

philippine studies

Ateneo de Manila University • Loyola Heights, Quezon City • 1108 Philippines

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Philippine Studies vol. 60 no. 1 (2012): 117–130

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Research Note

BAO MAOHONG

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This research note offers a glimpse of the thematic approach to the study of Philippine history in China in the period that Bao Maohong, in a commentary published in this issue of *Philippine Studies*, refers to as "the third wave." Addressing deforestation at different levels from the perspective of environmental history, this essay argues that deforestation is not only a case of environmental degradation but also involves economic, political, and cultural factors in the modernization of the Philippines. It argues that the state's one-sided development strategy is the primary cause of deforestation, and reforestation cannot recuperate the forest environment in the Philippines.

KEYWORDS: ENVIRONMENTAL HISTORY · IMPORT-SUBSTITUTION INDUSTRIALIZATION · SWIDDEN CULTIVATION · LOGGING · AGROFORESTRY · INDIGENOUS KNOWLEDGE

Deforestation is the traditional theme in studies of forest history. Because the forest is an integral part of the environment, it is necessary to study it from the perspective of environmental history. Environmental history is the interdisciplinary study of the interaction of humans with the rest of nature over time. As such, it expands the frontiers of human history to include nonhuman history. Globally environmental history is transforming and reconstructing world history. In this research note, I analyze deforestation in the Philippines on the national, regional, and global levels and argue for the primary factors that have resulted in deforestation in the Philippines from 1946 to 1995. I will also offer an answer to the question about the possibility of recuperating the forest ecosystem through reforestation plans in the Philippines.

Deforestation in the Philippines and its Consequences

Deforestation is the replacement of forest cover in favor of other forms of land use by human and natural activities. The history of deforestation deals with the replacement of forest by human activities. The deforestation of the Philippines is a process that began in 1521 with the coming of the Spanish colonizer. Before 1521 the forest was an integral part of Philippine life. Indigenous belief systems, including animism, were closely tied to their environment and contained invaluable local ecological wisdom. After 1521 the forest became commercialized and lumber given economic value. With the import of modern forestry into the Spanish Philippines, the forest became the factory for producing timber and money. Under the large demands of the colonizers Spain and the United States, deforestation became more and more widespread and serious. According to Greg Bankoff (2007, 324), the forest cover was at 92 percent of the land when the Spanish came to colonize the Philippine islands; however, it decreased to 49–56 percent when the United States set up its colonial regime in the Philippines. Interestingly, the Philippines turned from a timber importer to an exporter in 1900 and became an important supplier in the world timber market. During the period of American and Japanese domination, the average rate of decrease of the forest cover was 0.71 percent, a figure much greater than the 0.16 percent observed when the Philippines was a Spanish colony (*ibid.*, 330–31).

Care is needed when determining the rate of deforestation after Philippine independence in 1946 because Philippine government figures do

not match those of foreign and international organizations or NGOs, such as the Philippine-German Forestry Resources Inventory Project and Swedish Space Corporation. Based on Philippine government figures, the deforestation rate announced before 1988 is quite different from those announced in 1988. Extrapolating from the works of Maria Victoria Espaldon (1995) and David Kummer (1991), I have arrived at a different rate of decrease in forest cover in the Philippines. The forest cover in the Philippines in 1950 was 49.06 percent, decreasing to 44.2 percent in 1957, 34.9 percent in 1969, 23.7 percent in 1988, and a mere 8 percent in 1992 (Bao 2008, 30–35). The Philippine islands turned from a green garden into a bare archipelago.

Deforestation leads to serious environmental damages. It results in soil erosion and landslides during storms and flooding. Recently, on 16–18 December 2011, Typhoon Sendong (international name: Washi) devastated parts of northern Mindanao, resulting in the death of over 650 people, with over 800 people declared missing. While many have blamed the government for its ill preparedness, the main reason for this disaster was the fragile ecology of the denuded mountainsides.

