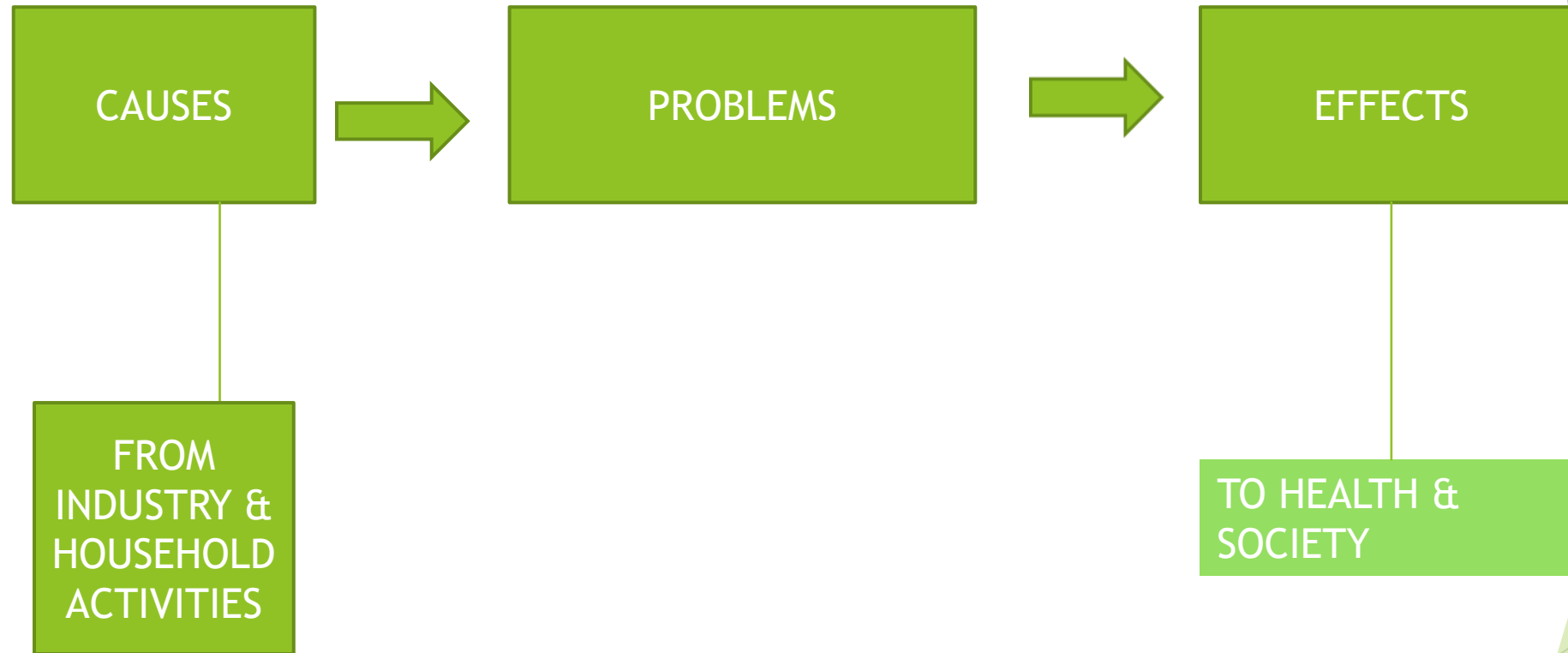


ENVIRONMENTAL ISSUES IN THAILAND

AIR POLLUTION, DEFORESTATION, FIELD AND FOREST BURNING,
OVERFISHING, INDUSTRIAL WATER POLLUTION AND WILDLIFE

Ground Water in Thailand (*new topic)

Big picture of the study



AIR POLLUTION

- ▶ There are about 20% of the national population and over half of country's factory living with hazardous substances in BKK.
- ▶ Without treatment facilities, industrial activities contaminate the environment.
- ▶ To solve the problem, the pollution control dept. sets up the standard focusing on lower-emission vehicle engines and improving public transportation. Factory and power plants are required to reduce emissions while other sources of air pollution are from our daily activities.
- ▶ Discussion - Give examples and suggested solutions



