Water Power: The "Hydropower Discourse" of China in an Age of Environmental Sustainability

Yuen-ching Bellette Lee

Abstract: As the world searches for renewable energy in the face of climate change and China attempts to expand its power supply to further its economic development, hydroelectricity has moved to the top of the country's energy agenda. This has given rise to a new form of "hydropower discourse" in China. The discourse is underpinned by the ideas of environmental protection and sustainable development, which are widely perceived as unobjectionable in view of the current availability of resources. This article argues that the apparent ethical pursuit of renewable energy by building dams to generate electricity masks relations of dominance and helps to enable large energy companies, political leaders, and regional decision makers to pursue their interests against those who have limited or no access to the knowledge and capital employed in the development process. It will examine the ideological assumptions and institutional rootedness of hydropower discourse, and the power relations embedded in it.

Keywords China; Environment; Sustainable Development; Dams; Discourse

Yuen-ching Bellette Lee is a Postdoctoral Scholar in the Department of Political Science at the University of California, Los Angeles.

Introduction

As China has entered the 21st century with an increasing need for energy and in a position of leadership in hydropower technology following its success in building the Three Gorges Dam, a new form of "hydropower discourse" has begun to take shape. Unlike the global polemics over the Three Gorges Dam, which entailed a largely dichotomous opposition between the developmentalism embraced by Chinese technocrats on one side and the environmentalism advocated by transnational activist groups on the other (Lee 2013, 102-126), the new hydropower discourse in China has broken down the boundary between the two sets of ideology and practice and crossed over to the environmental field to appropriate some of its concepts.

Discourse here encompasses articulations, both spoken and textual, which enact, legitimate, and reproduce social relations that enable certain people or groups to exercise power over others by naturalizing the discourse's constituent ideology. In the case of hydropower discourse, the harnessing of rivers is conceptualized, debated, and discussed in such a way that a certain approach of hydraulic development appears to be natural and unobjectionable. The technocratic language of river development, expressed in the ethical terms of environmental protection in pursuit of renewable energy, eliminates the political content and socioeconomic implications from the practice of dam building. Removed in this depoliticizing act are, inter alia, people's rights, social justice, impacts on the natural environment, and economic distribution between citizens, geographical regions, and groups with disparate interests. The apparent apolitical character of hydropower discourse, in other words, conceals relations of dominance, in which people or objects in the lower end of the power hierarchy – be it nature, groups that have little or no share in the economic benefits, or rural villagers who are excluded from the decision-making system – are deprived of

their voices in the development process by those who claim exclusive knowledge to set the energy agenda and formulate water policies.

But hydropower discourse in China involves not only verbal articulations of hydraulic engineering. It is bound up with practices of dam building, oftentimes on a massive scale, the transfiguration of the natural landscape, and the transformation of people's ways of life. Such practices are made possible by the employment of resources such as technological knowledge, information, capital, and concepts that are prevailing in the global development structure. These practices instantiate the ideological propositions embedded in enunciations of river harnessing and are at the same time rationalized by the ideals of environmental sustainability in hydro development. Practice and ideology, in other words, support and reproduce each other, and both are wrapped up in the discursive formation of what I call hydropower discourse in China.

Hydraulic engineering is not a uniquely 21st century phenomenon in China. Harnessing waters for human use has been the task of ancient emperors and modern political leaders alike. From Dujiangyan, built in Sichuan Province around 250 BC, to the Gezhouba Dam on the Yangtze constructed under Mao, controlling floods and diverting rivers for productive use has been an important politico-economic agenda. Mao considered mastering nature as a means to express the communist might (Shapiro 2001, 1-19). Karl Wittfogel goes as far as arguing that hydro development in China has historically given rise to oriental despotism, a form of total power that extends from water projects to the centralized organization of society in the social, economic, religious, and politico-military spheres (Wittfogel 1957).