The decrease in forest cover reduces the potential for normal rainfall in the area, thereby contributing to water shortages that may turn the farmland into barren land without moisture. When a typhoon passes through the area, mud and silt are washed down from the bare mountainside and deposited in the sea, which would result in the death of coral and other aquatic species in the nearby coast, an outcome that in turn would affect tourist spots and decrease the income from tourism and fishery. Deforestation depletes biodiversity and decreases the income from nontimber forest products. Some unique birds and animals that live in the forest become endangered species due to the destruction of their habitat. Such species include but are not limited to the Philippine tube-nosed fruit bat, the Philippine bare-backed fruit bat, Visayan spotted deer, and Cebu flower-pecker (Heaney and Regalado 1998, 76). Deforestation causes ozone depletion and contributes to global warming. Because the forest is an absorber of carbon dioxide and other pollutants, deforestation in the Philippines contributes 8.8 million tons of carbon to the world every year (Lasco and Pulhin 2000, 19). Deforestation in the Philippines has affected not only its own environment but also the global environment.

Deforestation has also destroyed the ecological base of minority cultures in the uplands, such as the Aeta, who use less than 100 kinds of plants and

animals (Rai 1990, 27–28) and the Batak in Palawan, who gather 48 types of plants and hunt 26 kinds of animals (Eder 1987, 34–37). Indigenous forest knowledge in the Philippines, as a unique knowledge system formed in the production and daily life of the minority uplanders, includes three main features. First, the relationship of humans, nature, and spirit is organic and integral. Because nature could not be conquered and controlled, man should strive to be in perfect harmony with nature through adapting to and worshipping it. Second, woodland and pastures are communal, not private, property. The goods derived from these lands satisfy the ordinary needs of uplanders. Third, uplanders practice only hunting, gathering, fishing, and simple agriculture. In contrast to the sedentary agriculture of migrants from the plains, uplanders practice swidden agriculture (*kaingin*), which is integrated harmoniously into the natural environment and is not harmful to it. Although the forest is cleared through the slash-and-burn technique of swidden agriculture, the local environment recovers naturally during the fallow period that lasts from 10 to 20 years. Obviously, this knowledge is based on the ecological diversity of the environment and the human communities that interacted with their environment through a sustainable food chain and nutrient cycle. However, deforestation uprooted these minorities from their ecological niches, removing them from the base of their culture and reducing them to minorities only in the gene sense. They were deculturized but were not assimilated into the sedentary ethnic groups, who invaded their ecological zones in the wake of the logging corporations that cleared the forests. The revival of minority cultures destroyed by deforestation is indeed difficult because of the almost impossible task of restoring their destroyed ecological niche to its original state. This loss of cultural diversity also decreases the soft power of the Philippine state.

The Causes of Deforestation in the Philippines

Large-scale deforestation is absolutely neither simple nor accidental. It is not only a case of environmental degradation but also involves economic, social, and political factors and should be contextualized within the process of modernization pursued in the Philippines. Following the sequence of actors, I will analyze the role of logging corporations, swidden cultivators (*kaingineros*), and the breakdown of the forest management system. These are the proximate or immediate causes, but I will further explore the ultimate cause.

Generally speaking, forest loggers are landless peasants who want to turn forest land into farmland for subsistence. However, it is the commercial logging corporation, driven by the world timber market, which acted as the pioneer of deforestation in the Philippines after 1946. This market was determined by the United States during the Cold War. In order to keep Japan in the capitalist bloc against socialist China, the United States requested the Philippines to claim its war reparations from Japan by exporting its wealthy timber to Japan (Ohno 1975, 39). Some of the timbers from the Philippines were used for reconstruction in postwar Japan, while others were processed as expensive furniture and exported to the United States. Meanwhile, the nationalist government of the Philippines was eager to establish an independent economic system. The mixture of these two impulses led the Philippines to create an import-substitution industrialization strategy.