DEALING WITH AIR POLLUTION IN BKK, ESP. PM.2.5 PROBLEMS

- ▶ Short-term: Promote sustainable agricultural practices (like circular models for straw utilization and sustainable agricultural mechanization) and enhance prevention and suppression of forest fires.
- ▶ Medium-term: Engage cooperatively with neighboring countries to work together in reducing air pollution emissions from agricultural burning.
- ▶ Long-term: Decarbonize industrial activity, invest in clean energy and zero-emission public and private transport.
- ▶ <https://www.unescap.org/blog/deciphering-black-box-air-pollution-data-thailand>

DEFORESTATION

- ▶ Forest in Thailand has been greatly reduced. The forested land has been changed to agricultural and misappropriate public lands. Factors of the declining forest, according to the BKK post editorial on July 2015 are logging, promotion on cash crops, construction of big dams and promotion of tourism, etc. Wetlands and mangroves are degraded. People uses these areas for commercial fishing, aquatic industry, and tourism.
- ▶ The impacts of the deforestation
 - ▶ Soil erosion
 - ▶ Sedimentation of river
 - ▶ Loss of natural habitats
- ▶ When forests are restored and trees are taken care of, the Thais will benefit not only from the clean air, but also protect them from landslides and floods, improve the livelihoods of the communities near and around the forested areas, and even help preserve cultures and traditions of ethnic peoples

