



CHARTING NEW PATHWAYS TOWARDS INCLUSIVE AND SUSTAINABLE DEVELOPMENT OF THE NU RIVER VALLEY



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Green Watershed is an NGO based in Kunming, Yunnan Province, China. It works towards participatory and integrated watershed management, gradually establishing it as a model for sustainable development in Western China, supported both by the government and by NGOs (www.chinagreenwatershed.org).

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Cover image

The first bend of the Nu River (Credit: Sun Min).

This report

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Acronyms

CPPCC	Chinese People's Political Consultative Conference
CPCCC	Communist Party of China Central Committee
EIA	Environmental Impact Assessment
FYP	Five-Year Plan
MEP	Ministry of Environmental Protection (formerly SEPA)
MLR	Ministry of Land and Resources
MOA	Ministry of Agriculture
MOFA	Ministry of Foreign Affairs
MWR	Ministry of Water Resources
NEA	National Energy Administration (under NDRC)
NDRC	National Development and Reform Commission
NPC	National People's Congress
NPG	Nujiang Prefecture Government
MOHURD	Ministry of Housing and Urban-Rural Development (formerly Ministry of Construction)
PRC	People's Republic of China
SASAC	State-owned Asset Supervision and Administration Commission
SEPA	State Environmental Protection Administration (now MEP)
SFA	State Forestry Administration (formerly Ministry of Forestry)
SEA	Strategic Environmental Assessment
SIA	Social Impact Assessment
SOE	State-owned Enterprise
TAR	Tibet Autonomous Region
YPG	Yunnan Provincial Government

Note:

All translations of the contents of People's Republic of China documents are unofficial translations to be used for reference. Authoritative versions of government documents are the original Chinese language versions.

Executive Summary

Development comes at a cost, but what that cost is and who bears that cost is not set in stone. China's rapid economic ascent has lifted hundreds of millions out of poverty, but it has also precipitated severe ecological crises. In many cases, a "pollute first, clean up later" mentality towards industrialization has led to inequitable and unjust outcomes for both people and the environment. The Chinese government's efforts on maintaining high economic growth rates in an effort to modernize the economy and society has in many cases obscured the scale of damage done to the environment, though the Chinese government and other institutional actors are actively taking steps to mitigate and alleviate issues of environmental degradation. The story of the Nu River, also known as the Salween or the Thanlwin, illustrates how hydropower development on the river was actively contested and resisted by diverse stakeholders, opening up possibilities for other kinds of water resource management and development.

The diverse political-economic agendas of Chinese government actors including national Ministries, local bureaucrats and state-owned enterprises, as well as those of non-state actors such as civil society groups, scholars and environmentalists, have led to the articulation of various development models for the governance and management of lands, waters and ecosystems in China. The authors analyze such development models for the Nu-Salween-Thanlwin River basin, home to over 10 million people across China, Myanmar and Thailand, through a pathways approach, charting the historical and contemporary political-economic drivers and rationales shaping water governance, and how those factors play out in policy and practice.

Whichever development pathway is realized for Nu River within China's borders will have ripple effects far beyond national boundary lines, as China's policies (and their implementation) have wide-ranging impacts on communities and ecosystems in neighboring countries. By mapping out and analyzing these divergent pathways in this report, we consider how decision-making processes of water governance in China can be opened up to a wider array of stakeholders with a more diverse range of values and forms of knowledge. By building upon the historical trajectories of these pathways and how they shape options in the present, and by understanding how stakeholders support and contest different development narratives, we articulate how alternative visions of development can be realized in the Nu-Salween-Thanlwin basin.

Through an extensive review of scholarly literature, policies and legal frameworks, key informant interviews and practical experiences, the authors have identified six potential pathways:

1. The Large-scale Hydropower pathway is predicated on the central government's economic development strategy at the time – the Western Development strategy. Through a scheme to send hydropower energy from China's Western rivers to its Eastern industries, the West-East Electricity Transfer Project would facilitate economic growth in the Nu River valley while fueling industry on the Eastern seaboard. Given the gorge-like topography of the Nu River valley and a 4,000 m drop in the river's elevation before leaving China's borders, initial plans in 2003 included a 13-dam cascade that would exploit a majority of the 36,400 MW of potential hydropower in the Nu River mainstream – however, the State Environmental Protection Agency (now MEP) objected to its approval. Proponents of the dams argued that

socio-ecological and geological risks were unfounded and that hydropower development was necessary to grow the local economy. After then-Premier Wen Jiabao suspended hydropower plans in 2004 (and again in 2012) as a result of concerted civil society opposition, by the advent of the 13th Five-Year-Plan in 2016, the government's and developers' enthusiasm for large-scale hydropower development on the Nu River had gradually diminished over time, coinciding with the recent shift of energy markets from shortage to surplus, and the corruption-related arrests of several top officials who supported hydropower on the Nu River. However, large-scale water infrastructure plans remain on the table.

2. The Civil Society Protection pathway emerged largely in response to plans to dam the Nu River, in order to promote environmentally sustainable and locally equitable development models. Key civil society groups include Green Earth Volunteers and Green Watershed, among other environmental organizations that emerged in the mid-1990s and 2000s, which worked together with sympathetic academics, government officials, political delegates and others to draw attention to the dams' potential impacts on social harmony and environmental health, as well as developers' regulatory and procedural violations. The Nu River protection campaign by civil society was a key factor in then-Premier Wen Jiabao's suspension of the projects in 2004. Continuous efforts since 2002 by civil society groups to improve governance of the Nu River have focused not only on biodiversity conservation, but have also emphasized creating a political space in which the public participation of and socioeconomic impacts on marginalized communities are incorporated into decision-making processes.
3. The Small-scale Hydropower pathway grew quickly out of the delays in the large-scale hydropower development process, as a means for the Nujiang Prefecture government to rapidly connect rural populations to electric grids and to earn tax revenue from power generation. As of 2011, at least 90 small hydropower stations that comprise a total installed capacity of 994.4 MW are reported to be operating or under construction on the Nu River's tributaries, largely unregulated and loosely monitored due to the lack of attention to small hydropower projects. Though the small hydropower pathway has led to the full electrification of Nujiang Prefecture by 2012, the cumulative ecological impacts of extensive damming or diversion of tributary waters has proven to be severe, and sustainable economic benefits for locals have proven to be elusive, as many of the small hydropower stations are privately owned by investors from other provinces. In 2016, the Yunnan Party Secretary prohibited all further development of small hydropower and mining, in an effort to promote environmental protection towards the aim of establishing a national park.
4. The National Parks and Protected Areas pathway is based upon the rich biodiversity of the Nu River valley, which comprises a range of forest ecosystem types in a small geographic area. In 2003, UNESCO's World Heritage Committee listed the Three Parallel Rivers of Yunnan Protected Areas as a World Natural Heritage site, including sections of the Nu, Lancang-Mekong and Jinsha-Yangtze Rivers. However, the area's status as a World Natural Heritage is threatened by increasing infrastructure development for energy, transportation and tourism. Though plans for national park development were set in motion in the early 2000s, environmental protection has only received dedicated attention and prioritization at the

national level during the 2010s. In 2016, the Yunnan government formally approved the establishment of the Nu River Grand Canyon National Park. However, the boundaries of protected areas (like the Gaoligong Mountain National Nature Reserve, and the Nu River Grand Canyon National Park) in the Nu River valley begin at higher elevations ranging from 1,000-2,500 m above sea level, which allows for development in the areas below those elevations, including hydropower or other types of water infrastructure on the Nu River mainstream. As such, national park governance and management structures' implications for communities in the Nu River valley remain unclear.

5. The Multi-Purpose Water Management pathway is one that is still emergent, and has yet to be fully articulated beyond proposed projects in the 13th FYP. Given the shift in energy markets, it appears as though multi-purpose water management infrastructure developers, which overlap heavily with hydropower dam developers, are framing the projects as a means of controlling floods and managing irrigation for agriculture in the Nu River valley's lower reaches in Baoshan Municipality. The three projects outlined in the 13th FYP include the Fugong, Lushui and Saige dams, which would be repurposed to include others functions beyond power generation. An "Integrated River Basin Plan" has been drawn up for the Nu River since 2011, but the plan has not been publically disclosed. Such large-scale water management structures would also have adverse impacts on river ecosystems and local communities, but little information has been released to the public.
6. The Energy Reform pathway will determine the backdrop against which the other Nu River pathways will play out. The 2002 reform of a large SOE that controlled both power generation and power transmission capacities into the big five power generation SOEs and two transmission grid SOEs was carried out in a bid to increase efficiency. Due to the energy market being state-controlled, the power generation companies were inclined to focus their efforts on acquiring market share and developing any and all available energy sources, including hydropower, instead of increasing efficiency of each power station. The combination of the Western Development strategy, the West-East Electricity Transfer Project and the distorted market incentives for power generation SOEs led to a "river-enclosure movement" in Southwest China, which ultimately resulted in a glut of hydropower generated electricity, far in excess of actual demand. The Southwest hydropower boom, where Yunnan's total installed hydropower capacity increased from 9.9 GW in 2009 to 43 GW in 2015, coincided with a slump in energy demand, as production slowed down across China. The State Asset Supervision and Administration Commission is in the process of consolidating the various power generation SOEs into a few giant energy SOEs, in order to better manage and coordinate the currently disorganized and overcapacity power generation market. However, as a renewable energy, hydropower still figures into the central government's plans to reduce coal consumption.

While these pathways constitute significant current practices and policy debates in China, we do not claim that these are the only pathways that exist. Hydropower development is a key driver that could drastically alter the river basin, but there are a number of factors at play that could influence the outcomes of these various pathways. This report presents an analytical framework for exploring future

pathways that will be most conducive to fostering the genuinely sustainable, equitable and harmonious development of society in a way that preserves resources, both biophysical and sociocultural, for future generations.

The Chinese government is beginning to adjust its power generation and consumption patterns towards a less carbon-intensive economic model, and its recent actions in restricting thermal power plant development demonstrate the state's commitment to transitioning to less carbon-intensive forms of energy production, and increasing the efficiency of current energy production units. In light of the central government's "ecological civilization" strategy, this new normal has major implications for the hydropower development plans on the Nu River, which have not been definitively taken off the table.

The authors recommend that, given that previous hydropower and integrated river basin plans for the Nu River have been formulated in an era where distorted market incentives biased government actors and developers towards hydropower development, the government should release such plans to the public to solicit their views and perspectives, in the interests of maintaining social harmony and order. Development plans for rivers that were formulated before the newest policies were enacted should be suspended and reviewed, in order to avert further disorderly and inefficient development.

In order to ensure that water governance be inclusive, the authors recommend that the government work to increase the transparency and accessibility of development plans for various initiatives, such as large-scale hydropower or water management infrastructure, as well as national park and protected areas establishment. Another important factor in maintaining social stability and working towards a moderately prosperous society for all nationalities, is the safeguarding of ethnic minority and indigenous people's rights. Due to sociocultural differences, such peoples are liable to be systematically marginalized in land, water and natural resource decision-making processes.

The authors recommend that the government, at national, provincial and local levels, engage in the institutionalization of socioenvironmental standards and participatory processes throughout large-scale infrastructure and economic development project work. Through the diversification of voices and perspectives in decision-making processes and the strengthening of public participation in land and water governance in the Nu-Salween-Thanlwin River basin, in line with the "Core Socialist Values," the local communities can benefit from environmental protection in a manner that is rational and mutually beneficial. Such steps would move the nation closer to the government's goals of sustainable development and ecological civilization, ensuring that transboundary water governance can be beneficial for all those who rely on the waters of the Nu-Salween-Thanlwin River.

Chapter 1: Introduction

The Nu-Salween-Thanlwin is an international river shared between China, Myanmar and Thailand. Flowing from the Tibetan Plateau through Yunnan Province in China, along the Thailand-Myanmar border, passing through Shan, Karen, and Karenin States in Myanmar and emptying into the Gulf of Martaban in Myanmar's Mon State, the Nu-Salween-Thanlwin River is free flowing on its mainstream.

There is great socio-economic, cultural and political diversity within the Nu-Salween-Thanlwin basin, which is estimated to support the livelihoods of more than 10 million people.¹ Within the China portion of the Nu-Salween-Thanlwin basin, there are an estimated 4 million people living in Yunnan and Tibet, many of whom are ethnic minorities in China, including the Blang, Palaung, Nu, Lisu, Drung and Tibetan peoples. As the hydrology of the river basin has been largely undisturbed, there is remarkable and unique biodiversity throughout the basin, particularly in northwest Yunnan.

The Nu River valley in China has long been known as one of the most remote corners of the country, alternately known as impoverished and backwards while being pristine and bountiful. In the early 2000s, hydropower development on the Nu River became a focal center of public attention in China when a nascent environmental protection movement opposing the dams formed across the country. In a hotly contested debate over the development of the Nu River basin, environmentalists challenged the hegemony of hydropower developers in determining futures for the people and landscapes of the Nu River valley. The case of the Nu River dams illustrates the development-environment paradox that has become commonplace in China's public discourse, capturing the imagination of many observers in both China and abroad.

In a country that was rapidly industrializing and flourishing economically, the Nu River was a flashpoint for a growing chorus of civil society voices that criticized the "pollute first, clean up later" mentality of China's development model. While hydropower presented an attractive option as a renewable energy and the government envisioned tax revenue from power generation as a means of stimulating economic development, environmental groups and scholars called attention to the potentially far-reaching ecological and social impacts of such projects. As one of the last rivers to not have a dam on its mainstream and as part of a World Natural Heritage area, the Nu River created a particularly compelling case for the civil society groups that opposed disorderly hydropower development.

Thus far, though no large-scale dams have been constructed on the mainstream of the Nu River, dozens of small hydropower stations have been constructed on many of the tributaries in Yunnan, affecting the hydrology of the river's mainstream. With the central government of China increasingly emphasizing environmental protection, particularly through the creation of a national park system, beginning in Yunnan, another pathway has been presented for the Nu River. As the public in China becomes increasingly conscious of environmental and health impacts of industrialization, the government has become increasingly attentive to addressing environmental problems and valuing ecosystem health against economic growth.

¹ Johnston, R. et al. (2017). "State of Knowledge 6: River health in the Salween".

The Nu-Salween-Thanlwin River basin is at a historic cross-road. Given that the basin does not yet have extensive infrastructure development and many decision-making processes are still ongoing and contested, the opportunity to deliberate many alternative visions for the Nu-Salween-Thanlwin basin remains open.

In this report, we show how many different visions for the Nu River exist, each associated with a different “pathway”² of policy and/or practices. In China, we explore the historical trajectory of several pathways, including 1) Large-scale Hydropower; 2) Civil Society Protection; 3) Small Hydropower; 4) National Parks and Protected Areas; 5) Multi-Purpose Water Management; and 6) Energy Reform. These development pathways are animated by numerous dynamics and tensions between different actors in government, civil society, media and private sector. While some pathways are complementary to each other, other pathways require trade-offs.

Overall, we analyze these pathways through the lens of a political economies of water resources and their historical context. Thus, we consider the agency of actors (interests, strategies, ideas), their power asymmetries, and the structures within which they act (formal and informal institutions, rules, norms), including economic structures, in exploring the process of decision-making towards water and related resources. Thus, the analysis also contributes towards understanding water governance in China, and in particular in the Nu River basin.

With a focus on China’s role, the purpose of this report is to map out the economic and political drivers and rationales, as well as their potential impacts, that shape water governance in the Nu River basin. In doing so, we intend to address some of the gaps in knowledge on water, land and energy use, management and governance in the basin. This report is complemented by two other reports that undertake similar analysis in Myanmar³ and Thailand⁴. This effort to place the pathways of the respective countries into relation with one another is intended to consider the implications for transboundary governance of the Nu-Salween-Thanlwin River.

Given that some pathways have historically been given privileged consideration by national-level government policy makers, in particular for large hydropower dams, while others are largely side-lined from mainstream political debate, we analyze how visions are being formulated and acted upon, including through an analysis of the decision-making processes and the inclusion or exclusion of particular stakeholders within them.

The goal of this report is to catalyse more inclusive, informed and accountable decision-making, ensuring that the rights and entitlements of marginalized communities are recognized. Responsible and rational water governance in a changing climate is crucial to safeguarding the ecological cycles that sustain human relationships with land, forests and rivers.

The report is structured as follows. In Chapter 2, the research methodology is outlined, and in Chapter 3 a brief outline of the conceptual “pathways” approach detailed. In Chapter 4, background is provided

² Leach, M., I. Scoones and A. Stirling. (2010). “Dynamic Sustainabilities: Technology, Environment, Social Justice”. Earthscan.

³ Middleton, C. and A. Scott. (*forthcoming*). Myanmar

⁴ Middleton, C. and R. Irven. (*forthcoming*). Thailand

on the Nu River in China, including its geography, political geography, natural resources and biodiversity, people and livelihoods, and geopolitics. In Chapter 5, policies and legal frameworks relevant to the Nu River basin and water resources are reviewed. In Chapter 6, an analysis of institutions and actors is given. In Chapter 7, the six development pathways are described and critically analyzed in detail. In Section 8, conclusions and recommendations are made.

Chapter 2: Methodology

This report draws on primary data collection undertaken in China, complemented by an extensive literature review of existing studies and policy analysis. In brief, the methodology entails the following:

- A review and analysis of relevant policy, legal frameworks and operational guidelines at the intersection of water-energy-environment.
- An institutional and actor analysis related to government agencies, private sector actors, and civil society groups, which draws on in-depth interviews, focus groups and literature reviews.
- An analysis of identified pathways in China, including each pathway’s decision-making processes, stakeholder networks, history and political economy.

One-on-one and group interviews were conducted with approximately 100 residents of the two Nu River valley communities to understand their livelihoods in relation to the Nu River and its tributaries. Key informant interviews were conducted with government officials, scholars and academics, and non-governmental organizations, as follows:

Table 1. List of organization and institutions

Organization/Institution
Green Earth Volunteers 绿家园
International Rivers 国际河流
National Reform and Development Commission, Foreign Economic Research Institute, International Economic Cooperation Office 国家发改委对外经济研究所国际合作室
National Reform and Development Commission, Institute of Energy Conversion, National Center for Climate Change Strategy and International Cooperation 国家应对气候变化战略研究和国际合作中心、国家发改委能源研究所
National Energy Administration, New and Renewable Energy Department 国家能源局新能源司
China Renewable Energy Engineering Institute 水电水利规划设计总院
Chinese Academy of Social Sciences, Environmental Research Institute 中国社科院环境与发展研究中心
China Institute of Water Resources and Hydropower Research 中国水利水电科学研究院水力学所
Tsinghua University, Modern China Studies 清华大学当代中国研究中心
Hengduan Mountain Institute 横断山研究会

Table 1. List of organization and institutions (continued)

Organization/Institution
Sichuan Geological Exploration Bureau 四川地矿局区域地质调查队
China Earthquake Administration, Institute of Geology 中国地震局, 地震研究所
Beijing Research Institute of Uranium Geology 核工业北京地质研究院
Friends of Nature 自然之友
ChinaDialogue 中外对话
Shanshui Conservation Center 山水自然保护中心

Chapter 3: Conceptualizing a “pathways” approach

In this report, we explore various “pathways” for the Nu-Thanlwin-Salween River. A development pathway can be understood as a particular combination of environmental, social and technological factors and how they interact over time, including:⁵

- The types of government institutions and policies that exist that make decisions, and how participatory they are?
- The role of non-state actors, and what types of issues it is possible to discuss or not discuss?
- What types of businesses exist, and how accountable they are both to the public and the government?
- The choice and use of technology: for example, large dams versus small-scale renewable technologies?
- The type of knowledge that is considered as valuable and important in decision-making processes – for example, scientific knowledge versus situational (local) knowledge? This also relates to which knowledge is produced, and how assessment tools are used such as Environmental Impact Assessments.
- How fair are outcomes of pathways, for example in terms of addressing poverty, reducing inequality, and ensuring social justice?

Overall, the analysis of pathways is a useful heuristic tool to render visible options that exist - or that are proposed – and hence to evaluate their implications for a range of policy goals for the future.

Pathways are often contested between coalitions of stakeholders who will produce “narratives” to represent and legitimize the pathway that they support, whilst delegitimizing those that they challenge. Hence, in analyzing pathways, attention must be paid to the networks of stakeholders producing narratives, power (asymmetries) between them, and how these narratives are “framed.” In decision-making around pathways, the government is an important actor. Yet, multiple stakeholders are in practice involved in supporting or opposing particular pathways, such that analysis must move beyond the state as the principal actor.⁶ Relatedly, alongside the formal law most closely associated with the government, it must be recognized that a plural array of rules and norms related to resource governance are in play across the region, including, for example, international human right principles, commitments to international agreements such as the Convention on Biological Diversity, and various “voluntary best practice” advocated for by businesses and civil society.^{6,7} Acknowledging this “legal pluralism” enables an appreciation of the diverse values claimed and strategies deployed by stakeholders in support of or opposition to particular pathways.⁸

⁵ Leach, M., Scoones, I., & Stirling, A. (2010). *Dynamic Sustainabilities: Technology, Environment, and Social Justice*. Abingdon: Earthscan.

⁶ Dore, J., Lebel, L., & Molle, F. (2012). A framework for analysing transboundary water governance complexes, illustrated in the Mekong Region. *Journal of Hydrology*, 466–467(0), 23-36. doi:<http://dx.doi.org/10.1016/j.jhydrol.2012.07.023>

⁷ Middleton, C., & Pritchard, A. (2016). Arenas of Water Justice on Transboundary Rivers: A Case Study of the Xayaburi Dam, Laos. In D. J. H. Blake & L. Robins (Eds.), *Water Governance Dynamics in the Mekong Region* (pp. 55-90). Petaling Jaya: Strategic Information & Research Development Centre.

⁸ Boer, B., Hirsch, P., Johns, F., Saul, B., & Scurrah, N. (2016). *The Mekong: A Socio-legal Approach to River Basin*

The dynamics of (de)centralization are also important to consider. In China, the relationship between the central government and its agencies, and the provincial level and prefecture level has emerged as a key dynamic in the pathways pursued.⁹ Meanwhile, downstream in Myanmar there are overlapping claims for political authority, and legitimacy, and associated territorial and resource governance claims between the central government and ethnic political parties and associated armed groups.¹⁰

It is also important to consider that the possibilities for any future pathway depends in part upon the legacy of the past. For example, past decisions taken to invest in large power projects and a high voltage transmission lines building a national grid increase the likelihood of more large power projects in the future. This is for a range of reasons, from economic consideration of sunk costs, to how existing physical and institutional infrastructure shapes future options as perceived by the relevant government agencies, as well as longer term and more subtle factors, such as how it shapes university programs that produce the next generation of professionals and hence the future expertise available.

The above considerations help us appreciate that the choice of one pathway, and the dismissal of another, is inherently and inevitably a political process. Multiple pathways exist at the same time in different “publics.”¹¹ The decision to move from one pathway to another is not necessarily a zero-sum game, and whilst there are many possible alternative pathways, not all are considered equally given that some stakeholders have more power, resources, and claims to legitimacy than others.¹² Yet, as emphasized by Leach et al (2010), rendering visible marginalized alternative pathways is a first important step towards “opening up” and “broadening out” decision-making processes, and thus working towards inclusive and just decision-taking.

Development. Abingdon and New York: Earthscan.

⁹ Magee, D. (2006). Powershed Politics: Yunnan Hydropower under Great Western Development. *China Quarterly*, 185, 23-41.

¹⁰ South, A. (2018). “Hybrid Governance” and the Politics of Legitimacy in the Myanmar Peace Process. *Journal of Contemporary Asia*, 48(1), 50-66. doi:10.1080/00472336.2017.1387280

¹¹ Fraser, N. (1990). Rethinking the Public Sphere: A Contribution to the Critique of Actually Existing Democracy. *Social Text*, 25/26, 56-80.

¹² Geels, F. W. (2014). Regime Resistance against Low-Carbon Transitions: Introducing Politics and Power into the Multi-Level Perspective. *Theory, Culture & Society*, 31(5), 21-40. doi:10.1177/0263276414531627

Chapter 4: Background to the Nu Basin in China

In this chapter, we provide an overview of the geography, history, economy, and geopolitics of the Nu River basin in China. Within China's borders, research on the Nu River has typically been conducted on biophysical aspects of the basin, in particular its ecology, hydrology and geology. Cultural studies have also been carried out in this region of China, with high proportions of the population being comprised of non-Han ethnic groups. Less understood are the biophysical processes of the uppermost reaches of the river, which are located in the remote mountains of the Tibetan Plateau.

4.1 Geography

The Nu River is one of China's sixteen major international rivers. From its glacial source near Jiregebo Peak of the Tanggula Mountain Range in the central Tibetan Plateau, it flows southwest, where it is called the Sangqu, before flowing into Tsonag (Cona) Lake, then into the adjacent Ganong Lake.¹³ From Ganong Lake, the river flows eastwards and is known as the Nagqu, before flowing eastwards and becoming the Nu River. The Nu River bears the distinction of being one of the few remaining large rivers that is free-flowing on its mainstream. Crossing into Myanmar from Mangshi City in Yunnan, it flows through Shan and Karen State, and passes through the border of Myanmar and Thailand, before reaching the Andaman Sea in Mawlamyine. The total length of the Nu-Salween-Thanlwin is approximately 2,800 km.¹⁴ Within China, the Nu River is 2,020 km long, of which 1,400 km is in the Tibet Autonomous Region and 620 km in Yunnan Province, fed by 59 tributaries.¹⁵ The Nu-Salween-Thanlwin drainage basin covers a total area of approximately 272,000 km².¹⁶ Within the People's Republic of China's boundaries, Nu River drainage basin covers an area of 125,500 km², comprising an estimated 103,600 km² in Tibet and 21,900 km² in Yunnan.¹⁷

4.2 Political Geography

The upper reaches of the Nu River flows through the Nagqu, Chamdo, and Nyingchi Prefectures in Tibet, where populations are mainly Tibetan.¹⁸ After leaving Tibet, the Nu River watershed in Yunnan has a population of over 4 million people.¹⁹ The middle and lower reaches of the Nu River flow through the Nujiang Lisu Autonomous Prefecture and Baoshan Municipality in Yunnan. The main ethnic

¹³ Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences. (2007, Mar). "Nujiang". http://www.igsnr.cas.cn/kxcb/dlyzykpyd/zgdl/zgdbdxs/200703/t20070330_2154904.html (Chinese)

¹⁴ Both International Rivers and WWF estimate that the river is at least 2,800 km, with some estimates considering the Nu-Salween-Thanlwin to be 3,240 km in length. Earlier studies by Chinese and Western academics cited the river as being 2,400 km.

¹⁵ International Rivers. (2016, Jan). "The Governance of Protected Areas in the Nu River Basin". <https://www.internationalrivers.org/nuriver2016>

¹⁶ WWF. (2007). "World's Top Ten Rivers at Risk".

<http://assets.panda.org/downloads/worldstop10riversatriskfinalmarch13.pdf>

¹⁷ Some studies (e.g. Magee & McDonald, 2006) cite 33,000-45,500 km² as the total drainage basin in Yunnan Province, with a total drainage basin area of 125,000 km² within China's boundaries. A UN FAO survey cites the total drainage basin of 320,000 km², with 169,900 km² within China's boundaries (UN FAO & AQUASTAT. "Salween river basin". www.fao.org/nr/water/aquastat/basins/salween/salween-CP_eng.pdf).

¹⁸ In Tibet, the Nu River basin covers the Nagqu, Amdo, Nyainrong, Biru, Sog and Baqên Counties in Nagqu Municipality, Dêngqên, Lhorong, Banbar, Baxoi, and Zogang Counties in Chamdo Municipality, and Zayü County in Nyingchi Municipality.

¹⁹ Magee, D. & McDonald, K. (2006). "Beyond Three Gorges: Nu River Hydropower and Energy Decision Politics in China". *Asian Geographer* 25(1-2).

groups²⁰ that live in the Nu River basin include the Blang, Palaung (or Ta'ang), Lisu, Nu, Drung and Tibetan peoples, whose populations are distributed along the Nu River. Many of these groups have inhabited the highlands of Yunnan for generations, and share sociocultural ties with communities in the northern states of Myanmar, namely Kachin and Shan States. Nujiang Prefecture, where the bulk of hydropower development has been planned, is an ethnically and linguistically diverse region, representing a wide range of religious and spiritual beliefs and traditions.



