

Water Power

Machines, Modernizers, and Meta-Commoditization on the Mekong River

DAVID BIGGS

"There were no maps of the country, we had to make them," Lt. Gen. Raymond Wheeler said at a Bangkok press conference in 1958 after the former chief engineer of the U.S. Army Corps of Engineers had visited the Mekong River in December 1957. "Nobody had any data on river flow, or even any idea how to keep data. What I saw was a truly virgin river. Such sights disappeared in our country long before I was born" (Black 1969, 138). The trip was partly designed to rally congressional support for more spending in Southeast Asia. General Wheeler presented his visits as an exploration adventure, comparing several days of motorboat trips on the Mekong with the journey of the French explorers Jacques Marquette and Louis Joliet who surveyed the Mississippi in 1673. He and his fellow explorers—leading figures in international engineering—visited several ideal sites for hydropower dams on the river and they urged the United Nations to form a Mekong Coordinating Committee to oversee future efforts. Not surprisingly, this VIP adventure was a carefully scripted one—U.S. Bureau of Reclamation engineers and local military and civilian personnel had been studying these sites for several years (Schaaf and Fifield 1963, 84). More important than Wheeler's adventure story was his contention that an international basin development scheme in one of the most violently contested regions of the world would bring peace.

For Americans and other modernization advocates who visited the river in the 1960s, things eventually took a turn for the worse as militaries, guerrillas, and violent fighting ended this new venture. Peter White, writing for *National Geographic* in 1968, described the Mekong as a "river of terror and hope," one with rockets and tracers splitting the greenery while soldiers in F4 Phantoms, Swift Boats, and other craft searched out the Việt Cong and their allies (White and Garrett 1968). By 1968, the U.S. alone had invested US\$115 million into what

David Lilienthal, architect of the Tennessee Valley Authority (TVA), criticized as an "international pork barrel approach" to development. The coordination implied in the Mekong Coordinating Committee's name had resulted in what Lilienthal called a "crazy managerial patchwork of scattered and unrelated studies" (Lilienthal 1976, 367). Lilienthal meanwhile traveled on to Vietnam where his consulting firm, Development and Resources Corporation, was drawing up plans for a proposed Mekong Delta Development Authority. Significant American commitment to Mekong development ended, however, in 1969 with Richard Nixon's presidency; many smaller initiatives followed until the Saigon and Phnom Penh regimes fell in 1975 (Ekbladh 2002, 369; Nguyen 1999, 167).

With regard to commodities and associated transformations of nature and society, what is interesting about the Mekong is that today the riparian nations, private firms, and international banks are actively reviving many of these old projects, most notably several dams on the Mekong mainstream. In 1997 the Electrical Generating Authority of Thailand (EGAT), once a major recipient of U.S. financial and technical assistance and the operator of several U.S.-funded dams, announced that it would cooperate with private companies to build and operate a dam on the upper Mekong in return for a share in the electrical power generated (International Water Power & Dam Construction 1997). More recently, a Thai consulting firm commenced new rounds of surveys on the lower Mekong, revisiting old sites such as the proposed Pa Mong Dam near Vientiane and Khone Falls near the Laos-Cambodia border (International Water Power & Dam Construction 2005). During travels in the Mekong Delta in 2000, I also witnessed several major reclamation and irrigation projects under way, all of them funded by international banks and based on designs first produced in the early 1970s. The once-scattered vestiges of colonial and cold war-era modernization appear to be reviving themselves, albeit under the guidance of newly emergent Chinese, Thai, and Vietnamese interests.

In this chapter I consider how such seemingly dead projects from the past can come back to life so easily despite significant political, economic, and environmental changes in the region. What factors have preserved a sufficient continuity in large-scale modification to water resources despite often violent regime changes and continuing tensions over heavily patrolled state borders? There is in the Mekong a remarkable persistence of the old ways of doing things—with power residing in the hands of state technocrats and wealthy businessmen, trends toward the colossal rather than the small (Nam Theun II Dam and the Upper Mekong Cascade), and the continued influence of foreign-educated technocrats and foreign consultants.

This persistent influence of reports, agencies, technicians, projects, and companies on the Mekong stems from a process I call *meta-commoditization*, a building of intellectual and physical infrastructures that permits both contemporary and future creations of commodities often regardless of reigning political ideologies.

In outlining a brief history of water-control schemes on the Mekong beginning with French colonial reclamation efforts in the late nineteenth century and continuing through American-backed projects in the 1950s, I intend to explain meta-commoditization historically, arguing that networks connecting people, machines, and designs from past efforts continue to shape present-day interests in building new dams and other projects. There are three component activities involved in meta-commoditization: *reconnaissance*, the collection and publication of data; *mechanization*, importing machines that turn existing water features into hydroelectric dams, flood control and irrigation works; and *legalization*, the production of decrees, treaties, and other documents that continue to carry weight in inter- and intrastate disputes.

