

values toward to the future actions significantly. The grand narrative is often made from the perspective of the dominant groups in a society. However, only by revealing two sides of the story, both from the dominant and the suppressed, true picture of the society in a historical period can be reached. The development of China's hydropower wasn't even and smooth. It came along with the complexity of different energy sectors' contention for national strategic plan's priority over the years, the political ideology transitions, the awakening of the technique experts and general public's awareness on the environmental risks, and the socio-economic costs of the vast scale migration of the affected population. Those issues are essentially needed to make sense the full picture of China's hydropower development.

This paper intends to review the historical development of China's hydropower with investigation on the both side of the stories. Analyzing the narratives and discourses from different stakeholder helps reveal the dynamics and complexities of the hydropower development, particularly in the recent decentralized and neo-liberalized China. It helps understand China's hydropower development scenarios under the waves of different domestic and international ideologies.

The paper points out that the development of hydropower in China is deeply contextualized in the drastically complex history of modern China. Given the historical characteristics in each different time of periods, this paper divided the hydropower history into the following phases: 1910-1949 (China in revolution); 1949-1980 (Socialist Campaigns and Cultural Revolution); 1980-2000(Open-up and Reform and Privatization) and post 2000 (Decentralization and globalization). In each phase, the major development of hydropower projects is introduced and placed in the specific historical context. Following is the summary of the characteristics of hydropower development in each phase. The hydropower development narratives from both sides are analyzed at the end of each phase.

2 Hydropower History and Narratives

Phase One: 1910-1949 (China in revolution)

Modern Nation/State of China started from the establishment of Republic of China in 1911, which replaced the Qing Empire (1636-1912) lead by Sun Zhongshan. The establishment of Republic of China did not change the accumulated declining tendency confronted with the powerful foreign evaders. China remained politically fragmented in this time period: the Beijing-based government was internationally recognized but virtually powerless, the regional warlords controlled most of its territory, and tangling warfare took place among warlords frequently. In the late 1920s, the Kuomintang (Chinese Nationalists), under Jiang Jieshi, was able to reunify the country under its own control with a series of deft military and political maneuverings. Soon after, the battles took place between the Kuomintang and the Chinese Communists. The war continued successfully for the Kuomintang, especially after the Communists retreated in the Long March, until the Xi'an Incident and Japanese aggression forced Jiang Jieshi to confront Imperial Japan. The Second Sino-Japanese War (1937–1945), as a part of World War II, led to numerous as many as 20 million Chinese civilians died. Japan unconditionally surrendered to China in 1945. China emerged victorious but war-ravaged and financially drained. The continued distrust between the Kuomintang and the Communists led to the resumption of civil war (1947-1949), in which the Kuomintang was defeated and forced to relocate to Taiwan.

Due to those intensive wars, battles and social upturns, and extremely lack of technical experts and financial capability, the hydropower sector barely made much progress. The Chinese state was unable to implement any large hydropower plant development schemes, and the hydropower plants by the Chinese state are minimal with its total installed capacity just a little over 10000 KW. In the Japanese occupied

areas including Northeast China, Hainan and Taiwan, the plants constructed by the Japanese carried most of the total installed capacity reaching 900000 KW. From 1912 to 1949, there were only 22 large hydropower plants constructed. The hydropower plants have been frequently damaged due to the intensive wars and battles in this time period. Hence the total installed capacity of all of the functioning plants was only 580000 KW.

China's first hydropower plant, Shilongba, started to produce electricity in Kunming on October 30th in 1911. This plant was originally proposed by the French colonizers. Yunnan Administration denied the request and hoped to build the plant on its own. Due to the state financial shortage, private funding has been raised to purchase the equipment and employ the technicians from Germany. The installed capacity of this plant was only 240 KW.

The only two large size hydro power plants were built by the Japanese during its occupation in the Northeast China: Shuifeng plant on the Yalu River and Fengman plant on Songhua River. By 1945 the total installed capacities of the two plants reached to 614000 KW. The achievement of the hydropower development was at the cost of thousands of people's lives. In order to construct the projects, tons of labors were recruited. From 1937 to 1941, the Japanese company employed 101410 from northern China to work for the Fengman plant construction. Many of them have abused and maltreated to death: 3684 died from diseases, 1750 died from severe punishing because of running away, and many others from the project accidents.

