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Introduction

Southeast Asian Studies, Vol. 12, No. 1, April 2023, pp. 3-12.
(<Special focus>"Environment and Public Welfare in the Creation and Development of Economic Infrastructure in Southeast Asia, c. 1800–1930: Currency Supply, Forest Control, and Rail Transport," edited by Ota Atsushi)

How to Cite:
Ota, Atsushi. Introduction. In "Environment and Public Welfare in the Creation and Development of Economic Infrastructure in Southeast Asia, c. 1800–1930: Currency Supply, Forest Control, and Rail Transport," edited by Ota Atsushi, special focus, *Southeast Asian Studies*, Vol. 12, No. 1, April 2023, pp. 3-12. DOI: 10.20495/seas.12.1_3.

Link to this article:
https://englishkyoto-seas.org/2023/04/vol-12-no-1-ota-atsushi/

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SPECIAL FOCUS

Environment and Public Welfare in the Creation and Development of Economic Infrastructure in Southeast Asia, c. 1800–1930: Currency Supply, Forest Control, and Rail Transport

Introduction

Ota Atsushi*

There is a general consensus that human intervention is the most decisive factor to have affected the natural environment over the last two centuries. As economic activities are major human interventions in nature, recent scholarship has paid increasing attention to the impacts of economic activities on the natural environment, with an emphasis on the negative impacts of, for example, monocrop agriculture and urbanization on the environment and the lives of local people (Boomgaard *et al.* 1997; Boomgaard 2007; Austin 2017a).[1)] Historians have also explored the motives behind human interventions, examining "people's attitude towards the nature, or rather . . . all beliefs, norms, and values that have a bearing on the environment" (Boomgaard 1997, 3).

As the rapid expansion of the modern economy was achieved at least in part as a result of the development of economic infrastructure, it is important to pay attention to its impacts on the natural environment and to people's ideas about and attitudes toward nature in relation to the construction and development of economic infrastructure.

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1) In the introduction to his edited volume, Gareth Austin claims that environmental history has not focused on the economic implications in the environmental imprints of humans (Austin 2017b, 8). In my opinion, however, various historians have discussed the environmental impacts of economic activities such as the collection of forest products and the production of food and cash crops in relation to population growth and growing foreign markets (Potter 1997; Boomgaard 2007). Contributors to Austin's volume have indeed deepened our understanding of the above-mentioned aspects (among others, Parthasarathi 2017; Ross 2017; Roy 2017).

Southeast Asian Studies, Vol. 12, No. 1, April 2023, pp. 3–12 DOI: 10.20495/seas.12.1_3

Here, modern economic infrastructure is taken to encompass economic-legal systems such as standard currency, taxation, and banking as well as transport and communication infrastructure such as railways, roads, and telegraph cables. The state forest system is also included in economic infrastructure because, in a sense, governments consider the forest to be a platform to buttress the local economy and to secure state revenue through the supply of timber, in addition to the ultimate goal of maintaining forest resources and environments in the state system as an ecological base for economic development.

Numerous studies have indicated how the development of modern economic infrastructure led to enormous economic and social transformations in Southeast Asia (Maung Shein 1964; Kaur 1985; Knaap 1989; Prince 1996; Dick 2002; Houben 2002; Kakizaki 2012; Hartatik 2019). These studies were conducted solely from the viewpoint of economic history; consequently, the impacts of economic infrastructure on natural environments and the welfare of ordinary people did not fall within their scope.

In contrast, historians and anthropologists in the field of environmental history have dealt with the impacts of transport infrastructure such as roads and railways on the natural environment and local society in Asia and beyond, and they are very critical of it. Prasannan Parthasarathi (2017) emphasizes that in the early phase of the colonial railway system in South India, engines and other steam-powered machines were hugely destructive of local biomass because they used firewood rather than coal. In their edited special issue focusing on the environmental and social impacts of roads, Freek Colombijn (2002) and various contributors discuss the negative impacts of road construction, such as deforestation and the marginalization of people living away from the roads (Porath 2002; Rigg 2002; Windle 2002). As a consequence, these two streams of studies in economic history and environmental history, which have developed in very different directions, give the common impression that modern economic infrastructure was constructed and developed without due consideration for the natural environment or the welfare of ordinary local people.