The things produced by these actions—for example, data, maps, dams, and legal documents—continue to influence present-day designs and social relationships on the river, contributing to state actions that Vandergeest and Peluso (1995, 390) describe as *territorialization* where rulers and powerful agencies employ maps, machines, and other objects to extend their control over natural resources, especially in hinterlands. However, while territoriality presumes that military juntas, the politburo, or leaders of volatile democracies may be acting for their own political and economic ends, I consider an additional problem: whether the relationships between artifacts or things (and the humans who manage them) also constrain the future designs of states and related political debates. This calls into question the primacy of elite human agency and state politics in struggles over resources and responses to environmental degradation. In his work on Egypt, Timothy Mitchell raises similar questions about human agency in matters of economic development: “Is human agency a disembodied form of reason, observing, calculating, and reorganizing the world before it? Or is it rather more of a technical body, manufactured out of processes that *precede* the difference between ideas and things, between human and nonhuman?” (Mitchell 2002, 10; emphasis added) Like Mitchell, I maintain that the answer lies somewhere in the middle, in the transformative interplay between people, nature, and machines.

In this chapter I offer a historical sketch of the production of work sites, data, maps, and transnational professional communities from colonial to postcolonial eras in the Mekong River valley. These geographically and technically specific things have played formative roles in shaping debates over water power—both in terms of political control over water and in terms of the powerful commodities that water produces. I examine these processes by looking at colonial-era reclamation efforts in the delta and postcolonial studies of dams and other structures upstream. In colonial Cochinchina, French engineers and a private contractor dredged thousands of kilometers of canals to facilitate the expansion of an industrial and plantation economy. French and Siamese negotiations also were instrumental in placing the river within the territorial confines of modern states through navigation treaties; the river upstream became an important boundary

separating what might be called the “geo-bodies” of Indochina and Siam (Thongchai 1994). Colonial products of meta-commoditization—maps, mathematical models, technicians, machines, and infrastructure—played immediately into postcolonial, cold war nation-building efforts.

Hydro-Agricultural Machines

In the Mekong River valley, the first wave of economic and environmental change began a century before the French conquest as Chinese merchants and exile communities in the 1750s developed markets for rice, beeswax, and forest products, creating what Cooke and Li (2004) have called a Chinese water frontier. From the first years of the colonial conquest, the French presence in Indochina relied on this existing network of Chinese merchants and shipping companies to operate wharves and carry goods from the interior to market. The colony's early revenues did not come from commodity production but from taxing the Chinese firms that managed trade in rice, alcohol, salt, and especially opium.

The French colonization of Indochina relied extensively on existing Chinese commercial networks and nineteenth-century Vietnamese roads, canals, and fortifications, building modern works out of these existing frameworks. Since the first French attacks on Saigon in 1859, controlling activity on the waterfront and on waterways was essential. By stringing telegraph lines along the waterways and expanding the French navy's fleet of gunboats, French military commanders built Cochinchina from the water's edge and gradually expanded into the interior.¹ The delta's maze of rivers and creeks enabled *cannonnières* to quickly respond to uprisings, and it was out of strategic as well as economic concerns that the government of Cochinchina invested heavily in constructing deeper waterways, connecting the delta's fertile hinterlands more directly with Saigon.

This reference to precolonial Chinese commercial networks and early colonial activities shows that processes of meta-commoditization were certainly already under way even before the colonial conquest; the admiral-governors of Cochinchina made the first moves to expand local infrastructure in the 1870s as Saigon's waterfront expanded and they initiated new hydrographic surveys of the area's rivers. In 1871, the Commission des Arroyos began studies on new water routes, sending military hydrographic engineers such as J. Rénaud out on gunboats to survey possible routes (Brossard de Corbigny 1878, 515). The first canal projects commenced construction in 1875 and were key inland transport links between the Saigon River and rivers in the Mekong Delta. They required several thousand conscripted laborers and dozens of military overseers. Despite spending relatively large sums, colonial engineers were soon disappointed to find that within six or seven months of completion all but one canal had failed due to intense sedimentation caused by the tides (Gouvernement Général de l'Indochine 1911, 84).