Figure 1: Plantation in Baoshan area (Credit: Sun Min)

Nujiang Prefecture has a land area of 14,700 km², a border shared with Myanmar that spans 450 km. Home to a total of 22 ethnic groups and a total population of 543,000, Nujiang Prefecture is mainly inhabited by the Lisu, Nu, Dulong (Drung), Bai, Pumi, Yi, Tibetan, Naxi, Jingpo (Jinghpaw), and Han ethnic groups. Ethnic minority groups accounted for 92.2% of the total population of Nujiang Prefecture, and members of the Lisu ethnic group account for 51.6% of the total population. In China, the officially recognized Dulong and Nu communities only live in Nujiang Prefecture.

Outside of Nujiang Prefecture, the Nu flows through Baoshan Municipality, where the population is predominantly comprised of Dai, Yi and Han agricultural communities. Population density increases dramatically in the Baoshan Municipality segment of the Nu River, as Baoshan is comparatively developed and more heavily populated, with a total metropolitan population of 2.5 million.²¹ After leaving Baoshan Municipality boundaries, the Nu crosses into Myanmar's Shan State.

²⁰ The term "ethnic groups" refers to the 56 ethnic groups officially recognized by the Chinese government. In China, the official state designations often differ from other more commonly known exonyms and endonyms. In Chinese, Blang are known as Bulong, Palaung are known as De'ang, and Drung are known as Dulong people.

²¹ In Yunnan, the Nu River basin mainly includes Gongshan, Fugong and Lushui Counties in Nujiang Prefecture, and Longyang District and Longling, Shidian, and Changning Counties in Baoshan Municipality.

As the Nu-Salween-Thanlwin River is a transboundary international river, it leads to particularly complex geopolitical and geo-economic relations. As the upstream country in the Nu-Salween-Thanlwin basin, China has a greater degree of control over the development of the water resources. China's development choices are likely to impact all downstream countries, such as altering water flow or changing pollution levels. Apart from its favorable geographic location, China is the most powerful country in the basin. As Asia's rising power, relying both on its centralized development planning system, as well as its technology know-how and financial resources to develop large hydropower infrastructure, China has developed the Lancang-Mekong River according to its own national interests, regardless of how downstream countries may be impacted. Over the past 30 years, criticism from downstream countries has not stopped China from developing hydropower in the upper reaches of the Lancang-Mekong.



Figure 2: Nu River Grand Canyon

4.3 Biodiversity

The steep and rugged Hengduan Mountains that form the eastern end of the Himalayan Range are home to some of China's richest biodiversity. Due to the rapid changes in elevation, complex ecosystems that represent a series of vertical vegetation types can be found along the Nu River gorge. The ecosystem transitions from tropical monsoon forests that occur below 1,000 m a.s.l.²² to subtropical evergreen broadleaf forests between 1,000-2,600 m a.s.l., to temperate broadleaf forests

²² Here, "m a.s.l." refers to "meters above sea level."

above 2,000 m a.s.l., as well as sub-alpine deciduous and coniferous forests between 2,700-3,500 m a.s.l.. Alpine meadows and tundra can be found above 3,400 m a.s.l..²³ The multi-level climate that exists in a relatively small geographic area have given rise to a unique ecological matrix.

According to UNESCO, the Nu River valley and its surrounding areas “may be “the most biologically diverse temperate region on earth”, with more than 4,300 plant species, 24 of which are first and second class national protected species.²⁴ Various international conservation groups, like WWF and The Nature Conservancy consider this part of Yunnan to be some of the most important biodiversity hotspots in China.²⁵ The Nu River basin is also home to more than 580 species of vertebrates, with 67 being first and second class national protected species. Mammal and bird species in the Nu River area account for more than half of Yunnan Province’s total, while amphibians and reptiles account for one-fifth and one-third²⁶ of Yunnan Province’s amphibian and reptile species, respectively. There are 77 species of fish recorded in the Nu River Basin, over 30 of which are endemic species. This high proportion of endemism is under threat due to a lack of regulations and enforcement regarding the aquatic ecology of the Nu River.²⁷

4.4 Protected Areas

The Nu River is one of the “Three Parallel Rivers of Yunnan Protected Areas” along with the Lancang-Mekong and Jinsha (Yangtze) Rivers. Established in 2003, the Three Parallel Rivers is the largest World Heritage Site in China, covering a total of 1.7 million hectares. The Three Parallel Rivers core zone begins at an elevation of 2,500 m a.s.l. and above, consisting of 15 distinct protected areas that comprise over 960,000 hectares. The Three Parallel Rivers buffer zone begins at 2,000-2,500 m a.s.l., and covers approximately 816,400 hectares. In 2003, over 315,000 people lived within the World Heritage Site boundaries, with over 36,000 living inside the core zone.²⁸

The Nu River section of Three Parallel Rivers includes the Pianma, Shiyueliang (Stone Moon), and Gongshan Scenic Areas, as well as the north, middle and south sections of the Gaoligong Mountain National Nature Reserve (GNNR), which is also slated to be converted into a national park. The GNNR was established in 1986, and covers a total of 405,500 ha, and the lower boundary of the reserve ranges between 1,090-2,500 m a.s.l..²⁹ The GNNR, as a national nature reserve under the State Forestry Administration, is managed by prefectural and county forestry bureaus in Baoshan City and Nujiang Prefecture, due to the Reserve existing in three separate sections.³⁰ It should be noted that the protections for the Three Parallel Rivers and Gaoligong Mountains do not exist at lower altitudes, due to many experts’ belief that the lower altitude environments have been too severely degraded by human activity. However, recent surveys have found that endemic species continue to persist below

²³ ICIMOD. “Gaoligongshan Nature Reserve”. <http://hkhconservationportal.icimod.org/PA.aspx?ID=55>

²⁴ UNESCO. “Three Parallel Rivers of Yunnan Protected Areas.” <http://whc.unesco.org/en/list/1083>

²⁵ Worldwide Fund for Nature. “Nujiang Lancang Gorge alpine conifer and mixed forests”. <https://www.worldwildlife.org/ecoregions/pa0516>

²⁶ Nujiang Prefecture Forestry Bureau. (2015, Jun 13). “Nujiang Prefecture Forests Status Summary” / “怒江州林情简介”. <http://njz.ynly.gov.cn/22396/22401/89183.html> (Chinese)

²⁷ Chen, WT et al. (2015). “The fish diversity in the upper reaches of the Salween River, Nujiang River, revealed by DNA barcoding.” http://www.cas.cn/syky/201512/t20151203_4486875.shtml (Chinese); International Rivers. (2016, Jun). “The Nu River – A Habitat in Danger”. <https://www.internationalrivers.org/nuriver2016>

²⁸ UNESCO. “Three Parallel Rivers of Yunnan Protected Areas.” <http://whc.unesco.org/en/list/1083>

²⁹ ICIMOD. “Gaoligongshan Nature Reserve”. <http://hkhconservationportal.icimod.org/PA.aspx?ID=55>

³⁰ International Rivers. (2016, Jan). “The Governance of Protected Areas in the Nu River Basin”. <https://www.internationalrivers.org/nuriver2016>

2,000 m a.s.l..³¹ The Nu River basin also contains the Xiaohei Mountain Provincial Nature Reserve and the Daxue Mountain Provincial Nature Reserve.

In 2010, the Ministry of Agriculture approved the establishment of a “National Fisheries Genetic Resources Nature Reserve for Endemic Fish in the Upper and Middle Reaches of the Nu River, an area that covers 6,374 ha with a core area of 571 ha – a total of 316 km of the Nu River mainstream.³² Beyond this aquatic nature reserve, there are no other forms of protection for the Nu River itself, as a body of water. In May 2016, the Yunnan Provincial government passed a proposal to establish the Nu River Grand Canyon National Park, which is explored in more detail in Section 7.4.

4.5 Economy

Nujiang Prefecture is also the only prefecture in Yunnan Province without highway, airport, railway, or water transportation infrastructure. The population in Nujiang Prefecture is largely agricultural, cultivating high altitude crops such as buckwheat and millet – many of the ethnic minority groups in the region historically practiced swidden cultivation, until hillside agriculture was banned under the Sloping Land Conversion Program.³³ A recent initiative led by the Nujiang Prefecture government is the introduction of cash crop cultivation programs, particularly of the medicinal *Amomum tsaoko*, or cao guo – it is unclear what impacts the spread of cash crop cultivation has on endemic vegetation and ecosystems.³⁴ The four counties of Nujiang Prefecture are state-subsidized, and considered impoverished in material terms. As of 2015, there were 148,400 people living under the national poverty line³⁵ in these four counties. In 2014, the annual average per capita disposable income of urban and rural households in Nujiang Prefecture is 17,266 yuan and 4,297 yuan³⁶, respectively. By comparison, the national annual average per capita disposable income of urban and rural households is 48,457 yuan and 20,568 yuan, respectively.³⁷

³¹ International Rivers. (2016, Jan). “The Governance of Protected Areas in the Nu River Basin”. <https://www.internationalrivers.org/nuriver2016>

³² Ministry of Agriculture / 农业部. (2010, Nov 25). “List of National Fisheries Genetic Resources Nature Reserve (4th Installment)” / “国家级水产种质资源保护区名单（第四批）”. http://www.moa.gov.cn/zwl/m/tzgg/gg/201012/t20101231_1800901.htm (Chinese)

³³ The government’s Sloping Land Conversion Program, also known as the Grain for Green Program, is a national policy intended to increase forest cover and prevent forest degradation as a result of agricultural activity, which has led to mixed results in forest regeneration rates.

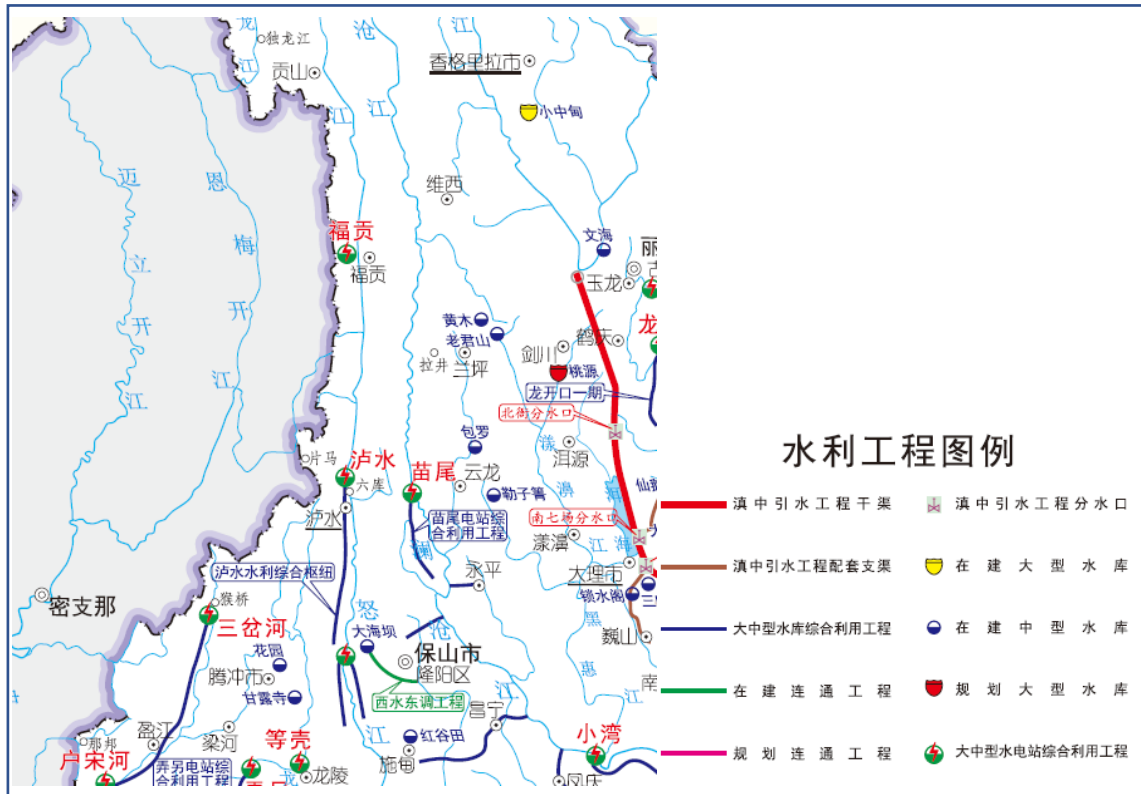
³⁴ International Rivers. (2016, Jun). “Overlooked Plant Biodiversity in Low-altitude areas of the Nu River Valley.” <https://www.internationalrivers.org/nuriver2016>

³⁵ National poverty line in China is defined by government as having an annual income of less than 2,300 yuan, or approximately 345 USD. See: Reuters (2017, Feb 28). “In China, 12.4 million people brought above poverty line in 2016: Xinhua”. <https://www.reuters.com/article/us-china-poverty-idUSKBN1682T1>

³⁶ China Economic Times / 中国经济时报. (2016, Jun 3). “Nujiang Prefecture: Priority for Initiating “Prefecture-wide Assault to Shake Off Poverty” / “怒江州：开创“整州脱贫攻坚”先河”. http://lib.cet.com.cn/paper/szb_con/474989.html (Chinese)

³⁷ National Bureau of Statistics, PRC. 2015.

Map 1: Proposed Major Water Conservancy Projects in Nujiang Prefecture



(Source: Yunnan Province 13th Five-Year-Plan for Water Conservancy³⁸)

As a result of such disparity, the relative “underdevelopment” of Nujiang Prefecture as one of the most economically “backwards” areas of China have led Prefecture and Provincial governments of Yunnan to focus on means of stimulating economic growth in the region. The Chinese government envisions hydropower as an important means of promoting economic growth and reducing poverty, as well as meeting energy demands. This is most evident from the Nu River hydropower plans’ inclusion in the country’s Five-Year Plans (FYP) – national economic and social development plans that are formulated every five years to provide comprehensive goals, strategies and policies, and outline major infrastructure projects.

4.6 Hydropower Overview

In line with the Chinese government’s strategy to promote hydropower dam construction as a means to develop the country’s overall economy, in 2003, there were 2 reservoirs and 13-hydropower station cascade proposed for the mainstream of the Nu River. The 12th FYP for Energy reduced that number to 1 reservoir and 5-hydropower station cascade. At present, there are no dams that have been built

³⁸ Full map accessed at: <https://wenku.baidu.com/view/bd7baa0704a1b0717ed5dd94.html> (Chinese)

on the mainstream of the Nu-Salween-Thanlwin River, but there are an estimated 90 small dams already in operation and under construction in its tributaries.

According to the Yunnan government's 2003 "Nu River Middle and Lower Reaches Hydropower Planning Report", after the completion of the 13-dam cascade, approximately 55,000 people would be resettled, and 60,000 mu³⁹ (4,000 hectares) of arable land would be flooded. Most of those who would be involuntarily resettled are members of ethnic minority communities whose livelihoods are tied to natural resources and land. Many people in the Nu River valley are not fully informed or aware about current large-scale water infrastructure plans and how they will be affected.

The following section presents key findings from a review of policies, rules and regulations that pertain to hydropower development in the Nu River basin in Yunnan Province, and in China more broadly.

³⁹ "Mu" is a measure of land area, equivalent to 666.7 m².

Chapter 5: Review of China's Policies and Legal Frameworks

This section will present a brief overview of the Chinese government's policies, legal frameworks and operational guidelines that pertain to the utilization, conservation and development of the Nu River, and is divided into subsections by subject area, including 1) National-level socioeconomic and political development plans; 2) Electricity and the power sector; 3) Natural resources and environmental protection; 4) Water resources management; 5) Social protections; 6) National parks and protected areas; and 7) Transboundary policies and commitments.

5.1 National Socio-Economic-Political Development

The overarching strategies and major development projects are outlined in the Five-Year-Plans (FYPs) issued at the national level by the State Council or NDRC, NEA, MEP and other agencies, and at the local level, issued by provincial or prefectural government. The Chinese government's national economic and social development plan is set up every five years to provide comprehensive goals, strategies and policies for the next five years, including major projects, and thus provides insight into how the different levels of Chinese government approach the governance of the Nu River.

The provisions regarding hydropower development, information disclosure, and public participation found in these policies have been summarized in the following subsections. The national level plans (from 2001-2020) reviewed are listed below:

- 10th FYP Outline for National Economic and Social Development (2001-2005)⁴⁰;
- 11th FYP Outline (2006-2010);
- 12th FYP Outline (2011-2015);
- 13th FYP Outline (2016-2020);
- 12th FYP for Western Development (NDRC, Feb 2012)

Relevant policies at the local level include:

- For Yunnan Province:
 - 11th FYP Outline for Yunnan (2006-2010);
 - 12th FYP Outline for Yunnan (2011-2015);
 - 13th FYP Outline for Yunnan (2016-2020);
- For Nujiang Prefecture:
 - 11th FYP Outline for Nujiang (2006-2010).

During the 10th Five-Year period (2001-2005), the Communist Party of China Central Committee and the State Council formally proposed the Western Development strategy, which is a significant initiative to contribute to China's economic restructuring (see 6.1). Within that context, the 10th FYP (2001-2005) promoted the active development of hydropower. It should be noted that although the 10th FYP Outline, the 10th FYP for Energy Industry and the 10th FYP for Energy Development did not

⁴⁰ Unless otherwise specified, the various iterations of the "Five-Year-Plan for National Economic and Social Development" shall be referred to as Five-Year-Plans or FYPs throughout the rest of this report, for convenience.

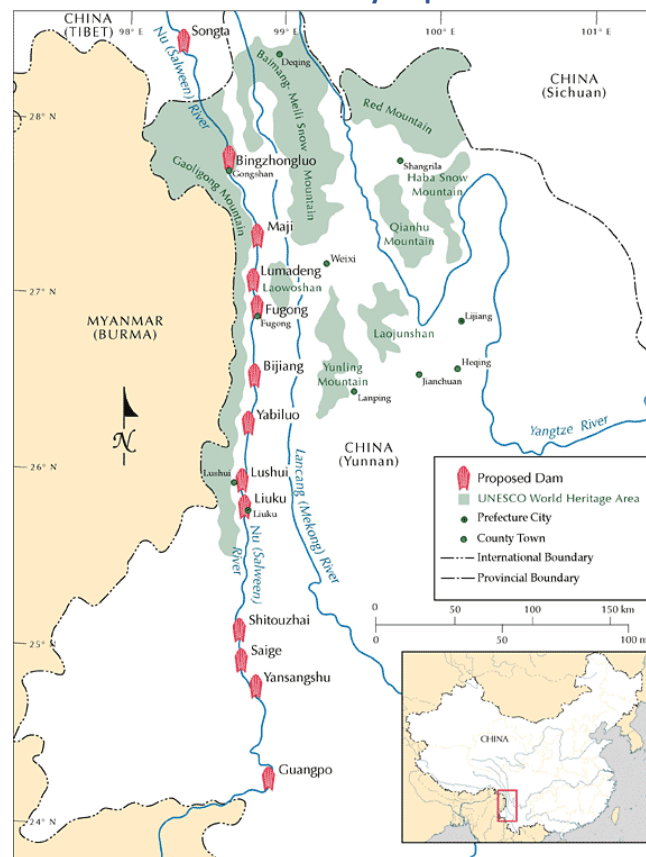
specifically mention developing hydropower on Nu River, plans for doing so had already been initiated during this 5-year period (see Section 6.1).

During the 11th Five-Year period (2006-2010), the Yunnan Provincial plan, Nujiang Prefectural plan and the NDRC's Renewable Energy Development plan all proposed the rapid establishment of the Nu River hydropower base, beginning with the construction of Liuku, Saige, Yansangshu, Yabiluo and Maji dams. However, the 11th FYP for Western Development (issued by the NDRC and the Western Development Office of the State Council on 8th Dec 2006) did not include the Nu River as one of the country's major hydropower bases. The 11th FYP for Energy Development also did not specifically refer to Nu River hydropower development.

During the 12th Five-Year period (2011-2015), compared to Yunnan Province's 11th FYP, the language regarding Nu River was much vaguer, only mentioning attempts to initiate Nu River hydropower development. The NDRC's 12th FYP for Western Development proposed to conduct preliminary work on Nu River hydropower development in an orderly manner, on the basis of scientific demonstration.

The 12th FYP for Renewable Energy Development, the 12th FYP for Hydropower Development, and the 12th FYP for Energy Development together pushed for the timely start for the development of a large hydropower base on the middle and lower reaches of Nu River. The Songta, Maji, Yabiluo, Liuku and Saige dams were included on the key construction projects list for the 12th FYP.

Map 2: Proposed dams in 2003 Nu River Middle and Lower Reaches Hydropower Plan



Source: guancha.com.cn, via International Rivers

The 13th FYP (2016-2020) proposed to coordinate between hydropower development and ecological protection, adhering to ecological protection as a priority and scientifically develop the Southwest's hydropower resources. Yunnan Province's 13th FYP proposed to increase local demand for Yunnan-produced electricity, expand the West-East power transmission grid, and attempt to develop Nu River mainstream hydropower.

Regarding information disclosure, the 11th FYP Outline (2006-2010) contained a separate section that explicitly stated: "promote openness in government affairs and gradually institutionalize that openness...Improve the transparency of government work, and ensure citizens' rights to be informed about, to participate in, to express, and to monitor government work." In the 12th FYP period (2011-2015), with regard to public decision-making, the systems for keeping the public informed, public hearings and expert consultations should be improved. In the 13th FYP period (2016-2020), there is no dedicated section for information disclosure, and references to disclosure are only found in sections relating to businesses' environmental information, budgets, and village affairs, among other areas.



Figure 3: Liuku City of Nujiang Prefecture

In terms of provisions related to public participation, from the 10th to 12th Five-Year periods between 2001-2016, the FYPs generally support the implementation of democratic elections, decision-making, management and supervision mechanisms and processes. In the 12th Five-Year-Plan (2011-2015), there is a dedicated section on the following:

“to improve the scientific and democratic decision-making mechanism; to improve the decision-making mechanism on important matters; to establish and improve the decision-making processes of sound public participation, expert consultation, risk assessment, legality review, and collective discussion and decision; to implement scientific decision-making,

collective deliberation and decision-making, and implementing scientific and democratic decision-making, and decision-making by law. For the major issues related to the overall situation of economic and social development, consultation and coordination should be conducted fully and extensively.”

Broadly speaking, the 13th FYP (2016-2020) emphasized the expansion of citizens’ “orderly participation” in political affairs, and continued provision of public participation mechanisms to ensure residents’ rights to be informed, to participate, to make decisions and to monitor public affairs.

5.2 Electricity

Regarding power development, the “Electricity Act” (NPC on Apr 01, 1996) is the highest authority law in effect. Secondly, the next highest administrative policy in effect are the development plans issued by the State Council, such as the “12th Five-Year Plan for Energy Development (2011-2015)” (issued 1st, Jan 2013). Next in importance are the regulations, rules, and plans (or outlines) issued by the ministries, commissions, and bureaus of the State Council, listed as follows:

- 12th FYP for Renewable Energy Development (2011-2015) (NDRC on Jul 06, 2012);
- 12th FYP for Water Resources Development (2011-2015) (NDRC, MWR, MOHURD on Jun 2012); and
- 12th FYP for Hydropower Development (2011-2015) (NEA on Jul 07, 2012)

These documents have a certain binding effect on administrative departments at all levels and on state-owned enterprises, and provide guidance to private enterprises. In addition, the issuance of some notices, opinions, methods, and so on are mainly for specific administrative requirements, such as the following:

- Notice on Matters concerning the Division of Main Rivers in Hydropower Construction and Management (NDRC on Aug 19, 2004);
- Notice on Further Strengthening the Preliminary Hydropower Construction Work in the Southwest (NDRC General Office on Sep 24, 2007);
- Notice on the Establishment of the National Energy Commission (NDRC General Office on Jan 22, 2010);
- Notice on Issues Concerning the Strengthening of Hydropower Management in River Basins (NDRC on Feb 5, 2016);
- Opinions on Increasing Land Use Policy Support to Promote Construction of Large and Medium-sized Water Resources and Hydropower Projects (MLR, NDRC, MWR, NEA on Feb 17, 2016);
- Provincial Energy Development Planning Management Measures (NEA on Feb 17, 2016);
- Management Measures for Electric Power Planning (NEA on May 2016).

The national level measures are followed by the local power development planning and implementation measures issued by local People's Congresses and local governments, such as:

- Yunnan Provincial Energy Industry Development Plan (2009-2015) (2009); and
- Interim Management Measures for Medium and Small Hydropower Development, Use and Construction in Nujiang Prefecture (Nujiang Prefecture Government on Feb 28, 2015).

At the legal level, China promulgated the “Electricity Act” in 1996. This law proposed that the State encourages and supports the use of renewable energy and clean energy for power generation, and that the State advocates the development of hydropower resources in rural areas and the construction of small hydropower stations to promote rural electrification. With regard to national level planning, as mentioned previously, all of the following: the 12th FYP for Western Development, the 12th FYP for Renewable Energy Development, the 12th FYP for Hydropower Development, and the 12th FYP for Energy Development, proposed to initiate the development of large hydropower base in middle and lower reaches of the Nu River in a timely manner – the Songta, Maji, Yabiluo, Liuku and Saige dams were included on the key construction projects list.

In terms of water resources development and management, the 12th FYP for Water Resources Development proposed to actively promote a comprehensive river basin management system. Based on the principles of ecological protection and resettlement towards people’s security and prosperity, the government should actively develop hydropower resources in Southwest region, actively promote openness in government affairs, strengthen social supervision, and improve work transparency and public participation. The NDRC issued notices in 2007 and 2016, both of them requiring that:

“hydropower construction must follow the principle of “first plan, then develop”; for the basins which do not have hydropower development plans, or have hydropower development plans but have yet to undergo review and receive approval, hydropower project construction shall not be allowed to be carried out,” ... “for rivers with no hydropower planning, hydropower project construction shall not be allowed to be carried out.”

Regarding the management of hydropower construction on transboundary rivers, the NDRC ruled that as the Nu River is an international river, hydropower projects with a total installed capacity of 250 megawatts or above must be approved by the State Council departments responsible for investments, and the remaining hydropower projects are approved by local government departments responsible for investments.

Regarding information disclosure and public participation in the preparatory planning process, in 2016, the NEA issued “Provincial Level Management Approach for Energy Development Plans” and “Management Approach for Power Plans”, which ruled that provincial-level Energy Development Plans should generally include Environmental Impact Assessments. In addition, provincial energy authorities should utilize various methods of listening to a wide range of societal views, and improve the transparency of the preparatory planning process and public participation. The National Power Plan emphasized that during the relevant FYP period, large-scale hydropower and project construction arrangements should be carried out simultaneously with EIAs, enhancing transparency and public participation.

5.3 Natural Resources and Environmental Protection

At the national level, the highest authority laws concerning natural resources and environmental protection are as follows:

- Land Administration Law (NPC on Jan 1, 1999);
- Environmental Protection Law (NPC on Jan 1, 2015); and
- Environmental Impact Assessment Law (NPC on Sep 1, 2003).

Secondly, the following regulations:

- Regulation on Environmental Impact Assessment of Planning (State Council, Oct 1, 2009).