The hydropower discourse this article addresses represents a part of the continuum of water conservancy history in China. But it differs from the Maoist and dynastic manifestations of hydraulic development in that it is coextensive with the neo-liberal structure of globalization and the emergent articulations of environmental sustainability. Unlike the agro-bureaucrats who, according to Wittfogel, had full control over resources and societal organization under the single-centered state, technocrats in reformist China do not have equivalent power. They work for the power companies, which are state enterprises operating under the market mechanism with high autonomy in management and decision making. These energy companies, and the technocrats who staff them, control the mobilization of resources, including water and capital, and have access to the political leadership. But they do not hold centralized power, nor do they have absolute control of resources, and less so of society. Much of the hydraulic development is contingent on their negotiations with local authorities for a river to be exploited. Moreover, operating in the global arena of capital circulation, mechanical equipment transactions, and information exchange, the power companies and technocrats are subject to constraints in the global market and, most of all, scrutiny by transnational civil society and its challenge to the testability of their claim to environmental sustainability. In short, the Chinese hydropower discourse, despite its continuity, is marked with significant modifications in the 21st century. In this paper I examine the ideological propositions of this discourse, and the power relations that run through it.

HYDROPOWER DISCOURSE IN MODIFICATION

In June 2003, the Three Gorges Project Company successfully installed world-grade hydropower generators with the help of Western companies. The river was completely blocked and the dam entered its first phase of electricity production. Two years later, the corporation developed its own generators with the knowledge they had obtained through technological transfer. With initial generation of electricity having begun in 2003, China

claimed success in conquering the world's third-largest river and building the biggest dam ever. A new form of hydropower discourse came into shape.

That discourse was – and remains – distinct from the Maoist mode of development based upon the ideology of communist supremacy and from the Dengist version of material progress embodied by the Three Gorges Dam. The 21st century hydropower discourse was primarily subordinated to global development discourse, but it also crossed over to the environmental field to incorporate some of the latter's concepts. It appropriated for its ideological authority the idea of "sustainable development" first proposed by the United Nations in 1987 and later entrenched by the 1992 Earth Summit with the endorsement of Agenda 21, which is a blueprint for achieving sustainable development, and the establishment of the Commission on Sustainable Development to oversee its implementation.

The discourse also operated within a set of institutions that presumed economic growth as a *natural* pursuit of the human world. In the single year of 2004, various world-level meetings ranging from the International Conference of Hydropower and the International Symposium on River Sedimentation to the World Conference of Engineers were held at the Three Gorges and in Shanghai, celebrating the "exemplary" role of the dam and trumpeting the significance of harnessing hydropower as a way to alleviate the global energy crisis for continuous economic progress (*CTGPN* 2004a, 2004d, 2004g). Among these meetings, the most influential in precipitating China's emerging discourse was the United Nations Symposium on Hydropower and Sustainable Development, held in December 2004. In its Beijing Declaration on Hydropower and Sustainable Development, the more than five hundred participants from more than forty countries concluded that "access to energy is essential for achieving sustainable development. … Noting with concern that two billion people do not have access to electricity, we call upon all stakeholders to work in concert to deliver energy services to all in a reliable, affordable and economically viable, socially acceptable and environmentally sound manner" (United Nations 2006). Hydroelectricity, under this premise, was highlighted as a valuable renewable energy source that could "contribute to sustainable development, … to mitigating greenhouse gas emissions, … [and] to poverty reduction and economic growth through regional development and expansion of industry" in developing countries.

To the extent that the living conditions in certain parts of the world are in need of improvement, energy supply is considered a resource that enables local people to participate in economic development. But put in the light of the argument's sociopolitical implications and the effects it produces, the subjects – river, water, two billion people, and developing countries – are rendered what Michel Foucault calls "objects" of a "discursive field" (Foucault 1991, 54). They are examined under an "objectivist and empiricist" lens (Escobar 1995, 8), an operation that bears out the conclusion that for the "two billion people" to be pulled out of poverty and embark on sustainable development, hydroelectricity is the necessary and ultimate prescription. This argument resonates with the one put forward by the Three Gorges technocrats, who emphasized the connection of poverty alleviation, sustainable development, and hydropower generation while sidestepping the ramifications of human rights, social disruption, and ecological destruction. Without an exploration of the conceptual presumptions and implementation of river exploitation, and without a more refined analysis of locally situated hydroelectricity production capacity, a well-intended resolution can be rendered a socioeconomic instrument of parties defending or pursuing specific power and interests.

