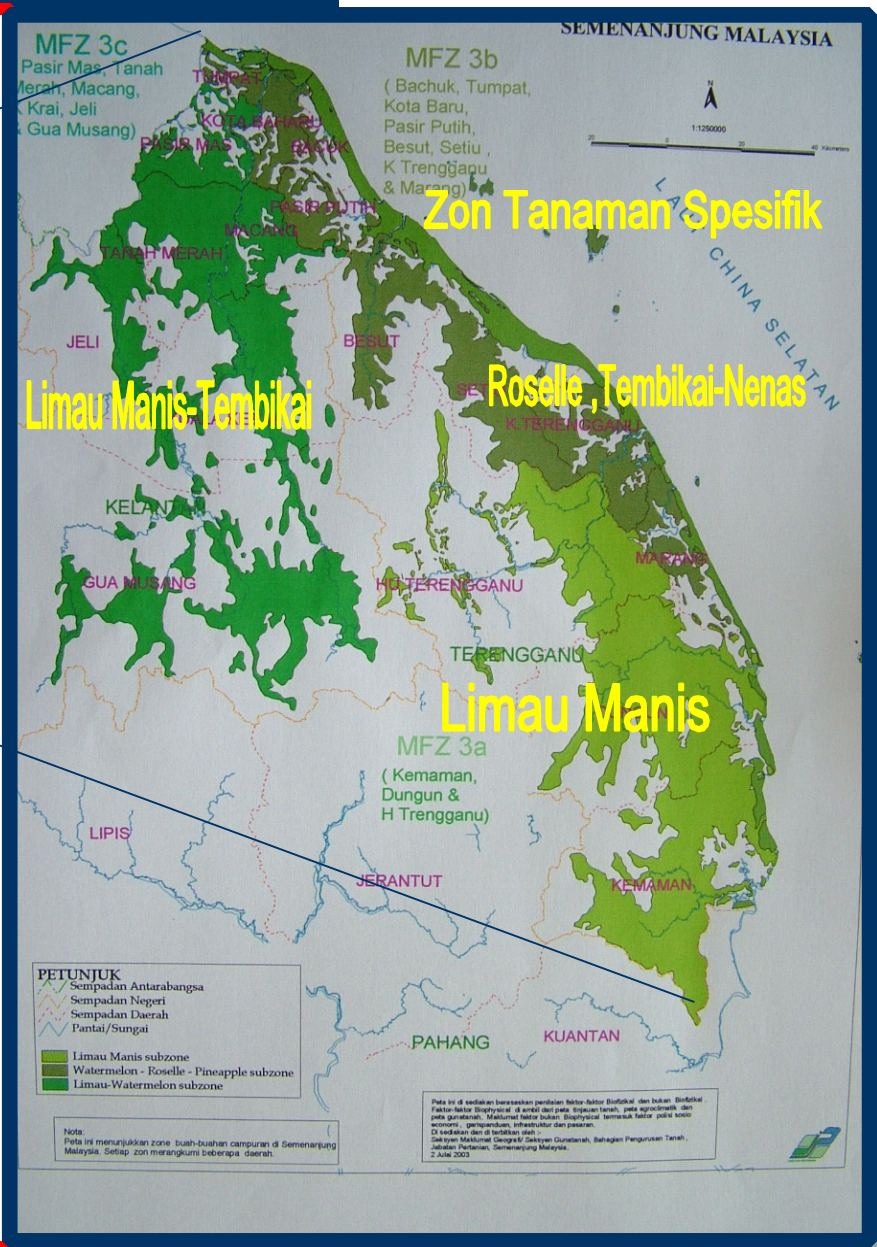