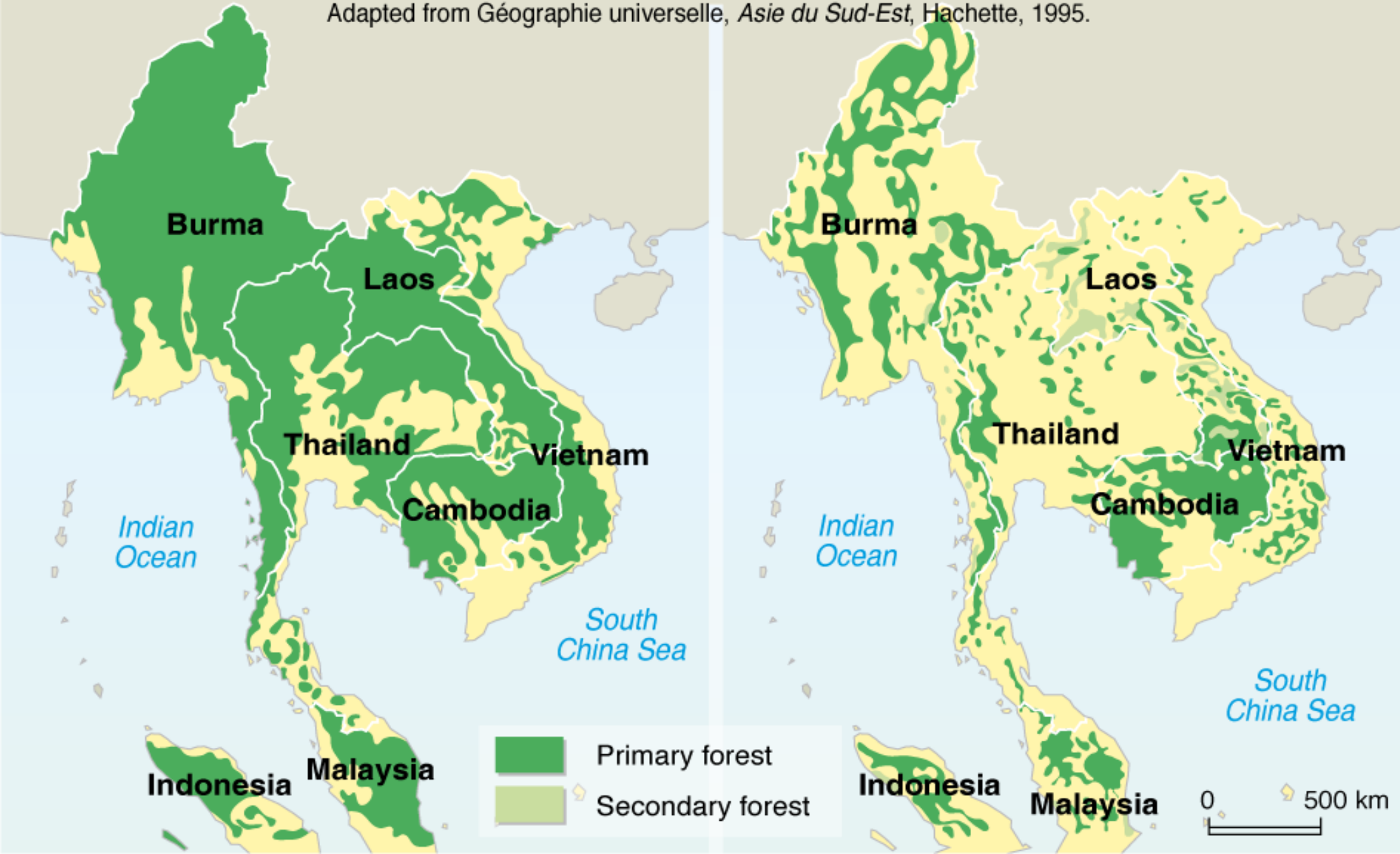


1970

DISAPPEARING FORESTS

1990

Adapted from *Géographie universelle, Asie du Sud-Est*, Hachette, 1995.



DEFORESTATION



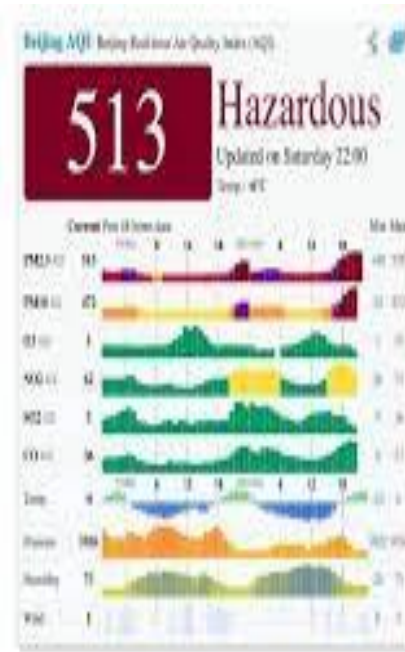
- ▶ Globally, the natural forest area decreased by around 6.5 million hectares annually between 2010 and 2015, according to the Food and Agriculture Organization (FAO), which would reduce the capacity of forests to absorb harmful carbon dioxide, a greenhouse gas that contributes to climate change. **Deforestation and forest degradation are the second leading causes of global warming**, responsible for about 15% of global greenhouse gas emissions.
- ▶ In Thailand, forest cover has declined from 53.5% in 1961 to 31.6% in 2014 as a result of population growth, infrastructure development, agricultural expansion, illegal logging and uncontrolled forest fires. On average, the annual deforestation rate was estimated at 0.6% or 140,000 hectares per year, from 1973 to 2014.

FIELD AND FOREST BURNING

- ▶ Though this is a yearly event, it causes lung cancer, chest diseases and cardiac condition. Also, it destroys forest biodiversity and vegetation. Forest growth is slow and it results in erosion, air pollution and flooding.
- ▶ Three main categories of fires
 1. Forest fires
 2. Agricultural burning
 3. Roadside burning : to clear Vegetation from encroaching roadways.



Forest fires have sent air quality in many provinces to a level considered harmful to people's health, as cities in the North like Chiang Mai registered air quality that was among the world's worst.



Reasons for burning

- Forest fire : To increased product yield for higher market price
- Agricultural burning : To clear agricultural field, over grown roadsides and open areas
To stimulate the growth of mushroom and grass



Earth star mushroom

OVERFISHING

- ▶ The catch has increased while the resources are over exploited.
- ▶ This problem creates a big aquaculture industry and human trafficking problems such as the illegal labors in Samutsakorn province
- ▶ Problems of illegal fishing go to the country such as Thailand with the trade ban because of violating international overfishing regulation and unlicensed fishing vessels.



The impacts of overfishing



- ▶ **IMPACTS :** Imbalance of food chain, Illegal fishing practice, Economic collapse with lack of fish
- ▶ Thailand is now 12th of 215th in the world (215th is the best). Due to the big expansion of seafood industry, we have more illegal labors working in this industry. Overfishing occurs in this region is due to illegal, unreported and unregulated (IUU) fishing.
- ▶ Thailand is the world's third-largest seafood exporter, and the government has been working diligently to protect its marine resources during the past several years. Before that, the government had taken a laissez-faire approach to the industry, which was providing livelihoods and economic growth.
- ▶ Officials have imposed a three-month ban on fishing in parts of the Gulf of Thailand to replenish stocks, as the Kingdom takes more steps to protect the environment and the blue economy including holding workshops on traceability for boat owners and operators.

