

Agriculture in Less Developed Countries

Background

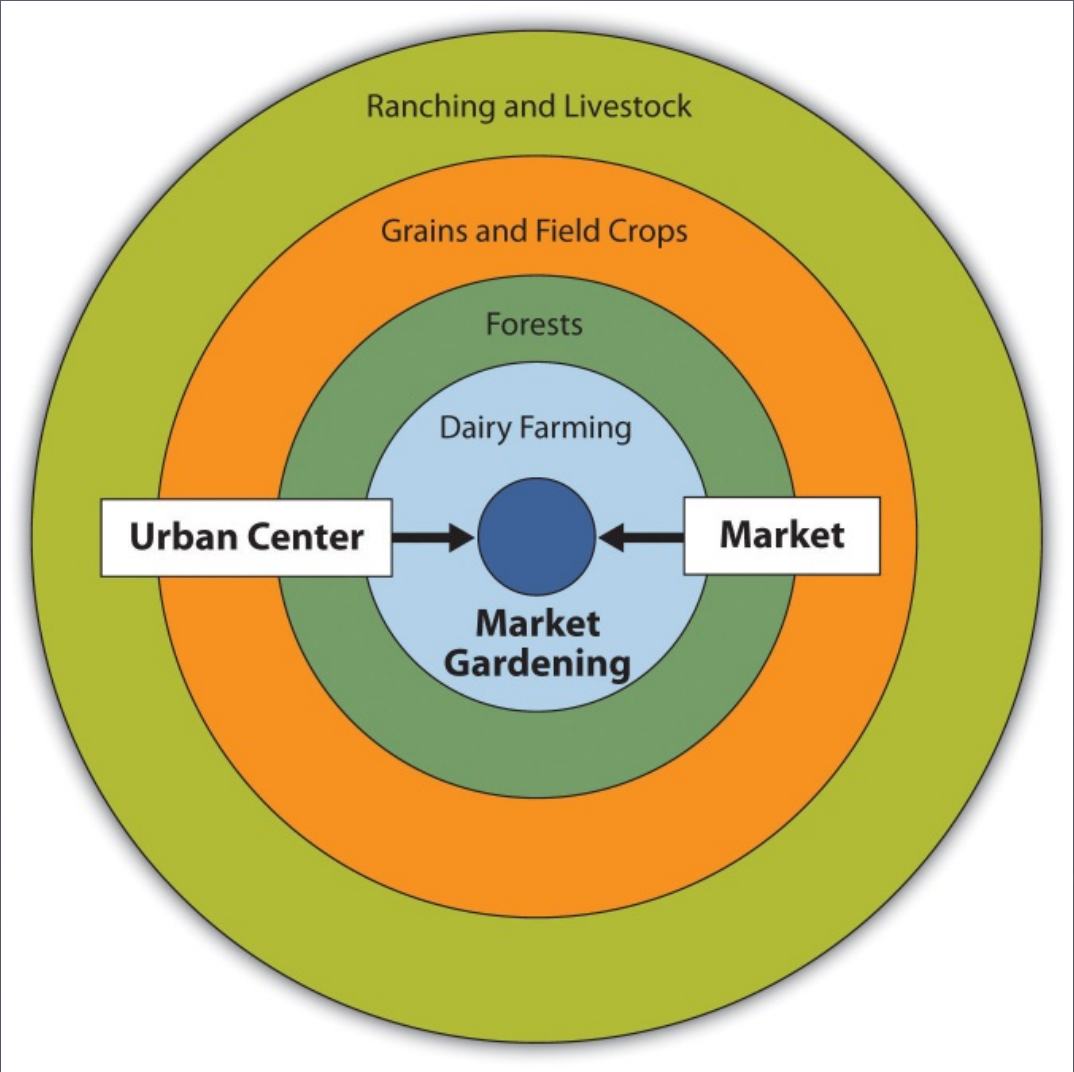
- Model made based off observations in 1826 by J.H Von Thunen
- Von Thunen based observations off patterns in where agriculture is grown and where people live.
- This model explains the development of agricultural towns and cities.



