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Environmental Problems/Policies In Thailand

By

Chuleeporn Wiriyswongchai
Thailand was once a country of agriculture. Most population worked in farms depending on their own and their domestic animals' labour as well as the nature which was all for them. Though time has passed, rural people's way of living still take close relation with forests; they need the products for food, wood, medicine and others as well as their contribution of rain and water sources.

However, during these decades, Thailand's development is emphasized on the use of natural resources as raw materials for industry, without systematized protection of environment. Forests have been increasingly deprived of their richness, causing unbalance ecology and natural disaster such as droughts and floods. Furthermore, there occur pollutions in towns, especially in the capital, resulted from population growth and industrial expansion.

This report is divided into two sections of the deforestation and pollution problems by looking through each's state and causes.

Moreover, I would like to notify that the deforestation section is some part of the PEOPLE AND THE FUTURE OF THAILAND'S FOREST by the Project for Ecological Recovery.

I. Deforestation

1.1 State of Thai Forests

In 1961, 53% (27,36 million hectares) of total land area of Thailand was forest area. Just three decades after the natural forest cover decreased in half. If rubber plantations and fruit trees are excluded, the remaining natural forest cover now may be as low as 20% or even less.

Such depletion of forest cover has caused many natural disasters. Besides a long period of drought and floods, the tragedies of slope slide in 1988 and the Guy storm damaged a lot of people's crops, properties, life and mind. These disasters alerted their awareness of natural problems. Logging concessions have been halted nationwide for deforestation is considered the main cause.

Indeed, the forests have been degraded due mainly to certain "development" projects which began three decades ago. That involves many government policies to promote agro-industry, aquaculture, commercial reforestation and tourism. Moreover, even after the logging ban in 1989, the forest cover is still under pressure of illegal wood-cutting.
1.2 Illegal Logging

The decree banning concession logging by the previous government has failed to completely check illegal logging practices. The conditions allowing illegal logging to continue are:

1. The government-promoted expansion of wood-processing factories and industries, such as furniture manufacturing, that use wood as raw material. The number of these factories has increased from 2,178 in 1986 to 2,672 in 1989. They have been the main market for illegal wood.

2. After the ban, searching for wood has been encouraged, especially from neighbouring countries, like Burma. That has become a main condition allowing illegal logging in Thailand along the border areas.

3. Government authorised logging such as logging in proposed dam reservoir areas etc. leads to further illegal logging.

1.2. Commercial Reforestation Policy

Tree plantation in the name of reforestation has become another main cause of forest destruction. With commercial interests back reforestation, it contributes to a rising demand for low price land which are usually degraded forest areas, and almost all these forest areas are occupied by millions of rural poor. Therefore many forested areas have been cleared illegally by reforestation companies searching for land to accommodate commercial tree plantations.

The government reforestation policy that aims to increase forest cover to 40% of the country's total land area did not originate from the ecological awareness of foresters. Instead, its roots can be traced to the international mainstream of industrial forestry efforts; the framework of the World Bank-financed Tropical Forestry Action Plan (TFAP) is an example. This so-called reforestation has created benefits to 2 major groups: the Thai Royal Forestry Department and business investors, and transnational corporations.

The benefits of the reforestation policy are even further directed towards the business sector involved with pulp and paper production; in 1990 several factories were set up to use raw materials from fast-growing trees, including 35 paper and pulp factories; 5 of these 35 together with 8 wood chip factories got extraordinary privileges from the Thai government's Board of Investment (BoI).

However, various researches have found that planting eucalyptus trees as a monoculture caused environmental impacts such as production of poison by the trees which is dangerous and prevents the growth of some plants, reproduction
to underground water and soil erosion. In Thailand, every side ever the Royal Forest Department, agree eucalyptus trees should not be planted in watershed areas. The only suitable land for them is arid soil. However, up to now there has been no practical measures for enforcing the policy. Many plantations are undertaken in catchments and near water tables, causing a reduction in water availability. Even surface water is absorbed so rapidly that rice and other crops are adversely affected.

1.3. Policies promoting industrial agriculture

1.3.1 Agro-industry

Export-oriented agricultural policy has contradicted forest conservation policies for the past two decades. This is because it has led to rapid expansion of farmland without proper zoning system. Moreover it has caused vast encroachment on forest land by small farmers.

Forest cover in the northeast of Thailand, the most deforested region, decreased from 7.04 million hectares in 1961 to 3.2 million hectares in 1978 and 2.88 million hectares in 1983 respectively. Deforestation in Northeast Thailand continued as a result of the continuing expansion of farmland area for major commercial crops, eg. jute, corn, cassava, etc. In the one year period from 1988 to 1989 the cash crop farmland area swelled from 2.15 million hectares to 3.2 million hectares.

Apart from forest clearance for export-oriented crops, the government classification for land-use has been ignored in the haste to expand the area of cultivation. The land-use classification prohibits certain types of crops from being cultivated on hilly terrain as they can worsen soil erosion. The monoculture of export-oriented crops that have expanded onto mountain slopes, especially in the highland areas of the North, are leading to increased erosion of top soil.