Thirdly, the following measures:

- Interim Measures on Examination of River Hydropower Planning and its EIA⁴¹ (NDRC & MEP on Nov 18, 2011);
- Notice on Further Implementation of Ecosystem Protection Measures of Hydropower Development⁴² (MEP & NEA on May 14, 2014);
- Notice on Further Strengthening Environmental Impact Assessment of Water Resources Planning⁴³ (MEP & MWR on Mar 21, 2014);
- Interim Measures for Administration of Aquatic Genetic Resources Nature Reserves⁴⁴ (MOA on Mar 1, 2011);
- Notice on Strengthening Environmental Protection of Hydropower Projects⁴⁵ (MEP & NDRC on Jan 25, 2005);
- Regulation for Environmental Impact Assessment of River Basin Planning⁴⁶ (MWR & MOE on May 1, 1993)

The Ministry of Water Resources and Ministry of Environmental Protection typically jointly issue the above regulations and laws, requiring local governments and companies involved in hydropower and water resource construction to implement the regulations. However, over the past decade, environmental regulations and policies have come to be known as paper tigers or cotton candy, because they are not mandatory and costs of violating the law are very low. The implementation of

⁴¹ NDRC & MEP, PRC. (2011, Nov 18). "Interim Measures on Examination of River Hydropower Planning and its EIA" / "河流水电规划报告及规划环境影响报告书审查暂行办法". http://www.nea.gov.cn/131329775_31n.pdf (Chinese)

⁴² MEP & NEA, PRC. (2014, May 14). "Notice on Further Implementation of Ecosystem Protection Measures of Hydropower Development" / "关于深化落实水电开发生态环境保护措施的通知". http://www.mep.gov.cn/gkml/hbb/bwj/201406/t20140617_277066.htm (Chinese)

⁴³ MEP & MWR, PRC. (2014, Mar 21). "Notice on Further Strengthening EIA of Water Resources Planning" / "关于进一步加强水利规划环境影响评价工作的通知". http://www.mep.gov.cn/gkml/hbb/bwj/201404/t20140401_269989.htm (Chinese)

⁴⁴ MOA, PRC (2011, Mar 1). "Interim Measures for Administration of Aquatic Genetic Resources Nature Reserves" / "水产种质资源保护区管理暂行办法". http://www.moa.gov.cn/zwl/m/tzgg/bl/201104/t20110413_1967475.htm (Chinese)

⁴⁵ MEP & NDRC, PRC. (2005, Jan 25). "Notice on Strengthening Environmental Protection of Hydropower Projects" / "关于加强水电建设环境保护工作的通知". <http://www.china.com.cn/chinese/huanjing/777655.htm> (Chinese)

⁴⁶ MWR & MOE, PRC (1993, May 1). "Regulation for Environmental Impact Assessment of River Basin Planning" / "江河流域规划环境影响评价规范". http://www.gdwater.gov.cn/xxgk/sltjsbz/z/gh_5466/201212/P020121225506320530209.pdf

the new "Environmental Protection Law" in 2015 greatly strengthened enforcement capacity and increased penalties for violation. The provision that penalties would accumulate over time somewhat curbed the number of violations.⁴⁷

According to the document issued by NDRC in 2011, the NDRC is responsible for the arrangement, management and approval of Nu River hydropower development planning. China Renewable Energy Engineering Institute (CREEI) manages the tendering and bidding process to determine which companies will conduct hydropower planning and the EIA.

The typical approval process for hydropower projects includes separate procedures for site preparation and the actual hydropower project, with companies conducting EIAs for the site preparation work, potentially before comprehensive planning for the main project is completed or approved.⁴⁸

When the plans and EIA are completed, they are submitted to the NDRC and MEP for review. However, when approving the plan, the NDRC can choose to not adopt the EIA conclusions and the EIA review opinions, but should provide a written explanation for non-adoption. After the plan is approved, only then should construction on the hydropower station itself begin. Often, the "three supplies and one levelling" site preparation work of supplying water, electricity, roads and land levelling are completed before the main project is even approved.⁴⁹

Before the introduction of the "EIA Law," according to the "Regulation for Environmental Impact Assessment of River Basin Planning," hydropower development planning should, if necessary, compile an EIA chapter or make a special EIA report. Now, the "EIA Law" states that large-scale power station plans must specifically produce an EIA report. The "Regulation on Environmental Impact Assessment of Planning" requires that a comprehensive plan should include a chapter or description of the environmental impact.

5.4 Water Resources Management

At the national level, the highest-authority laws about water resources management are the following:

- "Water Law"⁵⁰ (NPC on Aug 29, 2002);
- "Fisheries Law"⁵¹ (NPC on Aug 28, 2004);
- "Water Resources Planning and Administration Measures (for Trial Implementation)" (MWR on Apr 22, 2010);

⁴⁷ Liu, Q. (2016, Mar 22). "Will China's environmental law help to win "war on pollution"?".

<https://www.chinadialogue.net/article/show/single/en/8746-Will-China-s-environmental-law-help-to-win-war-on-pollution>

⁴⁸ International Rivers. (2016, Jan). "Approval Process for Large Hydropower Projects and Analysis of their Stakeholders: A Case Study of the Nu River". <https://www.internationalrivers.org/nuriver2016>

⁴⁹ International Rivers. (2016, Jan). "Approval Process for Large Hydropower Projects and Analysis of their Stakeholders: A Case Study of the Nu River". <https://www.internationalrivers.org/nuriver2016>

⁵⁰ NPC, PRC. (2002, Aug 29). "Water Law" / "水法". <http://www.china.org.cn/english/government/207454.htm>

⁵¹ NPC, PRC. (2004, Aug 28). "Fisheries Law" / "渔业法". http://www.npc.gov.cn/englishnpc/Law/2007-12/12/content_1383934.htm

- “Notice on Further Strengthening Environmental Impact Assessment of Water Conservancy Planning” (MEP & MWR on Mar 21, 2014); and
- “Interim Measures for Administration of Aquatic Genetic Resources Protected Areas” (MOA on Mar 1, 2011)⁵²

At the local level, there are the following:

- “Decision on Accelerating the Implementation of Water Conservancy Development Strategy to Promote Yunnan Economy” (Yunnan Provincial Party Committee & YPG on Apr 15, 2011); and
- “Regulations of Nujiang on Water Resources Protection and Development” (Nujiang Prefecture Government on Aug 1, 2012).

These laws and regulations stipulate that the development of Nu River water resources should be comprehensively planned, which should include integrated river basin plans as well as specialized plans. Hydropower-specific plans should be subject to comprehensive planning, and construction of other water projects must also adhere to the integrated river basin plan. The “Water Law” explicitly encourages multi-objective cascade development on rivers with high hydropower potential, meaning that the construction of hydropower stations should protect the ecosystem and take into account other river functions such as flood control, irrigation, and fisheries, among others.

The Yangtze River Water Resources Commission formulated the “Nu River Integrated River Basin Plan” in 2011.⁵³ According to the “Water Resources Planning and Administration Measures,” the planning process should adopt an open approach to encourage public participation. Except if stipulated otherwise by laws and regulations, or if contents relate to state secrets, the water resources plan should be made available to the public within one month of approval.

According to the “Fisheries Law,” China will protect aquatic genetic resources of endemic species and their habitat, and establish aquatic genetic resources protection areas – fishing is prohibited without approval. When dams and sluice gates are built on rivers with migratory fish, shrimp and crabs, and have serious impact on fisheries, the construction work unit should build fish passage facilities or take other remedial measures.

Significantly for the Nu River, in 2010, the MOA approved the “National Fisheries Genetic Resources Nature Reserve for Endemic Fish in the Upper and Middle Reaches of the Nu River,” which includes 316 km of the Nu River mainstream, between Manalo in Longshan County to Lengshuigou in Lushui County and some surrounding tributaries and terrestrial areas.⁵⁴ The “13th FYP for Yunnan Development” goes further to clearly state that this protected zone is considered a development-

⁵² MOA, PRC (2011, Mar 1). “Interim Measures for Administration of Aquatic Genetic Resources Nature Reserves” / “水产种质资源保护区管理暂行办法”. http://www.moa.gov.cn/zwl/m/tzgg/bl/201104/t20110413_1967475.htm (Chinese)

⁵³ Yangtze River Water Resources Commission, MWR, PRC. (2011, Mar 18). “Strengthening water conservancy planning and management to promote basin water conservancy development” / 加强水利规划管理促进流域水利发展”. <http://www.cjw.gov.cn/ldzl/mjh/lshj/9375.html> (Chinese)

⁵⁴ International Rivers. (2016, Jan). “The Governance of Protected Areas in the Nu River Basin”. <https://www.internationalrivers.org/nuriver2016>

prohibited area, as one of the main vehicles of China's and Yunnan's precious biodiversity preservation.

5.5 Social Protection

At the national level, the highest-authority law and regulation regarding social protection (as it relates to hydropower development) are the following:

- “Regulation on Land Requisition Compensation and Resettlement of Migrants for Large and Medium Water Conservation and Power Construction Projects” (State Council on Sep 1, 2006);
- “Notice on Completing Tasks Surrounding “First Resettle then Construct” Effort of Hydropower Projects” (NDRC on Feb 7, 2012); and
- “Notice on Carrying Out Preparation of 13th FYP for Large and Medium Reservoir Development Post-Resettlement Support” (MWR, NDRC, MOFCOM in 2015)

At the local level, there are:

- “Guiding Opinions on Nu River Middle and Lower Reaches Hydropower Development Resettlement” (Yunnan Province Resettlement Bureau on Oct 17, 2008);
- “Detailed Rules for the Implementation of Large and Medium Water Conservation and Power Construction Projects Land Requisition Compensation and Resettlement (for Trial Implementation)” (Nujiang Prefecture Government on Dec 1, 2009); and
- “Management Measures to Implement Resettlement for Large and Medium Scale Water Conservancy Projects in Yunnan Province” (Yunnan Province Resettlement Bureau on Jan 1, 2016)

The State Council's 2006 Regulation stipulates that the “resettlement framework and plan and later stage compensation plan need to listen to resettled migrants' opinions.” The property assessment, property compensation and resettlement program should be publicized. When the legal rights of resettled migrants are infringed, they can file a lawsuit. The 2006 Regulation also states that the traditional modes of production, ways of life, and customs of ethnic minorities should be respected. On the policy front, great strides have been made towards encouraging resettled migrants' participation. However, the accountability mechanism is still rather vague, and resettled migrants have no way to hold those responsible to account. Other important factors to consider regarding these policies' implementation are the low educational attainment among ethnic minority and indigenous communities in Nujiang Prefecture and language barriers, both of which limit effective political participation.⁵⁵

⁵⁵ International Rivers. (2016, Jan). “Approval Process for Large Hydropower Projects and Analysis of their Stakeholders: A Case Study of the Nu River”. <https://www.internationalrivers.org/nuriver2016>



Figure 4: Traditional Pagaoda in Bingzhongluo (Credit: Green Watershed)

The Yunnan Province Resettlement Bureau's 2008 Guiding Opinions are vague regarding measures to protect the rights and interests of ethnic minority resettled migrants and measures for resettled migrants' participation, and moreover, lacks accountability mechanisms. The policy even proposes that the government can resort to judicial or public security enforcement to forcibly implement the resettlement plan - as such, it is difficult to envision how the rights of ethnic minority peoples are being protected, when they are forced to resettle. The Nujiang Government's "Detailed Rules" do not include any measures for resettled migrants to participate in the process of resettlement planning, implementation, supervision and acceptance. Resettled migrants' grievance and accountability mechanisms have been limited to petition systems, which do not guarantee a resolution to their grievances. Compared with the State Council-issued 2006 Regulation, these local measures represented a step backwards for resettled migrants' participation and their available legal remedies.

The NDRC's 2012 Notice on "First Resettle, then Construct" put forward several new requirements on hydropower-related resettlement, including the objectives of restoring and improving the living standard of resettled migrants, promoting poverty alleviation of resettled migrants, and ensuring the long-term livelihoods and development of resettled migrants. The notice also covers the participation of resettled migrants. The "First Resettle, then Construct" policy in this notice integrates resettlement processes into hydropower construction, which at least guarantees on paper that during hydropower construction and operations, the resettlement problem would not be left unaddressed. Though these steps are important, there remains a clear lack of content regarding respect for ethnic minorities' rights, when hydropower development is taking place in ethnic minority lands. As indigenous peoples' rights are not guaranteed, this may continue to produce further social problems, or leave existing ones unaddressed.

As described in Sections 5.1 and 5.2, there are a number of policies and plans that emphasize the importance of public participation in decision-making and planning processes. However, the relevant

government departments are only encouraged, and not mandated, to implement participatory mechanisms.

5.6 National Parks and Protected Areas

At the national level, the laws and regulations pertaining to protected areas include the following:

- “Forest Law” (NPC on Sep 13, 2005)⁵⁶
- “Forest Law Implementing Regulations” (State Council on Jan 29, 2000)
- “Management Regulations on Land in Nature Reserves” (MLR on Jul 24, 1995)
- “Management Regulations on Forests and Wildlife Nature Reserves” (State Council on Jul 6, 1985)
- “Regulations on Scenic Areas” (State Council General Office on Dec 1, 2006)
- “Regulations of the People’s Republic of China on Nature Reserves” (State Council on Oct 10, 1994; revised on Jan 8, 2011)⁵⁷; and
- “Measures for Supervision and Inspection of National Nature Reserves” (MEP on Jul 13, 2015)⁵⁸

At the local level, there are:

- “Administrative Regulation of Yunnan Province of PRC on Natural Reserve” (YPG on Mar 1, 1998)⁵⁹;
- “Opinions of Yunnan Provincial Government on Promoting National Park Construction Pilot Projects” (YPG on Dec 4, 2009);
- “Yunnan Province National Park Management Regulations”⁶⁰ (Yunnan People’s Congress on Nov 26, 2015);
- “Approval of Yunnan Provincial Government on Establishment of Nujiang Grand Canyon National Park” (YPG on May 10, 2016); and
- “Yunnan Province Biodiversity Conservation Strategy and Action Plan (2012-2030)”⁶¹ (Yunnan Academy of Biodiversity on Apr 2013)

The national and provincial regulations for nature reserves stipulate that “the competent department of environment protection under the State Council is responsible for the integrated management of the nature reserves throughout the country” and for the inspection of nature reserve quality. Other

⁵⁶ NPC, PRC. (1998, Apr 29). “Forest Law” / “森林法”. http://www.gov.cn/banshi/2005-09/13/content_68753.htm (Chinese)

⁵⁷ State Council, PRC. (1994, Oct 10). “Regulations of the People’s Republic of China on Nature Reserves” / “中华人民共和国自然保护区条例”. <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC011954/>

⁵⁸ Ministry of Environmental Protection. (2006, Oct 26). “Measures for Supervision and inspection of National Nature Reserves” / “国家级自然保护区监督检查办法”. http://www.mep.gov.cn/gkml/zj/jl/200910/t20091022_171840.htm (Chinese)

⁵⁹ People’s Government of Yunnan Province. (1998, Mar 1). “Administrative Measures of Yunnan Province of PRC on Natural Reserve”. <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC025149/> (Chinese)

⁶⁰ Yunnan Provincial Government. (2015, Nov 26). “Yunnan Province National Park Management Regulations” / “云南省国家公园管理条例”. http://fazhi.yunnan.cn/html/2015-12/04/content_4049623.htm (Chinese)

⁶¹ Yunnan Academy of Biodiversity. (2013, Apr). “Yunnan Province Biodiversity Conservation Strategy and Action Plan (2012-2030)” / “云南省生物多样性保护战略与行动计划（2012-2030）”. <http://cncbc.mep.gov.cn/zlxdjh/sjxd/jz/201506/P020150615499846662801.pdf> (Chinese)

departments such as forestry, agriculture, geology and mineral resources, water conservancy, among others, shall be responsible for management for the relevant nature reserve, dependent on the local government administration. Nature reserves can be divided into three zones: 1) core areas, 2) buffer zones, and 3) experimental zones. Core areas do not allow any unauthorized access, while buffer zones allow for scientific research to be carried out. Experimental zones allow for more ecologically disruptive activities, such as experiments, education, tourism, and domestication. Research has shown that the effective governance and management of nature reserves is difficult to achieve in practice, due to lack of capacity and incentives.⁶²

An important development in 2012 was that the CPC Central Committee (CPCCC) and the State Council designated the “ecological civilization” concept as a national strategy, proposing the establishment of a system of national parks and the implementation of stricter protections within national parks. With the exception of indigenous people’s livelihood and production facilities, eco-tourism research and educational tourism, which do not damage the ecosystem, development and construction are prohibited. Furthermore, it is important to protect natural ecosystems and the authenticity and integrity of natural and cultural heritage.

Specifically regarding World Heritage Sites, there is the “Administrative Measures for Declaration and Protection of World Natural Heritage, Natural and Cultural Heritage (for Trial Implementation)” (MOHURD on Nov 26, 2015). The document stipulates that local government in charge of a given World Heritage Site shall earnestly implement the international convention and reporting commitments of World Heritage status. Under these “Administrative Measures,” areas within World Heritage Site boundaries are no-construction zones, and construction activities unrelated to heritage resource protection shall be prohibited. Areas in the buffer zone are restricted-construction zones, and all kinds of scenery/landscape tourism activities and construction of tourism service facilities will be strictly controlled. Construction projects within the World Heritage Site should adhere to the law and follow the relevant approval procedures.

Article 172 of the World Heritage Convention Operational Guidelines stipulate that proposed major construction projects in the World Heritage Site and its buffer zone, such as cable cars, ropeways, highways, railways, large dams, etc., which may have a significant impact on the outstanding value of the heritage resource, should submit the project site selection plan, EIA and other related materials to the UNESCO World Heritage Center via MOHURD, at least 6 months before the approval of the project. These “Administrative Measures” further subjected Nu River hydropower development decision-making to restrictions under international conventions.

5.7 Transboundary Policies and Commitments

China has 16 main trans-boundary rivers, crossing borders with 19 countries. However, China is not a signatory to the Convention of the Law of Non-Navigational uses of International Watercourses, which was adopted by the United Nations on 21st May 1997, and came into effect on 17 August 2014. The 6 principles of the Convention include: 1) equitable and reasonable utilization; 2) the obligation not to cause significant harm; 3) general obligation to cooperate; 4) the obligation to exchange information

⁶² Yeh, ET. (2013). “The politics of conservation in contemporary rural China.” *Journal of Peasant Studies* 40(6): 1165-1188. <http://www.tandfonline.com/doi/abs/10.1080/03066150.2013.859575#.Ut-2fvnFJok>

and data; 5) obligation to maintenance and conservation of water resources and their ecosystems; and 6) mutually beneficial development. China's decision not to sign the convention was based on its national interest.

In 1992, China participated in the Greater Mekong Subregion Comprehensive Development Plan initiated by the Asian Development Bank. In 2008, the NDRC, the Foreign Ministry, and the Finance Ministry issued the "Country Report of China's Participation in the Greater Mekong Subregion Economic Cooperation."⁶³ China is an observer of Mekong River Commission.

Regarding transboundary activities of Chinese state-owned enterprises, there are the following:

- "Nine Principles on Encouraging and Standardizing Outward Investment" (State Council, Oct 2006)⁶⁴;
- Guiding Opinion of the State Council on Encouraging and Standardizing Enterprises' Cooperation in Outbound Investment" (State Council on Apr 14, 2007)⁶⁵;
- "Guidelines to the State-owned enterprises Directly under the Central Government on Fulfilling Corporate Social Responsibilities" (SASAC on Dec 2007)⁶⁶;
- "Circular to Regulate the Overseas Investment and Cooperation of Chinese Companies" (MOFCOM, MOFA, SASAC on Jun 6, 2008)⁶⁷; and
- "Guidelines for Environmental Protection in Foreign Investment and Cooperation" (MOFCOM & MEP on Feb 18, 2013)⁶⁸

Across these various guidelines are principles regarding foreign cooperation and investment, with an emphasis on observing host countries' regulations and laws, including those regarding environmental protection and EIAs, and include calls to adhere to scientific studies and careful decision making. These guidelines are intended to broadly outline how SOEs should fulfill corporate social responsibilities towards sustainable development. Though the various guidelines stipulate that enterprises shall conduct environmental impact assessments according to host countries' standards, the guidelines for making environmental impact and other project information transparent and publically accessible and

⁶³ NDRC, PRC. (2008, Mar 28). "Country Report on China's Participation of the Greater Mekong Subregion Cooperation". http://en.ndrc.gov.cn/newsrelease/200804/t20080430_208063.html

⁶⁴ State Council, PRC. (2006, Oct). "Nine Principles on Encouraging and Standardizing Outward Investment" / "关于鼓励和规范我国企业对外投资合作的意见".

<http://www.reformdata.org/index.do?m=wap&a=show&catid=342&typeid=&id=13400> (Chinese)

⁶⁵ State Council, PRC. (2007, Apr 14). "Guiding Opinion of the State Council on Encouraging and Standardizing Enterprises' Cooperation in Outbound Investment" / "国务院关于鼓励和规范企业对外投资合作的意见".

<http://cpc.people.com.cn/GB/64162/64165/78561/79761/7244527.html> (Chinese)

⁶⁶ SASAC, PRC. (2007, Dec). "Guidelines to the State-owned enterprises Directly under the Central Government on Fulfilling Corporate Social Responsibilities" / "关于中央企业履行社会责任的指导意见".

<http://en.sasac.gov.cn/n1408035/c1477196/content.html>

⁶⁷ Min. of Commerce, Min. of Foreign Affairs, State-owned Assets Supervision and Administration Commission. (2008, Jun 6). "Circular to Regulate the Overseas Investment and Cooperation of Chinese Companies" / "关于进一步规范我国企业对外投资合作的通知". <http://www.mofcom.gov.cn/aarticle/b/g/200808/20080805721680.html> (Chinese)

⁶⁸ Ministry of Commerce & Ministry of Environmental Protection, PRC. (2013). "Notification of the Ministry of Commerce and the Ministry of Environmental Protection on Issuing the Guidelines for Environmental Protection in Foreign Investment and Cooperation". <http://english.mofcom.gov.cn/article/policyrelease/bbb/201303/20130300043226.shtml>

respecting local traditions and community rights are relatively vague.⁶⁹ These provisions are not legally binding.⁷⁰

In March 2016, China, Thailand, Cambodia, Laos, Vietnam, and Myanmar signed the “Sanya Declaration of the First Lancang-Mekong Cooperation (LMC) Leaders’ Meeting—For a Community of Shared Future of Peace and Prosperity Among Lancang-Mekong Countries”⁷¹ and “Joint Statement on Production Capacity Cooperation Among Lancang-Mekong Countries.”⁷² However, the above cooperation agreement did not make related regulations on ecological protection and sustainable development in the Mekong River Basin.

Most significantly in recent years regarding transboundary policies, China’s latest overarching development strategy, embodied by its “One Belt One Road” (OBOR) or “Belt and Road Initiative” (BRI), places large infrastructure development at the core of its goal of promoting economic growth and reducing poverty both domestically and regionally. These objectives are intended to be achieved through region-wide policy coordination, financial integration, connecting production systems and facilitating trade. Proposed by China’s President Xi Jinping, it focuses on connectivity and cooperation between China and its neighbouring countries, while relying on two main components: 1) the land-based “Silk Road Economic Belt” (SREB); and 2) ocean-based “Maritime Silk Road” (MSR). The five countries in the Greater Mekong Subregion (Thailand, Laos, Vietnam, Cambodia, and Myanmar) are among the focal countries for China’s Belt and Road Initiative.

In May 2017, the MEP, MOFA, MOFCOM and NDRC issued the “Guidance on Promoting Green Belt and Road”⁷³, and the MEP further articulated this “Green Belt and Road” concept through “The Belt and Road Ecological and Environmental Cooperation Plan”⁷⁴. This plan emphasizes strengthening environmental policy coordination among nations through sharing “the concept and practice of ecological civilization and green development,” building “platforms for eco-environmental protection cooperation,” and promoting the “exchange and cooperation of social organizations and think tanks,” including building partnerships among environmental NGOs across the Belt and Road countries. The plan also sets out principles of strengthening corporate environmental governance and management, and increasing transparency regarding environmental impacts, again emphasizing adherence to local environmental regulations and standards.

⁶⁹ For more details regarding social and environmental safeguards for Chinese outbound investment, see: Inclusive Development International. (2017, Mar). “Safeguarding People and the Environment in Chinese Investments”. <http://www.inclusivedevelopment.net/wp-content/uploads/2017/03/Safeguarding-People-and-the-Environment-in-Chinese-Investments.pdf>

⁷⁰ Tao, H & Wang, H. (2013, Jul 3). “A Look at China’s New Environmental Guidelines on Overseas Investments”. World Resources Institute. <http://www.wri.org/blog/2013/07/look-chinas-new-environmental-guidelines-overseas-investments>

⁷¹ MOFA, PRC. (2016, Mar 23). “Sanya Declaration of the First Lancang-Mekong Cooperation (LMC) Leaders’ Meeting—For a Community of Shared Future of Peace and Prosperity Among Lancang-Mekong Countries”. http://www.fmprc.gov.cn/mfa_eng/wjdt_665385/2649_665393/t1350039.shtml

⁷² State Council, PRC. (2016, Mar 23). “Joint Statement on Production Capacity Cooperation”. http://english.gov.cn/news/top_news/2016/03/23/content_281475313051989.htm

⁷³ Ministry of Environmental Protection, Ministry of Foreign Affairs, National Development and Reform Commission & Ministry of Commerce, PRC. (2017, May 8), “Guidance on Promoting Green Belt and Road”. <https://eng.yidaiyilu.gov.cn/zchj/qwfb/12479.htm>

⁷⁴ Ministry of Environmental Protection, PRC. (May 2017). “The Belt and Road Ecological and Environmental Cooperation Plan”. <https://www.yidaiyilu.gov.cn/wcm.files/upload/CMSydlgw/201705/201705140543014.pdf>

The NDRC, MOFCOM, MOFA and People's Bank issued the "Guiding Opinions on further Guiding and Regulating the Direction of Overseas Investment" on August 4th, 2017, emphasizing the need to conduct overseas investment in a systematic and scientific manner that considers host countries' environmental and safety standards, setting out encouraged, restricted and banned overseas investments.⁷⁵ One such encouraged activity is exploring and developing overseas energy resources on the basis of economic return.⁷⁶

With regard to transboundary co-governance of the Nu River, there is neither a leaders' meeting mechanism at the national or regional level, nor any cooperation agreement for the protection and sustainable development of this international river. Beyond the broad guidelines set out by the State Council and Ministries for SOEs, many of which are active in the Nu-Salween-Thanlwin River basin, there are no formal transnational mechanisms for regulating transboundary investment and development projects.

⁷⁵ State Council, PRC. (2017, Aug 4). "Guiding Opinions on further Guiding and Regulating the Direction of Overseas Investment" / "关于进一步引导和规范境外投资方向指导意见的通知". http://www.gov.cn/zhengce/content/2017-08/18/content_5218665.htm (Chinese)

⁷⁶ State Council, PRC. (2017, Aug 8).

Chapter 6. Institutional and Actor Analysis

This section describes in detail the different institutions, both state and non-state actors, that have played and continue to play important roles in hydropower decision-making in China and Yunnan Province, as well as in the wider Nu-Salween-Thanlwin River basin.

6.1 Government agencies

6.1.1 National Development and Reform Commission (NDRC)

The National Development and Reform Commission (NDRC), formerly the State Planning Commission, was established in 1952 and operates under the State Council, which is the highest administrative authority of the PRC that is led by the Premier of China. The NDRC is a macroeconomic management agency whose role is to research and formulate national economic and social development policies, maintain balance of aggregate supply and demand, and guide comprehensive economic system reform.

The NDRC is responsible for the Nu River hydropower planning arrangements, management and approval. The NDRC delegated inviting public bidding of the Nu River hydropower planning unit and the EIA unit, coordination of planning work, and inspection and acceptance to CREEI.⁷⁷ The NDRC delegated the specific work review and the organization and establishment of a hydropower planning expert group to review and publish opinions to the China Renewable Energy Engineering Institute.^{78,79}

6.1.2 National Energy Administration (NEA)

In May 2005, the State Council decided to set up the National Energy Leading Group as a high-level coordinating agency with the primary responsibility to: 1) assess the national energy development strategy and planning; 2) assess energy development and conservation, energy security and emergency response, external energy cooperation and other major policies; and 3) provide recommendations to the State Council. At the same time, the State Council set up the National Energy Leading Group Office (deputy ministerial level) in the NDRC as the office of the National Energy Leading Group.

In March 2008, the National Energy Leading Group was abolished following the establishment of the National Energy Administration (NEA), as part of the NDRC.⁸⁰ The NEA is managed by the NDRC to promote the organic combination of energy industry management and macro-planning and control of economic and social development. In March 2013, the NEA was re-organized, integrating the responsibilities of the NEA and the State Electricity Regulatory Commission to promote electricity

⁷⁷ The full name of HydroChina Corporation is China Hydropower Engineering Consulting Group (中国水电工程顾问集团公司).

⁷⁸ See also: Section 5.3.