The amount of timber sent from the Philippines to Japan increased rapidly after 1946. In 1950 Japan imported 0.111 million cubic meters of timber from the Philippines. The figure increased to 3.7 million cubic meters in 1961, which was equivalent to over half of the total timber production in the Philippines. During the timber boom from 1964 to 1973, Japan imported 63.7 million cubic meters of timber, constituting 62 percent of the total production in the Philippines (Dauvergne 1997, 158–59). After 1974 Japan's importation of timber from the Philippines decreased because deforestation had already exhausted the timber supply, causing the Philippines to implement the act banning timber exports. Paralleling the legal export of timber, almost the same amount of timber was smuggled to Japan during the thirty years after 1946. Illegal timber trade resulted in huge losses to the national income of the Philippines. From 1979 to 1983 the Philippines lost US\$300 million due to trade in smuggled timber (Callister 1992, 65).

In conjunction with prominent Filipino families, the Japanese logging corporation Sogo Shosha practiced legal logging jointly with local corporations. With timber license agreements in their possession, these corporations practiced unsustainable but profitable logging using chainsaws, bulldozers, and trucks. The forest cover destroyed for transportation was often 40–70 percent of the deforestation total (Porter and Ganapin 1988, 25). Illegal logging (*salabadiok*) was equally serious. According to Congressman Renato Yap's assessment, illegal logs totaled

roughly 2.5 million cubic meters, equivalent to 50 percent of the annual timber consumption in the Philippines (Dauvergne 1997, 149–50).

After the payment of war reparations ended, Japan began to provide official development assistance (ODA) to the Philippines. Before 1990 the main aim of Japanese ODA was to develop the natural resources that Japan needed, while the implementation of development assistance projects in the Philippines depended on the whims of the Marcos government. Unfortunately, the projects only helped to hasten the rate of timber extraction in the Philippines. After 1990 Japanese ODA added a forestry dimension that focused on forestry research, reforestation, and the construction of forestry infrastructure. The Japan International Cooperation Agency (JICA) provided loans to the forestry bureau of the Philippines for the reforestation of 358,000 hectares. Although good on paper and a step in the right direction, planting trees alone cannot restore the forest cover of the Philippines. In the mind of some Filipinos, Japan was a cool economic animal and environmental destroyer whose speedy economic growth was based on the systematic destruction of the environment of countries such as the Philippines (Wong 1991).

Commercial logging left behind wide shrub lands and remnants of forest that could easily be transformed into farmland. The forest occupants from the plains completed the second step of deforestation. What made the peasants in the plains migrate upland and become shifting cultivators? The prerequisite is the rapid growth of population. The “push” factor is urban unemployment and inequitable distribution of land in the Philippines, while the “pull” factor is the easy source of livelihood available in the mountainous areas.

From 1948 to 1990, the population of the Philippines increased from 19.2 million to 60.7 million. However, of this total, the proportion accounted for by the urban population increased from 27 percent in 1948 to 37.3 percent in 1980, while the proportion of the rural population decreased from 73 percent to 62.7 percent. Additionally, in some densely populated areas, the population grew by 50 percent (or 1.5 times) from 1948 to 1980, but in some remote and sparsely populated areas the population grew 7 times. This means that migration was mainly from the densely populated to sparsely populated areas. Under the scheme of import substitution strategy, capital-intensive industry was concentrated in Metro Manila and it had no natural contact with other economic sections both horizontally and vertically. As

the industrialization driven by this strategy slowed, the total employment accounted for by the industrial sector decreased from 3.4 percent in 1960 to 2.9 percent in 1970. After the oil crisis in 1978, some workers employed in urban areas were laid off and thrown into the labor market again.