Assumptions of Von Thunen

- The city is located centrally within an "Isolated State" which is self sufficient and has no external influences.
- The Isolated State is surrounded by an unoccupied wilderness.
- The land of the State is completely flat and has no rivers or mountains to interrupt the terrain.
- The soil quality and climate are consistent throughout the State.
- Farmers in the Isolated State transport their own goods to market via oxcart, across land, directly to the central city. Therefore, there are no roads.
- Farmers act to maximize profits.

The Model

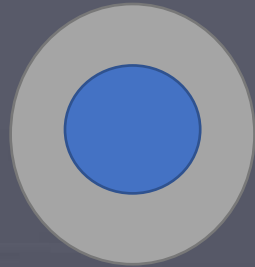


Layer 1: Urban Center/Market



- At the heart of the model is the city, where the people live and work.
- Primarily where agricultural products are brought to be sold

Layer 2: Horticulture and Dairy Farming



- Horticulture is primarily the growing of fruits, vegetables, and flowers.
- Dairy farming is done close enough to transport milk to market without spoiling.

Layer 3: Forestry



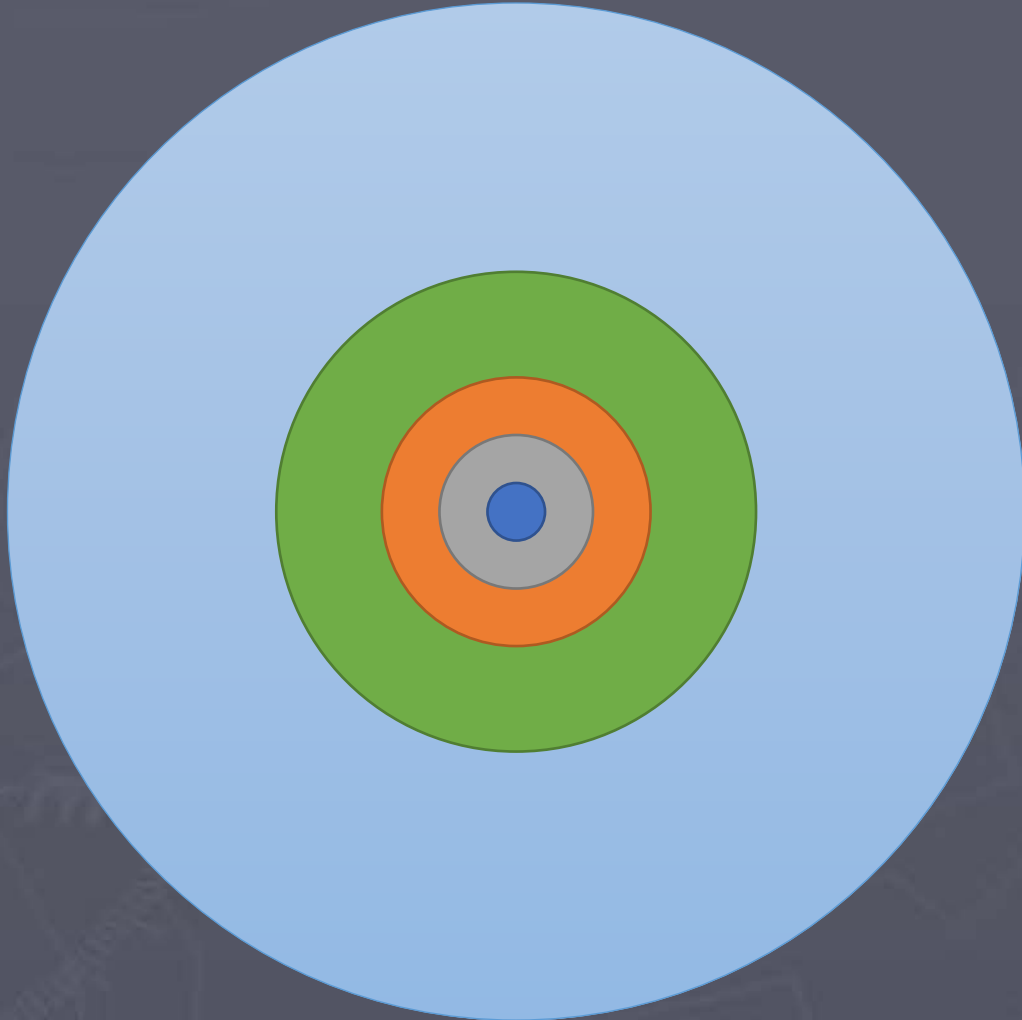
- Ring of trees to provide building materials and firewood
 - Model produced before widespread use of coal
- Located close for easy transportation

