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Enhancing Soil Health in Thailand

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Outline

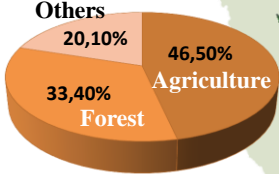
- Introduction
- Status of national soil resources
- Main issues and soil threats
- National priority and LDD activities




Annop 2014

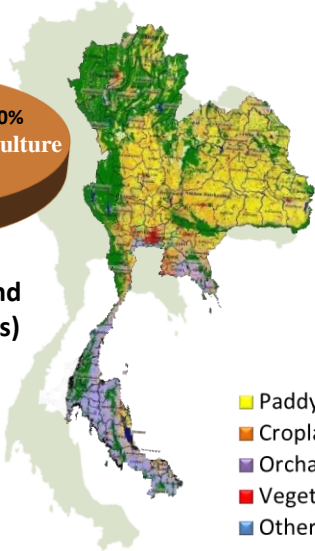


Introduction: Land Use Types

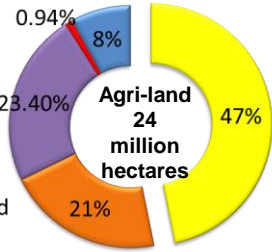


**Land Use in Thailand
(51 million hectares)**

Land Use Type	Percentage
Agriculture	46.50%
Forest	33.40%
Others	20.10%



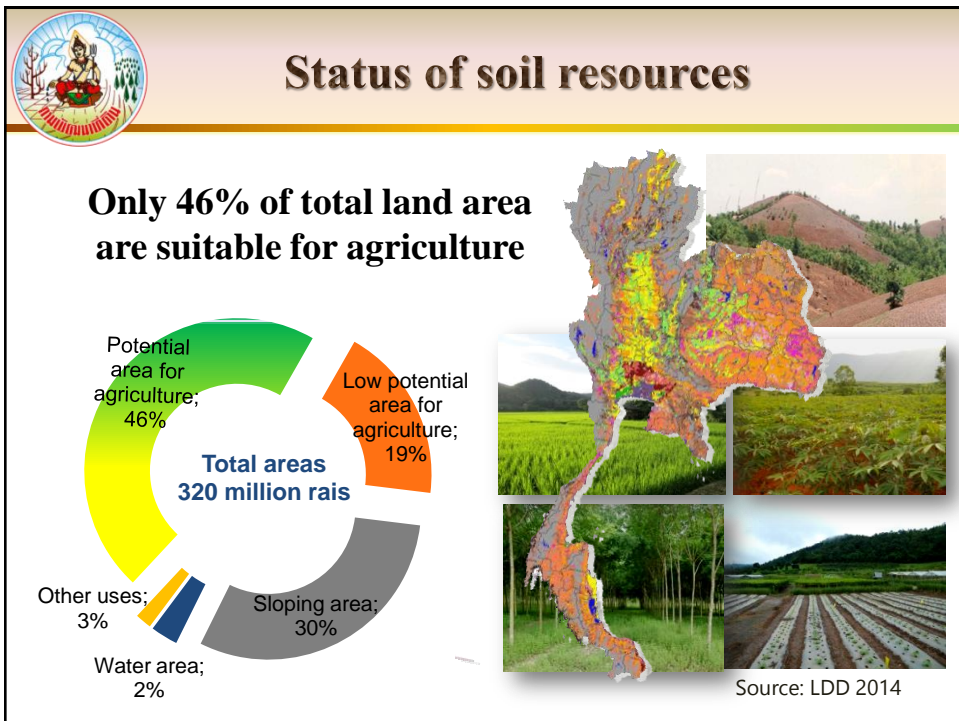
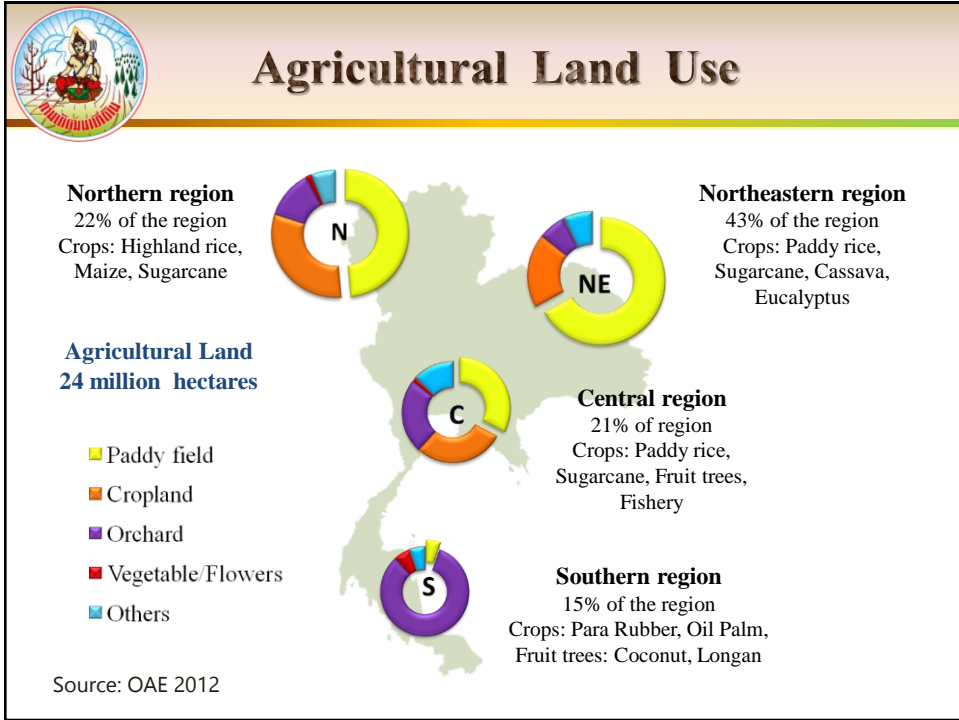
Agricultural Land Use in 2014