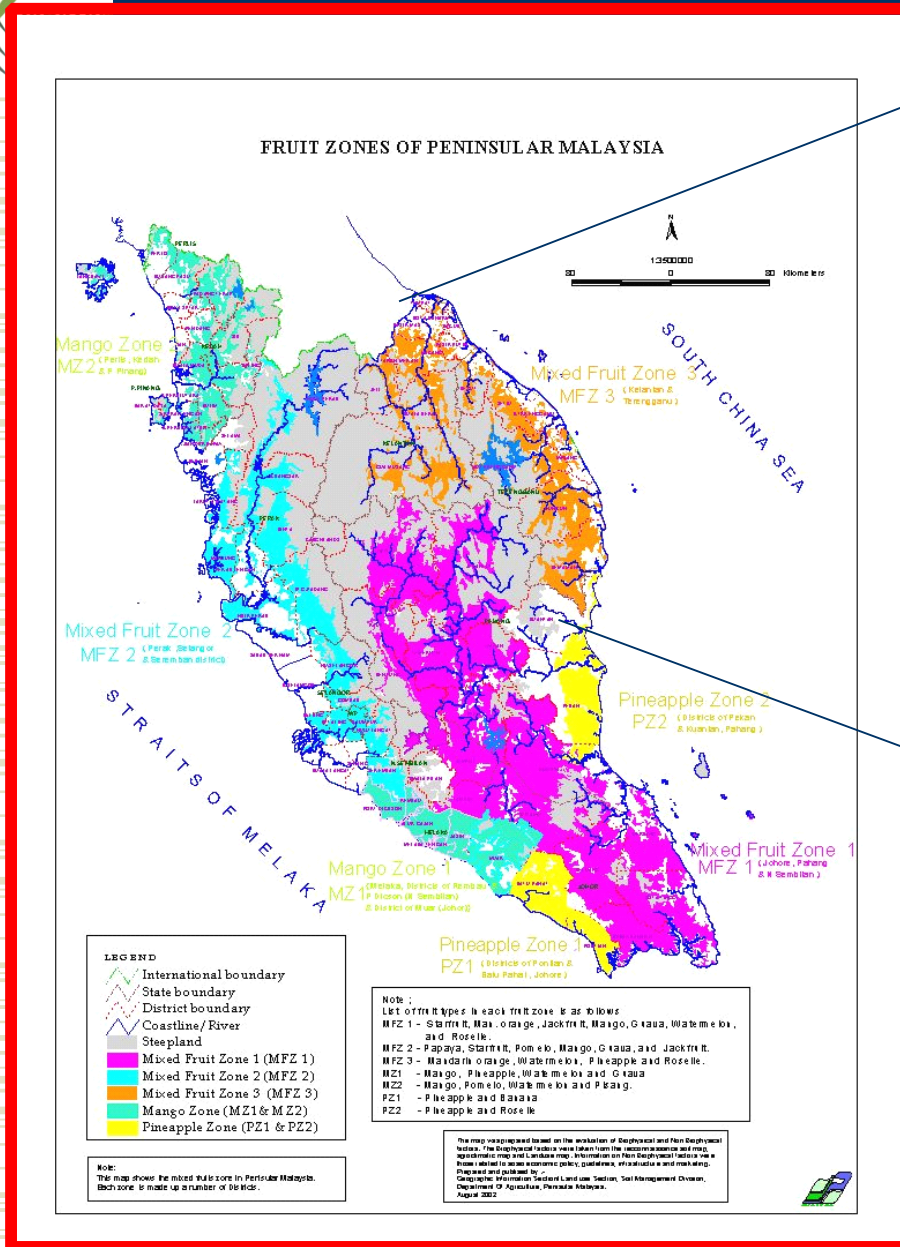
# Agro-Climatic Map