⁷⁹ NDRC, Ministry of Environmental Protection, PRC. (2011). "Interim Measures for the Review of River Hydropower Planning Reports and Planning Environmental Impact Assessment Reports" / "《河流水电规划报告及规划环境影响报告书审查暂行办法》". http://www.nea.gov.cn/131329775_31n.pdf. (Chinese)

⁸⁰ See more: Downs, E.S. (2008). http://www.frankhaugwitz.eu/doks/policy/2008_11_China_NEA_Brookings.pdf

reform and strengthen energy supervision and management.^{81,82} The latter, set up in 2003 as one of the outcomes of the electric power system reform, was in charge of the establishment of electricity market operation rules and the supervision of the national electricity regulation, while the NEA's prior responsibilities included the formulation of energy development planning and industry policy. After the agency restructuring, the NEA is still managed by the NDRC.

6.1.3 China Renewable Energy Engineering Institute (CREEI)

The CREEI is the primary industrial policy research center for China's electricity, water conservancy, and clean renewable energy development. Its predecessor is the Water Resources and Hydropower Planning and Design General Institute (WRHP), co-managed by the NEA and the MWR. After the establishment of the Electricity Industry Department (EID) in 1993, the former WRHP was divided into two parts, and the EID approved the establishment of the CREEI in February 1995.

During China's power system reform in 2002, the CREEI operated under the State Council as an affiliate company of the HydroChina Corporation (see Section 5.2.7). In 2011, the CREEI was moved under the management of the Power Construction Corporation of China (see Section 5.2.5). While undergoing these organizational changes, CREEI's functions, which include: hydropower planning review, specification of hydropower engineering design and technical standards revision and review, clean renewable energy research, and electric power planning research, remain unchanged. The NDRC also delegated responsibility for hydropower planning review and publishing review opinions with regard to China's major rivers to the CREEI.⁸³

6.1.4 Ministry of Water Resources (MWR)

The MWR was established in October 1949. In 1958, the MWR and the Ministry of Electricity merged to form the Ministry of Water Resources and Power, but separated in 1979 and re-merged in 1982. The MWR was restored in 1988, and its main functions include: ensuring the rational development and utilization of water resources, drawing up strategic planning and policy for water, compiling the comprehensive planning for the important rivers and lakes, among other functions. The Resettlement Bureau of the MWR undertakes the review and approval of resettlement plans for large and medium-sized water conservancy projects. Under the MWR, the General Institute of Water Resources and Hydropower Planning and Design (GIWP) provides technical and consultative services relating to water conservancy and hydropower projects.

6.1.5 Yangtze River Water Resources Commission (YRC)

The YRC (also known as Changjiang Water Resources Commission) was established in Feb 1950 as a river basin management agency created by and operating under the MWR. The YRC is a public institution with administrative functions that encompass diverse and wide-ranging aspects of water administration in the Yangtze River Basin and areas west of the Lancang-Mekong River (including the Lancang-Mekong River), including flood control and drought relief, management of water conservancy

⁸¹ State Council, PRC / 国务院. (2013). "New round of State Council agency reform, consolidated into 25 agencies" / "新一轮国务院机构改革将启动, 组成部门减至 25 个". http://www.gov.cn/2013lh/content_2350688.htm (Chinese)

⁸² State Council, PRC / 国务院. (2013). "Program for State Council agency reform and roles" / "国务院机构改革和职能转变方案". http://www.gov.cn/2013lh/content_2354443.htm (Chinese)

⁸³ NDRC & MEP, PRC. (2011, Nov 18). Interim Measures on Examination of River Hydropower Planning and its EIA / "河流水电规划报告及规划环境影响报告书审查暂行办法". http://www.nea.gov.cn/131329775_31n.pdf (Chinese)

infrastructure construction, groundwater conservation, and research. According to the provisions of MWR⁸⁴, the YRC is responsible for reviewing and approving water-related construction project plans, which include plans for the Nu River.

6.1.6 Ministry of Environmental Protection (MEP)

The State Environmental Protection Administration (SEPA) is the predecessor to the MEP. In 1972, the Chinese government sent a delegation to participate in the first session of the UN Conference on the Human and Environment, and subsequently set up a leading group on environmental protection in 1973. In 1988, the Ministry of Urban and Rural Construction and Environmental Protection was divided into the Ministry of Construction and the Environmental Protection Agency. In 1998, the EPA was upgraded to the State Environmental Protection Administration. In 2008, the SEPA was upgraded to the MEP.

The MEP's primary responsibilities include drawing up environmental protection policies, regulations and legislation, coordinating and guiding resolution of inter-regional, inter-departmental, and river basin-wide environmental problems. The MEP is also responsible for environmental monitoring, surveying, and establishing environmental standards. The role of the MEP has expanded in recent years as the Chinese government has increasingly recognized and emphasized the need for environmental protection, with the expansion of regulatory and enforcement legislation (see Section 5.3).

6.1.7 NPC Environmental Protection and Resources Conservation Committee (ERC)

The ERC was established in March 1993 as Special Committee of the National People's Congress, out of nine special committees. In 1998, the ERC established the "EIA Law" drafting leading group. During consideration of the EIA Law draft, regulations about EIAs for policies and EIAs for plans were met with strong opposition from departments that perceived EIAs as tools to expand the power of environmental protection departments. In August 2000, the Legislative Affairs Office of the State Council and the ERC agreed on the major issues concerning the draft of the EIA Law, dropping the requirement for policies to undergo EIAs, while the State Council's Legislative Affairs Office supports the EIA Law. The "EIA Law" was finally passed by the NPC Standing Committee on 28th Oct 2002, and came into effect on 1st Sep 2003.

From August 2011 to August 2014, former Party Secretary of Yunnan Bai Enpei served on the ERC.

6.1.8 Yunnan Provincial Government (YPG)

The Yunnan Provincial Government is the highest local administrative agency in Yunnan Province, which was reorganized by the former Yunnan Military and Political Committee in Oct 1950, and was renamed the Yunnan Provincial People's Committee in 1955, and then renamed again as the Yunnan Provincial Revolutionary Committee in 1968. In 1979, the Yunnan Provincial Revolutionary Committee was disbanded and the People's Government of Yunnan Province was re-established.

⁸⁴ Ministry of Water Resources, PRC. (2010, Mar 14). "Notice regarding Defining Scope and Registry of Rivers and Lakes where Construction Plans are subject to Yangtze River Water Resources Commission Appraisal and Approval" / "《关于明确由长江委负责审查并签署水工程建设规划同意书的河流（河段）湖泊名录和范围（试行）的通知》". http://zwgk.mwr.gov.cn/zfxxgkml/201212/t20121213_334817.html (Chinese)

Bai Enpei was the Party Secretary of Yunnan Province from October 2001 to August 2011. From January 2007 to August 2011, the Provincial governor was Qin Guangrong, who then moved onto being Party Secretary of Yunnan, from August 2011 to October 2014.

From August 2011 to October 2014, the governor was Li Jiheng, who became the Party Secretary of Yunnan from October 2014 to August 2016. The current Party Secretary of Yunnan is Chen Hao, who succeeded Li Jiheng as Governor from October 2014 to December 2016. The current Governor is Ruan Chengfa, who assumed office in December 2016.

6.1.9 Yunnan Province Resettlement Bureau (YRB)

The predecessor of the Yunnan Provincial Resettlement Bureau is the Yunnan Provincial Resettlement Office. In early 1990, the Yunnan Provincial Government decided to set up the Yunnan Provincial Resettlement Office, and the YRB has primarily been responsible for carrying out resettlement work for large- and medium-sized water conservancy and hydropower projects in Yunnan.

Its responsibilities include reviewing compensation for land requisition, the resettlement planning framework, and planning for large and medium-scale water conservancy and hydropower projects.

6.1.10 Nujiang Prefecture Government

The Nujiang Prefecture government has consistently sought to increase the economic growth of the prefecture, due to its relative economic underdevelopment. As such, over the years, the Nujiang government has aimed to drive GDP growth through hydropower development, and has been actively promoting Nu River hydropower development since plans were initiated. In order to obtain the relevant departments' support for this initiative, Nujiang Prefecture government worked with allies in Beijing to lobby for the plan every year. When the progress in the development of large hydropower was hard to come by, they heavily promoted small hydropower instead.

6.2 State-Owned Enterprises (SOEs)

When examining the political economy of hydropower in China, it is imperative to understand the ways in which SOEs are structured and operate. In China, SOEs are administered by the State-Owned Assets Supervision and Administration Commission (SASAC), which in some cases owns the entire corporation. Many SOEs have subsidiaries that are listed on the Hong Kong and Shanghai stock exchanges.

The following companies and corporations include large-scale infrastructure construction companies involved in hydropower development, including the big five power generation companies created during the 2002 electricity and power system reform: Huadian, Huaneng, Datang, Guodian, China Power Investment (now State Power Investment Corp). Many of these companies are involved in engineering, procurement and construction (known as EPC or turnkey) projects, while others are involved in build, operate and transfer (BOT) projects. Due to the complexity of shareholding and subsidiary structures of the SOEs, this section is intended to provide a brief overview of enterprises whose work pertains to the Nu-Salween-Thanlwin River basin, either directly or indirectly.

6.2.1 China Huadian Group Corp.

Huadian Group is one of the “Big Five” power generation companies to be formed during the restructuring of the State Power Corporation. It currently holds an installed capacity of 142.8 GW, of which the majority is derived from coal. Huadian Group holds a 45.97% controlling stake in Huadian Power International Co, its flagship company.⁸⁵ Huadian Group was contracted to carry out the development of the Nu River hydropower projects in 2003, but as described in detail in Section 7.1, the Nu River hydropower dams have been included in three successive Five-Year Plans, but none of the dams included in the original 13-dam cascade plan or the subsequent 5-dam cascade plan have been constructed.

In its “Hydropower Sustainability Report”, Huadian Group has stated its commitment to protecting the ecological environment, and to conduct ecological monitoring and restoration to minimize construction impacts on ecosystems, but it is unclear if the commitment extends to overseas projects.⁸⁶

6.2.2 China Huaneng Group Corp.

Huaneng Group is the country’s largest power generation company, holding a total installed capacity of 165.5 GW. Huaneng Group holds a controlling stake in Huaneng International Power Development Corp. (HIPDC). HIPDC in turn holds a 33.33% controlling stake in the flagship company Huaneng Power International Corp., while Huaneng Group also holds an 10.23% stake.⁸⁷

In 2009, the MEP ordered a halt to Huaneng’s hydropower development work on the Jinsha River in China, due to lack of adherence to environmental assessment protocols. Its subsidiary, China Huaneng Lancang River Hydropower Company, has been involved in hydropower work in Myanmar, specifically the 600 MW Shweli I dam on the Shweli River in Shan State, which exports approximately 85% of electricity produced to China.⁸⁸

6.2.3 China Datang Group Corp.

Datang Group is the second largest power generation company in China, incorporated in 1994. In the beginning of 2017, Datang Group managed a total installed capacity of 44.34 GW, of which 35.2 GW are derived from thermal power. According to Datang Group, clean and renewable energies account for 25.71% of its total installed capacity, a formulation that includes hydropower.⁸⁹ Its subsidiary Datang International Power Generation and its subsidiaries are predominantly focused on Asian markets in Southeast and Central Asia, as opposed to further afield in Latin America or Africa. Regarding the Salween, Datang Group, through its subsidiary Datang (Yunnan) United Hydropower

⁸⁵ Huadian Group. (2017). “2017 Interim Report”.

<http://en.hdpi.com.cn/webfront/webpage/web/contentPage/id/e04405bf52e943ad90ea286ff440d24c>

⁸⁶ International Rivers. (2015, Jun). “Huadian”. <http://www.hydroscorcard.org/huadian>

⁸⁷ Huaneng Power International, Inc. (2017). “Annual Report 2016.”

<http://202.66.146.82/listco/hk/huanengpower/annual/2016/ar2016.pdf>

⁸⁸ International Rivers. (2012). “China Huaneng Group.” <https://www.internationalrivers.org/campaigns/china-huaneng-group>

⁸⁹ Datang International Power Generation Co. (2017, Mar 16). “Company Profile” / “公司概況”.

<http://www.dtpower.com/2017/0316/13.shtml> (Chinese); Bloomberg. “Company Overview of Datang International Power Generation Co. Ltd.” <https://www.bloomberg.com/research/stocks/private/snapshot.asp?privcapId=882509>

Developing Co.⁹⁰, now under the China Datang Overseas Investment Co, has signed a memorandum of understanding to construct the 4,000 MW Ywathit dam on the Salween River in Karenni State, Myanmar.⁹¹

Datang Group has been a signatory of the United Nations Global Compact starting in 2008, and has since submitted Communication on Progress reports annually, with the exception of 2016, at time of writing.⁹² Datang has also publicly committed to adhering to international agreements that China has signed onto, as well as to Chinese laws and regulations.⁹³

6.2.4 State Power Investment Corp. (SPIC)

Formerly known as China Power Investment Corp. (CPI), the State Power Investment Corp (SPIC) was created as a merger between CPI and the State Nuclear Power Technology Corporation (SNPTC). China Power International was formed out of the energy sector restructuring of the State Power Corporation. As of 2017, SPIC holds a total installed capacity of 116.6 GW. Its flagship subsidiary China Power International Development Ltd was slated to construct the Myitsone Dam on Irrawaddy River in Myanmar, until the Thein Sein regime cancelled the project in 2011.

6.2.5 Power Construction Corp. of China (PowerChina)

Established in 2011 through the consolidation of Sinohydro, HydroChina Corporation, CREEI and 58 design, construction and manufacturing companies, PowerChina is a large, entirely state-owned enterprise that is involved in the development of large-scale infrastructure, particularly for hydropower and water conservancy, as well as transportation. PowerChina is 100% controlled by SASAC, and is thus under the management of the State Council. Through its subsidiaries, PowerChina is involved in all five dam projects on the mainstream of the Salween River in Myanmar. PowerChina owns CREEI, HydroChina Corp., a state-owned engineering firm, and the more well-known Sinohydro Corp.

6.2.6 Sinohydro

Sinohydro is one of the world's largest hydropower construction companies, with an estimated 50% share of the global hydropower market.⁹⁴ Sinohydro's flagship subsidiary arm is Sinohydro International Corp. Ltd., which is primarily responsible for engineering, procurement and construction.

⁹⁰ For reference, Datang (Yunnan) United Hydropower Developing Co. was incorporated in 2007, is a joint venture of Jiangxi Provincial Planning and Design Institute of Water Conservancy and Hydropower and China Datang Overseas Investment Co. Ltd., which is in turn a wholly owned subsidiary of the Datang Group. Its sole completed project in Myanmar is the 240 MW Dapein I dam, which was constructed with the support of PowerChina's China Northwest Water Conservancy and Hydropower Engineering Consulting Co. (中国水利水电建设工程咨询西北有限公司), which was also involved with groundwork on the Kunlong dam in Shan State, Myanmar.

⁹¹ International Centre for Environmental Management. (2017, May). "Strategic Environmental Assessment (SEA) of the Hydropower Sector in Myanmar: Baseline Assessment Report – May 2017." <https://www.ifc.org/wps/wcm/connect/59f4e360-b4be-4077-96f2-4d54c622d46a/AAU1605-REP-001-01+Hydro.pdf?MOD=AJPERES>

⁹² United Nations Global Compact. "China Datang Corporation". <https://www.unglobalcompact.org/what-is-gc/participants/2053-China-Datang-Corporation#company-information>.

⁹³ International Rivers. (2015, Jun). "Datang." <http://www.hydrocorecard.org/datang>

⁹⁴ International Rivers. (2012) "The New Great Walls: A Guide to China's Overseas Dam Industry". <https://www.internationalrivers.org/resources/the-new-great-walls-a-guide-to-china-s-overseas-dam-industry-3962>

In 2011, Sinohydro was moved under the management of the Power Construction Corporation of China (see Section 6.2.5).

Sinohydro Corp. is working towards conducting its work in a manner up to World Bank's safeguard standards. Of the power generation SOEs, Sinohydro is known for being one of the leaders in developing company-wide policies on regulating environmental impacts.⁹⁵ In January 2014, Sinohydro launched its Compliance Programme to improve its social, environmental and ethical standards in work projects.⁹⁶

In 2010, Sinohydro signed a MOU with the Electricity Generating Authority of Thailand International (EGATi) to develop the 1,360 MW Hatgyi Dam on the Salween River in Karen State, Myanmar. Sinohydro has a 50% majority stake in the Hatgyi dam project, while EGATi retains a 36% share, with Myanmar's Department of Hydropower Project Implementation (DHPI) holding 10% and International Group of Entrepreneurs holding 4%.⁹⁷ Sinohydro is also involved in the 7,110 MW Mong Ton dam on the Nu-Salween-Thanlwin River in Burma, as part of a Chinese consortium led by the Three Gorges Corporation.

6.2.7 HydroChina Corp.

HydroChina (or the Hydropower and Water Resources Planning and Design General Institute) was established in 2002 by the State Council, after existing as the Administration of Water Resources and Hydropower Planning and Design for over 50 years. HydroChina is now primarily responsible for the development technical specifications, codes and standards for hydropower and wind power. By 2007, just for overseas hydropower projects, HydroChina was servicing a total installed capacity of 16,000 MW.

HydroChina Beijing Engineering Corp. (BEC) and HydroChina Kunming Engineering Corp. (KHIDI) are wholly owned subsidiaries of HydroChina that are involved in research and design of water conservancy and hydropower projects.⁹⁸ In 2005, BEC was contracted to carry out pre-feasibility studies on the Maji hydropower dam on the Nu River. In 2012, KHIDI was commissioned to conduct a 2-year mapping project for the Myanmar government's twenty-year energy plan. With regard to the Salween, KHIDI also services 14 hydropower projects in Myanmar, including the 1,400 MW Kunlong, 7,110 MW Mongton and 1,200 MW Nongpha (or Nao Pha) dams on the mainstream of the Nu-Salween-Thanlwin River.⁹⁹ All three of those dams are located in Shan State in eastern Myanmar.

⁹⁵ To access the English language versions of Sinohydro's social and environmental standards policies, see: "Occupational Health, Safety and Environmental Policy" (2013) <http://eng.sinohydro.com/uploadfile/2013/0530/20130530025657176.pdf>; "Sustainable Development Policy" (2014) <http://eng.sinohydro.com/uploadfile/2014/0625/20140625102223180.pdf>; and "Statement of Ethical Principles" (2014) <http://eng.sinohydro.com/uploadfile/2014/0529/20140529074921355.pdf>.

⁹⁶ Sinohydro. (2014, Jan 29). "SINOHYDRO Compliance Programme was Launched." <http://eng.sinohydro.com/index.php?m=content&c=index&a=show&catid=21&id=575>

⁹⁷ Sinohydro. (2008, Mar 11) "President of Thai EGAT visits Sinohydro" / "泰国产电机构总裁访问中国水电集团". <http://www.zswj.com/newsinfo.aspx?Nid=8880&NodeID=170>

⁹⁸ KHIDI. "About Us". http://www.khidi.com/KDStaticEng/K_Eng_List_AboutUs.html

⁹⁹ Tsai, LS. (Unpublished). Stakeholder Power Analysis.

6.2.8 China Three Gorges Project Corp. (TGC)

The TGC was established in 1993 by the Chinese government to manage and oversee the construction of the Three Gorges Project. Though to date it has largely been focused on hydropower development projects on the Yangtze River, TGC has been developing its overseas hydropower business. The TGC owns China International Water and Electric Corp. (CWE) / 中国水利电力对外公司, which manages hydropower projects in South America, Africa and Southeast Asia. In 2014, the World Bank sanctioned CWE and its controlled affiliates due to misconduct related to infrastructure projects in Africa and Southeast Asia.¹⁰⁰

In April 2008, the TGC signed a “Strategic Cooperation Framework Agreement” with Sinohydro Corp. and China Southern Power Grid to form the Chinese Consortium China (CSC). In November 2010, the TGC, on behalf of the Consortium, signed a memorandum of understanding with Myanmar’s Ministry of Electric Power No. 1, the Department of Hydropower Planning, International Group of Entrepreneurs Co. and EGAT to develop the 7,110 MW Mongton Dam in Northern Shan State¹⁰¹ – progress has been stalled on work due to armed conflict.¹⁰² The TGC is the leading party of the Chinese consortium to back the project.¹⁰³

6.3 Civil Society

Civil society in China plays an important role in addressing policy gaps pertaining to hydropower development, particularly socioenvironmental impacts that are ignored or neglected by state-owned corporations. A diverse range of actors with different motivations for protecting the Nu River formed collaborative networks and coalitions, playing a key role in influencing the Nu River basin development plans.

The following organizations and groups are several of the most important and influential civil society actors involved in the Nu River campaign, but this is not intended to be an exhaustive list of all the organizations that supported or were involved in efforts to protect the Nu River.

6.3.1 Friends of Nature

Friends of Nature (FON), officially registered on March 31st 1994, is the oldest environmental NGO in China with over 20,000 volunteers. FON focuses on environmental education, reducing household carbon emissions, promoting eco-community, and engaging in public interest litigation and policy advocacy to protect the environment.

¹⁰⁰ World Bank. (2014, Sep 24). “World Bank sanctions China International Water and Electric Corp. for misconduct in Africa and South East Asia.” <http://www.worldbank.org/en/news/press-release/2014/09/24/world-bank-sanctions-china-international-water-electric-corp-misconduct-africa-south-east-asia>

¹⁰¹ China Southern Power Grid Co. (Nov 24, 2010). “MOU for Southeast Asia’s largest hydropower station signed in Myanmar” / “东南亚最大水力发电站开发谅解备忘录在缅甸签署”. <http://www.sasac.gov.cn/n2588025/n2588124/c4245439/content.html> (Chinese)

¹⁰² Tsai, LS. (Unpubliished) Stakeholder Power Analysis.

¹⁰³ International Centre for Environmental Management. (2017, May). “Strategic Environmental Assessment (SEA) of the Hydropower Sector in Myanmar: Baseline Assessment Report – May 2017.” <https://www.ifc.org/wps/wcm/connect/59f4e360-b4be-4077-96f2-4d54c622d46a/AAU1605-REP-001-01+Hydro.pdf?MOD=AJPERES>

6.3.2 Green Earth Volunteers

Green Earth Volunteers (GEV) was founded in 1996 by radio journalist Ms. Wang Yongchen, a prolific writer and award-winning journalist. In 2006, GEV launched the “River Decade Project” a decade-long investigation of six great rivers in Southwest China (the Min, Dadu, Yalong, Jinsha, Lancang and Nu Rivers) to study and oversee hydropower development. Each year, GEV organized about 20 journalists and experts to objectively conduct investigations with documentation and reporting of changes for local people, resettled migrants and the natural environment along these rivers.

6.3.3 Green Watershed

Green Watershed (GW), is an environmental NGO that is dedicated to improving financial institutions’ social and environmental safeguards, preserving rivers in Southwest China, and works in Yunnan Province and the greater Nu-Salween-Thanlwin River basin to support community management of watersheds and forests and other natural resources, particularly with communities who belong to ethnic minority or indigenous groups. Key projects have included the community-managed Lashihai wetlands in Lijiang County in Yunnan, community watershed management and socio-environmental protection in the Nu River valley, as well as green finance initiatives with Chinese financial institutions.

6.3.4 Hengduan Mountain Institute

Hengduan Mountain Institute has long been engaged in the geological and ecological risk assessments of hydropower development in Southwest China. The president, Yang Yong, is one of the first experts to study the geology and hydrology of the upper reaches of the Yangtze River and the Yarlung-Tsangpo (Brahmaputra) River. Over 2 decades, Hengduan Mountain Institute has studied the Jinsha-Yangtze, Qingyi, Yalong, Dadu, Nu-Salween-Thanlwin, Lancang-Mekong, Yarlung Tsangpo-Brahmaputra, Han, and Tarim Rivers.

6.4 Scholars and Academics

Academics play an important role in decision-making processes in China, due to a large proportion of political leaders and ministry officials holding advanced degrees in natural sciences or engineering. As such, members of institutions like the Chinese Academy of Sciences and the Chinese Academy of Engineering, known as Academicians, are highly influential.

Among scholars, there are two factions with opposing views on Nu River hydropower development. Both factions contribute a lot in debate which gradually formulates more clear concepts of sustainability and Ecological Civilization. The first faction advocated for dam construction on Nu River, their main representatives being He Zuoxiu, Lu Youmei, He Yaohua, Feng Jiankun, Chen Houqun, Xu Xiwei, Guo Shunmin. The second faction advocated careful decision-making on dam construction, their primary representatives being Zheng Yuxin, Zheng Yisheng, Li Dun, Sun Wenpeng, Xu Daoyi, Shen Xiaohui, Fan Xiao, Li Bosheng, Huang Guangcheng, among others.¹⁰⁴

¹⁰⁴ A more detailed list of the scholars and academics, their positions and published work pertaining to the Nu River can be found in the Annex.

6.4.1 Scholars advocating hydropower on Nu River

Positioning hydropower development as the only feasible measure for Nu people to achieve economic prosperity, scholars of the Chinese Academies and government agencies like He Zuoxiu and Lu Youmei believe that it is not only necessary to vigorously develop hydropower, but also that Nu River hydropower development would not affect the ecological integrity of old-growth forests and the Three Parallel Rivers World Natural Heritage Site.¹⁰⁵ Other scholars, like Feng Jiankun and He Yaohua, argued that that Nu River hydropower development would revitalize Nujiang's economy and improve poverty alleviation. These scholars believed that ecotourism could not provide as many benefits as hydropower, and considered resettlement to be possible means of reducing the population pressure on the Heritage Site' environment.¹⁰⁶

6.4.2 Scholars advocating careful decision-making on hydropower

Other scholars hold a more critical view of hydropower development on the Nu River, and made public arguments for careful decision-making on hydropower from a number of disciplinary perspectives. Environmental economists like Zheng Yuxin and Zheng Yisheng and ecologists like Li Bosheng advocated the need for careful hydropower development on the basis of protecting an ecologically sensitive region in China and ensuring that economic development would be beneficial for all stakeholders. Social scientists like Li Dun, who participated in the first expert review of the Nu River EIA, and the late Huang Guangcheng of the Yunnan Academy of Social Sciences, opposed hydropower development on the Nu River because proper procedures and safeguards were not adhered to.

Geologists like Xu Daoyi, Sun Wenpeng, and Fan Xiao argued for cautious planning due to the geological risks posed by building a cascade of large dams in a seismic zone. Other prominent scholars like Shen Xiaohui of the State Forestry Administration, Liu Shukun, a hydraulic engineering expert of the Institute of Water Resources and Hydropower Research, similarly advocated for the need for comprehensive basin-wide planning in national and provincial level policymaking conferences.