Land Use Type	Percentage
Paddy field	47%
Cropland	21%
Orchard	23.40%
Vegetable/Flowers	8%
Others	0.94%

Agri-land 24 million hectares

Source: LDD 2012












Land Problems and Threats

Now 75% of Agricultural land (18.2 million hectares or 35% of total area) has been degraded.

Causes of land degradation are due to

1. Natural factors → Problem soils
2. Anthropogenic factors
 - ❖ Poor land management
 - ❖ Population pressure
 - ❖ Urban/Industrialization

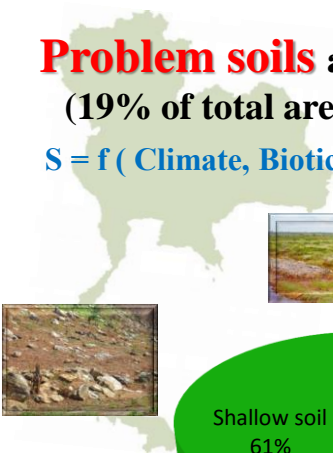







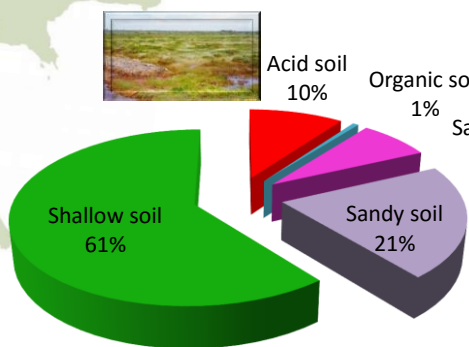


Land Problems and Threats






Problem soils account for 9.6 million hectares (19% of total areas) caused by natural factors