One of the most important effects is the chemical usage to increase farm products and solving some problems. Especially, pesticides used in high land are absorbed downward and expanded to water sources which affect communities along the stream.

1.3.2. Aquaculture

Since 1973, aquaculture especially giant prawn farming has been promoted by Fishery Department. The area of shrimp farms has rapidly expanded to mangrove forest. About 180,000 hectares of mangrove forest in 1986 decreased to around 140,000 hectares in 1989. Over half of the destroyed area has been taken over by shrimp farms. However, the government's Fishery Department still promote the
shrimp farm business since its average revenue is more than 5 billion baht from export of shrimp per year.

Shrimp farms have created massive degradation of coastal ecosystem due to intensive chemical usage and lack of water treatment systems which do not affect the shrimp business itself but other activities relying on the water, such as rice farming.

This is an obvious case of natural degradation by the conflict in government policies concerning mangrove conservation and promotion of fishing.

1.4. Tourism

The booming tourism in Thailand is leading to environmental degradation. Many projects such as luxury hotels or resorts, golf courses, cable cars and roads lead to further deforestation. About 50 golf course projects replacing approximately 100,000 hectares of farmland are under way. Around 40 golf courses and 35 resorts are being investigated on charge of forest encroachment.

Especially, golf course projects have been opposed in the past years by various social groups because of the projects lead to environmental problems. Due to pressure from international and domestic business and influential groups involved in the golf course business, however, the government has not taken any stance against the increasing rate of golf course projects.

The promotion of tourism has caused many effects on the environment and ecological system. It is obvious that several resorts and golf course projects cause forest destruction, and that the use of pesticide and fertilizers on the golf course has resulted in pollution of water resources such that many fresh-water fish have become extinct. The facilities built for the tourists, which increase immensely, have destroyed existing plants and animals in the natural environment.

Moreover, the growth of the tourism industry increases numbers of hotels, bungalows, condominiums, resort, restaurant, stores, etc. A large amount of waste is created and improper discharged into natural water bodies, such as rivers and the ocean. This causes pollution in the natural water resources.

Finally, buildings and other construction at tourist sites change the natural view. The beauty of scenery is blocked; this is so-called sight-pollution.

II. Industry and Environment

Background and General Situation

Industrial sector of Thailand, once mainly an agricultural country, began since 1917. Then the government launched many policies to support it, such as
the 1954 Industrial Promotion Act, allowance of private sector to take part in industrial investment, foundation of Industrial Fund Corporation of Thailand, and especially the Board of Investment.

Through the National Economic and Social Development Plans during 1961s the governments tried to encourage the private sector to invest and expand industrial business. Many infrastructure projects were implemented by the State to create the climate for investment. The promotion at that time was for replacing the greatest share of imported products, namely food, beverages and tobacco. These products of light industries cause pollutions at low level and are naturally decayed. Then during the third Plan, 1972-1976, the government adjusted its policy of industrial promotion by giving privileges to industries of which the products are for export rather than for selling in the country. The turning point of the structural change are between 1977-1986 the fifth and sixth Plans which encourages the investment and development of heavy industries, as well as the expansion to all regions of the country. During the sixth Plan, the industrial sector grew at a rate of 12.7% per year, much higher from the target.

Since Thailand is now in the period of changing itself to be one of the newly industrialized countries, petro-chemical industry tends to boom more than other sections. Most petro-chemical factories are situated in the Eastern coast of the country which is provided for a large industrial zone. Besides, factories of petro-chemical by-products are also invested with ten billion baht of capital and create a great deal of employment.

However, in amidst of this industrial and economic growth, environmental problems are in great concern. Certainly, there will be a high risk of accidents and pollutions which do not endanger just each spot but the whole ecosystem.

The change of the structure to heavy industries which use difficulty disintegrated materials and chemicals cause more serious environment problems by their hazardous waste. They are industries of chemicals, basic metal, petro-chemicals, electrical machinery and fabricated products. The hazardous waste discharge of these industries has soared up evidently from 29% to 58% during the past decade. Thailand has currently many industrial factories that use chemical materials and high technology, but most do not have a standard storage system.

The expansion of industrial sector has also drawn numerous labourers from rural area to urban area, especially in the capital. That follows a lot of problems: slums, shortage of utilities such as transportation, waste treatment, sanitary and water supply which further causes problems of floods and soil collapse due to groundwater pumping.
The economic growth has also consumed a lot of energy especially natural resources for generating electricity. The demand of electricity power tends to increase so high that the Electricity Generating Authority of Thailand plans to import fuels because the existing energy sources in the country, lignite and natural gas, will not be sufficient to supply it during the next decade. Now and in this short future, it increases the use of fuels that produce carbon and sulfur, especially lignite and petroleum which will seriously cause environmental problems: air pollution, acid rain and destruction of ozone layer. The lignite found in Thailand has 3% sulfur of its weight which is a quite high rate.

The pollutions have therefore increased in types and at much serious extent. The past problems used to be mainly on water pollution but now they includes air and noise pollutions besides the risk of people's life from hazardous industrial waste.