In contrast to such studies, this special focus argues that economic infrastructure developed more in balance with the natural environment and the lives of ordinary people than has previously been assumed, either under the initiative of governments or private actors, or as a result of interactions between the government and local people. The first paper, by Taga Yoshihiro, elaborates on how the government of Nguyễn Vietnam pursued its economic policies keeping in mind peasants living under harsh environmental conditions. The second paper, by Mizuno Kosuke *et al.*, discusses how the forest control system in colonial Java developed through interactions between the forest authorities and local people, both of whom pursued their own goals. The third paper, by Kakizaki

Ichiro, argues that in British Burma and Rattanakosin Siam, newly constructed railways coexisted with naturally powered means of transport for a number of decades and were therefore in a sense environmentally friendly.

Turning to people's ideas about and attitudes toward the natural environment, scholars in environmental studies have set their sights on three objectives. The first deals with how political ideas on a governmental level influenced the planning and implementation of environment-related policies. Often using terms such as "political economy," "environmental politics," or "environmental governance," a number of studies have discussed issues such as government conceptions of the natural environment in relation to "development" and "modernity," and negotiations between policy makers and economic stakeholders (Chew 1996; Peluso and Watts 2001; Neilson 2017).[2] The second objective focuses on local people in remote areas directly affected by environment-related policies, looking at the situation from an anthropological point of view in order to deal with issues evolving in more recent history. Studies by this group have revealed how roads bring local people new understandings of both the outside world and themselves, how certain local people have to give up some control over resources while others retain it, and how people see opportunities brought by the new roads in complicated ways, certainly as more income but also as an increased burden of financial management (Porath 2002; Windle 2002). The third objective concentrates on civil society—including NGOs working on environmental issues—while discussing the development of movements for environmental protection and their international networking (Surendra 1996; Riddel 2014).

This special focus examines the ideas and attitudes of both governments and people in various sections of local society with regard to the environment and environment-related policies, placing an emphasis on their mutual interactions. The cases discussed indicate complicated negotiations rather than simple confrontations between multiple parties—such as government institutions, village administrations, ordinary cultivators, and private companies and traders—over matters such as their rights to and benefits from natural resources. The following three papers examine how the government and people in different sections of society became entangled with each other through environmental issues, and how these entanglements affected the course of government policies and the development of economic infrastructure.

In the first paper, Taga explores state intervention in the economy in Nguyễn Vietnam during the first half of the nineteenth century, focusing on the state purchase of important items such as major grains, metals, tea, sugar, and other products from local

2) Recent handbooks on the environment in Asia do, in fact, discuss the development of scholarship in environmental studies under headings such as "political economy" and "environment governance" (Harris and Lang 2014; Hirsch 2017).

markets and producers, and imported fabrics from China and Europe, in predetermined amounts at fixed prices. Some items were consumed at the court, while others were exported through state-run trade. Although there was an exploitative aspect to the heavy burden placed on villagers to provide these items at low prices, the government purchase was also undoubtedly intended to boost the economy by circulating zinc currency in the cash-deficient market. Another governmental purpose was to rescue citizens in times of poor harvest or natural disaster by purchasing items from them, with rice stockpiled in state granaries normally used to cushion seasonal fluctuations in the rice market. Taga concludes that the Nguyễn Dynasty had dual facets: it was an agrarian empire focused on rice cultivation as well as a commerce-oriented state dependent on international trade. It can also be pointed out that the Nguyễn economic policy considered the welfare of peasants through relief policies for environmental problems such as poor harvests and natural disasters.