# Fruit Zones Map

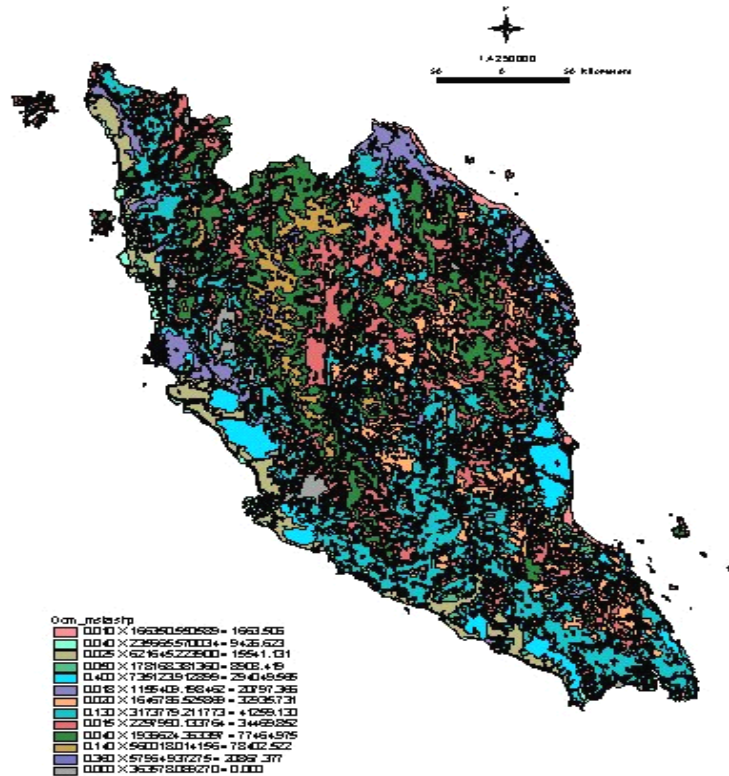


**Chart 1: Production of Value Added Map**

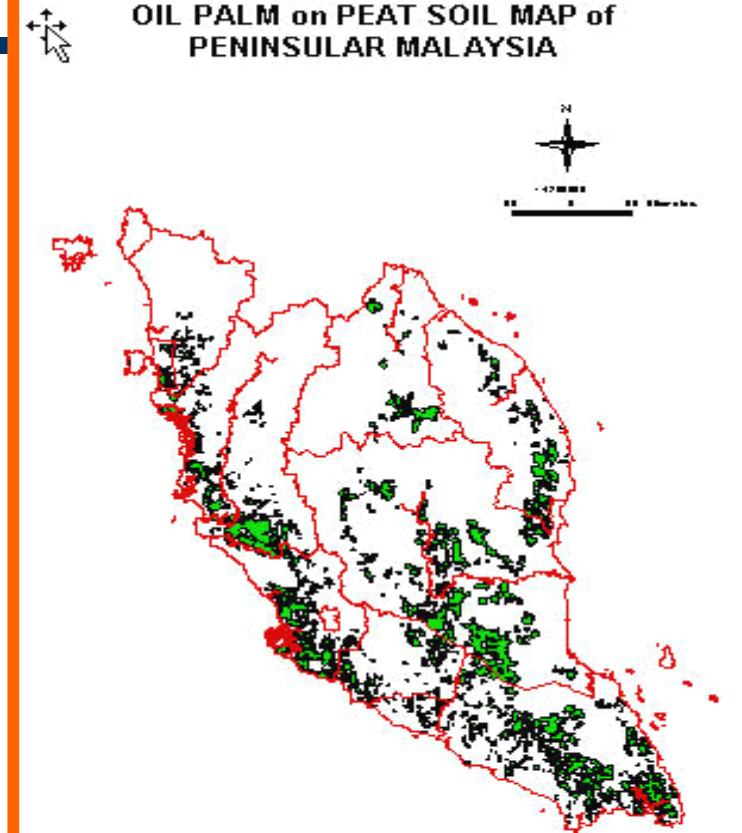


# PRODUCTS

ORGANIC CARBON MAP of  
PENINSULAR MALAYSIA



OIL PALM on PEAT SOIL MAP of  
PENINSULAR MALAYSIA



## OUR CLIENT/CUSTOMERS

- **DEPARTMENT OF SURVEY & MAPPING MALAYSIA**
- **MALAYSIAN AGENCY FOR REMOTE SENSING (MACRES)**
- **MINERALS AND GEOSCIENCE DEPARTMENT**
- **FEDERAL DEPARTMENT OF TOWN & COUNTRY PLANING**
- **DEPARTMENT OF ENVIRONMENTAL**
- **DEPARTMENT OF IRRIGATION AND DRAINAGE**
- **NATIONAL HYDRAULIC RESEARCH INSTITUTE OF MALAYSIA (NAHRIM)**
- **DEPARTMENT OF FORESTRY**
- **FOREST RESEARCH INSTITUTE MALAYSIA (FRIM)**
- **MALAYSIAN CENTRE FOR GEOSPATIAL DATA INFRASTRUCTURE (MaCGDI)**
- **DEPARTMENT OF VETERINARY SERVICES**
- **MALAYSIAN AGRICULTURAL RESEARCH & DEVELOPMENT INSTITUTE (MARDI)**
- **UNIVERSITIES**
- **INTERNATIONAL – UNCCD, UNFCCC**