Under the guidance of this industrialization strategy, Philippine agriculture was commercialized and driven by the export of agricultural products. According to the Bell Trade Act signed in 1946, Philippine agricultural products were exported mainly to the US market. Consequently, large-scale cash-crop plantations (such as sugar, tobacco, coconut, pineapple, banana, and Manila hemp) were established in the Philippines. Because industry was capital and technologically intensive, it could not absorb agricultural laborers in large numbers, as some might have expected. The per capita cultivated land area decreased from 0.72 hectare in 1970 to 0.53 hectare in 1980; meanwhile, the ratio of landless workers to total workers increased from 40 percent in 1975 to 56 percent in 1980. Confronted with the depression of the world economy in the 1980s, the average growth of labor employed in agriculture decreased from 3.2 percent in 1970–1980 to 2.6 percent in 1980–1985 (Cruz 1996, 64).

In this situation, many lowland peasants could not get land for traditional subsistence, and they could not be employed in various industries. After the independence of the Philippines, virtually every president promulgated agrarian reform programs. The Marcos regime set up a Department of Agrarian Reform, while Corazon Aquino set up the Presidential Agrarian Reform Council and the Agrarian Reform Fund. Neither was able to reach the aim of distributing land to landless peasants and tenants equally. On the contrary, the ratio of landless peasants to the total peasant population increased continuously, from 37.4 percent in 1948 to 50 percent in 1961 and to 72 percent by the end of the 1980s (Anti-Slavery Society 1983, 140). A parallel trend was the worsening in the Gini coefficient from 0.44 in 1961 to 0.64 in 1975 (Putzel 1992, 30). In 1985 almost half of the total population lived below the poverty line, most of them rural peasants. Unemployment in urban areas and poverty in rural areas forced landless peasants to migrate to the uplands.

The uplands were attractive areas for the landless to cultivate, as these were public lands everyone could use. In order to stabilize the landless peasant population, the courts allowed the landless to obtain upland territories according to the practice followed during the American colonial

times. The upland forests could provide more variety and possibility of income than the lowlands, especially through nontimber forest products. The combination of “push” and “pull” factors gave impetus to the upland migration of lowland peasants. The first wave of migration was just before 1970, in which 35 percent of the transregional migration was toward the uplands. The second wave happened after 1980, in which over 2 million people moved upland, including 0.75 million unemployed workers from urban areas. In 1980 at least 14.4 million people lived in the uplands, with 77 percent living in public forestlands assigned by the government.

These peasant migrants cleared the forest initially through small-scale “carabao logging,” and then through shifting cultivation. While traditional swidden agriculture preserved the integrity of the forest through long fallow periods, the migrants performed partial swidden agriculture that shrank the fallow period and they adopted sedentary cultivation to which they had been accustomed in the lowlands. This combination destroyed the hope of the natural recovery of the forest and completely transformed forestland into cultivated land.

Even if the timber corporations and shifting cultivators were at the forefront of deforestation, the national forest policies of the government ultimately determined how the forest was used. As part of its national development strategy, the government’s forest policy aimed to assist the industrialization and modernization of the Philippines without considering the ecological consequences.

The main features of the forest policies in the Philippines included: First, Presidential Decree 705 (The Revised Forestry Code) in 1975, which ruled that all forest areas belonged to the state and should not be alienated, disposed, or transferred without the authority of the state. Without government consent, it was illegal for anyone to enter forest areas and practice shifting cultivation, and anyone who did so was to be strictly punished. This law deprived uplanders of their traditional occupation rights (or land tenure). Second, the government issued logging permits. Logging was illegal without a logging permit issued by the forestry bureau. The agreement provided for a logging area that would not exceed 100,000 hectares and a logging period of twenty-five years (which could be extended for another period of twenty-five years if environmental conditions after the first logging cycle were deemed to have been met satisfactorily as determined by a mandatory government inspection). The application fee for every hectare was only P1 every year and

the tax for every one cubic meter of timber would be P1.50 only. As a result of this policy, the income from timber exports was controlled by 470 timber logging contractors (Broad 1993, 46). Third, the government encouraged timber processing within the Philippines while banning the export of raw timber. This policy aimed at raising the value added of timber products. Fourth, the government asked the loggers to plant the same hectare of trees that it logged. It also mandated the practice of a selective logging system and the Basilan working cycle involving a recovery cycle of 35 to 40 years between two loggings. Obviously, most of these policies pushed forward the development of the timber industry as an economic sector. These laws focused on economic extraction rather than on the protection of forests from exploitation.