¹⁰⁵ Xinhua Daily / 新华网. (2005, Oct 23). "Two scholars recommend developing Yunnan Nu River hydropower" / "两位院士上书建议开发云南怒江水电". http://news.xinhuanet.com/politics/2005-10/23/content_3671403.htm (Chinese)

¹⁰⁶ Sina News Center. (2004, Nov 5). "Scientific Development view regarding Nu River hydropower development" / "科学发展观与怒江水电开发". <http://news.sina.com.cn/c/2004-11-05/14074825929.shtml> (Chinese)

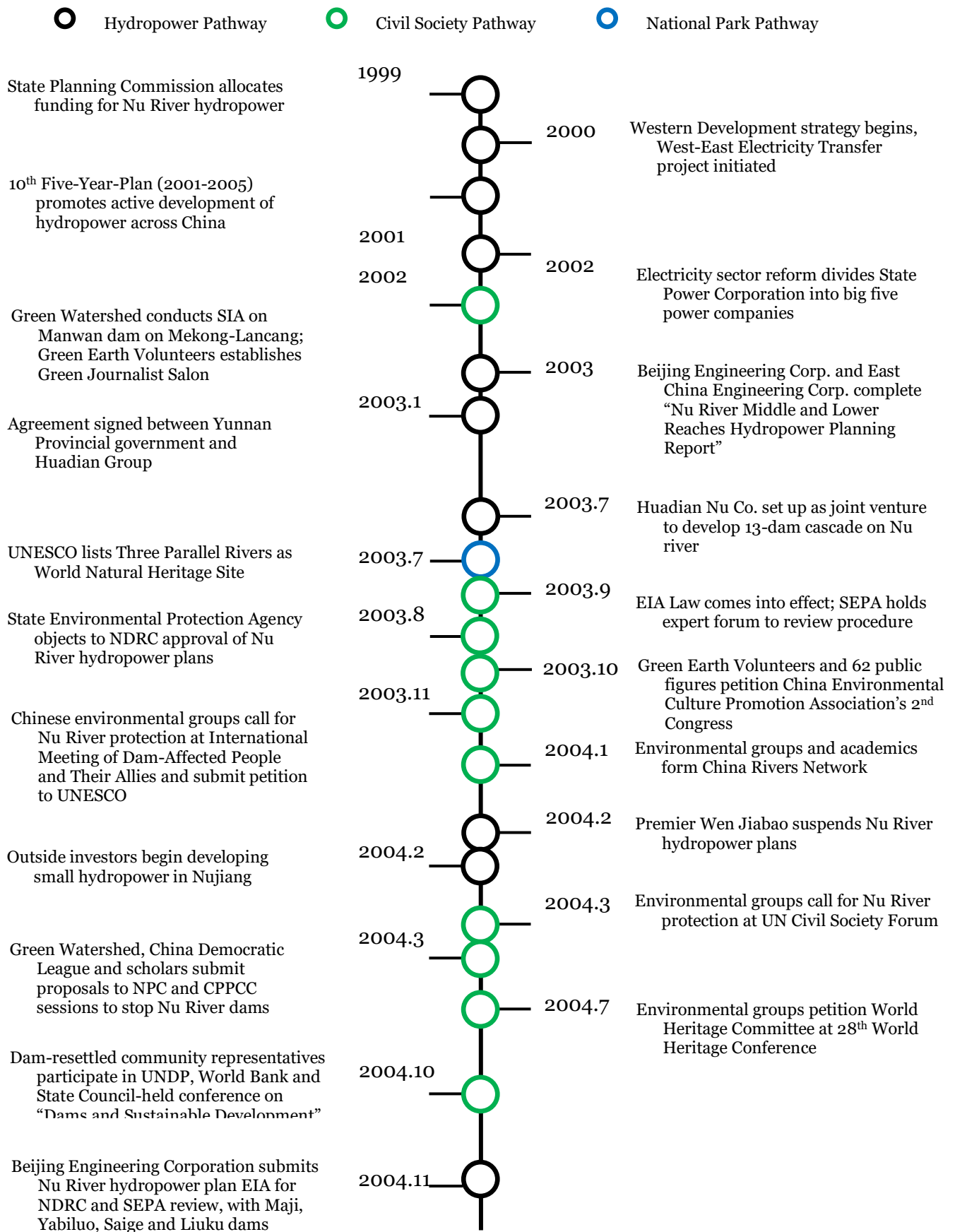
Chapter 7: Nu River Development Pathways

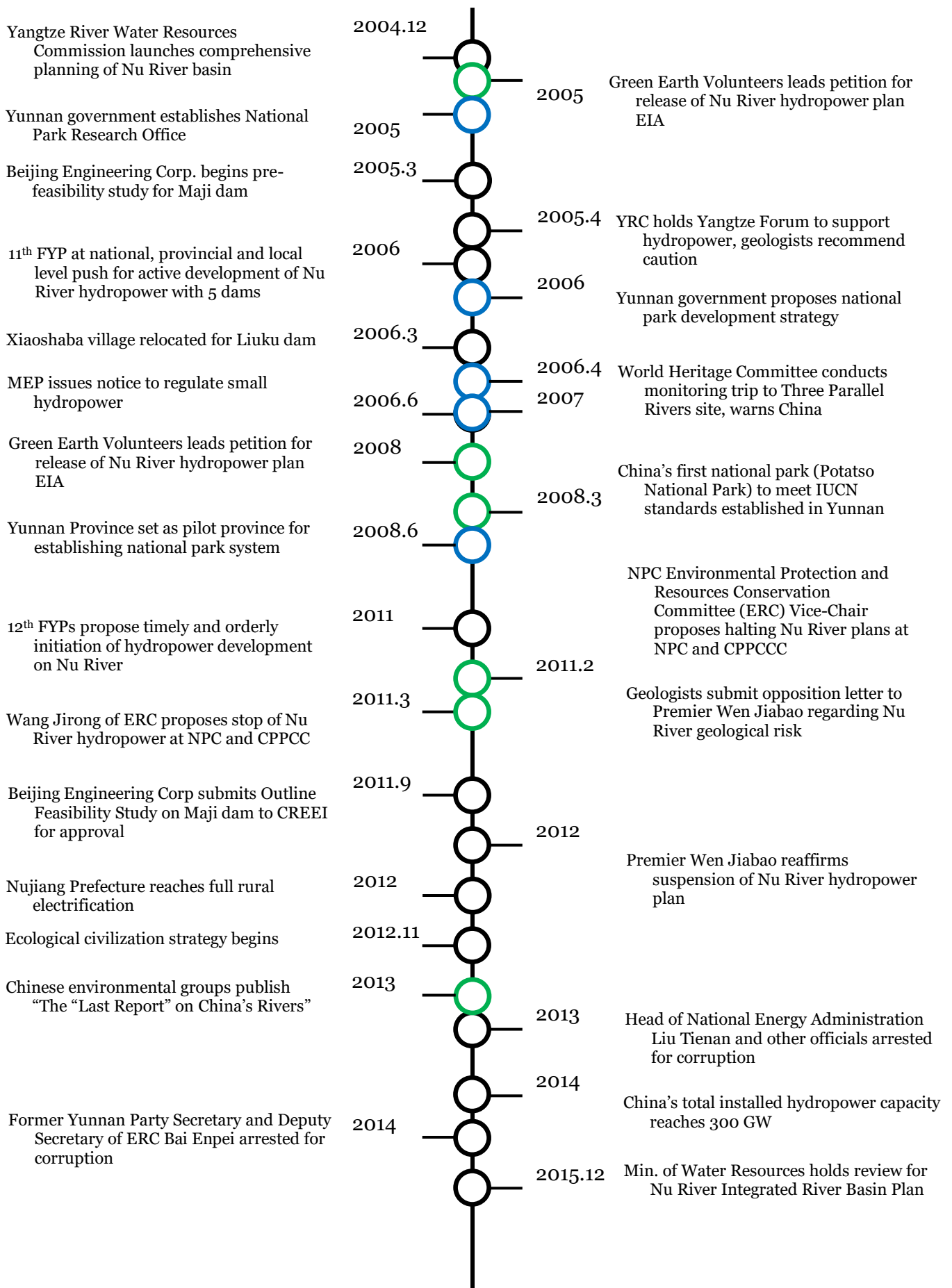
The following sub-sections discuss the different development pathways pertaining to the Nu-Salween-Thanlwin River, how these pathways are shaped and reshaped by various state and non-state actors, and how they have played out concurrently over the past two decades. The Nu-Salween-Thanlwin River development pathways are closely linked to China's socioeconomic development plan and strategies, and how these are manifested in its strong focus on hydropower development as one of the country's main sources of energy, next to coal and oil. There has been intense competition between interest groups over the fate of the Nu River in China, including between a range of government decision-making bodies at the prefecture, provincial and national level, state owned enterprises (SOEs), academic institutions and civil society.

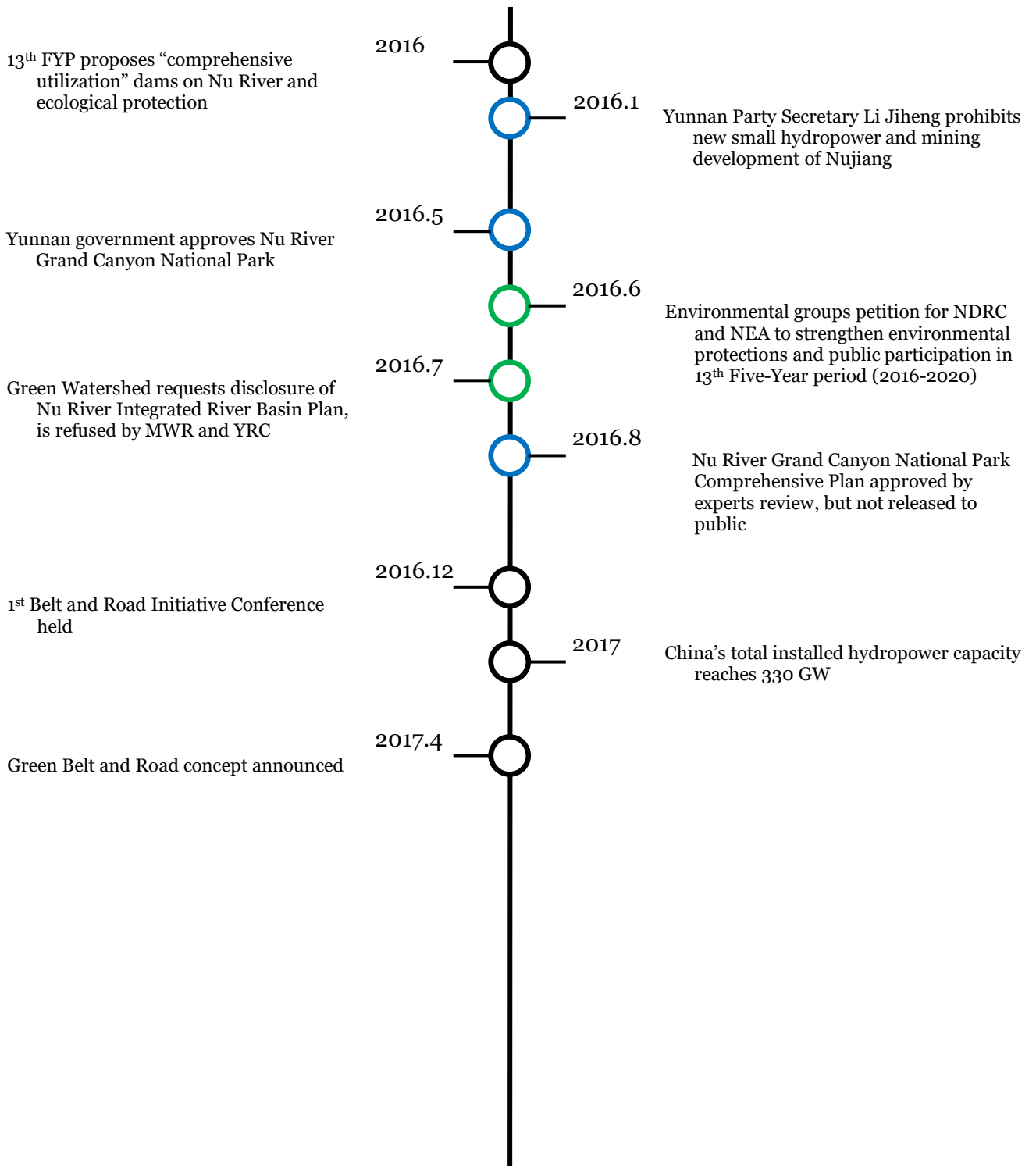
The development pathways that have been identified include: 1) Large-scale Hydropower; 2) Civil Society Protection; 3) Small Hydropower; 4) Multi-Purpose Water Management; 5) National Parks and Protected Areas; and 6) Energy Sector Reform.

It is important to understand that these pathways are not mutually exclusive, and to recognize that the different pathways presented here, have been progressing simultaneously with developments in one pathway informing the other. These pathways are intended to illustrate how diverse stakeholders broadly envision the development and management of the Nu River and the governance structures involved. The pathways laid out here are largely influenced by government policies and key decision-making actors, and represent the options for a system of water governance that can be pursued in a way that considers all stakeholders' views and priorities, is inclusive of marginalized voices, and is transparent regarding socio-environmental impacts and accountability mechanisms.

Timeline of Key Events for Nu River Pathways







7.1. Large-scale Hydropower Pathway

7.1.1 National economic context of Western Development strategy

The plans for a cascade of mainstream dams on the Salween (Nu) River emerged following China's economic transition during the "reform and opening up" of the 1980s under Deng Xiaoping's "two-step development" strategy. The first step emphasized development of China's Eastern coastal area, including through opening up to international investment and trade, followed by the second step to link the Eastern region's economic growth to stimulate the development of the Western region of China.

By the late 1990s, then-Premier Li Peng's tenure from 1988-1998 ended with an economic bubble in the Eastern coastal areas, and underdevelopment in the Western regions. The 1997 Asian financial crisis resulted in stagnation of China's foreign trade and shrinking of export-oriented economy. Zhu Rongji became Premier from March 1998, and after the 1998 floods¹⁰⁷, he led the new State Council to address the Asian financial crisis' impacts by expanding domestic demand to allow for an economic "soft landing."¹⁰⁸ The central government's economic development strategy shifted from an export-oriented economy to one that simultaneously promoted investment in underdeveloped Western regions of China, while continuing to support industrial energy demand and production in the Eastern seaboard.¹⁰⁹ In 2000, the new State Council declared Western Development to be the new development strategy. With this, the West-East Electricity Transfer Project (WEETP), and hydropower-driven economic development, became one of the central strategies to promote China's economic development.¹¹⁰

It should be noted that prior to the formal adoption of the Western Development strategy, from 1994-1999, the State Planning Commission (now NDRC) had already arranged more than 30 million RMB of funds for pre-planning, exploration, and other activities related to the Nu River hydropower development.

7.1.2 West-East Electricity Transfer Project rationale

As a manufacturing hub and core driver of China's national economic development, Guangdong had the highest GDP growth of all Chinese provinces. In order to ensure that the industrial sector would have sufficient energy, the central government was inclined to supplement Guangdong's energy needs through capital and policy provision. Guangdong Province could benefit through GDP growth and increase tax revenue, but this long-distance power transmission plan would be hindered by issues of financial feasibility and stability.¹¹¹

¹⁰⁷ The 1998 floods were a series of catastrophic floods that occurred from June-September 1998 along the Yangtze River and other major rivers across China, killing over 4,000 people.

¹⁰⁸ China Youth Daily. "9th Five-Year-Plan (1996-2000): Macro-control; Soft economic landing" / "九五计划 (1996-2000) : 宏观调控 经济软着陆". <http://dangshi.people.com.cn/GB/151935/204121/205066/12926029.html>

¹⁰⁹ MOFCOM. "Implementing Western Development Strategy" / "实施西部大开发战略". <http://history.mofcom.gov.cn/?newchina=%E5%AE%9E%E6%96%BD%E8%A5%BF%E9%83%A8%E5%A4%A7%E5%BC%80%E5%8F%91%E6%88%98%E7%95%A5-2>

¹¹⁰ Magee, D. (2006). "Powershed politics: Yunnan hydropower under Great Western Development."; Dore, J & Yu, XG. (2004). "Yunnan Hydropower Expansion: Update on China's energy industry reforms and the Nu, Lancang and Jinsha hydropower dams."

¹¹¹ Xinhua News. (2011, Nov 14). "Anecdotal History of Energy: Zhou Xiaqian reflects on West to East Power Transfer – the National Context" / "能源口述史：周小谦忆“西电东送”：全国的大局". <http://news.xinhuanet.com/newscenter/2002->

Li Changchun, Party Secretary of Guangdong Province, had initially called for the construction of 10,000 MW of energy infrastructure in Guangdong during the 10th Five-Year period (2001-2005). However, then-Premier Zhu Rongji proposed power transmission to Guangdong through developing hydropower in the water-rich Southwest, as the revenue derived from electricity production could be invested in the comparatively poorer Western regions.

The leaders of Guangdong recognized that it was uneconomical to have long-distance transmission lines and that there would be stability issues with the power grid. Despite these challenges, Zhu Rongji was utterly committed to the WEETP, as indicated in his statement that if it could not be achieved, he would resign.¹¹² As a result of pressure from the highest level of government, the Guangdong Provincial leaders conceded to the WEETP strategy. While the Chinese leaders often presented WEETP as killing two birds with one stone, the plan overlooked environmental issues pertaining to large infrastructure development of rivers in the southwest, as well as the potential for distributed power generation and transmission systems to fulfil the same goals.

7.1.3 Energy sector reform incentivizes Nu River hydropower

In 1998, the Ministry of Electric Power was converted into the State Power Corporation of China, with regulatory functions to be inherited by the State Economic and Trade Commission and the State Development and Planning Commission (now the State Council). In 1999, the State Planning Commission (now NDRC) “according to China’s energy situation, decided to use a procedural approach to the development of the Nu River,” allocating funds for Yunnan Province hydropower planning for the middle and lower reaches of the Nu River.¹¹³ By this point, the Beijing Institute of Hydropower Survey and Design (now Beijing Engineering Corp., see Section 5.2.7), had begun drawing up plans for Nu River hydropower.¹¹⁴

At the time, the State Power Corporation owned 46% of China’s total installed capacity and 90% of China’s transmission systems.¹¹⁵ In 2002, in order to improve the efficiency of the power sector, the State Power Corporation was divided into two major transmission grid companies (State Grid Corp. of China and Southern Power Grid Co.), four affiliated businesses, and the five major power generation companies: Huaneng, Huadian, Datang, Guodian and China Power Investment (CPI).¹¹⁶ This electricity sector reform in 2002 was intended to make the SOEs more efficient by separating power transmission and generation functions, but ended up incentivizing a rush among the newly corporatized SOEs to claim the rights to develop dams on China’s major rivers.¹¹⁷

[12/29/content_673784.htm](http://energy.people.com.cn/n1/2016/0223/c71661-28142448.html) (Chinese)

¹¹² People’s Daily. (2016, Feb 23). “NEA Chief Zhang Guobao: Experiences from West to East Power Transfer Policy and Implementation” / “能源局原局长张国宝：亲历西电东送工程的决策和实施”.

<http://energy.people.com.cn/n1/2016/0223/c71661-28142448.html> (Chinese)

¹¹³ Outlook Weekly. “Nu River dams “debate”: What is being debated in the large dam debate” / “怒江“争”坝 大坝之争争什么”. <http://business.sohu.com/20041206/n223346333.shtml> (Chinese)

¹¹⁴ Magee, D. & McDonald, K. (2006). “Beyond Three Gorges: Nu River Hydropower and Energy Decision Politics in China”. *Asian Geographer* 25(1-2).

¹¹⁵ For more details, see: Xu, SF & Chen, WY (2004). “The reform of electricity power sector in the PR of China.”

¹¹⁶ Xinhua Daily. (2002, Dec 29). “Splitting of World’s Largest Power Company in Beijing completed; Generation and transmission separated” / “世界最大电力企业拆分在北京完成 实现厂网分开”.

http://news.xinhuanet.com/newscenter/2002-12/29/content_673784.htm (Chinese)

¹¹⁷ Dore, J & Yu, XG. (2004). “Yunnan Hydropower Expansion: Update on China’s energy industry reforms and the Nu, Lancang and Jinsha hydropower dams.”

Following this reform, the big five power generation companies competed to increase profits through their bids to develop river resources. The five SOEs competed to occupy rivers, particularly the largely unexploited ones in Southwest China, to secure potential dam sites, coming to be known as the “River-enclosure Movement”. Together, the power generation companies, engineering and design institutes and construction firms embarked on a period of rapid and uncoordinated hydropower development, while labeling the hydropower project as key national energy projects, or WEETP national strategy projects.¹¹⁸

In the process of reforming the power sector SOEs to increase their economic performance and efficiency, the central government also unleashed market incentives that drove rapid hydropower development, coinciding with the Western Development and WEETP strategies. Despite the emphasis on planning and EIAs, the government did not enforce regulations for the SOEs, and decision-making processes were often captured by strong economic incentives such as tax revenue.¹¹⁹ It is common that SOEs relied on corrupt government officials to get projects approved quickly.

7.1.4 Yunnan Province’s economic interests in hydropower

In line with WEETP, the Yunnan Provincial Party Committee highlighted the need to speed up the development of hydropower industry. With regard to hydropower development, factors such as water volume and elevation change made the Nu, Lancang, and Jinsha River the three (out of six major rivers flowing through the Yunnan) most profitable rivers, making Yunnan a key base for implementing the WEETP strategy. The Nu River has 36,400 MW of potential hydropower resources, and accounts for about one-third of the total in Yunnan. The potentially exploitable capacity of the middle and lower reaches of the river could reach up to 21,320 MW, with estimated annual generation capacity of up to 102.96 billion kWh. The Nu River was considered to be China's one of the largest hydropower energy bases yet to be developed, with its capacity ranked as 6th out of 13 major hydropower bases in China. For rivers that had not been developed, the Nu River’s unexploited hydropower potential was second only to that of the Yarlung-Tsangpo River. In 2003, the hydropower development rate of Yunnan was about 6%, lower than the national average of 20%.¹²⁰

7.1.5 Initial Nu River hydropower plans

On 31st of January 2003, the Yunnan Provincial Government signed an “Agreement on promoting the cooperation of power development in Yunnan” with Huadian Group. Huadian Group would develop energy resources of Yunnan, specifically hydropower development of the Nu River.¹²¹ On 10th Jul 2003, Yunnan Huadian Nu River Hydropower Company was jointly set up by Huadian Group (accounting for

¹¹⁸ The Time Weekly. (2009, Jul 14). “Disorderly Southwest Hydropower Development” / “无序的西南水电开发”. http://www.time-weekly.com/html/20090714/1823_1.html (Chinese)

¹¹⁹ For reference, a 2007 study conducted by Hohai University researchers estimated that the total investment into constructing the 13-dam cascade on the Nu River would have cost 89 billion RMB. The same study estimated that if completed, though the average annual costs of operation would have exceeded 3 billion RMB, with an increase of 5.2 billion RMB for annual national tax revenue, and an increase of 2.7 billion RMB in annual provincial revenue for Yunnan and the Nujiang Prefecture government. See: Bao, GJ, Wu, ZL & Luo, HS. (2007, Dec) “Analysis of socio-economic impact of Nu River basin hydropower development” / “怒江流域水电开发社会经济影响分析”. *Advances in Science and Technology of Water Resources*. http://www.hehaiqikan.cn/slsdkjz/ch/reader/view_abstract.aspx?file_no=jz20070603&flag=1 (Chinese)

¹²⁰ Zeng, PY. (2010, Mar). “West to East Power Transfer: ” / “西电东送：开创中国电力新格局”. *A Study of the History of the CPC / 中共党史研究*. <http://www.hprc.org.cn/pdf/ZGDS201003001.pdf> (Chinese)

¹²¹ People’s Daily. (2003, Nov 25). “Nu River 13-dam cascade finally settled; Two expert factions trade barbs” / “怒江 13 级水坝开发成定局 两派专家激烈交锋”. <http://www.people.com.cn/GB/huanbao/1072/2209473.html> (Chinese)

51% of the shares), Yunnan Energy Investment Group (20%), China Resources Power (19%) and Yunnan Power Investment (10%).¹²²

Beijing Engineering Corporation and East China Engineering Corporation was responsible for the drafting of the 2003 “Nu River Middle and Lower Reaches Hydropower Planning Report”. According to this initial plan, after the completion of the 13-dam cascade, approximately 55,000 people would be resettled – more than 11% of the Nujiang Prefecture population, and more than 9% of the arable land (approx. 60,000 mu or 4,000 ha) would be flooded. If the Maji hydropower station was built, the entire Gongshan County town would be flooded and be moved to Bingzhongluo, one of the northernmost towns in Nujiang Prefecture. Much of the flooding would occur in the river valley, where the majority of agricultural land along the length of Nujiang Prefecture is located. Most of those who would be involuntarily resettled are members of ethnic minority communities with very rich cultures, customs, languages and traditions. Resettlement would destroy that intangible cultural heritage, as many customs and rituals are tied to land and livelihood practices. If these communities are relocated from the valleys to the hills, forest ecosystems would be seriously damaged by agricultural production, which would also be marginal due to lack of fertile soil.

On 3rd Jul 2003, just months after the hydropower development agreement was signed, the UNESCO World Heritage Committee decided to list “Three Parallel Rivers” as a World Natural Heritage Site. The listing of the Three Parallel Rivers as a World Heritage Site offered a different development path for the Nu River, but presented a dilemma for the Nujiang Prefecture government. Pressure from the national government and hydropower developers, along with prospects of massive increases in tax revenue¹²³, resulted in a government propaganda campaign to ensure hydropower development. For example, the Party Secretary of the Nujiang Prefecture government, Xie Yi, requested each government department and work unit to collectively write an article which explained that hydropower was “the only path to develop Nu River”, aiming to influence civil servants’ views on hydropower development. Additionally, the local newspaper and radio reported on hydropower’s benefits for various industries daily. An example of stifling dissent within the government is demonstrated by the case of Cha Chaoou, a Lisu nationality official working in poverty alleviation – when he pointed out that there were many ways to alleviate poverty and that hydropower development was not the only option, he was quickly removed from his position.¹²⁴

7.1.6 National level debates over Nu River hydropower

On August 26th, 2003, when the NDRC convened a review meeting to approve the Yunnan government’s “Nu River Middle and Lower Reaches Hydropower Planning Report”, the report did not include a dedicated EIA section or report. The State Environmental Protection Administration (SEPA)

¹²² Huadian Group. “Yunnan Huadian Nu River Hydropower Development Co. Ltd. Profile” / “云南华电怒江水电开发有限公司简介”. <http://hdnj.chd.com.cn/webfront/webpage/web/contentList/channelId/6ff4da815ab14690a80d18fe5f053e65/pageNo/1> (Chinese)

¹²³ At the time, Nujiang Prefecture government’s annual revenue was 105 million RMB, while an estimate claimed that the 13-dam cascade would bring in annual revenues of 1 billion RMB for the Prefecture. See: The Beijing News. (2003, Nov 25). “Nujiang Constructs Hydro Dams, Experts Simultaneously Disagree” / “怒江建水坝 专家齐反对”. <http://www.china.com.cn/chinese/2003/Nov/448837.htm> (Chinese)

¹²⁴ 21st Century Business Herald. “Nujiang Dilemma: Beyond hydropower, does poverty alleviation have “a second path”” / “怒江困境：除了水电，脱贫有无“第二条道路””. <http://www.china.com.cn/chinese/difang/612599.htm> (Chinese)

refused to approve the plan “on the basis that the “EIA Law” (effective Sep 1, 2003) requires that large-scale power station plans must specifically produce an EIA report.” SEPA also criticized the fact that hydropower planning and environmental impact assessments would be conducted by the Beijing Engineering Corporation.

Following the review meeting, SEPA held an “Expert Forum on Nu River Basin Hydropower Development Ecological Environment Protection Problems”, once on September 3rd, 2003 and again on October 21st, 2003, soliciting opinions of a wide range of experts. Media coverage of these events led to increased public attention to the Nu River case. Yang Chaofei, Director of the Natural Ecological Protection Division of SEPA, began to question the hydropower boom and the impact of the dams on ecology, citing the landmark 2000 World Commission on Dams (WCD) report. These studies informed the cautious attitude and discourse of SEPA toward large-scale hydropower development on the Southwest’s rivers.

Although the NDRC pushed for hydropower development on the Nu River, the joint efforts of Chinese environmental NGOs, academics, media and SEPA figures were ultimately able to influence the highest level of central government (see Section 6.2). When the “Nu River Hydropower Planning Report” approved by the NDRC was submitted to the State Council in February 2004, then-Premier Wen Jiabao instructed the following: “regarding large hydropower projects that give rise to a high degree of social concern and differing views on environmental aspects, [such projects] should be seriously reviewed and scientifically decided,” resulting in temporary suspension of the Nu River hydropower development plan.

As a result of this momentous decision from the second-highest ranking individual in the central government, SEPA was able to raise its public profile by emphasizing lawful adherence to hydropower development procedures and criticizing an uncoordinated, ecologically damaging hydropower boom. Premier Wen’s acknowledgement of the environmental groups’ arguments provided much legitimacy for the Nu River protection campaign, but in spite of the suspension, hydropower developers continued to push for the plans to go ahead.

7.1.7 Hydropower developers lobby government post-2004 decision

After 2004, hydropower developers continued to push for Nu River development by forming an alliance with media figures to try and shift public opinion through a discourse of “hydropower nationalism”.