Noticeably, the hydropower plants built in this time period, no matter in the areas controlled by the Japanese, the Chinese nationalists or the Chinese communists, were most to produce electricity for military use and industry productions, rather than for civil use. Most of the general public had little knowledge regarding electricity yet. There have little literatures which show the oppositions from general public to the hydropower developments in this time of period.

Phase Two: 1949-1980 (Socialist Campaigns and Cultural Revolution)

The victory of the Communist Party against the Kuomintang Party led to the creation of the People's Republic of China on October 1, 1949. Under Mao Zedong's governance, the party and government administration were centralized. As a member of the socialist group, China received technology aid technology coming from Soviet Union to help achieve in its own industrialization. Machines, technical assistance and military hardware were supplied by Soviet Union. Among China's most pressing needs in the early 1950s were food for its burgeoning population, domestic capital for investment, and purchase of Soviet-supplied technology, capital equipment, and military hardware. To satisfy these needs, the government began to collectivize agriculture. By the end of 1956 preliminary collectivization was 90 percent completed. In addition, the government nationalized banking, industry, and trade. Private enterprise in mainland China was virtually abolished. From 1958 to 1961, Mao Zedong initiated a campaign called "Great Leap Forward" aiming to rapidly transform the country from an agrarian economy into a communist society through rapid industrialization and collectivization. The campaign led to a great famine. Between 1964 and 1971, China carried out a massive programme of investment in the remote regions of south-western and western China. This development programme – called "the Third Front" – envisaged the creation of a huge self-sufficient industrial base area to serve as a strategic reserve in the event of China being drawn into war. From 1966 to 1976, Mao Zedong set in motion another social-political movement – Cultural Revolution. The goal of this revolution was to enforce communism in the country by removing capitalist, traditional and cultural elements from Chinese society, and to impose Maoist orthodoxy within the Party. The revolution marked the return of Mao Zedong to a position of power after the failed Great Leap Forward. The movement paralyzed China politically and significantly affected the country economically and socially. In this movement,

millions of people were persecuted in the violent factional struggles that ensued across the country, and suffered a wide range of abuses including public humiliation, arbitrary imprisonment, torture, sustained harassment, and seizure of property. A large segment of the population was forcibly displaced, most notably the transfer of urban youth to rural regions during the Down to the Countryside Movement. Historical relics and artifacts were destroyed. Cultural and religious sites were ransacked.

Regarding the hydropower development, there are three characteristics in this time period:

Firstly, water conservation function was stressed over the electricity production concerning the dam construction. The dams built in the 1950s were mostly for irrigation purpose. Food for its burgeoning population was among China's most pressing needs in the early 1950s. According to the first national census of China made in 1953, it was found out that the population of China was about 583 million, which was very large compared from the early projection. Hence grain production became the top priority regarding the agricultural policy. The irrigation and flood control function of the hydropower dam were heavily emphasized. Hence many small and medium-sized irrigation dams were encouraged to construct. The Great Leap Forward policy advocated that each of China's 1,465 counties build at least one dam. As a result, tens of thousands of dams were built in China, mainly by peasant-led teams with limited equipment, materials and training. Those dams were not intended for electricity production.



Fig. 1 Farmers working on Jinlan Dam Construction in Zhejiang Province in 1950¹

Secondly, this was a historical period characterized by excessive politicization and centralized and turbulent, which resulted in a dysfunctional economic system – the need for energy consumption is minimal. Meanwhile, in this time period, China was found very sufficient in terms of energy. Its coal reserves were among the world's largest, and mining technology was steadily developed. The technology and the initial investment for electricity production from burning coal were affordable. Hence, the plans for building large size hydropower projects have never been made as the urgent needs.

Thirdly, despite the extremely political turbulence, from 1968 to 1980, the hydropower dam construction still underwent the development in size and complexity. The total installed capacity of hydropower increased from the 0.163 GW of 1949 to 20.318 GW in 1980. Several large hydropower plants were built, with the construction controlled by national planning economy committee allocating the funds. By 1977, 56000 medium and small size hydropower projects have also

¹ http://www.zjwater.com/pages/document/70/document_567.htm

been built mostly by the local communes.