Layer 4: Grains/Field Crops



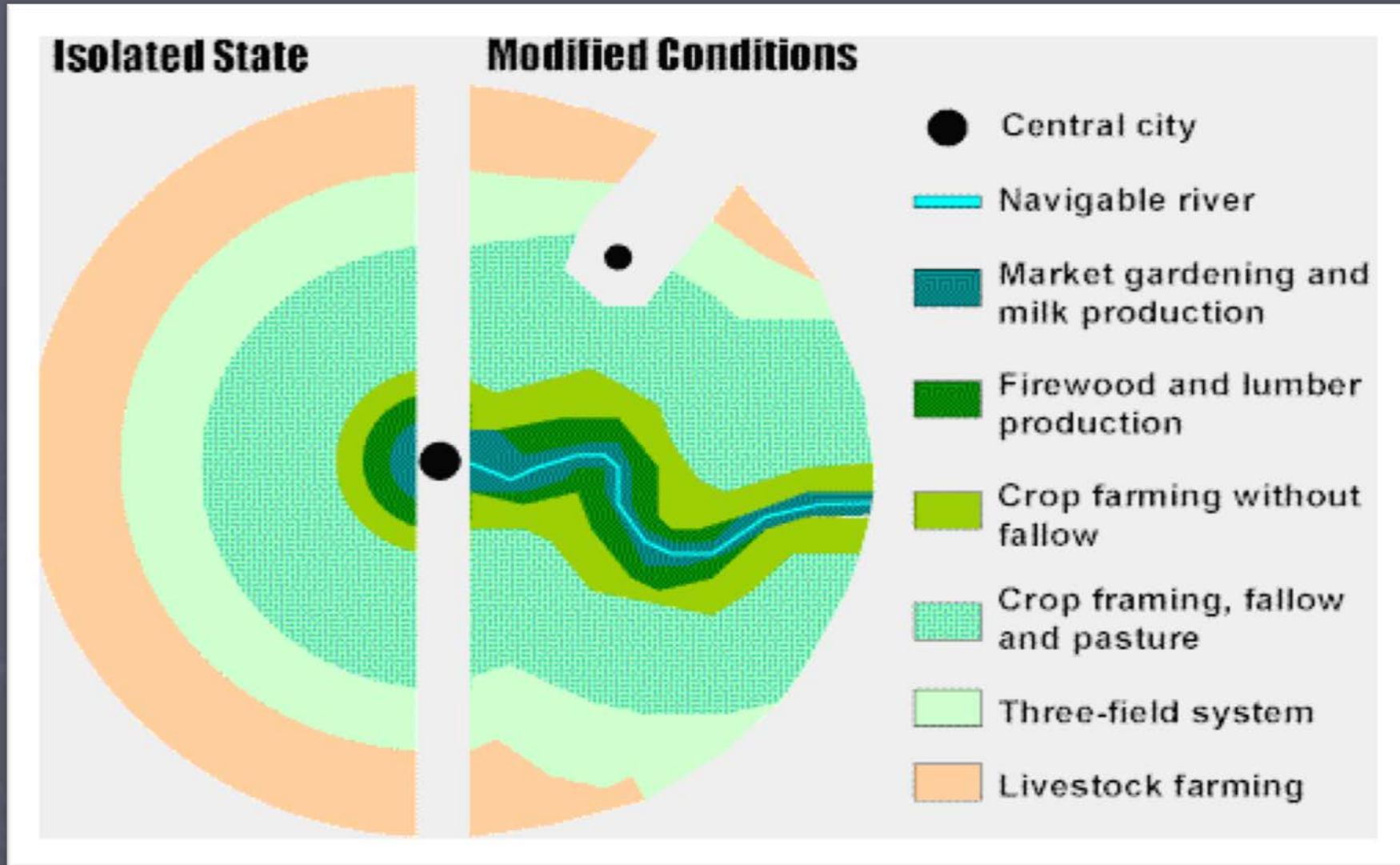
- Large scale farms that allow for Grain production and large herds of animals
 - Grains much lighter and easier to transport