From the hydropower developers’ perspective, the media tended to report negative civil society opinions against dams. As such, the hydropower developers worked to create hydropower-friendly media and to cultivate public discourse endorsing dam development. This strategy manifested in the emergence of a group of internet writers (e.g. Zhang Boting, Fang Zhouzi, Sima Nan, and He Zuoxiu, among others) who positioned their public writing to counter civil society opposition to dams. To a degree, the relentlessness and dogmatism of these writers’ “hydropower nationalism” was effective in gaining attention by casting doubt on Chinese environmental NGOs’ motives, obscuring the vested interests of hydropower developers.¹²⁵

¹²⁵ Ding, Yuanfang. (2009, Feb 12). “The real Nu River story”. <https://www.chinadialogue.net/article/2750-The-real-Nu->

Hydropower nationalism discourse centers on positioning or framing river protection as a Western-induced development plot against China. Hydropower nationalism discourse presents hydropower development as means to protect the interest of general public, by framing global environmental movement's questioning of hydropower development and emphasis on better representation of indigenous people's rights as anti-development. Polemics and slogans such as "Premier Wen Jiabao was cheated by NGOs and made a decision impeding hydropower development", "extremist environmentalism", "foreign anti-China forces", or arguments that "SEPA officials oppose hydropower because they want to increase their own power" were commonly deployed against those that advocated for preservation of the Nu River.

7.1.8 Academic support for hydropower development

The hydropower lobby also encouraged academics to undertake research; for example, in 2004 Yunnan Power Company¹²⁶ offered academics in the Yunnan Academy of Social Science a "Yunnan Power Prize" (800,000 RMB each year) to support research that could further the hydropower projects. This tactic's emphasis on academic opinions attempted to reduce debate on hydropower to technical issues, instead of socio-political factors. Another benefit for the hydropower developers is that academics' and scholars' criticism of environmentalists' arguments would carry more weight with the public than the developers' criticisms.

On December 9th, 2004, the Yangtze River Water Resources Commission (YRC) announced the official launch of Nu River Basin comprehensive planning in an effort to integrate multi-purpose development of the river basin (including hydropower, irrigation, water supply, flood control, environmental protection and tourism). This was the first time that comprehensive planning was undertaken for that basin.¹²⁷

In April 2005, as the organizers of the first "Yangtze Forum," the YRC addressed the forum on the topic of how to "correctly handle the relationship between protection and development, in regard to rational development of the Nu River Basin hydropower resources." The YRC, as the relevant authority on Nu River development planning, had the view that: "In the middle reaches of the Nu River, development should consider the protection of fish, and select the most diverse and representative reaches of the Nu River Grand Canyon to either suspend development or prohibit development; some planned dams, such as Guangpo, would affect the Xiaoheshan Nature Reserve and submerge part of the wild rice growing area, should be delayed or should have development ended." They also said "before the approval of the comprehensive plan, in order to meet local electricity needs, the Liuku power station should be started, as it can provide experience for resettlement and environmental protection during Nu hydropower development."

In August 2005, Lu Youmei and He Zuoxiu of the Chinese Academy of Engineering and Academy of Sciences, respectively, jointly proposed to the senior government officials to develop Nu River

River-story

¹²⁶ Later integrated into China Southern Power Grid company

¹²⁷ (2005, Jan 6). "Yangtze River Water Conservancy Web releases "Yangtze River Water Resources Commission's 10 Major Events in 2004" / "长江水利网推出"江水利网年长江委十大新闻"". <http://www.cjw.gov.cn/hdpt/yjzj/11046.html> (Chinese)

hydropower. They, along with social scientists Feng Jiankun and He Yaohua of the Yunnan Academy of Social Sciences, argued that the environment has been seriously degraded by population growth and poverty, such that Nu River hydropower development could improve local communities' incomes while reducing pressure on the environment.¹²⁸

7.1.9 NDRC continues to push for Nu River hydropower

While the struggles to determine Nu River development pathways continued between hydropower development supporters and the civil society groups and scholars that opposed hydropower on the Nu River, looking back at policies over the period of 2004-2012 demonstrates that the NDRC has continuously supported plans for hydropower development on the Nu. Despite then-Premier Wen's injunction to suspend hydropower development work in February 2004, government actors at various levels continued to develop further plans for damming the Nu River, often through non-transparent processes.

In November 2004, the Beijing Engineering Corporation submitted its "Nu River Middle and Lower Reaches Hydropower Plan EIA Report" for NDRC and SEPA review. By March 2005, the Beijing Engineering Corp. had already begun pre-feasibility studies for the Maji dam.¹²⁹ During the 11th Five-Year period (2006-2010), the Yunnan Government made moves to establish the Nu river hydropower base actively and quickly, and began preparatory work on the Liuku, Saige, Yansangshu, Yabiluo and Maji power stations, in order to promote the development of high-energy industry. The case of the Maji power station approval process, where preparatory site work began before the full Nu River hydropower plans were approved, showcases the discrepancies involved in the hydropower industry's approval procedures. Developers would assume that the main project would automatically be approved, so preliminary work is fast-tracked.¹³⁰ In addition, the EIAs are typically conducted by experts who tend to focus on environmental pollution, rather than impacts on ecology, leading to biased conclusions in support of hydropower. There was little transparency in the process of approving plans, with little to no input from stakeholders that stood to be affected.

Due to the prevalence of perverse incentives and the absence of proper regulatory structures, local governments and hydropower companies essentially ignored the NDRC's principle of "first plan, then develop" and did not use comprehensive river basin management mechanisms. As such, the Southwest region's chaotic and disorderly hydropower development reached its peak during this period. During the 11th FYP (2006-2010), the NDRC and NEA continued to include the Nu River projects in national development plans related to energy and hydropower. Although the Nu River large hydropower plans were shelved in 2004, and the Liuku power station had not yet been approved by NDRC, the residents of Xiaoshaba village were still relocated in April 2006 in the name of "new rural reconstruction."¹³¹

¹²⁸ CPPCC. (2005, Aug 2). "Lu Youmei: Nu River development will create costs and benefits for ecosystem" / "陆佑楣：怒江开发对生态环境只会有利不会有害". <http://cppcc.people.com.cn/GB/34961/51372/51378/3646217.html> (Chinese)

¹²⁹ International Rivers. (2016, Jan). "Approval Process for Large Hydropower Projects and Analysis of their Stakeholders: A Case Study of the Nu River". <https://www.internationalrivers.org/nuriver2016>

¹³⁰ International Rivers. (2016, Jan). "Approval Process for Large Hydropower Projects and Analysis of their Stakeholders: A Case Study of the Nu River". <https://www.internationalrivers.org/nuriver2016>

¹³¹ Xinhua Daily News. (2006, Mar 13). Preliminary work for Liuku power station resettlement advances in orderly manner. http://yn.news.cn/newscenter/2006-03/13/content_6455061.htm (Chinese); "new rural reconstruction" refers to a government strategy to "create a new socialist countryside," in order to improve the living standards of the rural poor in the

In March 10, 2008, the Vice Chair of the NPC's Environmental Protection and Resources Conservation Committee (ERC) Wang Jirong stated that, "for Nu River development, it should not be rushed," and that the relevant departments must adhere to the "EIA Law" and "Interim Measures for Public Participation in EIA," carry out in-depth studies and disclose relevant information.¹³² During the CPPCC & NPC Sessions in 2008, she submitted a proposal on "First, Stop Nu Liuku Hydropower Station and Effectively Protect the World Natural Heritage."

To illustrate the longevity of the Nu River debate, in February 2011, geologists Xu Daoyi, Sun Wenpeng and others submitted a joint letter to Premier Wen Jiabao, proposing that the "Nu River is an area of high earthquake and geological risk, and should not have large-scale hydropower stations built." In response, the China Society of Hydroelectric Engineering and the Chinese National Committee on Large Dams hosted a forum on "Geological and Seismic Studies in Hydropower Development," inviting other geological experts, seismic experts, and media.¹³³ While the forum was aimed to produce definitive counter opinion on the matter, some of the participating geologists deferred from concluding that hydropower development on the Nu River was entirely risk-free.¹³⁴

With the beginning of the next Five-Year Period in 2011, Wang Jirong of the ERC again submitted a proposal to "Pay Attention to the Special Geological Background of Nu River region and Decide Carefully on Nu River Development" at the CPPCC and NPC Sessions.¹³⁵ Months later in July 2011, Beijing Engineering Corp. completed its Outline for Survey, Design and Research Work for the Feasibility Study of Maji Project on the Nu River in Yunnan Province, and submitted it to the CREEI for review.¹³⁶

In 2012, before his term ended, Premier Wen Jiabao affirmed his suspension of the project, this time on the basis of avoiding seismic risks. Even so, the NDRC and NEA persisted with Nu River hydropower in major policies and plans, including the 12th FYPs for Energy Development and Renewable Energy Development, while the YPG only proposed to attempt to start Nu river hydropower development in its provincial 12th FYP. With the backing of Premier Li Keqiang, Nu River hydropower plans were revived, with preliminary feasibility studies carried out for the Songta dam in Tibet.

On December 10th, 2015, the MWR hosted a review meeting for the "Nu River Integrated River Basin Plan" with representatives of the NDRC, the State Ethnic Affairs Commission, the MEP, the NEA, the

face of an increasingly marketized economy. For more, see: Day, AF. (2008). "The End of the Peasant?: New Rural Reconstruction in China"; Day, AF & Hale, M. (eds.) Chinese Sociology and Anthropology, 39.4, (Summer 2007).

¹³² China Economic Weekly. (2008, Mar 31). "NPC Vice-Chair of Environment Protection and Resources Conservation Committee: Nu River hydropower development should not be done hastily" / "人大环资委副主任：怒江水电开发不宜操之过急". <http://www.chinanews.com/gn/news/2008/03-31/1206978.shtml> (Chinese)

¹³³ China National Committee on Large Dams / 中国大坝工程学会. (2011, Mar 9). "Geological and seismic problems in hydropower development" / "“水电开发中的地质和地震问题”专题论坛在京举办".

<http://www.chincold.org.cn/chincold/news/webinfo/2011/03/09/1299639145582946.htm> (Chinese)

¹³⁴ China Youth Daily / 中国青年报. (2011, Mar 15). "Nu River Development Debate: A number of earthquake experts do not agree with "geological disaster claims"" / "怒江开发争论：多位地震专家不认同“地质灾难说”". http://zqb.cyol.com/html/2011-03/15/nw.D110000zgqnb_20110315_2-07.htm

¹³⁵ China Youth Daily. (2011, Mar 15). "NPC delegates provide recommendations on Nu River development, have yet to reach consensus on natural disaster risk" / "人大代表就怒江开发提建议，是否引灾难未达成共识". <http://www.chinanews.com/gn/2011/03-15/2905802.shtml> (Chinese)

¹³⁶ International Rivers. (2016, Jan). "Approval Process for Large Hydropower Projects and Analysis of their Stakeholders: A Case Study of the Nu River". <https://www.internationalrivers.org/nuriver2016>

Yunnan Province Government and Tibetan Autonomous Region Government, as well as experts and the planning agency (the Yangtze River Commission). However, any decisions made at this meeting in terms of future planning for the Nu River, were not disclosed or publicized.

7.1.10 Shifting national strategies reduce prospects for large hydropower on Nu

For 16 years, the WEETP strategy of large hydropower development has gone through numerous twists and turns, increasing public doubts regarding its efficacy. Nevertheless, hydropower in west of China continued to rapidly develop under the covert decisions of the energy department and local government. Yunnan's total installed hydropower capacity increased from 9.9 GW in 2009 to 43 GW in 2015.¹³⁷ By the end of 2014, the total installed capacity of hydropower in China has reached 300 GW, accounting for a quarter of the world's total installed hydropower capacity. Two years later in 2016, that number increased to 330 GW. Under the Western Region Development Strategy, to date, six projects have been built on the Lancang-Mekong River in Yunnan, generating 12,000 MW.¹³⁸

However, as the economy in China has flattened and entered a new normal, with economic growth slowing down (relative to the early 2000s), hydropower stations have been left with excess power generation capacity.¹³⁹ In 2014, unused hydropower-generated electricity in Yunnan accounted for daily losses of up to 330 million kWh, equivalent to foregoing 100 million RMB worth of revenue each day.¹⁴⁰ Across the country, dams in China have an average capacity factor of 31%¹⁴¹ - which means that only 31% of the total installed capacity is produced. Such inefficiency reflects a distorted market, and highlights the need for the government to turn away from the hydropower-centric WEETP strategy, and to move towards a "Yunnan Power for Yunnan" model of energy development.¹⁴² Nevertheless, major hydropower projects are included in the 13th FYP as a result of the "iron triangle" of special interests maintaining dominance in China's decision-making spheres.

Several internal institutional shifts have also taken place in China's energy and political bureaucracy at the national and provincial levels, due to President Xi Jinping's ongoing campaign against corruption. In 2013, Liu Tienan, the head of the National Energy Administration and other high-ranking officials, including the Deputy Director of the NEA, Deputy Director of the Coal Department, Director-General of Nuclear Power Department, Director-General of New Energy and Department (responsible for hydropower decision-making and planning), were all investigated, arrested and sentenced to prison for corruption.¹⁴³

¹³⁷ Liu, Qin. (2017, Jan 6). "Hydro expansion will fail without energy market reform."

<https://www.chinadialogue.net/article/show/single/en/9506-Hydro-expansion-will-fail-without-energy-market-reform>

¹³⁸ While WEETP did increase Yunnan's GDP, it also created impacts on local resource use and raised tensions with downstream countries sharing the Lancang-Mekong River. See Magee, D. (2012). "The Dragon Upstream: China's Role in Lancang-Mekong Development".

¹³⁹ Liu, Qin. (2017, Jan 6). "Hydro expansion will fail without energy market reform."

<https://www.chinadialogue.net/article/show/single/en/9506-Hydro-expansion-will-fail-without-energy-market-reform>

¹⁴⁰ Liu, Qin. (2017, Jan 6). "Hydro expansion will fail without energy market reform."

<https://www.chinadialogue.net/article/show/single/en/9506-Hydro-expansion-will-fail-without-energy-market-reform>

¹⁴¹ Walker, B. and L. Qin. (2015, Jul 29). "The Hidden Costs of China's Shift to Hydropower". The Diplomat.

¹⁴² Magee, D. and T. Hennig. (2017, Apr 28). "Hydropower boom in China and along Asia's rivers outpaces regional electricity demand". The Third Pole. <https://www.thethirdpole.net/2017/04/28/hydropower-boom-in-china-and-along-asias-rivers-outpaces-regional-electricity-demand/>

¹⁴³ Li, FT. China Economic Weekly. (2014, Jul 21). "Which department in the NEA is more easily corrupted: 3 officials involved in energy approvals fall from grace" / "能源局哪个部门更易腐败: 近期落马 3 官员均曾涉电力审批". <http://www.ceweekly.cn/2014/0721/87612.shtml> (Chinese)

The local pro-hydropower governors, like Bai Enpei, the Secretary of Yunnan Provincial Party Committee, and Qiu He, Deputy Secretary of the Provincial Party Committee, and several vice governors and mayors, were arrested and sentenced to prison for corruption. Most prominently, former Party Secretary of Yunnan Bai Enpei was a vocal supporter of hydropower development on the Nu River.¹⁴⁴ Bai Enpei had assumed the post of Deputy Secretary for the NPC's Environmental Protection and Resources Conservation Committee in 2011, but was dismissed over bribes from mining and real estate deals in 2014, and convicted of corruption in 2016.¹⁴⁵ The Central Commission for Discipline Inspection, responsible for investigating corruption, singled out the special interest groups related to Huadian Corp. that were involved in bureaucratic corruption.¹⁴⁶ Clearly, there are many questions left unresolved about how this entrenched corruption affected hydropower development planning and approval during the 11th and 12th Five-Year Periods.

7.1.11 Fate of Nu River hydropower plans unclear

In its 13th FYPs (2016-2020), the YPG proposed not only to try to develop Nu River hydropower and conduct follow-up work, but also to promote national park establishment. According to reports, the CREEI-led study conducted for the national 13th FYP for Hydropower Development, as well as the CREEI draft for 13th FYP for Renewable Energy Development, still identified hydropower in the Southwest, particularly the Nu River, as a development priority.¹⁴⁷

Though it would appear as though plans for the Nu River have largely remained unchanged at the national level, it can be seen that the language surrounding Nu River hydropower development has changed over time. Analysis of semantics of government policies and plans can reveal subtle changes—in the 11th FYP (refer to Section 4.1), the exact wording was “actively and quickly construct Nu River hydropower base,” while the 12th FYP's was “conduct preliminary work on Nu River hydropower development in an orderly manner, on the basis of scientific demonstration.” The 13th FYP's was “coordinate between hydropower development and ecological protection, adhering to ecological protection as a priority, scientifically develop Southwest's hydropower resources, attempt to develop Nu River mainstream hydropower and follow through on subsequent work”. From these subtle changes in phrase, one can see that the government's determination and enthusiasm for developing the Nu River are waning, while emphases on ecological protection and rational decision-making are increasing.

It is worth noting that thus far, regardless of whether it is the Provincial Energy or Power plans, or the 13th FYPs for Hydropower Development and Energy Development (drafted by the NEA itself), there

¹⁴⁴ International Herald Tribune (2008, Mar 6). “Chinese province hopes to build dams despite concerns.”

http://www.nytimes.com/2008/03/06/world/asia/06iht-dam.1.10764252.html?_r=0&mcubz=3

¹⁴⁵ Associated Press. (2016, Oct 10). “Former Chinese Lawmaker Gets Suspended Death Sentences Over Bribes”.

<https://www.wsj.com/articles/former-chinese-lawmaker-gets-suspended-death-sentence-over-bribes-1476007081>

¹⁴⁶ The Beijing News / 新京报. (2015, Apr 30). “Huadian Group investigates problem of “dodging officials and buying officials”” / “华电集团调查“跑官买官”问题”. http://epaper.bjnews.com.cn/html/2015-04/30/content_574543.htm?div=-1 (Chinese)

¹⁴⁷ “National renewable energy development – 13th FYP research and division of labor” / “全国可再生能源发展十三五规划研究专题及分工”. <http://chinaenergyportal.org/en/guidelines-on-preparatory-work-for-13th-fyp-renewable-energy-development-plans/>; State Grid Yueyang Power Supply Company. (2016, Feb 15). “13th FYP focused on reducing costs, increasing energy storage, renewable energy investment at 2.3 trillion yuan” / “十三五重在降本增储能，可再生能源投2.3万亿”. http://www.hn.sgcc.com.cn/html/yy/col222/2016-02/15/20160215112244175384098_1.html (Chinese)

are no provisions for information disclosure or channels for public participation. Although hydropower development on the Nu River has not started, the planning and decision-making processes has consistently been kept hidden from the public and civil society. As discussed in Section 6.2 below, civil society has in response raised a wide range of concerns regarding hydropower plans, including their seismic risks, ecological impact, impacts on ethnic minority communities, and limited transparency and public participation.

7.2 Civil Society Protection Pathway

7.2.1 Emergence of Chinese environmentalism

Chinese civil society's Nu River campaigns have taken place within a changing political context in China, where space for civil society first opened up since the mid-1990s, as environmental pollution became increasingly widespread and noticeable. Within this context of a growing national consciousness about environmental issues and an emergent environmental movement, the "civil society" pathway took form largely as a response to government plans for large dams on the Nu River mainstream, and also to promote sustainable development models aligned with environmental conservation and local development initiatives.

Environmental NGOs have played a crucial role in promoting preservation of the Nu River valley and have pushed for greater access to information on dam planning and decision-making processes. A broad coalition of Chinese environmental NGOs worked with scientists and journalists to uncover social, environmental and geological issues regarding Nu River hydropower in order to influence the highest levels of government decision-making. This pathway has facilitated the strengthening of the government's environmental accountability at various levels, and has linked sector-specific objectives of other pathways (hydropower dams; environmental conservation; energy planning) to higher level government policy objectives, including on "ecological civilization" and "scientific development."

7.2.2 Collaborative campaign to defend the Nu River

In early 2002, Green Watershed (GW) conducted a social impact assessment (SIA) in the area around Manwan dam on the Mekong-Lancang, documenting the poverty that resettled migrants were living in. In June 2002, following the state-run Xinhua News' coverage of Manwan dam's adverse impacts, Premier Zhu Rongji ordered the Yunnan Provincial Government to verify the situation, resolve the dam-induced social issues, and compensate the Manwan dam-affected community for their losses. This research laid a strong foundation for GW's credibility to advocate and participate in Nu River decision-making processes.

During the expert forums held by SEPA on "Nu River Basin Hydropower Development Environmental Protection Issues" on 3rd Sep 2003 and 21st Oct 2003, Green Earth Volunteers' Wang Yongchen and others protested against the Nu River hydropower development plan, organizing a journalists' salon where reporters would disseminate experts' opposition to dams to the public.

During the November 2003 International Meeting of Dam-Affected People and Their Allies in Thailand, Green Earth Volunteers, Friends of Nature (FoN) and Green Watershed lobbied for Nu River protection, and eventually solicited support from more than 60 countries' NGOs and jointly signed a public declaration to protect the Nu River. This declaration was submitted to UNESCO after it had just listed the Three Parallel Rivers area as a World Natural Heritage. Green Watershed worked to establish collaboration and coordination among Chinese and international NGOs, including Friends of Nature, Green Earth Volunteers, Global Village Beijing, Conservation International, Wild China, Green Island, Homewatch, among others based in Beijing, securing the support of Friends of Nature founder Mr. Liang Congjie. In 2004, the environmental groups formed a loose coalition called "China Rivers Network" (later renamed Rivers Observation Network), coordinating actions, sharing resources and minimizing political risk. Through targeted petitions and broad public support, the environmental NGOs collectively applied pressure on hydropower developers and the government.

The civil society groups were also able to rally scientists and other experts to their cause, especially due to the geological and ecological characteristics of the Nu River valley – ecologists and social scientists flagged the negative impacts to unique biodiversity and ethnic minority communities' rights, while geologists opposed fast-tracked development due to the seismic risks in the area (see Section 5.4). In January 2004, the Center for Environment and Development of the Chinese Academy of Social Sciences, Friends of Nature, Green Watershed, Hohai University's Social Development Institute and National Research Center for Resettlement, and Sichuan Province's Tourism Geological Society jointly held a seminar on "Economic, Social, and Environmental Impact of Hydropower Projects", providing a space for different stakeholders opposed to hydropower on the Nu River and elsewhere in China to gather and strategize. One of the tactics they employed was to make use of China's rise on the world stage to draw more attention to environmental problems in the country that would have otherwise been ignored. The environmental groups would appeal to the international conventions and China's global reputation to put pressure on the government to respect indigenous people's rights.

In March 2004, representatives from Global Village Beijing, Friends of Nature, and Green Earth Volunteers delivered the "Our Love of Nu River" speech at the 5th UN Civil Society Forum, raising the international profile of efforts to protect China's last remaining, largely ecologically undisturbed river. In July 2004, at the 28th World Heritage Conference in Suzhou, China, the Chinese NGOs jointly signed a letter to the World Heritage Committee on Nu River issue, leveraging further international pressure on the Chinese government to protect the ecology of northwest Yunnan.

The NGO networks' ability to present an alternative pathway for the Nu-Salween-Thanlwin cannot be viewed in isolation from its relationship with the media. From 2003 to 2006, there were hundreds of news reports on the dams' potential environmental and social impacts, to the extent that Yunnan media outlets had all been given "warnings" that the words for "Green Watershed" could not appear in the local media. Despite the censorship, media poured in from other provinces to interview Green Watershed on the Nu River debate, becoming one of 2004's most widely-covered and watched news in China. Even state-run newspapers like the People's Daily and China Youth Daily, and others like the Economic Observer, 21st Century Business Herald, Southern Window, Southern Weekend, and the Beijing Times reported the Nu River campaign at great length, amplifying the voice of civil society groups. The influence that the media wielded by shining a spotlight on government decision-making processes regarding the Nu River cannot be understated.

7.2.3 Mobilizing support through state-sanctioned consultation

One of the most successful methods adopted by the NGOs was through building an alliance with a diverse range of stakeholders, including China's democratic parties¹⁴⁸, public figures, environmental officials, experts and scholars, mobilizing their collective social and political clout to influence decision-making regarding hydropower development on the Nu River.

The various democratic parties in Yunnan disagreed with then-Secretary Bai Enpei's positioning of hydropower as main pillar of Yunnan economy, especially with regard to the development of Nu River. GW and the China Democratic League Yunnan Branch co-wrote a proposal submitted to the CPPCC in early March 2004. While the democratic parties typically always support central government decisions, this time they broke ranks with the pro-hydropower factions to oppose. As a counselor to the Kunming municipal government, Huang Guangcheng of the Yunnan Academy of Social Sciences, translated his research into proposals at national policymaking sessions, into counselor's advice, or into information submitted to the Central Committee of the CPC¹⁴⁹, all of which helped to promote broader attention. During the NPC and the Chinese People's Political Consultative Conference (CPPCC) sessions in March 2004, through the China Democratic League, Huang submitted the proposal "Nu River Development Needs Comprehensive Planning," which garnered strong support from the democratic parties. Through CPPCC delegate and Friends of Nature founder Liang Congjie, Shen Xiaohui of the State Forestry Administration submitted two proposals ("Protect the Natural River Nu, Stop Water and Electricity Cascade Development" and "Classification and Planning for River Basin, Coordination of Ecological Protection and Economic Development") to both of the policymaking bodies. The proposals recommended that the EIA Law and Water Law must be properly implemented and that the Nu River Hydropower Plan be scrapped.

While environmental officials, technical experts and scholars joined forces to promote protection of the Nu River, Wang Yongchen also liaised with a number of well-known writers, literary figures, and movie stars to raise public awareness of the dispute. At the second Congress of China Environmental Culture Promotion Association¹⁵⁰ on October 25th, 2003, Wang Yongchen gathered 62 public figures and celebrities from the sciences, the arts, media and civil society groups to petition the government to oppose Nu River hydropower.

7.2.4 Promoting awareness among local communities

Central to the civil society pathway is the positioning of local communities as policy actors, and not merely as development recipients. Linking policy advocacy at national level with the need to build community awareness and understanding at the local level, Green Watershed arranged for 14 villagers from two Nu River communities to visit the Manwan dam area in May 2004. After seeing how local communities were affected by Manwan dam construction, forced to collect garbage to survive, these Nu River villagers spread information along the Nu River valley. This trip of Nu River communities

¹⁴⁸ "Democratic parties" refers to the minority parties that exist in China's political system, but are largely controlled and sanctioned by the Communist Party of China. They serve to allow for participation in the Chinese People's Political Consultative Conference (CPPCC) and National People's Congress.

¹⁴⁹ The Central Committee of the Communist Party of China is the highest organ of authority in China.

¹⁵⁰ The China Environmental Culture Protection Association is a government-administered community organization, otherwise known as Government-organized NGOs (GONGOs), operating under the management of SEPA / MEP.

visiting Lancang-Mekong River communities was filmed and distributed as “The Sounds of the Nu River” and while this community expedition led to negative repercussions for Green Watershed, the publicity forced the government to address compensation issues related to Manwan dam resettlement and prompted the development of improved resettlement compensation policy in Yunnan province.¹⁵¹

In October 2004, five representatives of resettled communities affected by Yunnan dams took part in a groundbreaking event at the UNDP, World Bank and State Council-hosted Conference on “Dams and Sustainable Development” in Beijing. Making use of every opportunity to engage in open dialogue with the Director General of the then-National Energy Bureau (now NEA), the Director of the Yunnan Resettlement Bureau, and CEOs of hydropower companies, they were able to directly present their grievances and request their right to participate, monitor and be informed of hydropower impacts. Through this dialogue and discussion, the community representatives shifted the conference focus from the showcasing the achievements of hydropower development to exploring alternative means of reducing socio-environmental impacts.