Noticeably, very a few critical perspectives against the hydropower development schemes emerged in this time of period, although their oppositions were mostly targeting on the technology aspects. An example is the Sanmenxia Dam located on the middle-reaches of the Yellow River. The dam was designed by the Soviet Union experts aiming for flood and ice control along with irrigation, hydroelectric power production and navigation. The dam turned out to be a failure and have lead to many environment disasters to the local people. In the initial period, there were about 70 hydrologists who took opposition to the hydropower project. However, due to the extremely politicization, many of these engineers silenced their opposing to the dam. Well-known hydrologist Huang Wanli had been sent to work as hard labour because of his opposing the project.

The Sanmenxia Dam was exactly an epitome of how a hydropower project becomes politicalized in this time of period. In this time, Ma Zedong was deified, due to his absolute control over the Party and state system. Many gigantic achievements were needed to prove his wise leadership and governance. There is an old Chinese saying, which is “when a sage came out, the muddy Yellow River would become clear.” Due that Mao Zedong was considered as the sage of this time, the Yellow River needs to be cleared. Sanmenxia Dam was believed to clear the downstream of Yellow River. This function made this project started very quickly in spite of the huge investment and considerable oppositions. The vice premier at this time, Deng Zihui reported to National People's Congress: “Once the Sanmenxia Dam completed its construction, the downstream of Yellow River would become clear in 6 years. We shall witness the wonder that our Chinese people who have dream this for thousands of years.” Additionally, another goal of the Sanmenxia Dam was the electricity production, which was also badly needed for political reason rather than economy demand. From Mao Zedong`s perspective, a communist society is just the combination of the soviet rule and the electrification. A great production of electricity symbolized as an

important indicator of a modernized country. Hence it was needed for China to produce large amount of electricity as portrayed in the political campaigns – rushing for realization of communism. The total installed capacity designed for Sanmenxia Dam was almost the total installed capacity of all the hydropower plants in 1949. Hence its construction was the best choice for this particular political reason.

Phase Three: 1980-2000 (Open-up and Reform and Privatization)

After the death of Mao Zedong, an alteration in the economic system was introduced by Deng Xiaoping, who came to the helm to reform the Chinese economy and government institutions. The purpose of the reform program was to increase the role of market mechanisms in the system and by reducing—not eliminating—government planning and direct control. Deng Xiaoping acknowledged that China had neither the budget nor the technical expertise to carry out the modernization goals. He opened up China to attract foreign investments and encourage development of a market economy and private sector domestically.

Million-dollar loans to develop China`s hydropower sector have been made via World Bank, Asia Development Bank, and foreign governments in this time period. With imported foreign technology, know-how and funding, China was enabled to build the dams that previously had been too difficult and expensive to undertake. The total installed capacity of hydropower increased from the 20.318 GW in 1980 to 77.085 GW in 2000, making China the second largest hydroelectric producing country globally.

In this time of period, the thermal power, mostly coal fired, remained the majority of the generating capacity. The number even increased to 72 percent by 1990. Thermal power was seen as a quick solution to energy needs, compared with the heavily investment in the initial stage of large size hydropower projects. Hence, hydropower

was still not listed as the top priorities to meet the needs for domestic economic growth. Even though, Chinese government accelerated the construction of large size hydropower plants for the sake of its comprehensive benefits: flood control, irrigation, water supply, aquaculture, and so on.

Flood control was heavily stressed in the purposes for constructing the Three Gorge Dam, the world's largest hydropower project in terms of installed capacity (22,500 MW). Construction began in 1993, the dam is intended to produce electricity, increase the shipping capacity on Yangtze River and reduce the potential for floods downstream by providing flood storage space. This project was considered by the Chinese government as a historic engineering with the design of state-of-the-art large turbines and significant social and economic success with its potential comprehensive benefits.

However, the dam became a controversial topic both domestically and abroad. Waves of oppositions to this project emerged. Their concerns included: the dam flooding archaeological and cultural sites; displacing some 1.3 million people, and causing significantly increased risk of landslides.