For the solutions, before the present National Promotion and Protection of Environment Act, 1975, the policies and measurement of the State are obscure. The environment was under control of the Factories Act, 1969, which was aimed at set up conditions for application of establishing a factory, not at the pollution control. Until in 1975 the Office of National Environment Board was founded to directly deal with environmental problems. However, its power covers only the making of policy and suggestion. The practice and enforcement are in the responsibility of other related units.

**Environmental Problems**

- **Air Pollution**

Air quality in Bangkok and its suburbs has been polluted to the extent that it is harmful to people's health. People living in Bangkok and big cities reach a high rate of physical problems in breath, heart and immune systems. Especially, in each year there are a million Bangkokian patients with breathing trouble. The children, moreover, are reported to have lead in their blood three times higher than those in developed countries.

Air pollution is resulted from burning fossil fuels mostly for driving vehicles and factory machines. The evaluation of air quality by government units confirmed that the volume of dust in traffic obstruction areas of Bangkok and other big cities is over the health standard, three times for some areas. Moreover, transportation produces five main gases: nitrogendioxide, carbon dioxide, carbonmonoide, lead and hydrocarbon whereas industrial factories release mostly sulfurdioxide and dust. The volume of these gas are now in harmful level. Carbonmonoide from benzine-fueled vehicles in some zones is above the standard while sulfurdioxide from factories is at a high rate at
Samutprakan Province, adjacent to Bangkok.

This situation tends to be more serious in the future. The Thai Development Research Institute (TDRI) figured out that carbon dioxide released more than 2 million tons a year in 1988. It was evaluated to be double in 1996 and increase four times in 2011. Nitrogen dioxide will climb from 100,000 tons in 1988 to 2 million tons in 2011. Moreover, dust will increase from 100,000 tons to 1.6 million tons during the same period.

- Noise Pollution

Presently, a lot more Bangkokians, especially those spend much time on roads and in factories, are facing with a new kind of illness, auditory trouble.

The National Environment Board reported that in many roads of Bangkok, the noise level is more than 85 decibels-A which is an alarm sign to the ability of listening.

Major causes of noise pollution in Bangkok are from transportation both on roads and waterways. There are more than 2 million vehicles (including 800,000 motorcycles) on Bangkok’s road, but only trucks and buses have to be checked annually according to the Transportation Act. So other vehicles’ engine condition has been never under control.

Another important cause is the noise from factories, such as textiles and transport equipment. Sanitary Department of the Public Health Ministry reported this kind of noise has been claimed by more people.

- Waste Disposal

The National Environment Board found that Bangkokians produce 5,000 ton/day of solid waste. The government units can be responsible to manage only 80-90% of it. Due to limited budget and manpower, they use the method of piling the waste and let it be decayed naturally. This is indeed incorrect for it causes smell and spreading of disease. Moreover, today’s waste increasingly consists of plastic materials which create poisoning gas if being burned and foam which is unable to be managed with low and cheap technology.

Industrial waste is different from that from households. The most concern is hazardous waste, such as heavy metal, chemicals, oils and dissolving substances which poison people, animals and plants. Five kinds of industries that release this waste are factories of basic metal, fabricated product, transport equipment, electrical machinery and chemicals. A report revealed that in 1989 there were 5,126 of the factories, 10,152 of which were in Bangkok and suburbs.

Engineering Science (1987) said in 1986 there was 1.15 million ton hazardous waste nationwide. Most, 95.5%, was waste from heavy metal factories. However, Thailand has only one hazardous waste treatment factory, at Bangkhunnone District of Bangkok which can bear only 40,000 ton per year. So
it is certain that a lot of hazardous waste has been discharged into waterways and contaminated to the extent that it will degrade food chain, environment and people's health.

However, besides the hazardous waste is produced in the country, some unclaimed is shipped from industrialized countries. This waste has been piled up at Klong Teiy Port.

- Water Quality

The quality of water in the lower reach of the Chao Phraya River, especially in dry season, is so not critical that there is almost not dissolved oxygen in the water. However, the problem does not draw much attention from public and government units because it has gradually been accumulated and not showed yet much serious effect.

There are four main sources of the problem: reservoirs, industrial factories, and agricultural activities. The first source should be seriously considered as one of the causes. A large volume of 5,000-10,000 million sq.m. water in reservoirs has been contaminated with dead leaves and trees under the water. The problem was once solved by aeration but insufficient to purify the water (oxygen needed to reach the standard of fresh-water is so much that all electricity power generated from the dams cannot afford the aeration process).

For the waste from industrial factories, it also consists of heavy metals, such as lead, mercury, niccle, tin, cadmium. Though these metals have not been yet found at over extent in the Chao Phraya River, but the future is on the stake if the problem is still on without more serious measurement and enforcement.

Regarding the cause from the agriculture sector, more contamination of chemicals used in farming has been found in waterways, such as organochlorine pesticides in the Chao Phraya River. However, at present agricultural waste is not so harmful as for it is released from each field plots in different time.
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