Figure 5: Traditional weaving practices in Nujiang Prefecture (Credit: Green Watershed)

Nevertheless, the hydropower developers continued to lobby the central government for approval to build the Nu River hydropower dams. Civil society groups continued to work with journalists, academics and environmentalists to refute the developers’ manufactured narrative that there were no socioenvironmental problems or seismic risks associated with the Nu River hydropower plans. The civil society groups also drew attention to the lack of due process and rigorous environmental

¹⁵¹ For reference, the 2005 compensation rate for Manwan dam relocation ranged from 5,00 to 80,000 RMB (~750 to 12,000 USD) per person.

standards. In 2005 and 2008, Green Earth Volunteers issued joint letters calling for the release of the Nu River Hydropower Development EIA report.¹⁵²

In early 2008, Liu Shukun, Director of Hydraulics at the Institute of Water Resources and Hydropower Research, wrote a letter to Premier Wen Jiabao encouraging the protection of the Nu River on the basis of three reasons. Firstly, its unique value as a natural landscape with biocultural resources endemic only to this region in China. Secondly, as the “Three Parallel Rivers” World Natural Heritage Site, its economic value would be higher without the dams. Thirdly, the Nu River basin's residents would benefit and be able to develop through preserving this unique biocultural heritage and value.¹⁵³

After investigating Nu River geological conditions, in February 2011, four experts including Sun Wenpeng (researcher of CNNC Beijing Research Institute of Uranium Geology) and Xu Daoyi (researcher of Institute of Geology, China Earthquake Administration) submitted a joint letter (“The Risk of Construction of Numerous Dams on the Nu River is too Great”) to Premier Wen Jiabao, stating that “the Nu River is located in the active fault zone which has frequent earthquakes and often suffers from landslides when there is significant rain” and that “the Nu River has especially high earthquake and geological risk, and should therefore not be the site of large-scale hydropower stations” from a geological perspective. Subsequently, Premier Wen asked relevant departments to conduct an in-depth study of the geological and seismic risk on the Nu River.

The coherent and unified advocacy of the civil society groups and their allies shined a spotlight on ecological issues, procedural flaws and social safeguard violations, and seismic risks associated with dam development projects. In 2012, Premier Wen decided to suspend the Nu River hydropower plans once again.

From the perspective of civil society groups, furthermore, social impacts and indigenous people’s rights had also been inadequately considered. The environmental civil society groups have aimed to further the implementation of China’s new laws on public participation, information disclosure, resettlement, and EIA, and also ensure that China meets its obligations to international conventions. Throughout aforementioned Five-Year Plans, the means and measures of public participation in decision-making have been progressively enhanced, at least on paper. However, as long as Nu River hydropower development plans remain hidden from the public, democratic decision-making will not be realized. To date, the decision-making departments like the Yangtze River Commission claims the need to keep information confidential on the grounds that the Nu River is an international river. As such, government departments at every level have never disclosed necessary information before they have made decisions, impeding any real public participation.

In June 2016, during the preparation for the 13th FYP for Energy Development, seven environmental NGOs – Friends of Nature, Green Earth Volunteers, Green Watershed, Green Han River, Hengduan Mountain Institute, Green Zhejiang, and Chengdu Urban Rivers Association – jointly issued an open

¹⁵² Probe International. “Call for public disclosure of Nujiang hydropower development’s EIA report in accordance with the law”. <https://journal.probeinternational.org/2005/09/06/call-public-disclosure-nujiang-hydropower-developments-eia-report-accordance-law/>

¹⁵³ Yicai Daily. (2008, Feb 22). “Liu Shu Kun: Reflections on the “flood” of hydropower development” / “刘树坤：水电开发“泛滥化”反思”. <http://finance.people.com.cn/GB/6913936.html> (Chinese)

letter calling for the NDRC and the NEA to strengthen EIA standards and procedures, increase public participation in the drafting process for the 13th FYP for Energy Development, and to suspend Nu River hydropower development. In the end of 2016, the 13th FYP for Hydropower and the 13th FYP for Energy Development were issued, and Nu River is not included in hydropower development list.

In June 2016, during the preparation for the 13th FYP for Energy Development, seven environmental NGOs – Friends of Nature, Green Earth Volunteers, Green Watershed, Green Han River, Hengduan Mountain Institute, Green Zhejiang, and Chengdu Urban Rivers Association – jointly issued an open letter calling for the NDRC and the NEA to strengthen EIA standards and procedures, increase public participation in the drafting process for the 13th FYP for Energy Development, and to suspend Nu River hydropower development.

With regard to the “Nu River Integrated River Basin Plan”, Green Watershed applied for disclosure of the Plan’s EIA report on July 2016, with the MEP replying that the applied for information does not exist, and the Yangtze River Water Resources Commission replied the planning involves state secrets, and thus cannot be disclosed.

Recent political developments have also shifted the context in which Chinese environmental NGOs are able to operate. The central government has emphasized the need for environmental protection through “Ecological Civilization” strategy, but this means that the roles that NGOs can play in formal decision-making processes is more restricted, unlike during the Nu River advocacy campaign. The “Overseas NGO Management Law” that came into effect in January 2017 has signaled a closing of the civil society space for debate and criticism of government-supported projects – all foreign NGOs or organizations that receive foreign funding are required to register with the Ministry of Public Security. Though the law applies primarily to non-domestic NGOs, many Chinese environmental groups have received financial support from foreign foundations to carry out their work, due to a lack of analogous philanthropic structures within China.

With increasing restrictions on what is considered by the government to be acceptable discourse in the public sphere, environmental NGOs will have to work harder to find points of entry and leverage to advocate for social and environmental protections. Given the challenges that the Nu River region still faces in the smooth implementation of its National Park program and whether a proper protected area management regime can be established, NGOs continue to monitor large infrastructure development plans on the Nu River and surrounding areas to ensure that local communities’ rights are respected and that national laws are followed.

As Yunnan is a key corridor for the Belt and Road Initiative into Southeast Asia, environmental NGOs are also “going out” of the country and forging partnerships across national boundaries with civil society in Myanmar and Thailand to strengthen social and environmental protection efforts. Given that the “Green Belt and Road” strategy calls for the exchange of strategies and ideas to protect the ecological environment across the Belt and Road nations, the Chinese environmental civil society groups have an influential role to play in pressuring and working with the government to improve its social and environmental standards and the enforcement of environmentally sound policies.

7.3 Small-scale Hydropower Pathway

7.3.1 Policy support for small hydropower development in China

In 1982, after his inspection of small hydropower projects in Fujian, Sichuan and other provinces, then-CPC Chairman Hu Yaobang proposed to build 100 Chinese-style rural electrification pilot counties, and encouraged local governments and local farmers to construct small hydropower stations on their own. In 1983, the Ministry of Water Resources issued “The Report on the Positive Development of Small Hydropower Construction and Rural Electrification Pilot Counties”.

In response to the success of this cost-effective means of expanding electrification, starting in 1985, the Ministry of Water Resources allocated 100 million RMB annually to support small hydropower. By the end of 2000, 653 rural electrification pilot counties had been established (of a total of 1503 counties in China).¹⁵⁴ These small hydropower dams played a significant role in increasing rural electrification and alleviating material poverty.

In 2001, Premier Wen Jiabao began the implementation of small hydropower projects as a means of replacing traditional fuels (e.g., firewood) with hydroelectricity, and further increasing the rural electrification rate. In 2002, the Ministry of Water Resources approved the “National Ecological Protection Plan Through the Implementation of Small Hydropower Replacing Fuel”. These projects have been rationalized as necessary to meet local electricity demand (including for the local mining industry), as well as to reduce dependence on wood as a fuel.

At the same time as promoting the large-scale hydropower dams, the Yunnan Provincial government and Nujiang Prefecture government also heavily promoted building tens of small hydropower dam projects on the tributaries of the Nu River. In 2003, the Yunnan government and Nujiang government promoted a mining-hydropower based economic development model for Nujiang Prefecture. Following the halting of large hydropower dams plan in 2004, the Nujiang government focused its efforts on promoting small hydropower as a means of increasing tax revenue and industry development while electrifying rural villages – a win-win situation on paper.

7.3.2 Small hydropower frontier capitalism

The Nujiang government implemented the “non-prohibited, can develop” principle to entice investment.¹⁵⁵ Starting in 2004, investors from Shanghai, Zhejiang, Hunan, Guangdong, and Fujian provinces rushed into Southwestern China and invested in small hydropower development. At that time, small hydropower had the highest return on generated energy, and only required small construction projects. Small hydropower was favored by private investors because it involves low capital investment and low running costs, and the Nu River tributaries presented the perfect opportunity to make a quick profit.

¹⁵⁴ Central People’s Government of the PRC. (2007, Mar 23). “Central People’s Government of the PRC Administrative Divisions (2000)” / “中华人民共和国行政区划（2000年）”. http://www.gov.cn/test/2007-03/23/content_559255.htm (Chinese)

¹⁵⁵ People’s Government of Nujiang Prefecture. (2015, May 20). “People’s Government of Nujiang Prefecture Opinions on the Practical Implementation of Province-wide Healthy and Stable Economic Development” / “怒江州人民政府关于贯彻落实促进全省经济平稳健康发展文件的实施意见”. http://www.stats.yn.gov.cn/Z_M_001/info_Detail.aspx?DocumentKeyID=C03D045BE1E74C419A0079FAEE2849BF (Chinese)

In 2005, the CPC Central Committee No. 1 Document requested an expansion of the construction and implementation of small hydropower projects in rural areas, in order to protect forests from farmers who typically use firewood as fuel for cooking and heating. They also claimed that replacing wood with electricity from these dams would enable more productive use of farmer's time, and improve flood control.

With the economic incentives and political backing, small hydropower took off in the Nu River valley. Beginning in the 11th Five-Year period (2006-2010), the Nujiang government focused its economic development strategy of two-pronged approach of hydropower energy-driven mining industry growth, in the hopes of deriving revenue from both electricity generation and minerals extraction.

While there was no shortage of investors for small hydropower development, there was a lack of binding regulations, especially with regard to its environmental impacts. The Nujiang Prefecture government did issue management measures for small hydropower development and utilization in 2007 and 2015, respectively. However, given that the Nujiang Prefecture government had a vested interest in small hydropower development, it tended to be lax on enforcing regulations to encourage and enable investment. In contrast to large hydropower dam cascade on the mainstream of the Nu, small hydropower dams on its tributaries were rarely reported on, so they lacked both public supervision and media pressure to improve environmental management.

Research has shown that biodiversity in the tributaries of the Nu River has been heavily impacted by the prevalence of small hydropower, due to blocking migratory patterns of fish species. Already, scientists have found an alarming decrease in the number of fish, but a lack of research into Nu River fish ecology has prevented any effective protective solutions.¹⁵⁶ In contrast to the situation on the mainstream, there had only been few critical pieces in the media, like "100 billion RMB in small hydropower construction leads to Southwest ecological disaster"¹⁵⁷, "90 power stations nibble away at Han River, a crisis hides in the large development of small hydropower"¹⁵⁸, "Small hydropower tests the government's implementation ability", "Small hydropower development makes landscape lose color"¹⁵⁹, and "90 hydropower stations cutting 66 tributaries, media exposure of Nu River fragile ecology". As a result of this attention in June 2006, the MEP issued "Notice on the Orderly Development of Small Hydropower to Effectively Protect the Ecological Environment".

In the absence of policy constraints and public attention, small hydropower developed rapidly over just a few years, with numerous legal violations. Several small dams have even been built in the buffer zone of the World Heritage Site, violating the Provincial regulations which only permitted government-

¹⁵⁶ International Rivers. (2016, Jun). "The Nu River – A Habitat in Danger". <https://www.internationalrivers.org/nuriver2016>

¹⁵⁷ Yicai Daily / 第一财经日报. (2005, Jan 17). "100 billion RMB in small hydropower construction leads to Southwest ecological disaster" / "1000 亿元小水电站建设招致大西南生态灾难". <http://finance.sina.com.cn/g/20050117/05161298011.shtml> (Chinese)

¹⁵⁸ Xinhua Daily / 新华网. (2005, Nov 29). "900 dams nibble away at the Han River; / "九百电站蚕食汉江 小水电大开发潜伏危机". http://news.xinhuanet.com/fortune/2005-11/29/content_3854000.htm (Chinese)

¹⁵⁹ China Environmental News / 中国环境网. (2006, Feb 16). "Small hydropower tests the government's implementation ability" / "小水电考验政府执行力". http://www.cenews.com.cn/historynews/06_07/200712/t20071229_23127.html (Chinese); (2006, Feb 16). "Small hydropower development makes landscape lose color" / "小水电大开发令山河失色". http://www.cenews.com.cn/historynews/06_07/200712/t20071229_23128.html (Chinese).

approved scientific research or observation activities in the buffer zone. However, those dam projects still received governmental approval and ultimately created significant ecological harms and risks for endemic biodiversity.¹⁶⁰

A 2013 study by American researchers found that small hydropower's cumulative impacts on the ecology and landscape in the Nu River valley have exceeded those of large hydropower in some respects, especially with regard to soil erosion and water flow. The small hydropower dams also divert water from flowing into the Nu River mainstream, altering the hydrology by storing it for hydroelectricity generation. During the winter, the small hydropower diverts so much water that many tributaries of the Nu River run dry.¹⁶¹

Since 2003, the 54 enterprises stationed in Nu River valley, operating or developing at least 90 small hydropower stations, were estimated to be able to exploit more than 1,700 MW worth of hydropower resources. However, according to a 2013 Nujiang Prefecture government report, it is calculated that the total installed capacity is 994.4 MW.

7.3.3 Small hydropower fails to drive sustainable economic development

As of 2017, there are at least 90 stations either in operation or under construction on the tributaries of the Nu River. In 2012, Nujiang Prefecture achieved its goal of ensuring every family had access to electricity. According to incomplete statistics, the Nujiang Prefecture government's revenue increased from 100 million in 2004 to 1.3 billion RMB in 2015. 70% of Gongshan County's revenue came from the small hydropower industry in 2015.¹⁶² Though small hydropower has dramatically increased Nujiang government tax revenue, it has only temporarily stimulated the local economy.

During the construction and operation periods, small hydropower temporarily stimulated demand for transportation, food and lodging, and financial and communications services. However, the operation of the dams did not continue to bring tangible benefits to the local communities, as the profits were owned by outside investors from other provinces. As such the direct economic benefits of the small hydropower boom to local communities was underwhelming.

In a case study of villages along the Dimaluo tributary in Nujiang Prefecture, while small-scale hydropower projects have brought some limited material benefits to relatively inaccessible rural ethnic minority communities, the process of creating the projects have typically lacked participation, had not addressed multidimensional needs, such as access to employment opportunities, and education and health services.¹⁶³ The impacts of being relocated by small hydropower are less visible due to the small number of people affected.

¹⁶⁰ Chen, K. International Rivers. "Nu River valley's low elevation biodiversity has been neglected" / "被忽略的怒江河谷低海拔地区植物多样性". www.internationalriverschina.org/s/617.pdf (Chinese)

¹⁶¹ National Science Foundation. (2013, May 28). "Small Dams on Chinese River Harm Environment More Than Expected". https://nsf.gov/news/news_summ.jsp?cntn_id=128073&org=NSF

¹⁶² WeChat Public Focus. (2016, May 4). "Nu River: From development to suspension" / "怒江：从开发到停建". <http://www.112seo.com/cityarticle-1639164.html> (Chinese)

¹⁶³ Ptak, T. (2014). "Dams and Development: Understanding Hydropower in Far Western Yunnan Province, China". *Focus on Geography* 57(2).

7.3.4 Geographic limitations and poor planning hinder small hydropower

The small hydropower stations have also been constructed in the absence of systematic river basin planning or sufficient EIA studies, such that some projects do not take account of downstream river users' needs, like irrigation. Meanwhile the developers have also been challenged by the weak local transmission infrastructure limiting power transmission and a low feed-in tariff. There is sufficient water for more power generation, but due to a lack of durable transmission grid infrastructure, most of the small power stations in Nu River cannot run at full capacity.

The problem of low feed-in tariff is linked to the fact that the local government does not get to decide whether local small hydropower can enter the regional power grid, much less the national one. Even when a small hydropower station can sell electricity on the power grid, the price is controlled by the Southern Grid Co. In addition, many small hydropower stations are run-of-river power plants. Therefore, they find it difficult to sell all their electricity in the wet summer season, but have none to sell in the dry winter season. The 2011 "China Small Hydropower Development Report" disclosed that the national average price is 0.265 RMB per kWh, but the price in Nujiang Prefecture was only 0.1705 RMB.¹⁶⁴

This overcapacity and low-price problem is also linked to the failure to combine mining and electricity policy and planning. The Nujiang government had presumed that small-scale mining in the Nu River valley would require consistent sources of power, but policy contradictions prevented any real industry from taking form. In a 2016 white paper on power system reform, the Yunnan government admitted that the development goal of "combining electricity and mining" had not been achieved.

As a result of the diminishing economic returns and the increasing social concern over small hydropower, the provincial government decided to suspend any further development of the tributaries, resulting in a series of policy moves that worked to prohibit further unregulated development of small hydropower on Yunnan's rivers.

On January 25th, 2016, the Party Secretary of the Yunnan, Li Jiheng, declared that Nujiang Prefecture would stop all new small hydropower and small mining development to protect the ecological environment and to promote the application and development of Nu River Grand Canyon National Park. In April 2016, the Nujiang Prefectural Government issued a notice on "Nujiang Prefecture Implementation Opinion on Halting Medium and Small Hydropower Development".¹⁶⁵ In July 2016, the Yunnan Provincial Government issued an "Opinion on Strengthening the Development and Management of Medium and Small Hydropower" stating that, in principle, the government will not approve any new types of small hydropower projects during the 13th Five-Year period (2016-2020).¹⁶⁶

¹⁶⁴ Xinhua News. (2012, Aug 16). "Small hydropower trapped: Why "hot cakes" become "hot potatoes" / "小水电陷困局水香悱悱缘何变成"烫手山芋"". <http://finance.ifeng.com/news/macro/20120813/6909659.shtml> (Chinese)

¹⁶⁵ Nujiang Prefecture Government, PRC. (2016, Apr 5). "Nujiang Prefecture Implementation Opinion on Halting Medium and Small Hydropower Development" / "怒江州关于停止中小水电开发的实施意见". http://xxgk.yn.gov.cn/Z_M_001/Info_Detail.aspx?DocumentKeyID=1BA98FA016904F278A4B51D91DE83994 (Chinese)

¹⁶⁶ Yunnan Provincial Government, PRC. (2016, Jul 5). "Opinion on Strengthening the Development and Management of Medium and Small Hydropower" / "关于加强中小水电开发利用管理的意见". http://www.yn.gov.cn/yn_zwlanmu/qy/wj/yzf/201607/t20160708_26037.html (Chinese)

In explaining the new policy, the government states that the existing small hydropower projects have “basically completed the historical task of ensuring a stable and sufficient power supply and West-East Electricity Transfer Project” and that “the rate of resource development has exceeded 80%, most undeveloped hydropower resources are in ecologically sensitive areas, and some power stations in a few regions have significant ecological and environmental issues.” The Opinion appeared to respond to growing public attention to this issue, moving quickly to prevent further deterioration of the watershed and to prevent the government from losing legitimacy.

7.4 Multi-Purpose Water Management Pathway

Due to the lack of published or publically available information from the government, the Nu River multi-purpose water management pathway is one that is potentially being developed as the demand for hydropower-generated electricity continues to plateau and slow down. Due to the non-binding nature of the government’s decision to exclude large hydropower dams on the Nu River from the 13th Five-Year period’s major development plans and its decision to exclude the Nu River mainstream from the protected National Park, there is a high probability that the same engineering and design agencies responsible for designing and constructing hydropower dams will push for “comprehensive utilization” projects as an alternative means of developing the Nu River.

7.4.1 Rationale behind integrated and comprehensive utilization

The NEA’s former Head of the New and Renewable Energy Department Mr. Shi Lishan said that as a very important freshwater resource for China, the Nu River’s impact on China’s future may be greater than its contribution to renewable energy. However, he also noted that if no dam or dike is constructed, distribution of water resources would not be possible.¹⁶⁷ These sentiments are also reflected in the following planning and government documents.

In Yunnan’s 13th FYP for Development Outline (2016-2020), it is proposed by the Yunnan government for the Fugong, Lushui and Saige hydropower dams to be understood as “comprehensive utilization” projects. In this reframing of the large water infrastructure, the projects would be rationalized as not just hydropower dams, but as “water conservancy” infrastructure for irrigation, flood control and drought resilience.

Identified priority work efforts of the Nujiang Prefecture government in the 13th Five-Year period (2016-2020) also include accelerating the comprehensive development and utilization of water resources of the Nu River. In 2016, the Nujiang Prefecture government and Lushui County government were tasked with carrying out preparatory work for the large water conservancy project in Lushui, partly to also transform Lushui into a new clean energy industry base.¹⁶⁸

In the “Nujiang Prefecture 13th Five-Year Water Conservancy Planning Recommendations”, the MWR’s General Institute of Water Resources and Hydropower Planning and Design (GIWP) noted that there

¹⁶⁷ Shi, Lishan. (2016, May 31). Interview.

¹⁶⁸ Nujiang Prefecture Government. (2016, Mar 25). “Nujiang Prefecture Government 2016 Annual Work Report” / “怒江州 2016 年政府工作报告”. http://xxgk.yn.gov.cn/Z_M_001/Info_Detail.aspx?DocumentKeyID=AF7142A2B5B14EE88A125D932731A1F2 (Chinese); Nujiang Prefecture Government / 怒江大峡谷网. (2016, Jul 22). “Lushui County actively develops local industrial system” / “泸水县积极构建特色工业体系”. <http://www.nj.yn.gov.cn/nj/72342367549521920/20160723/283314.html> (Chinese)

is not a single medium-sized reservoir in the Nu River basin. Its Recommendation stated that in order to achieve flood control, irrigation, water supply, power generation, and other benefits, the Nu River's hydropower development plans should be adapted for a comprehensive water resources utilization model. Furthermore, it is also stated that full attention should be paid to the important role of comprehensive water resource utilization in poverty alleviation, ecological protection, and livelihood improvement. GIWP suggests focusing on water conservancy projects at four former dam sites – Maji, Yabiluo, Lushui and Saige, which have great potential benefits, little environmental impact, and good development conditions, and actively promote the Lushui water conservancy project, which is one of the National 13th Five-Year Key Projects.

It is estimated that the Lushui water conservancy project could irrigate more than 300,000 mu (20,000 ha) of farmland, as well as help to resolve domestic water and some industrial and drinking water problems in rural areas for Lushui County and some townships in Baoshan.¹⁶⁹ While details are scarce at present, it is proposed that these three large and medium dams are able to contribute irrigation water supply for the Lujiangba downstream area of the Nu River where the river, leaving steep gorges, widens and allows for growing cash crops like coffee, sugarcane, tropical fruits, and vegetables. This strategy of diversifying water resources utilization away from just hydropower is likely intended to offset the criticisms that the previous development plans would not have benefited local communities.

7.4.2 Potential pitfalls of water conservancy infrastructure

At the time of writing, while large hydropower dams on the Nu River mainstream are not formally on the official government agenda, the large-scale hydropower pathway may be being reinvented into a “water conservation” one that emphasizes water storage and irrigation benefits over hydropower generation. However, the same general issues around the hydropower dams that concerned civil society, academics and the public will remain relevant for the water conservancy projects.

These key infrastructure projects at Lushui, Saige, Fugong and Maji, which were also hydropower dams proposed in the 2003 “Nu River Middle and Lower Reaches Hydropower Planning Report”, will also cause significant environmental and social impact. The flooding of reservoirs and damming of the mainstream will pose the same ecological, social and geological risks that faced the large-scale hydropower projects. Though it is predicted that the planned storage reservoirs will be smaller than those planned for the hydropower dams, similar issues of sedimentation and disrupted riverine ecology will need to be addressed.

7.4.3 Steps for basin-wide planning

In adherence to Chinese national laws and regulations, these large-scale water conservancy projects should carry out EIAs, disclose information to the public, incorporate and solicit public participation. However, there has been little publically available information about what projects are actually being planned and reviewed. As the Water Law stipulates that all hydropower and water conservancy

¹⁶⁹ Yang, Q. / 杨晴. WeChat Public Focus. (2016, Apr 19). “CREEI Research Report #7 : Research Report regarding 13th Five-Year Development Plan supporting Nu River Water Conservancy” / “水规总院优秀调研报告之七：关于支援怒江州水利十三五发展规划有关情况的调研报告”. <http://www.112seo.com/cityarticle-1533058.html>

projects should be consistent with the relevant integrated river basin plan, any project on the Nu River should also be subject to public supervision and participation in decision-making processes.

At present, the Yangtze River Water Resources Commission's 2011 "Nu River Integrated River Basin Plan" is currently undergoing review by the MWR.¹⁷⁰ Given that this plan was drafted during the period in which large-scale hydropower development was still supported by the NDRC and other organs of government, the plans may be biased towards large-scale infrastructure projects, and may not reflect the recent policy changes that have encouraged eco-tourism and protected area-based economic development.

As mentioned previously, in July 2016 Green Watershed applied for information disclosure regarding the details of the plan. The MWR refused to disclose as the plan undergoing review, while the YRC invoked a state secrets clause to refuse the request. As the Nu River Integrated River Basin Plan is not readily accessible, it remains unclear whether these comprehensive utilization dam plans include the rigorous and objective environmental impact assessments and the appropriate level of safeguards that are necessary to ensure good governance of the Nu River.

7.5 National Parks and Protected Areas Pathway

As noted in Section 4, the Nu River and the wider river basin have been recognized internationally for its significant flora and fauna biodiversity.¹⁷¹ The exploration and establishment of protected areas in Yunnan Province started in 1996, when biologists began to categorize and understand the scope of how bioculturally unique and rich the forests and mountains of Yunnan Province were. In 1998, the Yunnan Provincial Government and The Nature Conservancy¹⁷² carried out collaborative research on the establishment of a national park in northwest Yunnan.

A major development in 2003 took place when some sections of the Nu River watershed, along with the Lancang-Mekong and Jinsha-Yangtze Rivers, were incorporated into the Three Parallel Rivers of Yunnan Protected Areas, and given UNESCO World Heritage status.¹⁷³ Initially, the Nujiang Prefecture government looked to heritage protection and eco-tourism as a path towards economic development.

7.5.1 Risking a World Natural Heritage

However, the creation of the World Heritage Site coincided with the most intense period of promoting large dams. As can be seen from Sections 6.1 and 6.2, this protected areas and ecotourism-based pathway had been neglected in the context of Nu River hydropower boom. Even though large hydropower was shelved, the Nujiang Prefecture government was committed to its "electricity and mining economy" strategy and pushed for small hydropower. Between 2003 and 2006, as the dams were debated in China, UNESCO's World Heritage Committee repeatedly issued warnings that if the dams went ahead, the area's World Heritage status would be threatened.

¹⁷⁰ Yangtze River Water Resources Commission, MWR, PRC. (2016, Jan 27). "Yangtze River Water Resources Commission establishment of river basin planning system helps Yangtze River economic belt development" / "长江委流域规划体系建设助力长江经济带发展". <http://www.cjw.gov.cn/xwzx/ztjx/2016zt/cjw2016hy/mtjj/18986.html> (Chinese)

¹⁷¹ UNESCO. "Three Parallel Rivers of Yunnan Protected Areas" <http://whc.unesco.org/en/list/1083>

¹⁷² The Nature Conservancy is an international conservation NGO headquartered in the USA.

¹⁷³ The Three Parallel Rivers consist of the Nu River, Lancang River, and Jinsha River. The "Three Parallel Rivers" World Heritage Site covers the mountainous area of the watershed covering 1.7 million hectares. The core areas start at 2,500 masl, and the buffer zone at 2,000 masl.

In 2004, the Policy Research Office of the Yunnan Provincial Government organized a group tour for Chinese government officials to visiting several national parks in the United States, laying the foundations for the eventual establishment of a national park in Yunnan. Due to the rapid expansion of the hydropower industry in Southwest China, environmental protection was largely neglected during the “river-enclosure movement”. As a result, protected areas management in China mainly existed on paper, and regulations were poorly enforced.

Despite a structural environment that did not highly value environmental protection at the time, Yunnan Province had continued to explore national park establishment for many years. In 2005, the Yunnan Provincial Government set up a National Park Research Office with the Southwest Forestry College providing technical support.¹⁷⁴ In 2006, the Yunnan Provincial Party Committee and the Provincial Government put forward the national park development strategy, and over the next three years the government’s annual work reports listed “exploring the establishment of a national park as a new ecological protection model” as key priority work to establish Yunnan’s “ecological environment”.