Fig. 2 The Three Gorges prior to dam construction²

² <http://www.ibiblio.org/chinesehistory/contents/07spe/specrep01s03.html>

Table 1 Debates among Hydrologists regarding the Three Gorge Dam

	Pro-Three Gorge Damming	Anti- Three Gorge Damming
Hydrologist Expert representatives	Qian Zhengying, Pan Jiazheng ect.	Li Rui, Huang Wanli ect.
Feasibility Voting Process	Majority	Minority; excluded
Narratives to the project	<ul style="list-style-type: none"> ● The project symbolized the great rejuvenation of the Chinese nation ● World`s largest dam demonstrating China`s advance in hydrology technology; ● The dam can prevent once-in-a-century flood for the downstream provinces; ● Increasing the shipping capacity on the Yangtze River ● Providing electricity to meet the needs for economic growth 	<ul style="list-style-type: none"> ● Billion dollar investment of the dam construction; ● Displacing millions of people; ● More than half million mu valuable farmland shall be inundated; ● The average cost per kw will be three times more than other large size hydropower plant; ● flooding archaeological and cultural sites; ● increasing earthquake possibilities ● Damaging the local environment: stagnant water and land slides

The general public was not involved or given any opportunity to express their concerns regarding the Three Gorge Project. The main debates regarding the Three Gorge Hydropower Project remained among the hydrology technicians. Both pro-damming and ant-damming groups came from the state hydrology department and scholars from the academic institutions. The pro-damming group took over the control of mass media and Chinese academic journals. None of the critics or oppositions to the project was allowed to publish.

Noticeably, China`s environmental civil societies just started to merge in late 1990s, yet to play a role in this debate. Series of environment degradation appeared in

China in late 1990s. There was a terribly flood on the Yangtze River in 1998. Exceptionally big sandstorms started to take place in Beijing every spring. Villages full of people with cancer were reported in the newspaper. All those events awakened the public's awareness of China's rapid deteriorating environment. Some local environmental non-governmental organizations started to be established among the technical scholars and intellectuals. Professor Liang Congjie co-established Friends of Nature with a university researcher and a writer. Liao Xiaoyi founded the Global Village in Beijing. Former journalists Wang Yongchen set up the Green Earth Volunteers in 1996. Those organizations have not yet developed powerful enough to influence the media to shape the public's opinion in this time of period.

To sum up, in this time of period the pro-hydropower institution, namely the Ministry of Water Resources and Electric Power and the Changjiang Water Resources Commission from the China's central government, accelerated the construction of large size hydropower plants mostly for the sake of its comprehensive benefits: flood control, electricity generation, irrigation, water supply, and shipping. The domestic oppositions came out from the hydrology technicians, who mostly concerned the negative impacts of the projects: the dam flooding archaeological and cultural sites; displacing millions of people, and causing significantly increased risk of landslides.

Phase Four: post 2000 (Decentralization and globalization)

With the decentralization of the state, China's economy skyrocketed since the introduction of market-oriented reform and opening up to foreign investment. China's economy grew at an average rate of 10% per year during the period 1990–2004, the highest growth rate in the world. In 2001, China becomes a member of the World Trade Organization after years of negotiations. With the further globalization, China's economy kept growing at a 8% rate. In 2011, China overtakes Japan as world's second-biggest economy. The soaring economy significantly

increased the demand for energy.

The increasing demand for electricity, along with the Chinese central government's push for reducing carbon emissions, is driving an aggressive hydropower development scenario that envisions up to 270 GW of installed hydroelectric capacity by 2015 and as much as 330 GW by 2020. Meanwhile, as China's potential hydropower capacity (estimates range up to 600GW, but currently the technically exploitable and economically feasible capacity is around 400GW) is only about 25-30% utilized, there remains much space for further hydro development. In comparison, hydro utilization in the U.S. currently is 80% and in Norway, Iceland, and other countries it is at over 90%. Hence, the hydropower development in China occurred at unprecedented scales in recent years. China's installed hydro capacity in the first half of 2009 reached 172GW and constituted about 24% of total power generation capacity. China became the largest hydroelectricity producer, with 721 terawatt-hours of production in 2010.