In the second paper, Mizuno *et al.* discuss the development of the state forest system in Java from the 1850s to the 1930s. The idea that every forest was a state domain was launched by the militant Governor-General H. W. Daendels (1808–11). After strenuous debates about who should manage forests, the Dutch colonial state was finally recognized as the sole body responsible for the management of most of the forest. The Forest Administration was established for this purpose in the 1860s. The ensuing laws and regulations prohibited local people from felling trees and collecting fallen branches without permission, and the government banned their swidden agriculture. However, these regulations were regularly infringed upon by local people who believed that they had customary rights to the forest in their vicinity. Mizuno *et al.* conclude that government neglect and willful incomprehension of local interests were the most important causes of the never-ending series of forest "offenses" perpetrated by local people, such as felling trees to sell them—a problem that still persists. On the other hand, the government did attempt to compromise with the local economy by introducing the intercropping system, which allowed local people to plant secondary crops or cash crops between rows of saplings. Although other state attempts to compromise with local economies were not successful, the intercropping system became standard practice in wide areas of Java. To combat local "offenses" in Java's forests, the Forest Administration strengthened its control in cooperation with village officials and the police. "Illegal" activities never ceased, partly because the village administration implicitly or explicitly allowed local people to cut and sell trees clandestinely. This was not an intention of the Forest Administration, but the illicit collaboration between the village administration and local people seems to have helped to maintain a balance between high-handed government policies and the interests of local people.

In the third paper, Kakizaki discusses the changes in transportation after the construction of railways in British Burma and Rattanakosin Siam from the 1880s to the 1930s. Kakizaki argues that the railways had different impacts depending on the environmental conditions and existing transport methods in different areas. In the mountainous upper Irrawaddy and Chao Phraya regions, where river steamers were not available in the dry season and animal-powered transport was difficult, the railways largely supplanted existing means of transport. However, in the middle and lower basins, the railways' share in the transport of bulky items did not grow much, because of their higher charges. Steamer transport was more competitive, especially when it was downstream bound, because it charged less than when upstream bound. The existing transport system hardly felt a ripple, especially in the case of two items: teak and animals. Traders largely continued to transport teak by floating logs down the rivers, without any need for extra power. The transport of livestock, such as cattle, buffalo, mules, and horses, was not affected by the railways because the animals could walk by themselves, not even incurring the cost of fodder, because there was plenty of grass along the way.

What motivated the government to take the natural environment and the welfare of local people into consideration in its policy making was, in the case of the Nguyễn court, the Confucian concept of good/just rule. This idea, including the creation of a healthy economic environment through which to enrich the government's subjects, makes us aware of the multiple roots of modern economic thought in nineteenth-century Southeast Asia, which was not limited to concepts derived from Europe. The Nguyễn court was determined to rescue its people from famine, an indication that it recognized natural disasters such as droughts and excessive rainfall, both often followed by poor harvests, as among the greatest causes of suffering. In the forest system of Java, the Forest Administration attempted to achieve a balanced relationship between the forest and the local people to some degree by securing economic benefits for the latter. In fact, when local people believed that government forest regulations affected their lives too adversely, they took their revenge by setting the forest on fire. The intercropping system was therefore the Forest Administration's compromise with the local people in order to protect the forest, although it refused to make concessions to swidden agriculture, which it was convinced was extremely harmful to the forest. In British Burma and Rattanakosin Siam, private traders chose the cheapest transport method for practical reasons, regardless of any environmental considerations. Hence, it is sheer coincidence that they chose the energy-saving—and therefore ecology-friendly—transport methods of floating teak logs down rivers and having livestock walk under their own steam. This combination of artificial and natural power was not unusual in the early phase of the development of modern transport infrastructure, for practical, technical,

and economic reasons—for example, ships powered by both steam engine and wind. The coexistence of teak floating, animal walking, and railway transport presents one such example.

