Paper ID	58
Author(s)	David Biggs and Chee Seng Tan
Title	Planetary Urbanization, Energy Politics and Carbon Histories in Southeast Asia

Abstract

Penang's Rising/Sinking Waterfront: Mangrove Charcoal and Tropical Urbanization in Southeast Asia

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Penang was a British Straits Settlement and "free port" made famous as a center for tin exports in the 1800s and more recently as "Silicon Valley East," a global hub for the manufacturing and design of semiconductors. While the urban core was centered in George Town and on the mainland at Butterworth, the city's industrial reach included tin mines and plantations across northern Malay Peninsula reaching into Thailand, and much of its energy came from vast stretches of coastal mangroves, logged and then pyrolized into charcoal. Urbanization here in the late 19th and early 20th centuries matched that of many coastal ports worldwide, but its fuel regime did not. Like many Southeast Asian cities, Penang's urban growth depended on a mix of bio-fuels and bio-energy, mangrove charcoal and masses of human laborers and animals along with industrially scaled foods like belacan (fish paste) and rice. Southeast Asia's tropical nature, especially its mangrove ecosystems, played critical roles in supplying much of the energy cities like Penang consumed for daily human and industrial activity. Around Penang, coastal forests supplied bakau (Rhizophera apiculata) to charcoal kilns that in turn exported essential charcoal fuels to the city for smelting, steam-power, and cooking fuels. Even as other Asian cities transitioned to fossil fuels in the 1950s, charcoal remained an essential household and industrial fuel in Penang until the 1980s. Today, as Penang and other cities grapple with problems of sinking (subsidence and rising sea levels) and rising (urban expansion via land reclamation), biofuels and mangrove ecosystems have re-entered debates on climate change and the futures of ""tropical urbanization"" in Southeast Asia. This talk explores the unique socio-environmental history and energy politics of charcoal biofuels in Penang's urbanization

Keywords	carbon cycle, planetary urbanization, mangroves, charcoal, pyrolization, cities, urbanization, oceans

Paper ID	184
Author(s)	Stefan Huebner
Title	Asia's Oceanic Great Acceleration and the Amphibious Development State: How Waters, Seabeds, Coastlines, and Subsoils Became Part of Japan's and Singapore's Shared Fossil Fuel Space

Abstract

During the latter half of the twentieth century, the Japanese and Singaporean developmental states created a

shared fossil fuel space, stretching horizontally from the Persian Gulf to the West Pacific and vertically from offshore and terrestrial oil and gas reservoirs to the atmosphere. The term “Great Acceleration” refers to the period since the mid-twentieth century marked by rapid, exponential change in large parts of the globe, indicated by both socioeconomic and earth system parameters, such as GDP and population growth, as well as carbon emissions and global warming. This presentation zooms in on a part of the globe and investigates how the shared fossil fuel space of the Japanese and Singaporean developmental states contributed to the Great Acceleration. It argues that the mutually beneficial high-growth economies in both countries were the result of socio-economic development-oriented governmental policies guiding the private sector toward oil-centered industrialization. The resulting shared fossil fuel space “accelerated” socio-economic development in both countries. Beginning in the 1960s, Singaporean oil-fueled industrialization domestically profited from the facilities set up by Japanese companies. In Southeast Asia, this industrialization assisted other countries in developing their fossil fuel reserves and supplying the Japanese economy with oil and gas products. Beyond these economic impacts, oil-fueled industrialization reshaped coastlines through evolving production chains and new industrial clusters, which involved built environments, including oil ports, refineries, fuel oil-fired power plants, and petrochemical complexes. Later accompanied by natural gas utilization, this industrialization also transformed Asian geological strata and waters through oil or gas extraction, submerged pipelines, and the growing seaborne fossil fuel trade.

Keywords	ocean, oil, Great Acceleration, Japan, Singapore

Paper ID	186
Author(s)	Shinji SUZUKI
Title	Rhizophora apiculata Charcoal Production (1918 – 1945): Colonial Forestry and the Use of Mangroves as Fuel in French Indochina

Abstract

Satellite images of the Camau region of Vietnam, site of the world’s second-largest mangrove forest, reveal a plantation-like landscape with Rhizophora apiculata communities neatly arranged in a grid-like pattern. The transformation from naturally diverse mangrove forests to this Rhizophora apiculata monosilviculture began in 1918 with the French colonial charcoal production system and was completed in the late 1930s. Various actors shaped this system through their vested interests in Camau's mangroves. Among these, the tensions and alliances among diasporic Chinese communities and the Forest Department had a particularly dynamic impact. Remarkably, the labor flow, divisions and systems this resource procurement involved remained virtually unaffected despite oil import disruptions and even the Japanese occupation of French Indochina. This presentation describes how within the framework of colonial forestry, Rhizophora apiculata-based charcoal production and management systems both facilitated and were reinforced by urbanization in regions like Saigon, while simultaneously contributing to wartime resource extraction. Additionally, it explores the historical role of charcoal in shaping the eco-social assemblage comprising 20th-century French Indochina. Currently, mangroves have gained prominence on the international political stage as blue carbon ecosystems, which play a crucial role in mitigating global warming by sequestering carbon. Even under the influences of a changing climate, however, the forestry practices in Camau have remained largely unaffected since the colonial era. The time has come to re-examine the Rhizophora apiculata-based charcoal regime in the context of French Indochina.

Keywords	plants, charcoal, monosilviculture, mangrove, French Indochina

Paper ID	187

Author(s)	Hiromi Inagaki
Title	(Post) Cold War Socio-Material Interactions of Heterogeneous ‘Power’: ‘Hydro’-‘Power’ Circulation and 'Sweet Power' Production in Thai-Lao Borderlands

Abstract

Extensive research has explored how socio-technical and political systems shape energy transitions, but few have examined socio-material interactions at the intersections of different energy regimes. This paper investigates the contested interactions between two distinct electricity regimes in the Thai-Lao borderlands: state-owned interconnected networks of hydropower dams and power grids developed during the Cold War, and expanding bioenergy production by powerful sugar businesses. This insight into the interrelations between incumbent grid regimes and new energy schemes is particularly relevant to Southeast Asia, where profit-oriented renewable projects increasingly compete for power feed into national grids.

Drawing on material politics and science technology studies, this paper examines how the socio-technical and material constituents of the Cold War electricity regime have both enabled and conditioned the production and circulation of sugarcane-based bioenergy. The study employs interviews, archival research, and document analysis to uncover electricity and water circulations, techno-political discourses on power grids, and the ambitions of electricity authorities and sugarcane-based bioenergy firms.

Findings reveal that the Cold War 'hydro'-'power' network was reconfigured to facilitate capitalist sugar factory operations and enable new electricity and financial circulations for state economic gain. However, these socio-material arrangements also led to unpredictable stagnation in the flows of 'sweet power' into state grids. This study suggests that future research should move beyond analyzing transition processes from dominant energy sources to explore interactions and frictions among co-constituted energy systems that are spatially interconnected via power grids.

Keywords	Water, Energy, Sugarcane, Political Economy, Thai - Lao Borderlands