A series of large-scale hydropower development plans have been made to accelerate the construction. Technical, financial and institutional factors contributed to this skyrocketing together. China became technology viable as Chinese hydropower engineers rapidly mastered the key techniques through the experiences of building the Three Gorge Dam and many others. Those techniques included high roller compacted concrete dam construction technology, high speed flow dissipation technology, mechanized hydropower equipment manufacturing to build mega dams. China was also able to start producing large scale hydropower units, equipments and parts domestically. China no longer need import the key equipments from international markets and employ the engineers and technicians from abroad. Financially, China did not have to loan from International financial institutions or other countries to invest in the construction, as China's economy developed at the astonishingly high rate. China accumulated tremendous financial reserves rapidly. Private funds were also allowed to invest in hydropower section in the new reform.

All together, those financial barriers were removed to build these dams by China independently. Institutionally, the hydropower sector was decentralized from a government administration to five state-owned corporations. Competition has been introduced among different corporations in all the different levels of the hydropower plant construction. Public bidding system and client-oriented system replaced the traditional government dominance in the project construction, which significantly shortened the time limit for a project.

However, the oppositions to the hydropower schemes also rapidly grew in this time of period, particularly regarding the hydropower projects over the Lancang River, Nu River and Jinsha River. Among them, the controversy of the Dam plan on Nu River have become a historical case regarding the intensive struggle between the pro-damming groups and anti-damming groups. The case also significantly changed the decision-making scenario, in terms of the civil engagement in the hydropower development schemes.

