Introduction to Map Types and Themes

with Emphasis on Thailand

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Maps and Information

- **Maps** can provide enormous sources of information
- **Maps** allow us to display information spatially
- **Maps** allow us to compare information across time
- **Maps** allow us to view multi-dimensional information in a two-dimensional format
6 Common Types of Maps

- **Physical maps** illustrate the physical features of an area, such as the mountains, rivers and lakes. The water is usually shown in blue. Colors are used to show relief (differences in land elevations). Green is typically used at lower elevations, and orange or brown indicate higher elevations.

- **Topographic maps** include contour lines to show the shape and elevation of an area. Lines that are close together indicate steep terrain, and lines that are far apart indicate flat terrain.

- **Climate maps** give general information about the climate and precipitation (rain and snow) of a region. Colors are used to show different climate or precipitation zones.

- **Economic or resource maps** feature the type of natural resources or economic activity that dominates an area. Symbols are used to show the locations of natural resources or economic activities.

- **Political maps** do not show physical features. Instead, they indicate state and national boundaries and capital and major cities.

- **Road maps** show major and minor highways, roads, airports, railroad tracks, cities and other points of interest in an area.
Thematic Maps

- Thematic maps use general maps and base data as points of reference for the phenomenon being mapped, such as political boundaries and places, landforms and coastlines.

- Thematic maps may represent physical, social, political, cultural, economic, sociological, agricultural, or any other aspects of a city, state, region, nation, or continent.

Source: Kermel-Torres, 2004
Common Map Types and Themes

- Transit
- Roads
- Street
- City map
- Country map
- World map
- Metrologic
- Climate
- Weather
- Atmospheric
- Demographic
- Population
- Education
- Relief
- Bathymetric
- Topographic (Contour)
- Hydrologic
- Aeronautical chart
- Nautical chart
- Navigation
- Choropleth
- Dot
- Graduated circle
- Isoline
- Anthropomorphic
- Economic
- Political
- Societal
- Tourism
- Tertiary sectors
- GIS
- Resource
- Geologic
- Tectonic
- Google Map!
- Google Earth
- Spatial
- Spatial variation
- Thematic
  - Cartogram
  - Pictorial
  - Fantasy
  - Plat
  - Plan
  - Floor plan
  - Cadastral
  - Estate map
  - Agriculture (e.g., land use, irrigation, households)
  - Industry (e.g., products, employment, mining)
Topographic maps include contour lines to show the shape and elevation of an area.

Lines that are close together indicate steep terrain.

Lines that are far apart indicate flat terrain.
Ancient Civilizations of the Old World

Historical Geography

Cylindrical projection (i.e., Mercator projection)
Thematic Map — Population Distribution

Population segmented into equal parts of one billion
Let’s Explore Some **Thai** Examples...
The Provinces of Thailand

75 Provinces + 2 Administrative Areas (Bangkok and Pattaya)

Political maps
• Do not show physical features
• Indicate state and national boundaries and capital and major cities.
Political and Historical Geography

Changes in borders and frontiers

Territorial Losses of Siam
Expansion of the Khmer Empire

1200 AD
Physical maps illustrate the physical features of an area—mountains, rivers, and lakes. Colors are used to show relief (differences in land elevations).

- **Water** is usually shown in blue.
- **Green** is typically used at lower elevations.
- **Orange or brown** indicate higher elevations.
Topographic – Buriram Province
Contour lines at 10 meters

Topographic – Buriram Province
Note the water depths along the southwest coast.
Relief & Hydrologic

Mountain Ranges
Elevation
Plateaus
Plains
Major Rivers
Basins
Dams

Source: Kermel-Torres, 2004
Land Use

Land Cover

LULC

- Agriculture
- Forest
- Other vegetation
- Plantation
- Urban/industrial
- Water
Land Cover
- Forests and mangroves
- Rubber plantations and orchards
- Cultivated uplands
- Paddy fields
- Converted mangroves

Climate
- High rainfall...
- Moderate or High rainfall...
- High or moderate rainfall...
- Moderate rainfall...
- Low rainfall...
- Low rainfall...
Climatic Regions

- Distinct climactic regions
- High rainfall in the Southern region
Ethno-linguistic Groups

- Tai Kadai group
- Mon-Khmer group
- Tibeto-Burman group
- Miao-Yao group
- Karen group
- Malayo-Polynesian group
- Mountain Mon-Khmer, Lisu-Lahu, Hmong-Yao, Akha
Population Density in 2000

- 1-5
- 6-25
- 26-250
- 251-1,000
- 1001 -
Demographic Map

Poverty

- High
- Medium
- Low
Cyclogenesis in the Andaman Sea

Wave Heights in Meters

03.25.2011
Hydrologic Map of the Mekong River Basin
Ecozones in the Lower Mekong Basin
19 Forest Complex Areas in Thailand

- Thailand and Myanmar
- Dawna-Tenasserim Hills
- Comprised of 19 national parks and wildlife sanctuaries
- Biodiversity conservation corridor
- 18,730 square km
- One of the largest protected territories in South East Asia

Western Forest Complex
Protected Areas (PAs)

- Fish Sanctuaries
- Multiple Use Areas
- National Parks
- Wildlife Sanctuary
General Soil Conditions
Geology

Tectonics
Transportation
Geography

The
“Road Map”
Bathymetry

Satellite Imagery

Epicentre of 2004 Indian Ocean Tsunami

Undersea Megathrust Earthquake
Sunday, 26 December 2004

Absolute location 3.298 N, 95.779 E
Thematic Map — Tsunami Travel Time

2004 Indian Ocean Tsunami
Thai Coastal and Offshore Bathymetry

Ocean Boundaries
Bathymetry of the Andaman Sea
(with contour lines)
Historical Map
Gio Iacomo Rossi
1683
War History
Maps

The Thai-Burma "Death Railway"
Wind Directions and Speeds
Rain Water Mixing Ratios
Relative Humidity

Thai Meteorological Department
Review

• Maps can provide enormous sources of information
• Maps allow us to display information spatially
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Thank You for Your Attention
Thematic maps

Thematic maps require accurate base maps

Examples...

- Climate
- Meteorological charts
- Human characteristics
- Population density and change
- Disease and epidemics
- Health issues
- Religion
- Industry and trade
• **Thematic Maps**

• **Thematic maps** may represent physical, social, political, cultural, economic, sociological, agricultural, or any other aspects of a city, state, region, nation, or continent.

• **Thematic maps** use a general maps and base data, such as landforms, coastlines, political boundaries and places, only as points of reference for the phenomenon being mapped.
Displaying **Thematic Data**

- **Choropleth maps**
- **Dot maps**
- **Graduated circle maps**
- **Isoline maps**

**Choropleth map** is based on numerical data on some topic, with data available for enumeration districts (usually political units such as counties, states, or countries).

The numerical values are used to place each of the districts into a particular category.

An area symbol (usually a color or shade of gray) is then used to show which category each of the enumeration districts falls into.

**Dot maps** employ dots to convey information about a distribution.

A single dot may represent one occurrence of something (an earthquake, perhaps) or more than one (a dot might represent 100,000 people, for example).

**Graduated circle maps** use a point symbol, but the symbols have different sizes in proportion to some quality that occurs at that point.

The populations of different cities are frequently depicted on graduated circle maps.

**Isoline maps** use line symbols to portray a continuous distribution such as temperature or elevation.

Isolines are lines that connect points of equal numeric value.

Example: contour map (shows elevation above sea level).