Due to the very low tax on timber exports, the granting of timber logging permits became the arena for rent-seeking politicians. The president used his power to control the director of the forestry bureau, and senators used their right of approval to influence the director. Meanwhile, the timber logger bribed the director, the president, and senators with large amounts of money or political support (Vitug 1993; Ross 2001). Ferdinand Marcos reciprocated his cronies with timber logging permits and calmed down military conflicts by granting timber logging permits to Muslim separatists (Hurst 1990, 164). Definitely, the rent-seeking behavior of politicians eroded forest policies and resulted in the breakdown of the forestry institution in the Philippines. It happened in the context of the timber boom and the unique culture of patron-client relations. The devolution of forest policies happened in the context of government failure and market failure.

All these policy arrangements were based on the modern concept of forestry introduced by the colonizer. The Philippine government inherited this scientific knowledge from the colonizer as a development ideology. Western modern forestry replaced the environmentally sound indigenous system as the dominant knowledge of forest management in the Philippines during the period of colonialism and years of the Republic of the Philippines. Following three steps, indigenous knowledge was disrupted in its development and practice. First, kaingin was falsely accused of being the main factor leading to deforestation. Indigenous knowledge was uprooted in its reasonability and availability. Second, the colonial government declared that all woodlands belonged to the state. This meant that uplanders who lived in ancestral lands had to move to towns in the plain or to become illegal

residents in the woodlands. Third, after 1910 modern Western forestry was implanted in the Philippines with the help of the forestry school set up by the American colonial government. The core of it was to regard the forest as a timber factory, with the main aim of forestry being to maximize the output of timber and its commercial value while completely ignoring its ecological value and integrity. Furthermore, modern Western forestry was regarded as universal knowledge and integrated into the one-sided development strategy that really caused deforestation.

Although timber companies and upland farmers were the direct practitioners of deforestation in the Philippines, they did not constitute the ultimate cause of the ensuing deforestation. The primary or ultimate cause was in fact the import substitution industrialization strategy of economic development that dictated the removal of trees and the development of swidden and sedentary agricultural societies.

This strategy was formed under the special internal and external circumstances of the 1950s and the 1960s, and it persisted for a long time (NEDA 1995). Just after the People Power revolution of 1986, it was replaced by an export-oriented strategy. As an integral part of this economic strategy, forest policy was formulated in accordance with modern forestry principles and with an emphasis on maximizing productivity. The implementation of forest policy was distorted in the circumstance of a traditional patron-client relationship. Both the weak state and society, coupled with market and government failures, characterized the practice of “crony capitalism” in the postwar Philippines. The Philippines must now rethink its development strategy.

Would Reforestation Recover the Forest Ecosystem?

During the period of the timber boom, foresters in the Philippines began to reforest and conserve the remnants of the old-growth forests. During American colonial times, some nature reserves, national forest parks, and wildlife protection zones were set up and the Republic of the Philippines continued this policy, with Pres. Corazon Aquino promulgating the National Integrated Protected Areas Act (RA 7586) of 1992. However, most of these protected areas really existed on paper only (Goldoftas 2005, 61). The Marcos regime set up some industrial tree plantations with the help of some international organizations. However, these plantations just produced industrial timber, which resulted in more serious ecological issues

because of its monoculture or lack of biodiversity. In 1971 the Philippines began to practice social forestry based on principles of agroforestry. The government made a series of plans to push forward community participation in reforestation, such as the forest occupancy management plan of 1975, household reforestation plan of 1979, integrated social forestry program of 1982, and the national forestation plan of 1987. All these plans tried to increase the forest cover and recuperate the ecosystem in the Philippines. However, the area of reforestation did not meet the demand to maintain sustainable development. The recovery of dipterocarp forests required a long period of keeping it untouched, and reforestation with a focus on the economic value of timber would not reconstruct the forest ecosystem.