Layer 5: Extensive Ranching and Grazing



- Large open areas where animals can freely roam
- Transportation a non-factor since animals are self-transporting and can walk to market or easily be moved

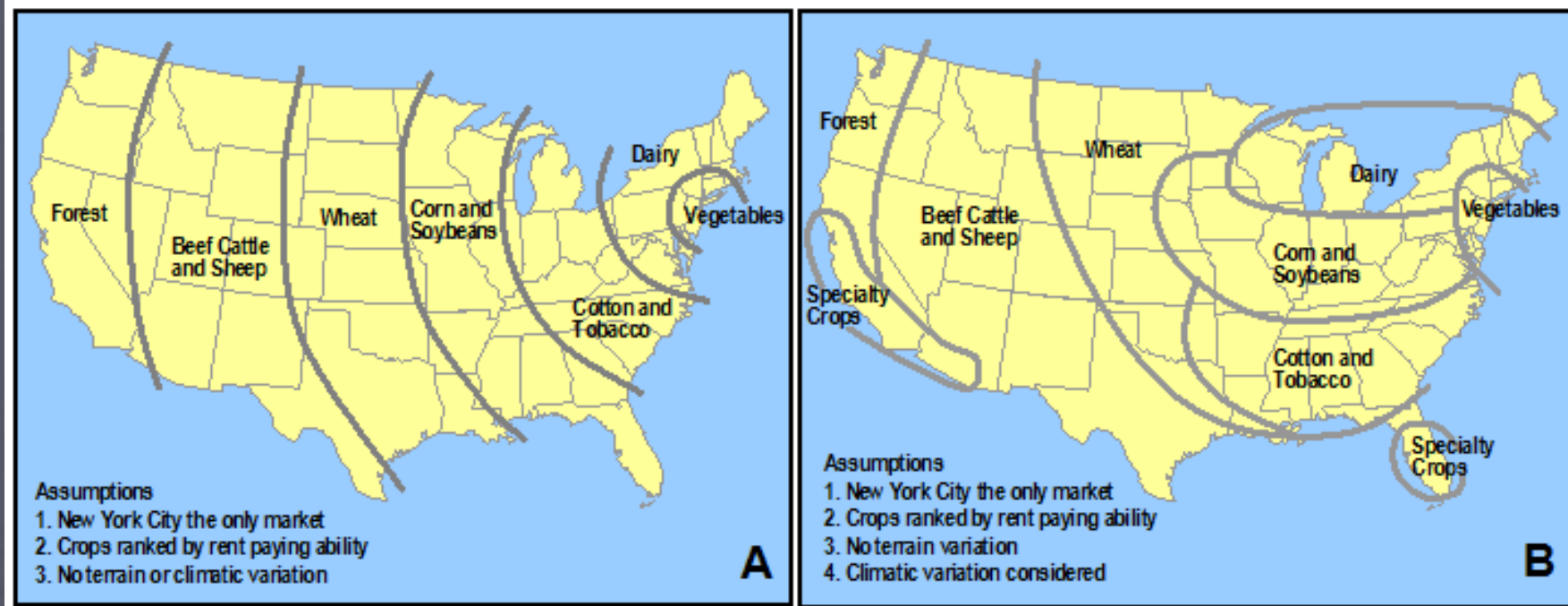
Von Thunen's Modified Model