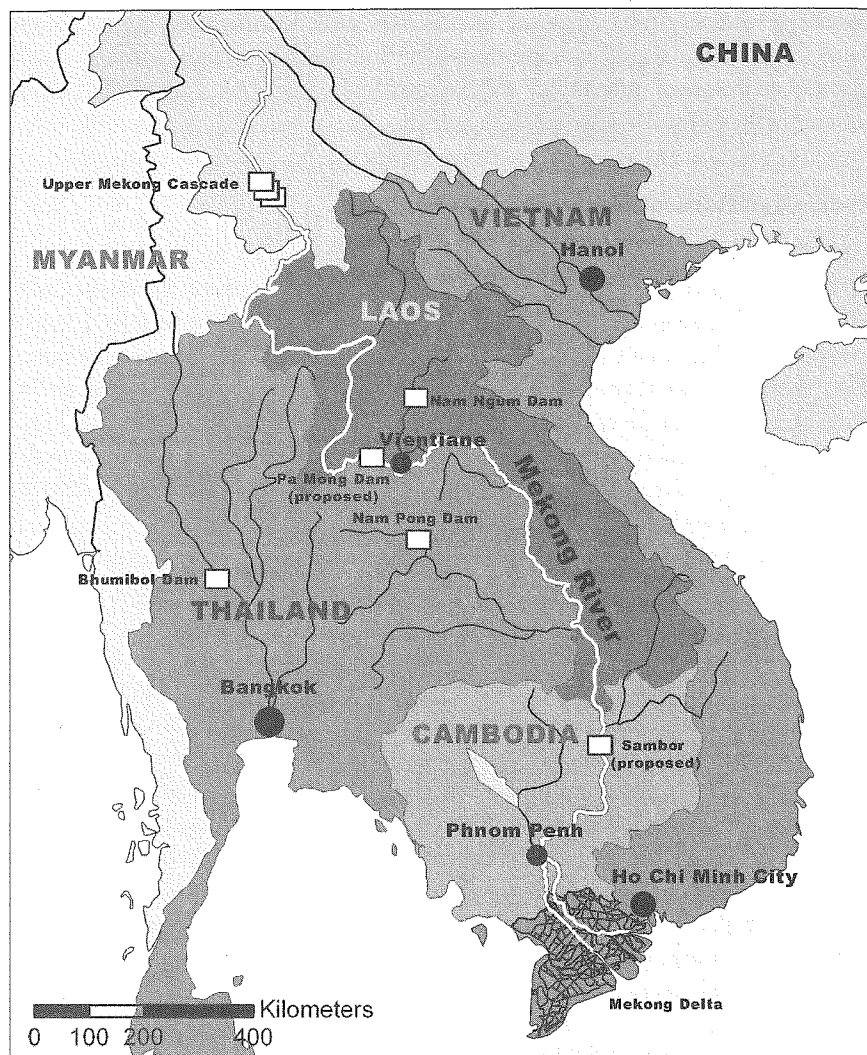


Figure 6.1. Mekong Valley dams and canals. The map shows the dams mentioned in this chapter and the dense network of canals dredged in the colonial era. Almost two dozen other tributary dams have been completed on Mekong tributaries and neighboring rivers. Credit: D. Biggs.

In the wake of mounting French opposition at home and continuing unrest in Vietnam and Cambodia, all of this nation building might have ended had a more liberal French government not been organized in 1879, putting the colony under civilian rule and resituating public works and other activities under the new guidelines of a *mission civilisatrice*. The civilian governor called for a more

comprehensive study of delta waterways that would benefit both French and native interests while he expanded public institutions and ordered his public works engineers to expand construction of urban waterworks and market buildings. In this new reconnaissance effort, French engineers not only mapped the delta's rivers but also paid special attention to works produced by earlier regimes. Even in technical reports, engineers expressed their concerns that failing to build new waterways would not only undermine colonial economic interests but also threaten to erase "the work of civilization" initiated by Vietnamese governors and Chinese merchants in the past (Rénaud 1879, 66). Such statements by technicians echoed a common interest in documenting Vietnamese customs, traditional land rules, and historical landmarks such as roads, canals, and fortresses.

Reconnaissance should be viewed not only as producing data necessary to support future projects but also as connecting new projects to what engineers such as Rénaud perceived to be the existing social and physical landscape. Defining and categorizing old projects, commemorative steles, and property codes coincided with measuring channel beds and producing mathematical models; all of these actions were important to structuring a colonial image of the region's environmental and social past in a quasi-imagined, quasi-material community. Somewhat different from Anderson's (1991) notion of an "imagined community," this picture of the delta landscape, however badly interpreted, was nonetheless connected to real things—roads, forts, old canals, historic makers—with definitive physical properties.