Furthermore, all these plans tried to solve the uplanders’ ownership problem of forestland and solve the inequality and poverty in mountainous areas, while reinventing the value of indigenous forest knowledge or its empowerment. As deforestation was taking its toll in the Philippines, international forestry was transforming its focus away from the economic value of the forest to a more synthetic and comprehensive appreciation of its economic, ecological, and aesthetic values: from modern forestry to sustainable forestry.

With the official development assistance from foreign countries and international organizations, sustainable forestry was embedded in the development strategy. First, the environmentally sound value of indigenous forest knowledge was recognized as social forestry depended upon agroforestry, the traditional production system of uplanders.

Second, forest property was returned to uplanders. The kaingin management and land settlement regulation of 1971 was seen as the starting point of social forestry in the Philippines. It allowed uplanders to enter the forest area, rent kaingin land, or live on alienable and disposable land. This meant that the state began to recognize the woodland tenure of uplanders. Presidential Decree 263 of 1995 proclaimed that the state would make the local societies and indigenous people responsible for using, protecting, improving, and managing the woodlands. The Ancestral Domain Management Plan, signed by the government and uplanders, specified that “the License for the Certificate of Ancestral Domain claim” would be offered if uplanders could testify that their ancestors had occupied the woodlands. The safe property right of forest and woodlands meant that the uplanders would and could use and manage their forests and woodlands sustainably.

Third, to further identify the value of the indigenous knowledge of uplanders, the “degradation narrative” about kaingin leading to deforestation was to be deconstructed completely. The scholar who first challenged the “accepted knowledge” was American anthropologist Harold C. Conklin, the expert of the Food and Agricultural Organization (FAO). In 1957 he pointed out that the production of uplanders did not exploit nature willfully and was an integrally sustainable system of shifting cultivation. Even so, the dynamics of this production was to use natural resources, not to protect the environment (Conklin 1957, 3). However, his assertion did not get a response in the context of the “growth-answers-everything” perspective. In academic circles, scholars used Foucault’s power-discourse theory to analyze the origin of “received wisdom.” They said that the colonial power recognized indigenous knowledge as backward in the name of modern science, which was deemed to be the truth because of the supposed correctness of science. After independence this “received wisdom” was embedded in the development narrative. This development strategy did not only look scientific but also attracted financial assistance from international society. Factually, before 1982 the main factor resulting in deforestation was commercial logging, not shifting cultivation (DENR 1988). Furthermore, it was not the integral swidden agriculture of uplanders that was unsustainable but rather the partial swidden agriculture of migrants, which was really destructive. This meant that the “degradation narrative” (kaingin leading to deforestation) was just a historical myth. Although these three steps opened the door for social forestry in the Philippines, there was no recognition of the intrinsic value of indigenous forest knowledge in the framework of multiculturalism, but it merely offered an alternative use of this knowledge under the guidance of sustainable development theory. The uplanders thought that social forestry was still guided by “received wisdom” (sustainable forestry from international society). The indigenous forest knowledge was just reinvented by the planner and incorporated into top-bottom reforestation plans (Utting 2000, 171; Hildyard et al. 1998, 4; Byron 1977, 61–67).

Although social forestry may help us preserve indigenous forest knowledge, it is a great pity that reforestation cannot reconstruct the forest environment in the Philippines. Theoretically, the forest is renewable, although this is not the case in the socioeconomic structure of the Philippines.

Conclusion

The forest cover in the Philippines decreased rapidly from 1946 to 1995, and deforestation in the Philippines resulted in unprecedented damages in minority culture and ecology. The immediate causes of deforestation were commercial logging, shifting cultivation, and the breakdown of forest policy, but the ultimate cause lay in the one-sided development strategy practiced by the developmental state. The ecological and cultural losses that resulted from deforestation would not be recovered by reforestation and social forestry in the current context of internal and external political economic systems.

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