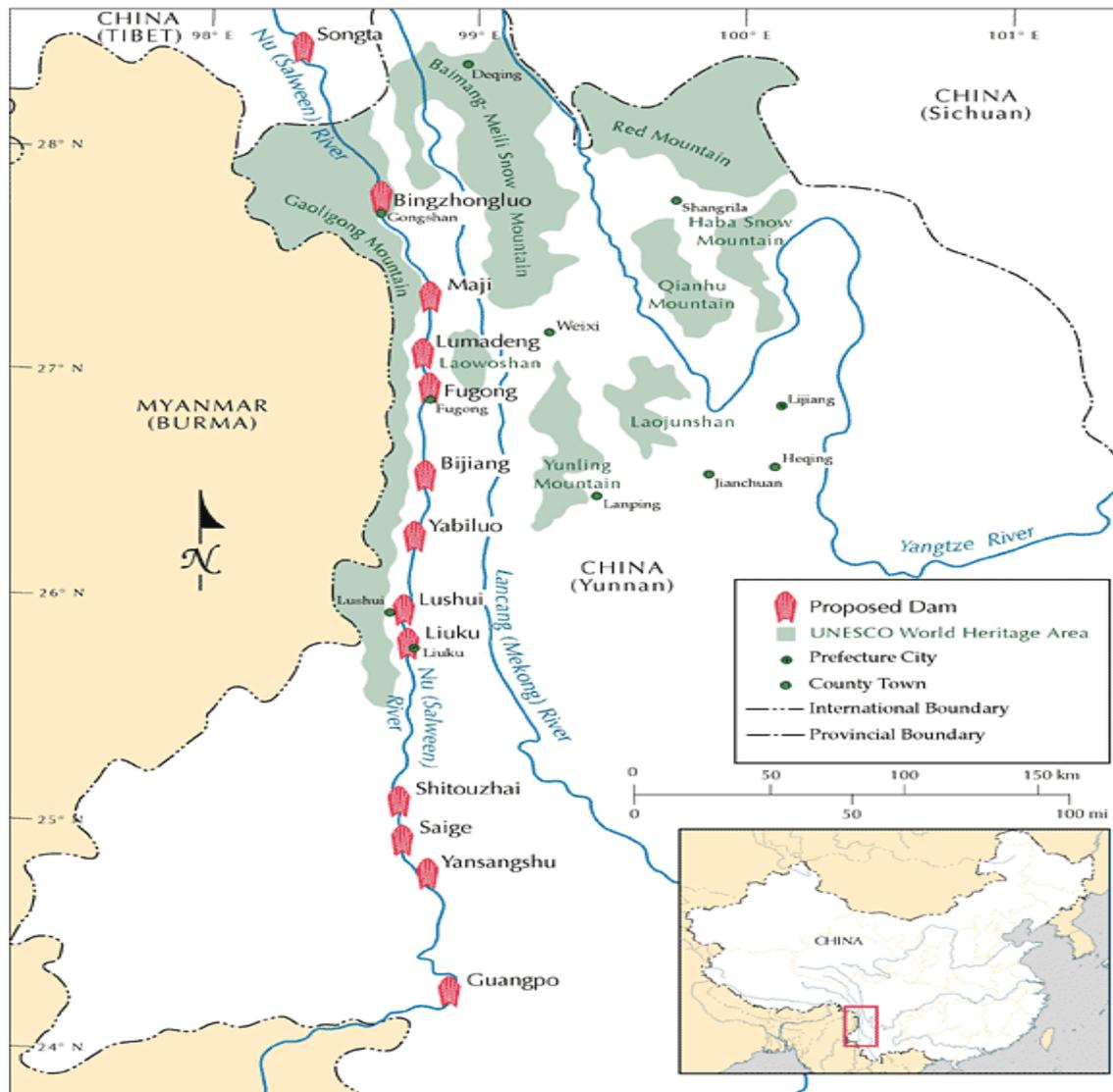


Fig. 3 Proposed Hydropower Dams on the Nu River³

The Nu River, which begins in the Himalayas and snakes its way along the far western edge of Yunnan before entering Myanmar and Thailand, is one of the few major Chinese rivers yet to be dammed. The Chinese government says total potential capacity on the river could stand at 42 gigawatts. In 2003 one proposal about 13-dam cascade construction on Nu River was submitted to Central Government in China. The proposal aroused intensive debates on many aspects concerned with the dam construction including ecological loss, population migration, local development and indigenous minority people's livelihoods, which attracted national-wide attention,

³ http://internationalrivers.org/files/images/nu_map_pol_0.gif

and brought further arguments toward the essential question, how to balance the burgeoning need for energy with the environmental protection increasingly demanded by the general public.

Unlike the debates on Three Gorge Dam, which remained secrets to the public, there have been intensive public debates between the two groups resulted from the active engagement of the environmental NGOs. They showed up and questioned the pro-damming experts in their public talks. They mobilized the mass media to disseminate the project plans and their potential impacts. They collected over 10,000 signatures that petitioned against the project. They successfully made the hydropower projects as environmental-unfriendly among the mass media and general public. Chinese Premier Wen Jiabao suspended the Nu river hydropower project in 2006, which was considered the first time in China that the green NGOs had successfully challenged the Chinese central government's decision.

Table 2 Debates regarding the Nu River Hydropower Plan

	Pro- Damming	Anti- Damming
representatives	Hydrology experts affiliated with hydroelectric companies	Academic professors from different fields; Environmental NGO leaders
Public opinion Influence	Losing its conventional discourse control	More nuanced in the media exposure

Narratives
to the
project

- Nu River is not pristine any more. There existed dam constructed in the Tibet section, and there have already been lots of human intervention activities in Yunnan Section. A pristine river should be free of dam and human interventions from the beginning to the end;
 - The ecosystem less than 2000 meters in Nu River Gorge has already been damaged seriously. The main reason for this damage is plantation on the steep slopes, opening farming land from forest, and large-scale tree cutting. The migration of the local people for the hydropower dam construction will solve these problems;
 - The hydropower dam construction is not in conflict with the World Heritage preservation. The eight preserved area for World Heritage Site all allocates above 2500 meters, but the highest dam planned is 1570 meters
 - The Three Parallel Rivers is a unique natural resource formed in the long-term earth evolution process, and has been listed in the UNESCO World Heritage Site. It is important to preserve the heritage. The promise to the World Heritage Site should be kept.
 - Nu River is an important river to link the fresh migration water fish families in China and Southeast Asian Countries.
 - Due to the active geological structure in this region, the dam on the main stream will possibly cause soil erosion, mud-rock flow, and earth quake.
 - The dam construction will displace large amount of ethnic minority farmers, and increase vulnerability of local people`s livelihoods.
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In recent years, the hydropower companies and their supporting technicians were confronted with new waves of challenges, as the opposing hydropower groups expanded not only among the rapidly emerged environmental civil societies, a wider range of academic intellectuals, but also inside of the decentralized state branches. The recent hydropower plans on Jinsha River are the example of demonstrating the new challenges and intensified debates.