The pivotal factor in the colony's decision to build waterways was the introduction of steam-powered dredging in the 1890s. Such machines consumed a wide path through the forests and swamps, traveling approximately one hundred fifty meters daily, and they replaced the trouble of controlling thousands of forced laborers with the convenience of a paid crew of less than a hundred. These new machines converted the work of digging canals into numbers and equations in the same manner that railroads did; progress and efficiency could be measured in terms of cost per cubic meter, accounting for capital and labor expenses and considering projected profits from transportation and irrigated agriculture per hectare. Dredges were the ultimate colonial "anti-politics machine" in Cochinchina, to use James Ferguson's (1990) term. The apparatus of men—French, native, skilled, and unskilled—and machines involved here so radically altered the social and ecological terms in which people managed water resources that it was difficult to oppose them. The dredgers, built in Paris yards along with other equipment such as several thousand meters of steel bridges erected by Gustave Eiffel's company, also increased French support for colonization because it benefited industrialists and skilled labor alike. The introduction of a public-works monopoly contractor likewise changed the economic and political terms of dredging, redirecting the bulk of capital invested in public works into companies headquartered in France (Vietnam National Archives Center No. 2 [VNA2])

1893). Montvenoux, a firm in the Loire Valley, was the only one to respond with a bid and a year later assembled the first three steam-powered dredges in Saigon (Gouvernement Général de l'Indochine 1911, 70).

Dredges and associated colonial machines—water pumps, rapid transit ships, and milling equipment—produced a new, short-lived frontier society in the wake of the dredges. Sitting high atop the dredge (see fig. 6.2) the usual crew of three Europeans—the engineer, captain, and chief mechanic—floated high above while Vietnamese, Khmer, and Chinese workers below cleared away stumps and finished banks in the wake of the clanking, smoking contraption. With such a distancing (anti-political) machine, the French pushed colonial roads and waterways into the most distant reaches of the delta with little significant resistance.

Turning this new web of waterways into a manageable system, however, perpetually eluded the French engineers. Each new canal brought complications to the existing network. The unprecedented and rapid scale of construction radically altered existing irrigation works, especially those built on the natural network of tidal creeks. As one observer noted early on in 1880, canals were “works of Penelope,” costly projects that had no apparent end (Social Sciences Library—Hanoi 1881).² Dredging also frequently disrupted or destroyed existing villages, burying them under tons of mud, and waves of new settlers cut or burned forests that before 1880 had covered roughly a quarter of the delta’s area (VNA2 1904).

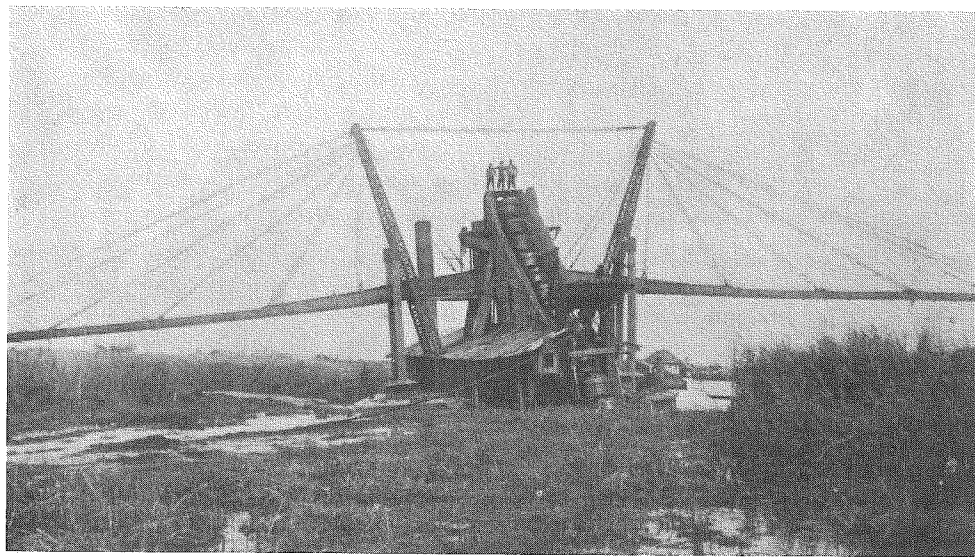


Figure 6.2. Standing atop Dredge II at a height of some twenty meters are the three Europeans in charge of the project: the Public Works observer, the dredge captain, and the chief mechanic. Credit: Gouvernement Général de l'Indochine 1930, 29.

As dredging, settlement, and deforestation continued in the first decades of the twentieth century, engineers and their allies in government became involved in an increasingly complicated effort to shore up the water infrastructure.

The third aspect of river colonization, legalization, coincided with dredging as both natives and *colons* (a French term for colonizer, typically a plantation owner) brought complaints for damages to colonial courtrooms. These challenges over time resulted in decrees and rulings that more clearly delimited public, French, and indigenous property. One of the first large projects, Xà No Canal, cut through two of the most densely settled villages—Nhon Ái and Nhon Nghĩa—in the delta. The combined population in these two densely settled villages was more than four times that of the nearby colonial town, Cần Thơ (VNA2 1900). Local residents (including some who were naturalized French citizens) challenged the government to clearly define the terms of compensation for the destruction of crops. The leader of Nhon Nghĩa village complained about damages and petitioned the government to allow him to cut a new opening to bring water back to the village. The chief engineer refused and the matter passed eventually to the governor-general in Hanoi. In deciding between several hundred farmers and a major French investment, the governor-general maintained rather creatively that the new canal-front property produced new commercial opportunities for the landowners that far outweighed the temporary losses caused to them by damage to their crops (VNA2 1902). Hundreds of such decisions over time more clearly delineated the boundaries between private and public domains. Water, flowing through the rivers and canals, was unquestionably the domain of the state, and this situation arguably continues today. Decrees and court decisions complemented the work of machines in forcing villagers to join the new economy or risk being left behind.