$S = f(\text{Climate, Biotic, Relief, Parent material, Time, ...})$

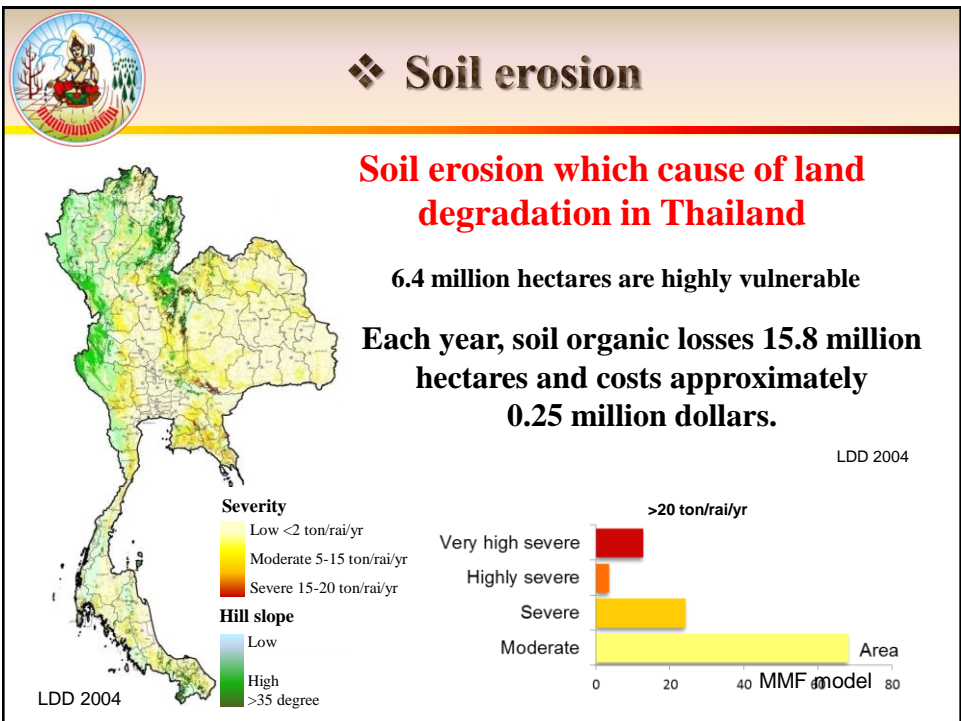
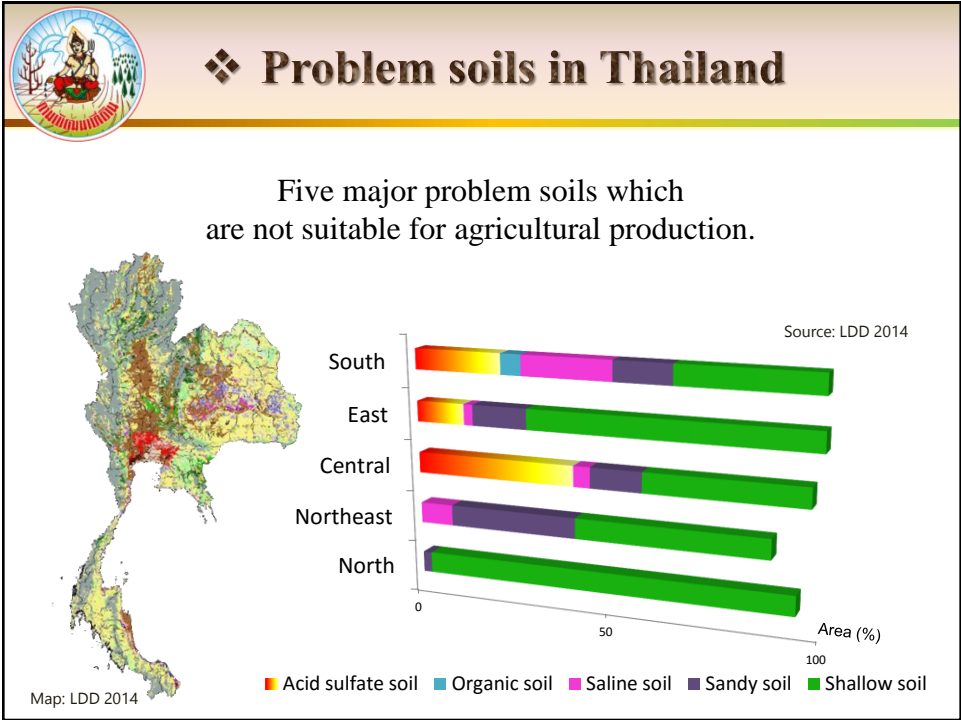