In the context of the UN's Beijing Declaration, hydropower was brought to the top of the energy agenda in China as a "clean, renewable, and environmentally sound" resource

compatible with the principles of sustainable development. At the UN conference in 2004, the deputy director of China's State Development and Reform Commission, Zhang Guobao, announced that hydroelectricity would be given priority in his country's energy policy. Pinpointing existing opposition to any form of hydropower development, Zhang said an overemphasis on protection rather than exploitation was a "violation of the human community's fundamental well-being" (*CTGPN* 2004e). Thereafter, the call for hydroelectricity production became increasingly audible in the Chinese media. The next fifteen to twenty years, it was noted in one article published in 2005, would be a golden period for China's hydropower development (*CTGPN* 2005). The success of the Three Gorges Dam, said one official, had pushed China's capability for hydraulic exploitation to the forefront of the world. "Right now," he asserted, "is the best time for China to embark upon hydroelectricity development and construction" (*CTGPN* 2004f). Having built nearly half of the world's dams, China announced a plan to double its hydropower generating capacity by 2020 by erecting more dams.

The appeals came at a time when a convergence of circumstances pointed to an urgent need to tap into energy source alternatives to fossil fuels. The world was wrestling with possible methods for curbing the climatic change caused by excessive greenhouse gas emissions. Moreover, China was faced with the problem of an energy shortage in powering its expanding industries and sustaining its economic growth. These problems coincided with a worldwide shortfall in the supply of oil. With environmental protection as a supporting postulate, hydropower advocates in China circumvented assertions of social disruption and human rights violations typically used in the anti–Three Gorges campaign and turned the tables on dam opponents with the proposition of environmental sustainability.

Under the premises of cutting carbon emissions and exploring clean energy, the hydropower sector consolidated under the lead of the Three Gorges Corporation. In August 2002, the company collaborated with five other major state-owned energy corporations to establish the China Yangtze Power Company (hereafter referred to as Yangtze Power). The Three Gorges Corporation was the biggest shareholder, controlling 89.5 percent. Three other enterprises—Huaneng International Power, China Nuclear Industry Group, and China Petroleum and Natural Gas Group—each held 3 percent, while China Gezhouba Water Resources and Hydropower Project Group took 1 percent, and the Yangtze Surveying and Design Institute had 0.5 percent (*Hong Kong Wen Wei Po* 2002). Later in 2003, Yangtze Power was listed in the mainland stock markets as a blue-chip company with a high profile—it was selected as one of the "ten best" listed enterprises in China, and Li Yongan, the president of Yangtze Power and general manager of the Three Gorges Corporation, was selected one of the "ten best" enterprise leaders.

With its collective capital and knowledge, Yangtze Power made plans to build a cascade of four dams on the Jinsha River, a part of the Yangtze River system, upstream from the Three Gorges in southwestern China, which, nicknamed Double Three Gorges, would combine to generate twice as much power as the predecessor project. Construction on the first of the four projects, the Xiluodu Dam, began in 2005. Second in scale to the Three Gorges Dam, it would be 610 meters high, more than three times the height of the earlier dam, though, at 700 meters, less than one-third as wide. The planned capacity was 12,600 megawatts—compared to Three Gorges' 18,200 megawatts. It would produce 57.1 to 64 billion kilowatt hours per annum—compared to 84.7 billion kilowatt hours at the Three Gorges. Xiluodu, with its upstream position, claimed to be able to supply water for Three Gorges' power generation in the dry season, reduce water flow in the rainy period, and hold back a substantial amount of silt that would otherwise make its way to the Three Gorges Dam's

reservoir (*CTGPN Special: Jinshajiang Baodao* 2005). Construction of the dam is scheduled to be completed and production of electricity to begin in 2013.