These processes of reconnaissance, mechanization, and legalization continued repeatedly into the 1940s, albeit with mounting political, environmental, and economic criticism coming from both colonial and indigenous groups concerned with widening economic and ecological crises. In the 1930s, colonial officials were especially concerned with alarming trends in land abandonment and increases in Communist-led organizing among the poorest tenants. The rapid expansion of waterways in the French model—what was largely a network of stagnant or polluted water—had turned many wetlands and forests into treeless wastes. Over two million migrants had come to the delta since 1880 with hopes of owning land and improving their economic standing; by 1934, most were in inescapable debt and often living in slavery-like conditions under powerful, mostly indigenous colonial landlords (VNA2 1944).

During World War II and especially the First Indochina War that followed, economic conditions worsened as the government sent fewer dredges to repair waterways and fighting destroyed many key points in the water infrastructure. The colonial landscape and the products of colonial-era meta-commodification—dredgers, highways, railroads, dams, plantations, and ports—were especially

targeted by insurgents who recognized that these things not only enabled troop movements and commerce but also reinforced liberal economic ideologies. Insurgents, however, were not antimachine; in fact, they often depended on them for their own movement, and visions of a nationalist future typically included increased industrialization. One elderly Việt Minh veteran, for example, reiterated his respect for Western technology when I asked him about a former French plantation located near where he lived. The veteran, Diều, was quick to condemn the owner for his allegiance to the French administration, but then he praised this colon's irrigation operations with the greatest compliment: "very scientific" *rất khoa học*.³

In 1904, Rémy Gressier installed steam-powered water pumps and sluice gates on a one kilometer by one kilometer grid of canals dug across his fifty-six-square-kilometer estate. He founded company towns at each one kilometer intersection of the main canal with a company store selling goods for company scrip in each center. Like rubber plantations in the hills north of Saigon, village names corresponded to their distance from the property's boundary—One Thousand Hamlet [Ấp Một Ngàn], Two Thousand Hamlet [Ấp Hai Ngàn], and so forth. Over the decades he added a six-story mill, an airstrip, a maternity clinic, and briefly operated a vocational center to train local youth (Société Géographique de l'Indochine 1925; VNA2 1936). Although the land has been redistributed into small parcels since 1975, the villages still retain their original names.

Americans on the Mekong

Although the story of American technical advisers working on the Mekong is generally associated with dam projects and located upstream, the first commitments of American machinery and personnel occurred in Vietnam, especially the delta region where covert field agents and on-loan technical advisers such as Wolf Ladejinsky began to study the strategic and economic challenges of rehabilitating the delta's hydro-agricultural infrastructure to support nation-building efforts in Vietnam (Ladejinsky 1955).⁴ The major agency responsible for these projects was the U.S. Operations Mission (USOM). Located generally within the confines of the U.S. embassy, USOM offices in Southeast Asia emerged in the 1950s as sprawling centers for managing both covert operations and aid projects. From 1950 to 1975, they fostered thousands of exchanges among local officials, engineers, contractors, scientists, and academics involved in related projects across the entire region.

The problems that American modernizers and their South Vietnamese colleagues encountered in their attempts to rebuild the delta's infrastructure after 1954 illustrate the complex ways that older, colonial-era networks of machines, documents, and people persisted despite unprecedented increases in U.S. aid to South Vietnam. For example, USOM-Saigon delivered two brand-new dredges in 1955, but it relied extensively on the old French monopoly contractor to

operate them and to train new Vietnamese technical staff. Given the comparatively higher wages offered by contractors, Vietnamese trainees tended to stay on with the French contractor rather than move to public service. Although the South Vietnamese Public Works Ministry eventually took control of all these dredges after 1960, American construction firms soon entered the scene with their own dredges and continued the private competition for skilled labor during the American military occupation (VNA2 1966, 7).

Although American civil and military involvement greatly altered the scale of construction (and destruction) after 1954, it did not significantly reverse earlier processes of meta-commoditization. In particular, failures to address legal problems of land redistribution seriously weakened later efforts to win local support. The rapid escalation in American military involvement complicated rather than corrected colonial-era processes. Waves of new machines—bulldozers, road-building equipment, airplanes, and small engines—dramatically expanded a bureaucratic apparatus in South Vietnam that was still not prepared to handle the volume of work.