Soil Type	Percentage
Shallow soil	61%
Sandy soil	21%
Acid soil	10%
Saline soil	7%
Organic soil	1%

Source: LDD 2014






Land Problems and Threats


Anthropogenic factors

Characteristics	Causes	Impact sectors
<p>Soil physical degradation process :</p> <p>Soil chemical degradation process : salinization acidification leaching</p>	<p>Improper land use</p> <p>Poor land management: Machinery overuse Tillage/cropping system Lack of knowledge</p> <p>Urban/Industrialization Soil contamination Marginal land expansion Forest encroachment</p>	<p>Soil properties Soil fertility Soil erosion</p> <p>Environment Biodiversity loss</p> <p>Economic Crop yield Nutrient loss</p> <p>Society Household income Land tenure/ Farm labor</p>



National priorities

Thailand agricultural development plan (2012-2016) 3 strategic plans



- Improve the quality of farmer's livelihood**
- Enhance production capacity and products quality towards food security**
- Encourage efficient and sustainable use of natural resources**

OAE 2012



LDD Activities

LDD establishes the strategic plans in line with the national agricultural development plan

- ❖ Plan and policy on land management
- ❖ Operational activities
- ❖ Research and technology transfer
- ❖ Establishing land development network



Key Activities of LDD

- Plan and policy on land economic and land use planning**

Establishing land suitability zones for economic crops and land use plan as the reference/guideline for policy makers, planners, and officers in dealing with land resources development projects.





Key Activities of LDD

2. Operational activities on land management


Soil and water conservation

Soil fertility improvement

Soil rehabilitation measures







Key Activities of LDD



❖ Soil and water conservation



Mechanical measures:

Tillage technique,
Terrace, Farm pond
Ditches and waterways
Irrigation system

Vegetative measures

Vetiver grass,
Cropping system,
Cover plant,
Mulching method




Key Activities of LDD

❖ **Soil fertility improvement**

- Incorporate green manure and organic fertilizer to increase SOM
- Apply liming material into soil to adjust soil pH
- Raise plant-bed level technique










Key Activities of LDD

❖ **Soil rehabilitation measures**

- Grow special plants : salt tolerant plants (Acacia sp.), Drought resistant crop (pineapple, watermelon etc.)
- Plant fast-growing trees: Eucalyptus



Key Activities of LDD

- ❖ **Biotechnology / Bio-extracts**

Promote the application of organic fertilizer and biotechnology to improve soil fertility

For example, LDD microbial activator products 1-12







Key Activities of LDD

3. Land Development Research and Technology Transfer

- ❖ Encourage research and develop land development innovation to enhance agricultural productivity and to reduce production costs.










Key Activities of LDD


3. Land Development Research and Technology Transfer

- ❖ Encourage field utilization to rapidly and correctly transfer up-to-date land development technologies to farmers.
- ❖ Encourage technical operation system for integrated participatory research that links to visually effective works











Key Activities of LDD

4. Establishing Land Development Network

- ❖ Establish networks of volunteer soil doctors and related networks for exchange of knowledge on land development
- ❖ Promote the capacity of agricultural communities on soil conservation and rehabilitation, land use and be able to help assist others to move towards the SLM



**Thank you for
your attention**