Water itself is undoubtedly a renewable source of energy with minimal environmental impacts. But when it comes to damming a river, especially on a mega scale, the results go far beyond what simple, flowing water brings to the human world. At the Three Gorges, floating garbage amounts to 100,000 to 200,000 cubic meters per year and has been a problem particularly in the rainy season. It was recorded during a Yangtze flood in 2004 that the waste accumulated to a height of 4 meters behind the dam, exceeding the capacity of any garbage-clearing barge available at the time (*CTGPN* 2004c). Besides water pollution, people in the reservoir area are also confronted with geological hazards such as landslides and riverbank slumps. In a report entitled "Three Gorges Follow-Up Project," the government revealed plans to relocate another three hundred thousand people—on top of the 1.2 million villagers already displaced—to make way for an "eco-screen" or "buffer belt" along the reservoir (*Guardian* 2010; *China Daily* 2010). The environmental and ecological defects caused by the damming of a river are not addressed in the advocacy of hydropower as green energy.

The neutrality of water as a clean, renewable resource also masks a complex web of social transactions in the politico-economic realm. Behind the facade of sustainability lie the political interests of decision makers, commercial strivings of power companies, and developmentalist visions of a state that is emerging as a world power. The four-dam cascade on the Jinsha, including the Xiluodu Dam, is a part of the grander scheme of the Great Western Development (*xibu da kaifa*), which China is actively pursuing as part of its national modernization drive. The campaign covers mainly Sichuan and Yunnan Provinces in the southwest, which are among the most impoverished areas in China. It promises to achieve resource exploitation, energy production, and poverty alleviation. But its goal of development is not confined to the western terrain: it also aims to generate electricity for the power-deficient east coast, in particular Guangdong, to sustain its industrialization and enriched urban population (Magee 2006, 24-27). Conceived to promote the development of the west, the hydraulic engineering projects are also meant to power the further reforms of the east; together the projects contribute to the overall modernization of China as a rising power.

The western hinterland carries the richest unharnessed hydropower resources in China. It represents a good opportunity for hydraulic exploitation, but it is also a potential focus of controversy because of its richness in natural diversity and minority cultures. In the region lies an area known as the Three Parallel Rivers, where the Jinsha (the upper Yangtze), Lancang (Mekong), and Nu (Salween) run almost parallel with one another before the latter two flow into Southeast Asia. It has been designated by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as a World Heritage Site for being home to some of the richest biodiversity among temperate regions in the world: it is believed that over six thousand plant species and more than 50 percent of China's animal species live there. Chinese environmentalists fought to prevent developmentalists from encroaching upon this ecological system and ethnic minorities, but many local officials support the damming of rivers because they believe that hydropower generation will bring economic development, a supply of electricity, and capital investment to the area's communities.

The interests of local officials overlap with those of the power companies, which see the rivers as renewable sources of profit. In an example of a process Darrin Magee calls "corporatizing the electric power industry" (2006, 35), in 2002 the state's energy sector was divided into five big power companies. Each of them went about claiming hydro territories

under the banner of the sustainable development of nonpolluting energy. Rivers in the southwest, the last frontier of the country's unexploited water resources, became a major target of competition. Among the corporate competitors were China Huaneng Group and China Huadian Corporation, which together generate about a fifth of China's electricity. The former established a hydro base on the Lancang River—known as the Mekong in Southeast Asia, while the latter gained development rights on the Nu River, known as the Salween, downstream. In 2003, Huadian came to an agreement with the Yunnan provincial government on proposals to build thirteen dams along the Nu near the UNESCO-designated World Heritage Site. The projects were suspended by former Premier Wen Jiabao in 2004 upon vigorous opposition from Chinese environmental groups, and were scaled back to four dams (Mertha 2008, 110–149). But Huaneng and Huadian also carved out hydraulic territories on the Yangtze. In 2009, the two companies were planning on a US$30 billion project to cascade eight dams on the middle reaches of the Jinsha, which together, it was claimed, would generate as much hydroelectricity as the Three Gorges Dam.