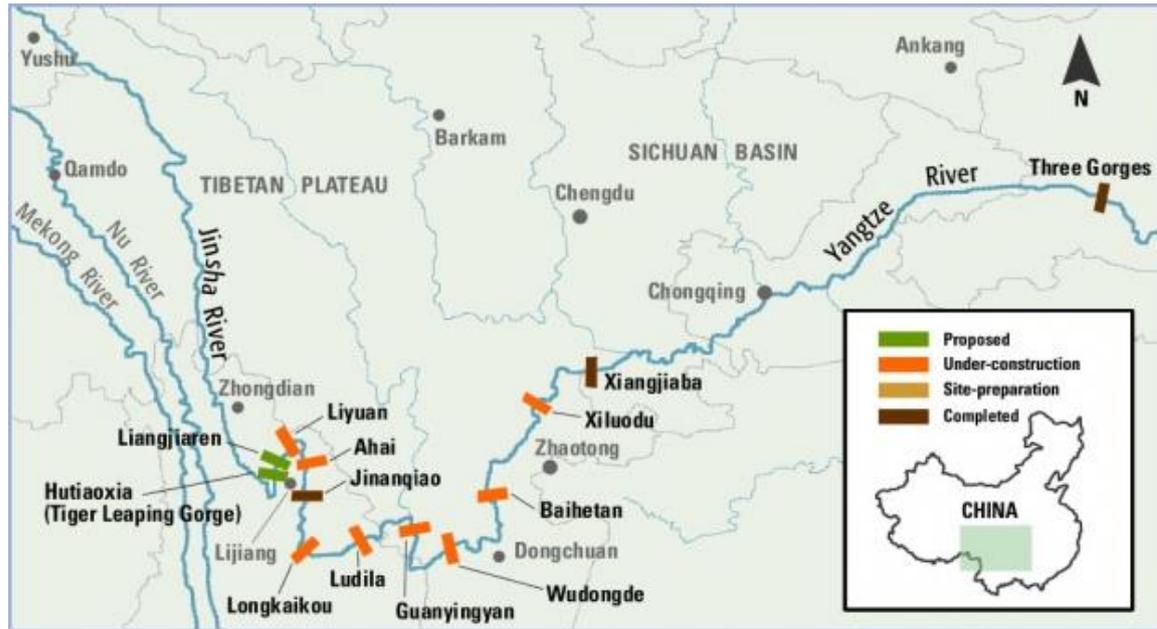


Fig. 4 Hydropower Projects on the Jinsha River⁴

Firstly, a law requiring government to properly conduct environmental impact assessments (EIA) for public infrastructure projects was passed in 2003. The hydropower projects have to be subject to this law. In 2009, The Ministry of Environmental Protection halted two hydropower plants construction on the Jinsha River. In 2010, Ling Jiang, the vice director of pollution prevention and Control Division in the Department of Environmental Protection, made a statement that, from a certain point the hydropower could result in more serious pollutions. The statement attracted attacks from the government officials of National Power Administration, and the pro-hydropower activists from the Chinese Society of Hydroelectric Engineering.

Secondly, more and more critical oppositions came out from different scientific fields. In February 2011, four geologists wrote to the State Council leadership opposing the damming in Yunnan for geological reasons. Signatories included Xu Daoyi of the China Earthquake Administration, Sun Wenpeng of the China National Nuclear Corporation's Beijing Research Institute of Uranium Geology and Li Dongxu, professor

⁴ <http://www.internationalrivers.org/resources/map-of-jinsha-river-hydropower-projects-4584>

at the China University of Geosciences.