A fundamental element behind these developments was the contemporary growth of commerce. The Nguyễn regime, which held Confucianism in very high regard, was also not unaware of the enormous wealth to be derived from international commerce; therefore, as Taga explains, the government dispatched its ships to European-dominated cities in the region such as Singapore, Batavia, and Manila. Its economic policy was therefore rooted in realistic observations of the growing external economy as well as in the Confucian idea of good/just rule. In colonial Java, local people's forest "offenses" were their response to a growing local economy. The sale of timber generated large profits because of the high prices fetched by the firewood and charcoal used in the sugar and other developing industries. Local people recognized that the new purposes assigned to forest resources would be more beneficial to them economically than maintaining their traditional way of life. In Burma and Siam, teak became one of the most important export commodities from the highland regions, as the flow of international trade grew rapidly in newly opened ports. The need for food and food transport also increased as rice frontiers were opened in the deltas, and the division of labor became more obvious between different regions. All three papers indicate that under these conditions, all the parties concerned—such as the government, village administration, cultivators, and private companies and traders—had to struggle to establish a new relationship between the economy and the environment, seeking to secure their positions and increase their benefit in the changing economic climate. In this struggle, the natural environment played a number of roles in their decision making as an important element affecting their economic activities.

Another element behind the developments discussed in this special focus is that the relationship between the colonial authorities, private companies, and local people was entering a new phase. In Java, before 1890 the colonial government and Western private companies had pursued almost exclusively benefits for their own and their home countries, without due consideration for the welfare of local people. However, facing growing discontent and rising tensions with local people, certain sections of the government such as the Department of Internal Affairs (Binnenlandsch Bestuur) started to mediate some disputes after 1890 in favor of local people, as was the case in the water dispute between sugar factories and local people in Central Java. During a short period before 1915 (when there was a conservative policy reaction), the welfare and benefits of local people were largely taken into account. Government policy swung between the interests of companies and local peasants, and there was a certain weight on the latter in government policies from 1890 to 1915, in relation to the so-called ethical policy (Schaik, forthcoming). The

regulations giving local people permission to cut commercially valueless firewood and timber in 1901 and 1907, and the intercropping system that became popular by 1924 in Java (as discussed in Mizuno *et al.*'s paper), must be situated in the context of this "benign" period. Additionally, in Rattanakosin Siam and British Burma, the governments did not prohibit local traders from relying on teak floating and animal transport.

These developments also imply that local people were not merely powerless victims of the colonial authorities and Western companies, but in fact persistently and sometimes shrewdly defended their interests, through their fights against—or avoidance or neglect of—pressures from the government and Western companies, as was the case in colonial Java. In Siam and Burma, local traders persisted in their transport methods to save costs.

The results of the environment-conscious policies and the eco-friendly development of transport discussed in this special focus might have been fairly small and were at any rate not long-lasting. The state supply of zinc in Nguyễn Vietnam must have had an impact, considering the limited channels available for this metal to flow into the market. However, the results of the government's famine rescue policy are more difficult to assess, and the policy was indeed short-lived because it was eclipsed by the French overlordship that followed. In Java, the aforementioned collaborations between the village administration and local people were stigmatized as "corruption" in the official records. However, considering that forests in Java remained fairly well maintained despite the never-ending forest "offenses" during the period under study, it seems reasonable to assume that a subtle balance was retained between the state forest system and the local economy. Nevertheless, the balance must have been fragile and difficult to sustain, as long as it depended on the village administration turning a blind eye to the villagers' forest "offenses." Kakizaki explains that teak floating and animal transport in Burma and Thailand gradually disappeared after World War II, when the construction of dams and highways rendered them unfeasible or uncompetitive.

Nevertheless, we can learn many lessons from the fact that, for decades, these cases did cause ripple effects. They suggest that not only the latest theories and technology but also local knowledge and local economic-environmental conditions played an important part in the implementation of economic policies and the development of transport infrastructure. The conflicts between state policy and local people were not a simple version of the modern-vs.-traditional dichotomy, but arose from both parties' interest in having a share in the growing economy, a supposition that also seems relevant and applicable to the present-day situation. Given that sustainable energy use is urgently required today, the combination of artificial and natural power in the past deserves to be paid more attention. Although this special focus is a preliminary attempt, its exploration of the historical explanations behind the considerations of both government and private actors

toward natural environments and the development of economic infrastructure gives us important hints about creating a more desirable human-environment relationship in the future.

Accepted: November 1, 2022

Acknowledgments

The research that provided the basis of this special focus was sponsored by the International Program of Collaborative Research, Center for Southeast Asian Studies, Kyoto University (IPCR-CSEAS), in 2014–15.

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