The commercial interests of the energy companies were entangled in power relations that interpenetrated China's political structure. Huaneng, for example, has been controlled by the family of former Premier Li Peng, a water conservancy engineer who took an interest in hydropower generation. He was a steadfast supporter of the Three Gorges project throughout his political career. His son, Li Xiaopeng, also a trained engineer, headed Huaneng until June 2008, when he was appointed deputy governor of Shanxi Province. Li Peng's daughter, Li Xiaolin, is the CEO of Huaneng's most important subsidiary, China Power International Development, in Hong Kong (Pomeranz 2009). Huaneng is a multinational corporation producing different kinds of energy. Its subsidiaries are listed on the Hong Kong, Shanghai, and New York stock exchanges. One of the other most powerful energy companies, Huadian, which attempted to build the thirteen-dam cascade along the Nu, was established in 2002 as part of the power sector reform. Its first general manager, He Gong, was formerly a top leader of the Three Gorges Corporation. He had worked in Yunnan for fourteen years and had been the deputy chief of the province's Electric Power Bureau. Under him, the Manwan Dam on the Lancang River was built (Cao and Zhang 2004). It was one of the major water projects in the province, but the resettlement was poorly managed and left displaced villagers scavenging to this day. Almost immediately after He took office in Huadian, he approached the leading cadres of Yunnan with the proposal of exploiting the Nu. The thirteen-dam blueprint, conceived to generate 21,320 megawatts of electricity, surpassing the Three Gorges, emerged from those negotiations.

The hydropower discourse suffered an apparent setback in mid-2009 when the Ministry of Environmental Protection suspended the construction of two dams on the Jinsha (by Huaneng and Huadian) and another project on the Nu (one of the four by Huadian) on the grounds that they lacked prior environmental protection designs (*Telegraph* 2009). But the hydro-developmental force resumed its stride within a year, as the government announced its determination to pursue a green energy policy. This entailed an increase in the proportion of non-fossil fuels in overall energy consumption to 15 percent by 2020 and a simultaneous reduction of carbon intensity—the amount of carbon dioxide per unit of gross domestic product—by 40 to 45 percent (Reuters 2010a). Hydropower, now prized for its lower costs compared to wind and solar energy because of technological innovation and the scale of production, was trumpeted as a prioritized green power in the 12th Five Year Plan (2011–2015) (*Caixin* 2010). The current 200 Gigawatts (GW) of national installed hydropower capacity, it was projected, would be raised to 380 GW by 2020. This means that for the Yangtze alone, the existing 36 percent exploitation rate of the river's hydraulic resources

(including the Three Gorges) would have to increase to 60 percent by 2030. The policy initiative came at a time when dam builders had already been invigorated by the government's US$586 billion economic stimulus package in late 2008, which allowed many localities, including Yunnan and Sichuan, to speed up their hydraulic projects.

The renewed momentum of dam building entailed a series of accelerated official endorsements from the middle of 2010. Over five months of that year—from July to November—the National Development and Reform Commission approved six large hydropower works. They included the 2.4-GW Jinanqiao Dam, which had been shelved by the environmental protection authority the year before. Other endorsed proposals were the 8.7-GW Wudongde and 14-GW Baihetan projects, to be developed by the Three Gorges Corporation on the Jinsha, and the 2.6-GW Changheba, 2.4-GW Guandi, and 600-Megawatt Tongzilin hydropower stations, all located in Sichuan Province (Reuters 2010a, 2010b). More dams were being planned or constructed on the upper reaches of the Yangtze's tributaries, including the Yalong, Dadu, and Wujiang (Breakbulk 2011). The Ministry of Environmental Protection, moreover, reversed its aforementioned suspension of the water projects undertaken by Huaneng and Huadian on the Jinsha. But the strongest signal of the hydropower discourse's advancement came from the State Council's announcement in January 2013 that the impasse on the Nu River projects would be broken. Five of the thirteen suspended schemes were revived. Among them, the Songta dam in Tibet was identified as a "key construction project" of the 12th Five Year Plan, while Liuku, Maji, Yabiluo, and Saige in Yunnan Province would be "surveyed and kicked off in an orderly manner" (State Council 2013). Premier Wen's order to halt all the construction along the Nu in 2004 had been considered a victory for the green lobby; the reversal of that decision represents the ascendancy of nature exploitation through the use of water, which is considered a nonpolluting resource, under the banner of sustainability.