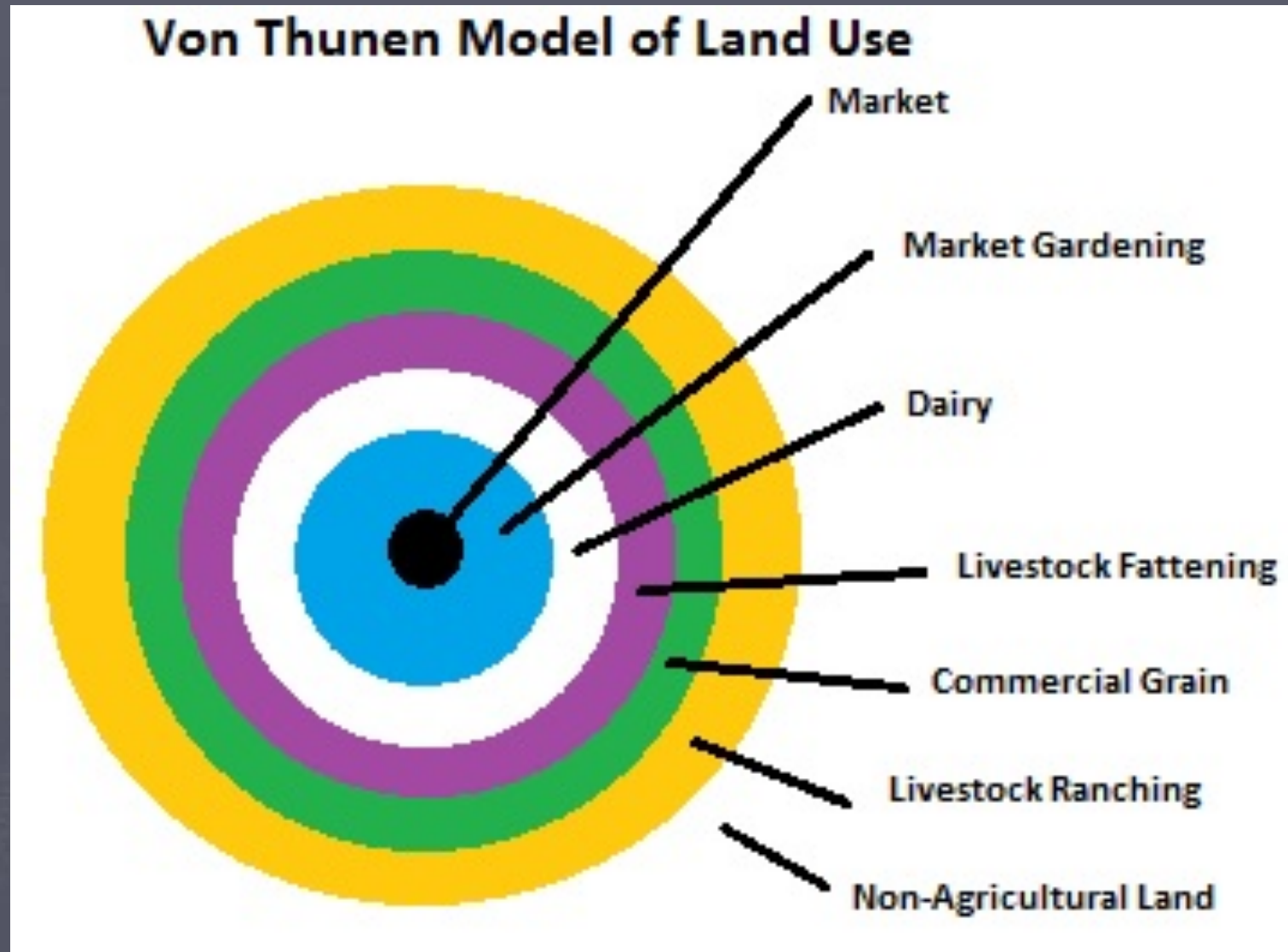
Uses of Von Thunen's Model

- Von Thunen model useful generalizing agriculture patterns
 - Opens up discussion to merits and changes in agriculture
 - Displays connection of city and agricultural patterns
- Displays balance between land costs and transportation costs