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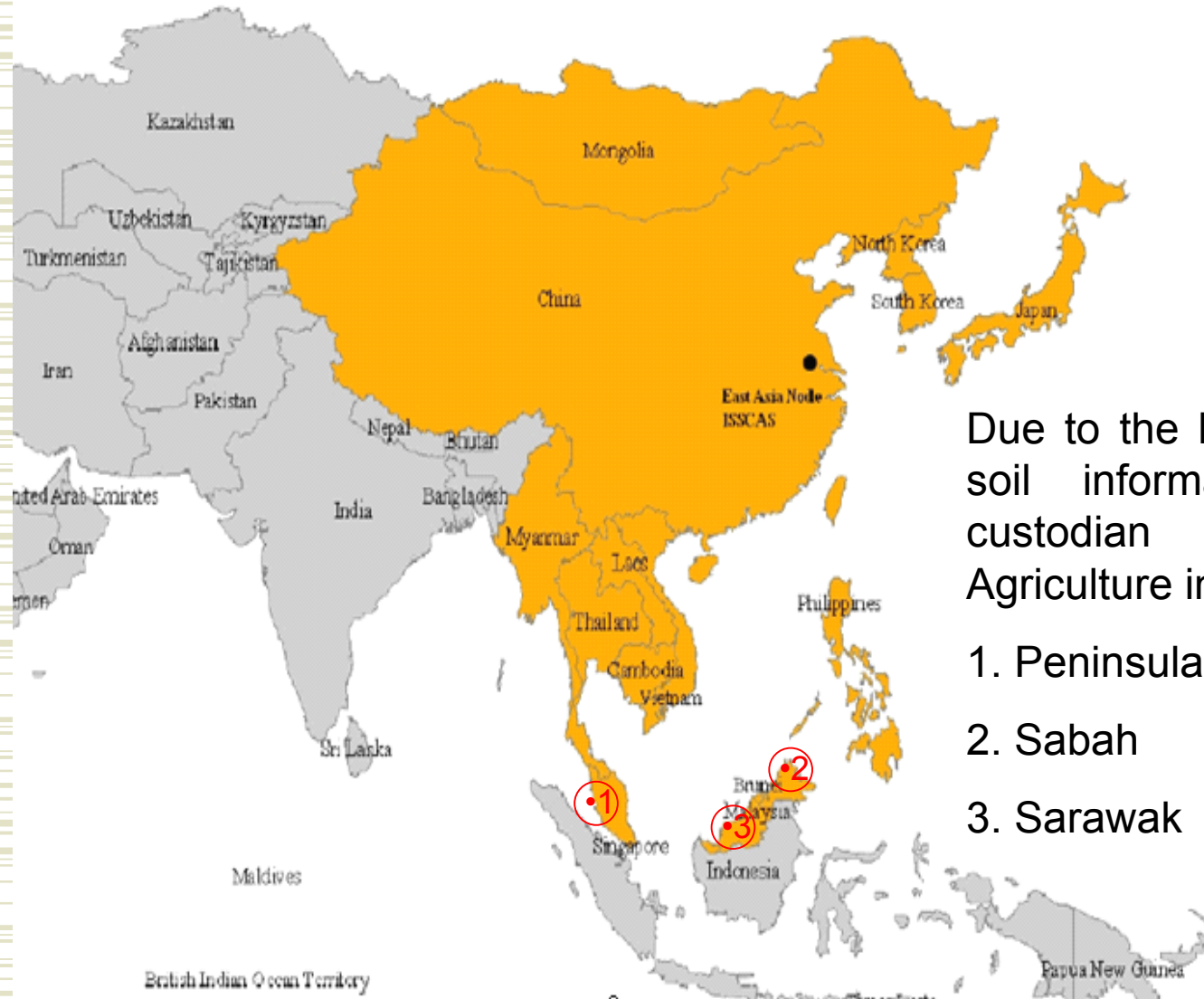
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**East Asia Node**

**Malaysia**

**Current Status of Soil Survey and Mapping**

## East Asia Node - Malaysia



Due to the history and geography, soil information is under the custodian of Department of Agriculture in the three regions:

1. Peninsular Malaysia
2. Sabah
3. Sarawak

### **Current Status of Soil Map**

- Schematic Reconnaissance Soil Map
- Completed for the whole country, late 1970's
  - Map scale: 1:250,000
  - Vector mode polygon map
  - Mapping units – Soil Family, Soil Association, Soil Complexes
- Semi Detailed Soil Map
  - Produced for major agriculture development areas (on going)
  - Intensity: 1 point examination for 20 ha; Map scale: 1:25,000
  - Vector mode polygon map
  - Mapping units – Soil series, Soil families, Soil Association and complexes

## **Current Status of Soil Map/ cont'd**

- Detailed Soil Map
- Only for specific agriculture projects – experiment plots, food park etc (carry out on ad hoc basis)
- Intensity: 1 point examination for 4 ha; Map scale: 1:10,000
- Mapping units – Soil series and complexes

## **Current Soil Classification Structure**

- Using USDA Soil Taxonomy
- Soil series as a smallest mapping units.