In tandem with the overarching development discourse, China's hydropower discourse reached out to other parts of the world, enabling the dam-constructing sector to establish a dominant position as a global builder and financier. In 2007, the Chinese government signed an agreement with Myanmar to construct a dam at Hutgyi on the Salween (Nu). The project would be partly financed by Chinese funds and was to be built by Sinohydro, a major Chinese hydropower company, to provide electricity for Thailand (90 percent) and Myanmar (10 percent) (Osborn, 2007). Chinese dam builders were also involved in another eleven dams proposed for the mainstream Mekong (Lancang)—seven in Laos, two between Laos and Thailand, and two in Cambodia (Osborne 2010). It was estimated that Chinese investment would comprise up to 40 percent of upcoming projects on the Mekong and its tributaries. These included four of the eleven proposed works—Pak Beng, Pak Lay, and Xanakham in Laos, and Sambor in Cambodia (Hirsch 2011). The Southeast Asian countries had been critical of China's efforts to dam the Chinese side of the Mekong (Lancang) for fear of impacts on the river's ecology and fisheries. Substantial concerns of this type lingered, but the cooperation deals indicated a more receptive attitude toward river exploitation.

Outside Asia, the Chinese hydropower discourse extended to the developing countries of other continents: in June 2004, the Three Gorges Corporation struck a pact with Brazil's Itaipu Dam, the largest river development scheme in the world before the Three Gorges. The two sides agreed to exchange experiences in personnel training, operations management, and reservoir tourism (*CTGPN* 2004b). In Africa, as of May 2007, China was supporting at least ten dam projects in countries such as Sudan, Ethiopia, Zambia, Ghana, Nigeria, the Republic of the Congo, and Mozambique. Almost all of these schemes were financed

through the China Exim Bank as part of bigger agreements in areas such as energy production and minerals extraction (*IPS News Agency* 2007; Brautigam 2009, 299-303). In February 2011, China Yangtze International, a subsidiary of Yangtze Power, the mother company of the Three Gorges Corporation, established a joint venture with the Russian electricity firm EuroSibEnergo to develop hydro and thermal power in eastern Siberia. The new enterprise, named YES Energo Ltd., is registered in Hong Kong with a capital of US$6 million. The cooperation deal firmed up further in June with an investment framework agreement on the construction of two hydropower stations and a natural gas-fired plant with a total capacity of 3 GW aiming to upgrade to 10 GW of new capacity. Apart from producing electricity for the Russian market, the energy generated will also be exported to northern and northeastern China (EuroSinenergo 2011; *Bloomberg* 2011; *HydroWorld* 2011).

conclusion

The 21st century hydropower discourse in China has developed at a time when the world has been at a critical juncture of energy crisis and climate change. The rarely challenged principles of environmental protection, sustainable development, and energy renewability lend much ideological strength to the rhetoric of dam proponents who seek to harness rivers on a massive scale. The apparently apolitical terms of developing hydropower for ecological sustainability mask a web of power relations, which enable those with knowledge and capital to assume an overriding position in the sociopolitical hierarchy over those who have little or no access to the intellectual and financial resources. Such power is exercised by agents ranging from large energy companies to political leaders, and from regional decision makers to humans in general (over nature).

Removed from the naturalized discourse are also the social disruption of local communities and the human rights of rural villagers, who are at the forefront, next to ecological communities, of bearing the impacts of hydropower development. Limitations of space prevent this paper from covering those topics.

But hydropower discourse is not a seamless structure, despite the mutual reproduction of ideology and practice as manifested in dam building. Extensive and expanding as it may be, hydropower discourse in China is interrupted by challenges from environmental protection agencies, central leaders, and nongovernmental organizations. The resistance of displaced people throws into question the propositions of poverty alleviation and material development as part of the modernization project, while events in nature – landslides, drought, and arguably earthquakes – reveal contradictions in the argument of environmental sustainability. Hydropower discourse, gathering momentum as an effect of China's latest energy policy, has a strong theoretical-ideological foundation. But questions about social injustice, ecological disruption, and unequal economic distribution undermine its ethical claim to be the solution for contemporary environmental problems.

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