Von Thunen Theory (A) vs. Reality (B)



Recent Changes to Von Thunen



Types of Agriculture: Subsistence versus Commercial



Subsistence

- Family or social group works together
- People live on food they grow
- Small surplus traded or sold locally



Commercial

- Products raised for market
- Low consumption of food by farmers

Extensive versus Intensive



Extensive

- A lot of land
 - Slash and Burn
 - Nomadic Herding
- Less labor



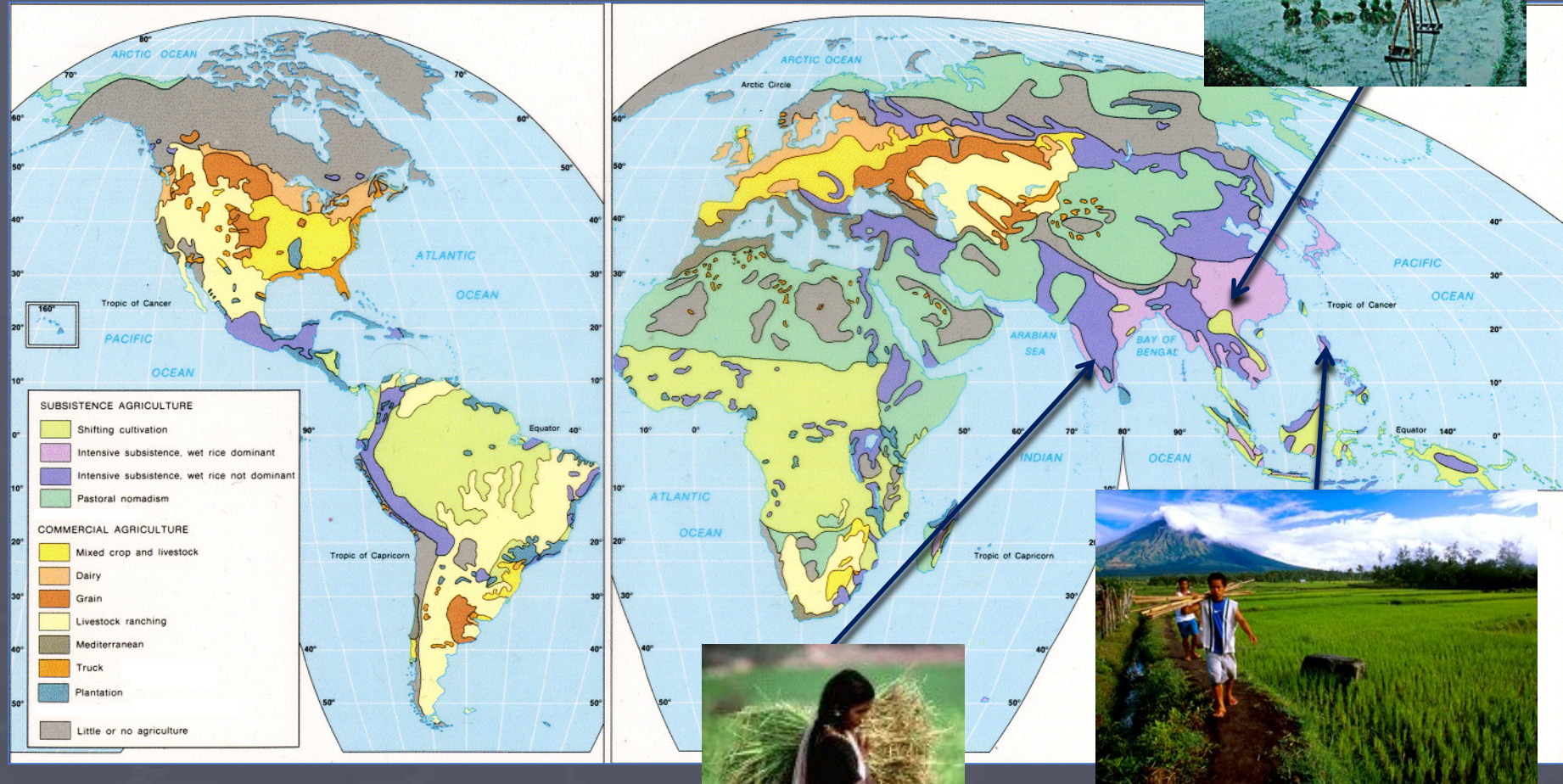
Intensive

- Small amount of land
- Labor intensive
 - Wet Rice

Extensive Subsistence Agriculture



Intensive Subsistence Agriculture



Shifting Cultivation

- Also called slash-and-burn or swidden
- Practiced in Tropical rainforests
 - Amazon
 - Congo
 - East Indies



Process for Shifting Cultivation

- Cut down non-useful trees and shrubs
- Burn felled trees to release nutrients into soil
- Clear space and till soil for agriculture