Thirdly, the general public, particularly from the internet users, have been mobilized to form a virtual community which asked for more transparency regard the hydropower plans and the decision-making process. In recent years, online social media has quickly grown more widespread and relevant, providing an important tool for general public to influence policy. In the new social media, and even conventional mass media, hydropower has been labeled as “environment-unfriendly”. The Chinese citizens, who became much more concerned about the rapidly degraded environment, are increasingly active to demonstrate their collective actions in order to influence policy. The new national wide grass rooted environment movement via the new social media will significantly increase the support to the anti-damming groups in debating with the hydropower development issues.

Fourthly, the oppositions from the environmental activists also become diversified, which significantly increased their credibility regarding some specifics of the arguments in the debate. In recent years, new arguments from the opposition groups keep growing. By refuting “hydropower generating clean energy”, Ma Jun, the director of the Institute of Public and Environmental Affairs, argued that the hydropower project is very likely to trigger a new wave of high energy-consuming industrial development in south-west China, because local government plans to use the newly generated electricity to exploit the area’s rich mineral resource. Also Ma Jun’s research shows that in many areas of Yunnan province, to adjust the unstable electricity generated from hydropower, coal-fired power plants of the same scale are built up as back up. That will be adding the carbon emission, hence to exacerbate the air pollution

Generally, in this time of period the pro-damming groups included the five state-owned hydropower corporations, the local governments in provincial and prefectural levels,

and the activists from the Chinese Society of Hydroelectric Engineering. Their main narratives is that hydropower is clean energy, and it should be the best choice to develop to offset the CO2 emission made by the coal burning industries, thus contribute to China's promise to the global climate change action plan. The oppositions come from diversified groups, the state Department of Environmental Protection, the environmental NGOs, intellectuals from various academic backgrounds, independent scholars, and Internet activists via the new media. The oppositions mostly targeted on: the pollutions caused the by the construction and the damming, the poverty caused to local people by displacement, the negative impact on fish biodiversities, and the geological consequences.

3 Conclusions

From 1911, when the first hydropower plant in Yunnan completed construction, to 2010, when China became the world largest hydropower generation country, the hydropower has gone through almost its century history in China. The skyrocketing development of China's hydropower plants wasn't even and smooth. It came along with the turbulent national political ideology transitions, the complexity of different energy sectors' contention for national strategic plan's priority over the years, the awakening of the technique experts and general public's awareness on the environmental risks, and at the vast scale socio-economic costs of the millions of migration as the affected population.

The development of hydropower sector in modern China is deeply contextualized in the China's ideological transitions in different historical periods. Since from 1980s, as the central government set up the ideology of reviving China through science and technology, mastering of hydropower engineering technology remained one of the main arguments for the pro-hydropower institutions to legitimize their attempts. The fast changing global context also sets opportunities for legitimating China's

hydropower development schemes in recent years. Pro-hydropower institutions often stress hydropower as clean energy which will reduce the CO₂ emission and thus contribute to China's commitment to the global climate change action plans. The third narrative from the pro-hydropower institutions is that hydropower plants could provide comprehensive benefiting plan for the local economy besides electricity producing: flood control, irrigation, water supply, aquaculture, and so on. Because pro-hydropower institutions were state agencies for a long time, they used to control the public opinions by dominating the conventional discourse channels, including the government document, academic papers, newspapers and the TV news. As transitioned to market-oriented state-owned enterprises in recent years, the discourse control by the pro-hydropower institutions has been loosening up.

Oppositions to the hydropower development schemes emerged in early 1990s regarding the Three Gorge Dam project. Fast growing public debates and engagement of civil societies increased since from the disputes on Nu River dam plan in 2005. With the fast growing social media in the internet, the con-hydropower groups expanded rapidly from a handful technical experts, to the intellectuals from different academia fields, to a significant number of NGOs and now a large quantities of anonymous internet users. Their narratives to hydropower projects often target on the socioeconomic vulnerability and environmental and ecological damages of the large size of the hydropower dam construction. The con-hydropower activists have already dominated the new media via the internet thus influenced the public opinions significantly.

As the hydropower schemes accelerated over Jinsha River in recent years, the competitions among the discourses of hydropower dam constructions have been intensified accordingly. State hydroelectric corporations confronted with fast growing challenges from the environmental civil societies and other state environmental regulating agencies unexpectedly. Waves of contentions for legitimizing their respective narratives have frequently come up in both conventional and new media.

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