Where Americans played a more formative role in altering the river was upstream in areas that before 1945 had been largely ignored by the French and Thai governments. The American interest in building dams on the Mekong, however, was somewhat accidental. The U.S. Bureau of Reclamation had already trained several dozen Chinese engineers before 1945 in anticipation of building dams on the Yangtze (not far from the present-day Three Gorges Dam). Completion of Hoover Dam in 1936 drew scores of foreign visitors, especially from India and China.⁵ In 1939, the Bureau's state-of-the-art Hydraulics Laboratory in Denver trained more than a dozen Chinese engineers in preparation for constructing large concrete dams in the world's biggest potential market. As wartime conditions permitted in 1944, more engineers and officials from China came to Denver. Even Soviet engineers visited before 1945, traveling on what at the time was a sort of hydraulic pilgrimage: Hoover Dam, Grand Coulee Dam, the Tennessee Valley Authority, and the Hydraulics Lab in Denver. John L. Savage, chief design engineer of Hoover Dam, even traveled to China in 1944 to initiate surveys there (National Archives and Records Administration—Denver [NARA-D] 1950b).

With the collapse of the Nationalist Chinese government on the mainland in 1949, the interest of the United States in promoting hydroelectric and irrigation projects rapidly shifted to China's periphery: to Northeast and Southeast Asia. Responding to President Truman's Point IV Program to quickly aid modernization efforts in the third world, the Bureau of Reclamation initiated the World Reconnaissance Survey to identify potential hydro projects in the developing world, especially in Thailand, the Philippines, and Indonesia (NARA-D 1950a). With this new interest in containing Soviet and Chinese influence in the region, a new wave of reconnaissance and training efforts commenced in the Mekong River Basin to identify future sites for dams there.

Like the French in Indochina, this surge in American reconnaissance led to new legal and mechanical interventions, most notably the creation of multilateral committees and the involvement of multinational corporations as contractors to agencies and national governments. Truman repeatedly directed funding and technical assistance through international agencies so that this reconnaissance effort at least appeared on the surface to be international. On the Mekong, the responsible international agency for development was the United Nations Economic Commission on Asia and the Far East (ECAFE) headquartered in Bangkok. This public multilateral office, however, was overshadowed by the increasingly heavy presence of American military units throughout the region. USOM—Bangkok effectively became the center for all U.S. modernization efforts in the region while Vietnam increasingly turned into a battlefield. What advisers frequently called “the Mission” in Bangkok became a key player with ECAFE and the Mekong Committee in sponsoring surveys (Biggs 2006).

The Mekong Coordinating Committee, established by ECAFE and the riparian nations in 1957, resulted in a transfer of U.S.-initiated efforts to a less controversial multilateral institution. With the exception of a few dams constructed in Thailand and Laos, most of the Mekong Coordinating Committee's efforts until 1975 were reconnaissance missions. Construction was limited to several tributary projects such as Nam Pong in Thailand and Nam Ngum in Laos, and these construction projects were typically dependent on unilateral American aid with contracts for design and construction going for the most part to American firms. Given high levels of violence along the Mekong, there were few opportunities to commit funds, equipment, and people to build megadams such as the Pa Mong Dam on the main stream between Thailand and Laos.

Nevertheless, a very profound kind of meta-commoditization occurred in this enormous survey effort, preparing for a posthostility scenario that never materialized. Several thousand foreign experts and technicians, especially Americans, worked as contractors for U.S. and UN agencies on these projects. Their efforts centered on the proposed cascade of dams, but work across the river valley extended to related problems such as land reform, resettlement, and agricultural mechanization. As with French colonial public works in the delta, the most lucrative aspect of these projects was not realizing increased production in rice, electricity, or other commodities so much as the highly lucrative work of building infrastructure and consulting—meta-commoditization—that would allow the production of such commodities in the future. Equipment manufacturers, construction and engineering companies, and American citizens, especially liberals, supported modernization—just as French republicans had in 1879—under the premise that economic development might end ongoing military struggles peacefully.

This does not mean, however, that because they did not succeed in building the megadams they did not transform nature or society during this time. The extensive

reconnaissance efforts of Americans and others produced many influential things that changed lives and environments in the region. Experts not only produced maps and data but they trained local residents and brought waves of imported machines to the region, especially small-scale water pumps, motorcycles, and generators. Also, while there may be some similarities between American policies on modernization and the French *mission civilisatrice*, the social and environmental transformations that occurred during the American era were often not the intended outcomes of American designs. Where Michael Adas has shown the endurance of an American civilizing credo based on repeated stories of technological dominance overseas (Adas 2006, 31), the reality then was that actual social and environmental changes often differed greatly from projected outcomes of specific projects. Peculiar, unexpected things often happened at project sites where maps, reports, and machines as well as the experts who learned to use them often moved in directions counter to American strategic interests. Many American members of the large community of experts charged with carrying out modernization programs even opposed U.S. government interests after working in the field for some time.