WATER POLLUTION

- ▶ Thailand is subject to drought and the water is unsuitable for consumption.
- ▶ Reasons are untreated domestic sewage, industrial+ domestic waste water, and solid hazardous wastes such as heavy metal from factories.
- ▶ Water is polluted by pesticides, fertilizers, urban sewage, and pharmaceutical residues.
- ▶ Thailand faces additional challenges in ensuring a supply of clean drinking water into the future. Despite high levels of drinking water access currently, deforestation and climate change, in combination with growing demand for water from industry, is leading to increasing water scarcity.¹³ This also is tied to water quality issues, as chemicals used in agriculture, industrial waste and untreated sewage currently flow into many of Thailand's waterways.
- ▶ Government efforts for improvement : legislation, limitation of industrial water contamination, more capacity for waste treatment plant, and waste management plant.

THE LATE THAI KING AND HIS PROJECT



“When there is water, there is too much, it floods the area; when the water recedes, it is drought.”



“Chai Pattana Aerator” - The project of The King Rama9

WILDLIFE

- ▶ It has been threatened by poaching, habitat loss and industry selling wild animals as pets.
- ▶ Elephants are hunted for ivory, meat and hides. Many wild animals are traded illegally at JJ market.
- ▶ The Asian elephant has lived alongside humans for over 4,000 years and is imbued with reverence, tradition and spirituality across many cultures. In Thailand, the elephant is a national icon: it has a national holiday designated in its honor and elephants can receive a Royal title from the King.
- ▶ Tens of thousands of elephants are killed yearly in Africa to meet Asia's demand for their ivory tusks and products, such as trinkets and jewellery. In the first 2 months of 2012, more than 400 elephants were butchered for their ivory in Cameroon's Bouba Ndjida National Park.



WILDLIFE

- ▶ Thailand has the world's largest unregulated ivory market, and is home to one of the world's largest and most active ivory carving industries.
- ▶ The CITES Secretariat report on Monitoring of Illegal Trade in Ivory and other elephant specimens stated that most of the ivory found in South-east Asia, including Thailand, comes from African elephants.
- ▶ Conservation Bills (1960-1992) are the government's cooperation with CITES to protect wildlife.
 - ▶ Border checkpoint to prevent animal smuggling
 - ▶ Public education about wildlife preservation

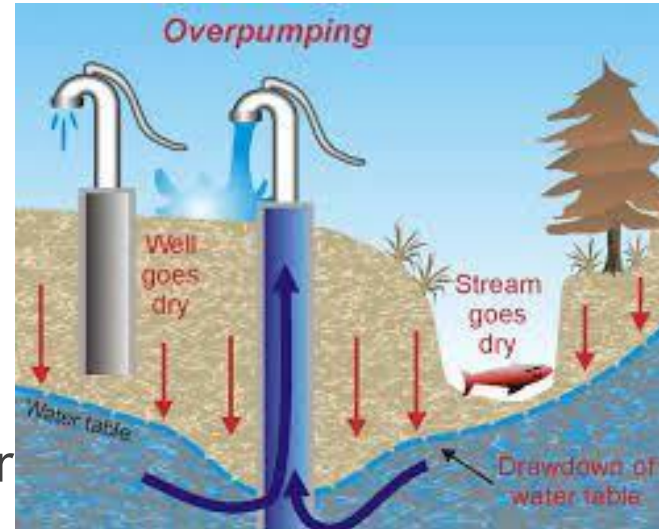


Ground Water

- ▶ Apart from groundwater storage, Thai agricultural sector uses the surface water for the production.
- ▶ However, the main hydric problems are pollution, flood (mountainous areas) and droughts (northern eastern area). <https://www.youtube.com/watch?v=OMn6YEELku8>
- ▶ The current groundwater abstraction is for industry and domestic use in rural areas during dry seasons.

Ground Water

- ▶ The environment impacts from the high extraction of groundwater
 - ▶ Decline in groundwater levels
 - ▶ Land subsidence
 - ▶ Seawater Intrusion : Area along with the coastline such as Samutprakarn
 - ▶ Its groundwater has become brackish water (saltier than fresh water).
 - ▶ The seawater intrudes into aquifers and leaks from one layer to the other from groundwater wells.



Groundwater in BKK



- ▶ People use water from canals connecting to Chao Praya river for daily use.
- ▶ In dry season, water in canals becomes salty, dirty and unsafe for drinking and daily use.
- ▶ Metropolitan Waterwork Authority, a state company is responsible for clean disinfected water production, transmission and distribution to people living in BKK, Samutprakarn and Nonthaburi.