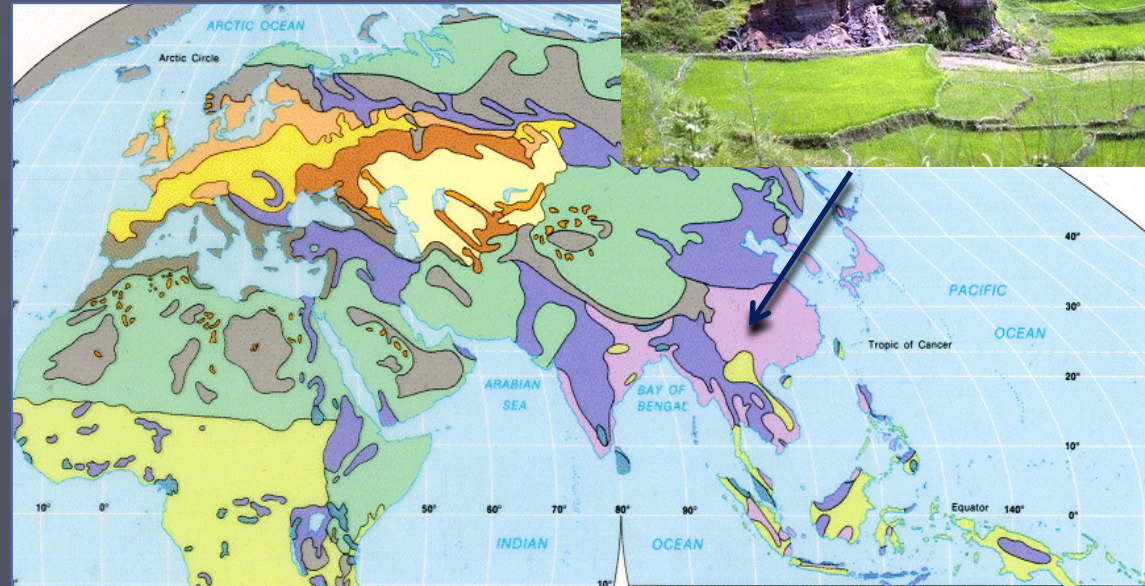


Problems of Shifting Cultivation

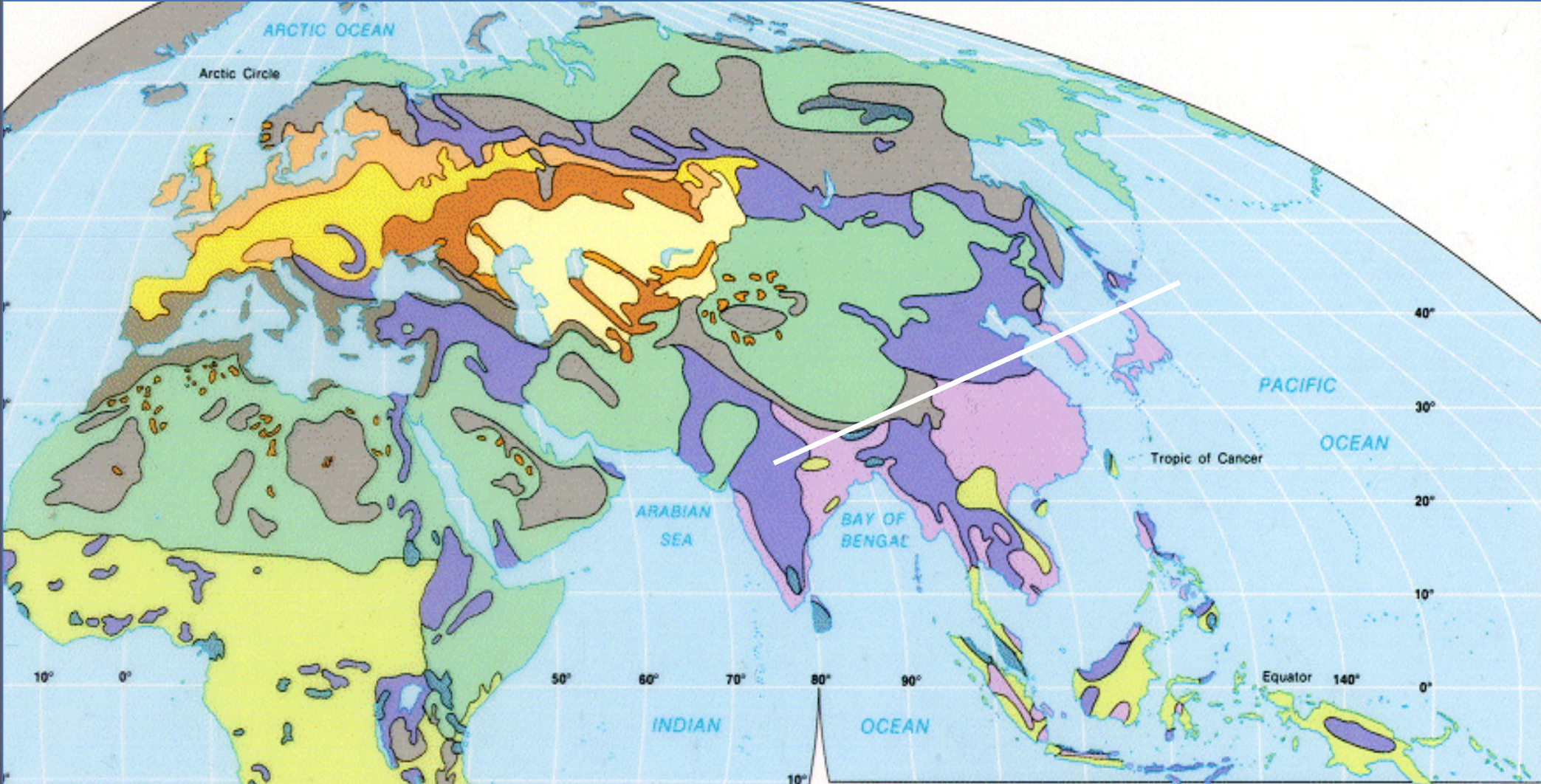
- Sustainability
 - Land is only productive for 2-5 years
 - Then needs to sit fallow for 15-20
- In-efficiency
 - 20% of land used to feed 5% of population
- Deforestation
- Loss of native flora and fauna

Wet-Rice Cultivation

- Paddy rice farming
 - Intensive Subsistence
- Tropical regions, nutrient-rich, with monsoon seasons
 - China
 - Philippines
 - India



The Noodle Line



Labor Intensive Process

- Field Preparation
 - Build, repair, clean canals and dikes
 - Plow and smooth soils in paddies
 - Grow seedlings in nursery
- Planting
 - Plant seedlings
 - Raise water level as plants grow
 - After flowering, water level is lowered
- Harvesting
 - Rice stalks hand picked



Nomadic Herding

- Subsistence Agriculture
 - Changing more so to wage earning business
- Arid, Semiarid, and Arctic Regions
 - Migratory based on trend of herds
 - Horizontally – Across a large area
 - Vertically (transhumance) – Changes in elevation
 - Declining Lifestyle
 - Cultural diffusion and governmental regulations



Location of Nomadic Herding Agriculture