Perhaps the single best instance of this more complicated approach to reconnaissance concerns the work coordinated by American and UN agencies on Pa Mong Dam. Pa Mong was to be the centerpiece of the Mekong Cascade project, several times larger than Hoover Dam. It was to be President Lyndon B. Johnson's demonstration of peaceful U.S. intervention. In explaining to college students in 1965 why he was committing troops to Vietnam, he highlighted his administration's commitment to dams such as Pa Mong that would become America's “footprint” in the region, providing “food and water and power on a scale to dwarf even our own TVA” (U.S. Government Printing Office 1966). The scores of reports, sociological studies, pamphlets, and press releases that resulted from over twelve years of study on this project offer an interesting glimpse into the particulars of one modernization scheme.

The reconnaissance effort included Bureau of Reclamation preliminary studies, geological surveys, anthropological studies commissioned by USOM-Bangkok, and studies by the Ford Foundation. Taken as a whole, this collection of documents presents an incredibly fragmented picture of American modernization efforts, suggesting what Latham (2000) has described as competing “modernization ideologies” at work. One of the most important reports to run counter to U.S. government activities on the site was a Ford Foundation report by geographer Gilbert White published in 1962. This report expressed concern that the dam should not only be profitable in terms of generating electricity and storing water but that it also should bring immediate, substantial benefits to several hundred thousand people who would have to move from flooded valleys (White et al. 1962; Pa Mong Resettlement Research Project 1982).

American social scientists such as White introduced new social and psychological factors that in turn forced planners to recognize the political and social

costs of resettlement associated with the dams. Like engineers, social scientists also brought their own ideological baggage with them, notably a tendency to rely on colonial-era ethnographic depictions of local people and their perceived ability to adopt new technologies associated with the hydroelectric dams. Such studies, often funded by USOM-Bangkok and later by the U.S. Agency for International Development, echoed popular colonial assertions about the inevitable path of development (civilization) from subsistence to traditional resource management. One study in 1969 even suggested that these different stages of development might apply generally to local states, contrasting Thai farming methods as "traditional water management" and Lao methods as "subsistence" (McDole 1969, 56). Another new voice in the reconnaissance effort was that of systems theorists. Like social scientists, they often criticized traditional engineering analyses for factoring out social costs, but their solutions typically called for more calculations based on computer-run algorithms (Ingersoll 1969). Although construction on Pa Mong had not yet commenced, several tributary dams were completed in this era, presenting opportunities to consider how instances of mechanization and legalization affected people on the smaller rivers. Nam Pong, a smaller tributary dam near Khon Kaen, Thailand, triggered widespread and unregulated clearing of upland slopes above the reservoir as thousands of farmers who were resettled from the valleys abandoned their resettlement zones and cut down the woods to survive (Huddle 1972, 93). The sale of irrigated land below the Nam Ngum Dam in Laos led to increased tenancy rates as military officers in Vientiane purchased title to the land from resettled farmers in exchange for allowing them to stay on the land and cultivate it (Southeast Asia Technology Company Ltd. 1978). Such dams, like canals in Cochinchina, delineated new boundaries between modern and traditional spaces, state and private property, and they ultimately concentrated ownership and wealth in the hands of wealthy urbanites while dislocating or impoverishing farmers.

Problems with the smaller dams and increasing violence after the 1968 Tet Offensive prompted the United States to reduce its financial and technical commitments to the Mekong Committee. The committee had already been in serious jeopardy with Cambodia's threat of withdrawal in 1968-69, and U.S. decisions to withdraw military forces from Vietnam in 1972 further weakened prospects for the construction of projects such as Pa Mong. The mood in Washington in 1972 had also changed, becoming strongly opposed to the war and to large infrastructure projects such as Pa Mong (Huddle 1972, 25).

Before leaving the topic of Americans on the Mekong, however, it is important to leave megadams for a moment and briefly consider how everyday life on the river changed in this period. Several million small internal combustion engines dramatically reshaped the water environment and local societies in this period. The four-horsepower and six-horsepower Kohler engines introduced by the American manufacturer in response to USAID programs stimulated a kind of hydrological

and environmental revolution across the region that has to date received little if any attention. From their introduction in the early 1960s, such small machines became essential for families living in the war zones of Vietnam. One veteran in the Mekong Delta told stories of guerrillas escaping American jets strafing a free-fire zone by lifting the motorized propeller up and down to cut through thick mats of water hyacinth to reach cover.⁶ These motors traveled readily across ideological lines and became important fixtures in rebel bases. Today, one often finds them in provincial history museums along with AK-47s, models of improvised explosive devices, and photographs commemorating the guerrilla wars of resistance. Such machines contributed to a radical shift in patterns of individual transportation and by 1974 even contributed to noticeable variations in water conditions where an estimated one million small engines were being used as improvised pumps for small-scale flood control in the delta (Netherlands Delta Development Team 1974). While American planners' attentions were generally focused on large dams and colossal structures such as Pa Mong, several million smaller machines played a significant role in the region's political struggles and ecological changes.

Meta-Commoditization and the Agency of Things

With the fall of the Saigon and Phnom Penh governments in 1975, construction of dams and other waterworks ceased to be a subject of much international concern until the late 1990's when nations and companies in the lower Mekong returned to prospects for building large structures on the river. The simple conclusion in light of this is that these new projects are simply being repackaged from earlier American and even colonial-era "footprints." Arguing for this kind of historical and political continuity, however, greatly overemphasizes the role of the colonial state or American advisors in these matters and assumes an implausible continuity of state agendas from one era to another. John Perkins's best-seller *Confessions of an Economic Hit Man* (2004) makes a compelling case for such a history of covert policies propelled by international banks, U.S. agencies, and corporations colluding to engineer dependency through pushing expensive loans for projects such as dams. Although I find it plausible that many Americans, Thais, Vietnamese, Chinese, and others have schemed (and continue to scheme) to secure big-ticket projects for personal or political reasons, the "hit man" argument leaves several million people and their agro-environments as little more than victims to these appropriations. As Anna Tsing and others in this book show, closer investigation on the ground shows that farmers, loggers, factory workers, and others have been anything but passive in these recent processes of commoditization. Furthermore, political and economic alliances among elites in the region are so turbulent it is hard to believe that associations of powerful business and political leaders dating back to the 1950s are still responsible for realizing old colonial and cold war-era designs in the region today.

Perhaps the historical persistence of old projects has less to do with decisions at the top of society than with the complex webs of human and technological interactions at the middle and bottom. Certain technologies, such as internal combustion engines, have become so fundamental to daily patterns of life since 1960 that they have fundamentally altered political and economic choices at the bottom and middle of society. This more distributed approach to understanding the role of technology and materials in human societies has been a central topic for actor-network theory (ANT), a material-semiotic approach in science and technology studies that argues that complex and repeated interactions between different human groups, technologies, and natures produce environmental, political, and social change (Latour 2005; Law 1992). Responding to ANT's more contentious argument for the agency of things, I do not propose that things in themselves—soil cores drilled in 1968, a still-working Caterpillar bulldozer from 1958, or even key plant and animal species—have agency. However, ANT's focus on the power of relationships between human communities and such things suggests a novel way to approach the kinds of problems covered in this book. Meta-commoditization and its products—maps, dam designs, 4 hp engines, reservoirs, property claims—produce both material and semiotic networks that may survive over decades despite frequent political upheavals at the top. The power of these networks or relations is perhaps most visible at the middle and lower economic rungs of society. A man or woman who has acquired a boat engine, for example, has a greater range of movement, can more easily escape in times of trouble, and may even prevent flood damage to crops by strapping that motor to a crude water pump. However, greater agency also comes with a price as the owner of such a motor depends on spare parts, imported fuels, and low fuel prices.

The idea of meta-commoditization proposed here is intended to redirect attention from powerful elite players such as the World Bank or autocratic governments to consider instead the region's broader physical- and knowledge-based infrastructures and their deep roots in the colonial and postcolonial past. The three processes that I have described—reconnaissance, mechanization and legalization—have produced and re-produced important connections between human communities and technologies at specific sites. These relationships developed both within and outside the world of economic hit men and engineering leaders such as General Wheeler. To understand how commodities are changing the lives of people in Southeast Asia, it is important to follow these relationships beyond the lives of autocratic rulers or internationally known figures from sites of initial formation to eventual locations in government archives, around abandoned project sites and in individual households. By following middle-level adventurers such as technical adviser Lyle Mabbott, who traveled the world supervising dam studies including that of Pa Mong, one finds a more widespread yet intimate history of exchange with local colleagues who in turn supervised local technicians operating fleets of imported equipment (White and Garrett 1968).

These professional associations and travels helped to transmit what Theodore Porter (1995) calls a "culture of objectivity" to the region that is still alive today. While prime ministers, presidents, and even governments come and go, these more intimate technological and social relationships formed between equipment vendors, boat drivers, engineers, and others have persisted and deserve greater attention before the watery threads in Penelope's robe unravel faster than they can be repaired.

Taking Southeast Asia to Market

*Commodities, Nature, and
People in the Neoliberal Age*

Edited by

JOSEPH NEVINS

and

NANCY LEE PELUSO

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