In 2006, together with IUCN, the World Heritage Committee conducted an investigative visit to the Three Parallel Rivers Protected Areas, concluding that hydropower development “will have a very large impact to [the World Heritage Site’s] aesthetic value, a natural flow of the River will be changed into a series of reservoirs”.¹⁷⁵ The Bingzhongluo dam of the original 13-dam cascade is located in the World Heritage Site, while the other 12 dams are located very close to the reserve and would directly affect the heritage area.¹⁷⁶

From 2007 onwards, the Chinese government collected data about the ecology of the Three Parallel Rivers to submit to the World Heritage Committee. In 2008, the UNESCO representative specifically required that:

“each project near the “Three Parallel Rivers” should disclose information to the public in a timely and transparent manner. Similarly, while Chinese local government enjoys a World Heritage title, they should also be aware that the title means that they have more responsibility to protect it, and could not simply develop tourism facilities mainly to increase income. For this, the Ministry of Housing issued a warning to local government that if they fail to protect World Heritage, this will “badly impact China’s overall image.”¹⁷⁷

In subsequent years, the World Heritage Committee has continued to closely monitor the area, and requires regular submissions by the government on the Protected Area’s status.

¹⁷⁴ Yang, YM / 杨宇明. China Weekly / 中国周刊(2016, Aug). “National Parks and Innovative Model of Harmonious Ecological Protection and Economic Development” / “国家公园 和谐生态保护与经济发展的创新模式”.

¹⁷⁵ The World Heritage Centre said that the Nu River was known as China’s “last free flowing river”, and the construction of any dam in the World Heritage area, or the construction of dam outside the area but that also has a significant impact on the integrity of the World Heritage, are incompatible with its status as a World Heritage.

¹⁷⁶ Southern Weekend. (2004, Jul 8). “Yellow Card Warning or Implicit Criticism”.
<http://www.southcn.com/weekend/culture/80200407080040.htm> 2004.07.08

¹⁷⁷ UNESCO. (2008, Jul). “Decision: 32 COM 7B.11 Three Parallel Rivers of Yunnan Protected Areas (China) (N 1083)”.
<http://whc.unesco.org/en/decisions/1615>

7.5.2 Laying the groundwork in Yunnan

Established in 2007, China's first national park to be recognized as adhering to IUCN management standards is Potatso (or Pudacuo) National Park in Shangri-La City County in Dêqên Prefecture, also in Yunnan Province. Although Yunnan Province started exploring national parks in 1996, the Policy Research Office only proposed the idea to build Nu River Grand Canyon National Park in 2007.¹⁷⁸ The Chinese government has worked closely with The Nature Conservancy to establish a system of national parks that will be modelled after the United States' National Park Service, in order to reform the existing protected area classifications and streamline the management of protected areas in China.

In June 2008, the national State Forestry Administration approved Yunnan Province as a pilot province to explore the establishment and development of Chinese national parks. Thus far, Yunnan has established eight national-level protected areas¹⁷⁹, including Pudacuo, Laojun Mountain, Meili Snow Mountain and Pu'er National Parks, as well as the Gaoligong Mountain, Dawei Mountain, Nangun River, Xishuangbanna National Nature Reserves.¹⁸⁰

In 2010, Baoshan Municipality, in the lower reaches of the Nu River, also started the preparatory work of establishing the Gaoligong Mountain National Park.¹⁸¹ The next two national parks to be established and receive accreditation are Laojun Mountain and Meili Snow Mountain.

7.5.3 National-level priorities drive protected areas establishment

Plans for environmental protection, including national parks, are aligned with China's recent policy concept of "ecological civilization" that has gained political salience. In November 2012, the CPC Central Committee decided to make constructing an "ecological civilization" a national strategy. At the local level, the Nujiang Prefecture government remained committed to hydropower-based development until 2013, when the Yunnan Provincial Party Committee had a change in leadership, along with a reshuffling of power at the local level. The new secretary of Nujiang is Mr. Zhiyun Tong, who led the aforementioned delegation to visit national parks in the United States in 2004. Under his leadership, the Nujiang Prefecture government initiated the national park development process in 2014.

In April and September 2015 respectively, the CPC Central Committee and the State Council issued "Opinions on Accelerating the Development of Ecological Civilization" and "General Plan for the Reform of the Ecological Civilization System" proposing the establishment of a national park system and strengthening protection (see Section 4.6). A commitment to national park development was affirmed in the 13th FYP (2016-2020), although it is proposed that protected areas can be coordinated with hydropower development.

¹⁷⁸ Ma, YH & Zhang, YQ. Sohu. (2007, Feb 25). "Yunnan Province will take 10 years to establish National Parks system" / "云南省将用 10 年时间建成国家公园体系". <http://news.sohu.com/20070225/n248338027.shtml> (Chinese)

¹⁷⁹ "Protected area" here refers to three distinct designations in China: National Scenic and Historic Interest Areas (国家级风景名胜區), National Nature Reserve (国家级自然保护区) and National Park (国家公园).

¹⁸⁰ While "National Scenic and Historic Interest Areas" have been implemented since 1982 in Yunnan Province, the first official National Park was not established until 2006, which was Pudacuo National Park.

¹⁸¹ Note that Gaoligong Mountain is currently categorized as a National Nature Reserve. See: Baoshan News. (2010, Feb 8). "Preparatory work for Gaoligongshan National Park Comprehensive Plan initiated" / "高黎贡山国家公园总体规划编制工作启动". http://xw.kunming.cn/a/2010-02/08/content_2082230.htm (Chinese)

In January 2016, then-Party Secretary of Yunnan Li Jiheng declared the government's support for the Nu River Grand Canyon National Park by prohibiting new small hydropower and small mining along the Nu River. After that, the YPG issued a series of policies, such as "Opinions on Pilot Projects to Promote the Construction of National Parks", "Yunnan National Park Development Plan Outline (2009-2020)" and "National Parks Declaration Guidelines". The "Yunnan Provincial National Park Management Regulations" came into effect on January 1st, 2016.

7.5.4 Managing the Grand Canyon of the East

In May 2016, the Yunnan Provincial Government formally approved the establishment of the Nu River Grand Canyon National Park, with a total area of 358,800 hectares. The announcement of the national park plans also coincided with a ban on further developing small or medium hydropower. However, the planned park area does not include the mainstream of the river or the riverbanks, and also excludes some areas with small hydropower stations.¹⁸² The four core areas of the planned Nu River Grand Canyon National Park are Bingzhongluo, Shiyueliang, Zhiziluo, and Yaojiaping, some of which are already included as National Scenic Areas.¹⁸³ According to a media interview on China National Radio, Party Secretary Li Jiheng said, "The Nu River will become a world-level tourism destination in 5 to 10 years, ... It will succeed, even surpass the Grand Canyon in the United States."¹⁸⁴

Later, the Nu River Secretary stressed that national park construction is a new concept, a new model and a new step to promote Nu River tourism development and ecological infrastructure, and is the most suitable way for Nujiang to balance development and conservation.¹⁸⁵ Every department's planning and work should contribute to the overall national park plan, in order to fully use the national park establishment to alleviate poverty and benefit from the region's "clear waters and lush mountains."¹⁸⁶

Although the "Nu River Grand Canyon Comprehensive Plan" was approved by experts in August 2016, at the time of writing details have not been released to the public.

7.5.5 Issues of protected area governance

Some commentators are concerned that the national park system will be captured by elite interests and that ecotourism would be similarly unregulated like the hydropower industry boom, to the

¹⁸² Zhao, M. The Paper. (2016, Sep 19). "Yunnan approves establishment of 13 National Parks: Nu River Grand Canyon National Park will not include canyon" / "云南批建 13 个国家共管：怒江大峡谷国家公园将不包括大峡谷". http://www.thepaper.cn/newsDetail_forward_1530425 (Chinese)

¹⁸³ People's Government of Yunnan Province. (2016, May 10). "People's Government of Yunnan Province response regarding establishment of Dulong Valley National Park and Nu River Grand Canyon National Park." "云南省人民政府关于建立独龙江国家公园和怒江大峡谷国家公园的批复". http://www.yn.gov.cn/yn_zwlanmu/qy/wj/yz/201605/t20160516_25123.html (Chinese)

¹⁸⁴ Leavenworth, S. (2016, May 12). "China May Shelve Plans to Build Dams on its Last Wild River". <http://news.nationalgeographic.com/2016/05/160512-china-nu-river-dams-environment/>

¹⁸⁵ Yang, JF. iForests Web. (2016, Jun 9). "Yunnan Province and Nujiang Government convene work conference on National Park establishment". "云南省怒江召开国家公园建设工作座谈会". http://www.isenlin.cn/sf_DCA46137F33E40CD8586512C19391993_209_xchyangjie712.html (Chinese).

¹⁸⁶ Yunnan Web. (2016, Jun 3). "Nujiang Prefecture Committee Secretary Tong Zhiyun: All-out effort to advance Nu River National Park establishment". "怒江州委书记童志云：全力推进怒江州国家公园建设工作". http://nujiang.yunnan.cn/html/2016-06/03/content_4374018.htm (Chinese)

detriment of local communities and environment, instead of bringing economic benefits from ecological protection.

Due to the restricted nature of the national parks, it may conflict with local communities' natural resource use patterns, which affects a large number of the indigenous and ethnic minority groups in the Nu River valley. A top-down manner of governance that does not take into account local context may be less effective in sustainably managing the protected areas.

Working with communities to develop tourism projects that are inclusive and culturally appropriate is important in ensuring that conservation efforts are effective. Thus far, the current system of Nature Reserves and Scenic Areas has not brought many tangible benefits to the wider communities – most jobs consist of service industry labor, with no steady or salaried jobs for the Nu River valley's rural residents. Compensation for sanitation work is usually paid in cash.

The main economic beneficiary of national park systems are the tourism businesses that have more flexibility in liaising between communities and local government. Yang Su, a researcher at the Development Research Center of the State Council, thought that the Yunnan Provincial government's technical standards and management regulations were not standardized and are not reported to the central government.¹⁸⁷ There is a lack of communication between the central government and the local levels about realities on the ground and a lack of independent and unbiased data collection – both tasks are the Forestry Administration's responsibility, potentially leading to conflicts of interest. Across China, the ecological environment has typically suffered due to vested interests and weak governance at the local level, and a lack of capacity at the national level to control government agencies at the local level.

Depending upon its form and scale, ecotourism has the potential to either benefit or undermine local communities. At this stage, therefore, it is important to ask a number of questions for the future direction of the ecotourism in this pathway including will it be: community-based, or (large-scale) company-based? Will the development of national parks be pro-poor for community development, or pro-profit for investors and government revenue? Relatedly, it is important to ask how communities will be able to participate in park management, alongside professionals, and thus how inclusive and accountable the national parks will be to local ethnic groups and their traditional customs.

7.5.6 Potential for Concurrent Development of National Parks and Large Hydropower

A key factor in the pathways analysis is to note that the Chinese government has not explicitly ruled out any of the pathways. Evidence for this multi-pronged strategy can be inferred from the boundary demarcation of the Nu River Grand Canyon National Park. Despite its namesake, the planned Park area does not cover the Nu River itself, the river banks and some small hydropower areas. This is because the National Park's boundaries, like those of the Three Parallel Rivers Protected Areas and existing Nature Reserves, cut off at a certain elevation. The argument posed by the Yunnan Province Forestry

¹⁸⁷ Su, Y. (2016). People's Daily. 人民网. "Who's responsible for national parks?" / "苏杨：国家公园归谁管？" <http://theory.people.com.cn/n1/2016/0511/c367658-28342357.html> (Chinese)

Department is that if the National Park's boundaries include the Nu River itself, large numbers of people on both sides of the river would have to be resettled.

Yet this rationale also allows for the construction of large-scale water infrastructure, as the river itself is not protected by National Park regulations. The Party Secretary of Nujiang said that national park establishment does not affect Nu River hydropower development or other industry development, the two do not have to be compared against each other. For the Nujiang Prefecture government, it is very difficult to completely abandon the hydropower or water conservancy pathway as such projects have been the focal point for the Prefecture's economic development plans for many years.

Despite the public's impression that national park development means no hydropower development, at the national level, the NEA still hopes to develop the Nu River to fulfil some economically productive purpose beyond ecotourism. The NEA's consultation paper for the 13th FYP for Hydropower Development continues to encourage Nu River hydropower development.¹⁸⁸

As such, though the national park plans are a highly encouraging step towards better ecological protection and preservation of biocultural resources, there are still many questions to be answered by how well the Chinese government will be able to set up and coordinate a national parks system. It is clear that there are many competing interests within the Chinese government that have competing agendas, with many actors seeking the same resources for different purposes.

A viable model of ecotourism has not been successfully executed in a way that has successfully balanced these diverse stakeholders' needs, from communities in the Nu River valley to local administrations that lack capacity to govern protected areas in an inclusive and participatory manner.

7.6 Energy Reform Pathway

The pursuit of large and small hydropower dam development across Yunnan province, including on the Nu River, has been fundamentally shaped by the Western Region Development Strategy (2000-2020) and the "West-East Electricity Transfer Project" (WEETP). As mentioned previously, during this period, China's electricity industry was also undergoing profound reform. In 2002, the absolute state monopoly of the State Power Corporation was restructured into two monopoly state grid companies¹⁸⁹, and five state-owned power generation companies (the "big five", see Section 5.2) that were intended to compete alongside private and other state-owned investors in generation.

The slow pace of market-oriented reform beyond the initial creation of the "big five" has resulted in what some analysts have called a "relative monopoly".¹⁹⁰ Thus, these large state-owned enterprises have enjoyed the benefits of both market economy and planned economy.¹⁹¹

Meanwhile, China's Electricity Act (1996) encouraged the government to support renewable energy and clean energy for power generation, which incentivized the construction of large-scale hydropower dams for nation-wide electrification, as well as the construction of small hydropower stations to promote rural electrification. The increasingly competitive environment between the big five power

¹⁸⁸ Lu, YM. (2016, May 19). "Academy member Lu Youmei: Seeking human-nature harmony during transformation" / "陆佑楣院士：在变化中寻求人与自然的和谐". <http://news.sciencenet.cn/htmlnews/2016/5/346402.shtml> (Chinese)

¹⁸⁹ State Grid Company; China Southern Power Grid Company

¹⁹⁰ Wang, Q. and X. Chen. (2012). "China's electricity market-oriented reform: From an absolute to a relative monopoly." Energy Policy 51; Ngan, H.W. (2010). "Electricity regulation

¹⁹¹ Dore, J., X. Yu and K.Y. Li. (2007). "China's energy reforms and hydropower expansion in Yunnan." In Lebel, L. et al. eds. (2007). "Democratizing Water Governance in the Mekong Region." Mekong Press.

companies, referred to earlier as the “river-enclosure movement”, has led to the accelerated exploitation of Yunnan’s hydropower resources in the 2000s.¹⁹²

Over the past couple of years, in the face of a global economic slowdown, over-investment in coal generation capacity, new nuclear power stations coming online, and China’s moves towards less energy-intensive industry, demand for electricity in China’s eastern industrial areas has not met the supply-side expectations, leading to a surplus of hydropower-generated electricity in the Western regions.¹⁹³ Because the full installed capacity of Yunnan’s (and Sichuan’s) hydropower is not fully utilized, the government’s slogans have shifted in 2016 from “Send Western Electricity East” to “Yunnan Power for Yunnan” (see Section 6.1).¹⁹⁴

Meanwhile, in a bid to enter emerging markets to address the issue of overcapacity, China Southern Power Grid Company is exploring opportunities for exporting power to Laos. At the time of writing, China exports approximately 70 MW of electricity to Laos. An agreement signed in 2015 indicates that in the future, China could be exporting up to 3,000 MW to Laos.¹⁹⁵ According to reports, China is also in negotiations with the Myanmar government to export China’s excess electricity to Myanmar, in an apparent reversal of earlier plans for hydropower dams on the Myanmar segment on the Nu-Salween-Thanlwin River to export power to China.¹⁹⁶ Such plans are complemented by planned integration of the transmission networks of ASEAN nations with the Chinese transmission network. A report by the Stimson Center states that Yunnan province’s current excess hydropower capacity exceeds the combined hydropower capacity of all the Greater Mekong Subregion countries, and increasing integration of power markets and trade regimes under the Belt and Road Initiative is conducive to advancing China’s position as a net power exporter.¹⁹⁷

In sum, an increasingly profound transformation of China’s electricity sector is underway, incentivized by the need to reduce air pollution, address environmental degradation, meet its international climate change obligations, and to address China’s power surplus.¹⁹⁸ The 13th FYP (2016-2020) has affirmed a demand for reduced dependence on coal, more clean and renewable energy, and greater energy efficiency.¹⁹⁹ Yet, these commitments consider large hydropower as amongst the sources of clean and renewable energy (together with nuclear power). Proponents of the Nu River dams have been

¹⁹² Han, H. (2013). “China’s Policymaking in Transition: A Hydropower development Case.” *Journal of Environment & Development* 22(3).

¹⁹³ Solomon, D. (2016). “China’s Impressive Clean Energy Progress Confronted by Emerging Challenges”. <http://www.eastbysoutheast.com/chinas-impressive-clean-energy-progress-confronted-by-emerging-challenges/>

¹⁹⁴ Fan Xiao: [China’s energy demands do not need such a large-scale hydropower development](http://www.marketplace.org/2016/01/05/world/will-china-dam-its-last-free-flowing-river), 2016.10.03; see also <http://www.marketplace.org/2016/01/05/world/will-china-dam-its-last-free-flowing-river>

¹⁹⁵ Regional Power Trade Coordination Committee, ADB. (2015). Country presentations from 19th Meeting of the GMS Regional Power Trade Coordination Committee (RPTCC-19) meeting, 16-17 November 2015, Bangkok, Thailand. <https://www.adb.org/publications/nineteenth-meeting-gms-rptcc-19-proceedings>

¹⁹⁶ Reuters. (2017, Aug 4). “Exclusive: China in talks to sell electricity to Myanmar amid warming ties”. <https://www.reuters.com/article/us-myanmar-china-energy/exclusive-china-in-talks-to-sell-electricity-to-myanmar-amid-warming-ties-idUSKBN1AK011>

¹⁹⁷ Weatherby, C. and B. Eyer. (2017, Jun). “Mekong Power Shift: Emerging Trends in the GMS Power Sector”. The Stimson Center.

¹⁹⁸ Hao, F. (2016, Apr 7). “China Puts an Emergency Stop on Coal Power Construction.” *The Diplomat*. <https://thediplomat.com/2016/04/china-puts-an-emergency-stop-on-coal-power-construction/>

¹⁹⁹ Solomon, D. (2016). “China’s Impressive Clean Energy Progress Confronted by Emerging Challenges”. <http://www.eastbysoutheast.com/chinas-impressive-clean-energy-progress-confronted-by-emerging-challenges/>

reported in the media as acknowledging China's energy surplus reduces the need for large hydropower dams at present.

At the same time, the central government has signaled a shift towards consolidating its power generation SOEs, in an attempt to increase efficiency. Analysts have noted that because the post-reform power generation SOEs focused on increasing their market share in the state-controlled energy market, the 2002 reform and breakup of State Power Corp. did not result in the expected gains in efficiency and profitability.²⁰⁰ Most recently in August 2017, SASAC approved a merger between China Guodian Group, one of the big five, and Shenhua Group, China's largest coal mining and thermal power production corporation, into China Energy Investment Corporation. The merger has been described as creating "the world's largest power company," with 77% of its combined 227 GW of generating capacity being derived from coal. Reports also indicate that Huaneng Group is next to merge with the State Power Investment Corporation, which would lead to a consolidation of two of the big five.²⁰¹ This major restructuring comes at a time when China's economy is undergoing transition to accommodate shifting economic demographics and increasing pressure to reduce dependence on fossil fuels.

Civil society groups, however, have questioned these technique oriented solutions. They have argued that large dams cannot be considered as clean energy due to the ecological and social impacts. Some managerial reforms that promote participatory and inclusive decision-making, and incorporate environmental and social cost into energy planning should be adopted²⁰²; deep energy reform, should firstly consider balancing interest among different groups, which include restraining special interest groups and protecting the interest of public, especially of disadvantaged groups. Secondly, in hydropower sector, fostering clean relationships between government and enterprises. Thirdly, assessing the full and true costs, include costs of watershed ecosystem, rights impact of resettled people and indigenous people. Fourthly, improving the governance in hydropower decision making, increase transparency, public participation and accountability.²⁰³

²⁰⁰ Ng, E. (2017, Sep 8). "Why China's power sector restructuring is a game of mergers and demergers." <http://www.scmp.com/business/companies/article/2110326/why-chinas-power-sector-restructuring-game-mergers-and-demergers>

²⁰¹ Bloomberg. (2017, Aug 28). "China is Creating the World's Largest Power Company". <https://www.bloomberg.com/news/articles/2017-08-28/china-approves-guodian-shenhua-group-to-merge>

²⁰² International rivers. (2014). "The true cost of hydro". 23 November 2014. https://www.internationalrivers.org/sites/default/files/attached-files/truecostofhydro_en_small.pdf

²⁰³ Xiaogang Y. (2016). "What is the future of hydropower governance?" *REEI Energy System Transformation Workshop*, 2016. <http://www.reei.org.cn/en/index.php/2016/11/07/reei-2016-est-workshop-en/>

Chapter 8: Conclusion and Recommendations

Hydropower development on the Nu River was one of the iconic controversies over development and conservation in China's public discourse, revealing how hydropower special interest groups and the public interest groups struggled to influence the Nu River governance process.

This study compared pathways of hydropower development and river protection, analyzed actors and networks and their different goals and interests, and examined how decision-making processes of the Nu. These actors' actions and objectives in influencing the water governance of the Nu-Salween-Thanlwin address questions of procedural justice, open or closed decision-making processes, diversified or restricted options and pathways, good governance, accountability and corruption. A comprehensive analysis of actors, policies and institutions reveals hydropower's hegemony over both the discourse and practice of water governance and management, as well as how civil society can leverage a contested realm of environmental management to resist this hegemony, and influence policymaking.

8.1 Large-scale and small hydropower resulted in uneven development

There is no doubt that hydropower development in Southwest China has greatly increased the electricity supply, GDP growth and fiscal revenue for the local government, and to a limited extent increased local employment. However, this pathway was constructed with the Western regions being as power source for the industrialized, affluent Eastern seaboard, and not for the Western regions' local communities' sustainable use of natural resources and comprehensive socio-economic development. The fundamental structure West-East Electricity Transfer strategy undermined the principle of fair development in Deng Xiaoping's "Two-Step" development plan and neglected the spirit of common prosperity.

The power generation and transmission grid SOEs pushed hydropower development in a market that was not properly regulated or planned, leading to a situation where total installed capacity for hydropower is underutilized and wasted. This economic inefficiency is created by the "iron triangle" of actors in government, business and academia. Hydropower companies lobby government regulators and academic experts through monetary incentives, sometimes illegally, in order to secure hydropower project contracts, justified through the supposed "objectivity" of scholars. In the absence of internal or public monitoring mechanism under a state-controlled market, this "iron triangle" of special interests monopolized the power generation market.

Since 2013, the Eastern seaboard's power market has reached saturation, and Yunnan and Sichuan's hydropower stations have been forced to waste electricity due to lack of demand. The preferential treatment of the SOEs during the 2000s has resulted in the explosive growth of hydropower across the Southwest, damaging the ecology of major rivers like the Jinsha-Yangtze and Lancang-Mekong without realizing the claimed benefits to local economies. The Yunnan government's plan for hydropower to become a pillar of the provincial economy has not borne fruit, yet government actors are trapped in the sunk cost fallacy.

In the absence of regulatory policy and public supervision, private investors heavily developed small hydropower stations across all the tributaries of the Nu River. As a result, the hydrology of the Nu River has been significantly altered, with several tributaries running dry before they reach the mainstream. The tributary waters, which had ordinarily been shared and used among the Nu River communities, were captured by small hydropower developers for private gain.

Elements from all levels of government, from the Ministries and administrative bureaucracies to the state-owned design institutes and power generators, have all expended so much time and effort into formulating hydropower plans on the Nu River that they do not want to fully abandon these previous efforts. Despite the ongoing anti-corruption campaign driven by President Xi Jinping and suspension and arrests of key officials, the institutional structures that facilitate the development of the “iron triangle” still exist.

Recommendations:

In order for relevant authorities to make sound decisions regarding the development of large-scale infrastructure on the Nu River, a strategic environmental assessment (SEA) should be carried out for the watershed, and environmental and social impact assessments should be objectively conducted to learn about the current socioeconomic and environmental conditions.

The large-scale hydropower pathway has so far led to environmental costs that may accumulate over time. Any large-scale hydropower or water conservancy projects on still-undeveloped river systems like the Nu and Yarlung-Tsangpo Rivers or rivers with high ecological value should be suspended for review and approval, taking into account new standards for green development.

Yunnan Provincial and local governments should establish mechanisms for regulating existing small hydropower and monitoring unfair water allocation issues to ensure that local communities’ needs are fulfilled.

In order to avoid social unrest, the relevant government agencies should publically disclose all relevant information about the socio-environmental impacts of the 2011 “Nu River Integrated River Basin Plan”, which includes the proposed Lushui, Saige, Fugong and Maji water conservancy projects on the Nu River.

During electric power system reform, ecological protection should be taken into consideration, and energy security and hydropower potential in the Southwest should be re-examined. Decision-making bodies and institutions need to recognize and address the built-in biases towards hydropower development.

Government Ministries must critically evaluate the socioeconomic and ecological results of following prevailing hydropower development discourse, which seeks to exhaust every drop of water without regard for ecosystem services.

Regarding energy security, the central government should open up multi-dimensional alternatives through both supply and demand side solutions, and open up the power generation market to fair competition. When doing so, the government should also assess negative externalities for society and environment. Potential supply side solutions include improving efficiency rates of existing

hydropower, expanding intelligent transmission grids, and building off-grid community electricity generation and transmission capacity.

In order to mitigate social and environmental harms, supply side reforms should strengthen safeguard standards to include hydropower sustainability assessments, social impact assessments and indigenous rights impact assessments that are conducted by an impartial third party, and equitable resettlement policies.

Regulatory bodies also should carry out governance assessments to evaluate transparency, participatory decision-making processes, accountability and anti-corruption mechanisms, in order to accurately and appropriately manage investment and socio-environmental risks.

The government should work with the public to closely supervise the “iron triangle” of government administrators, corporate developers and academic experts, in order to prevent further abuses of collusion and unfair industrial practices. In order to do so, political decision-making authorities should be institutionally separated from special interest groups.

In line with the “Core Socialist Values,” decision-making processes that involve socio-environmental impacts should be transparent, democratic, participatory and accessible for public supervision, in order to better facilitate rule of law.

8.2 Environmental conservation adapted for sustainable development

As part of the Three Parallel Rivers World Heritage Site, the biodiversity in the Nu River ecosystem is extremely rich, along with the surrounding Gaoligong Mountain Biluo Snow Mountain Nature Reserves. The mountains and valleys in the Southwest are formed by the same ongoing tectonic plate movements that formed the Himalayan Range, making the Nu River watershed an active seismic zone. The Nu River is known as one of the longest fault zones of the world, extending nearly 600 km. Large hydropower dam cascades would not only drastically impact the ecology of a World Heritage site, but could also substantially increase the risk of large earthquakes – as a result of these ecological and geological problems, the Nu River hydropower plans have been delayed and suspended for nearly 20 years.

Since 2012, the central government has pushed for the development of “ecological civilization” as a national strategy, which will establish a new system of national parks. Though the Nu River Grand Canyon National Park will be one of these new protected areas, because the NDRC has not entirely abandoned hydropower and water resources development plans on the Nu River, local-level authorities continue to accommodate the potential development large infrastructure on the Nu River, which may threaten the effective management and good governance of the National Park and other ecologically significant areas.

In addition, there are overlaps between the jurisdictions of National Park management (under State Forestry Administration) and the World Natural Heritage management (under Ministry of Housing and Urban and Rural Development). The NDRC led the development and the overall plan for the national park system, with limited engagement from specific management bodies, nearby communities and general public.

Recommendations

Before approving any large-scale water resources infrastructure projects on the Nu River, the relevant authorities, experts and environmentalists must carry out a thorough and multidisciplinary investigation and assessment of biodiversity impacts, geological and seismic risks and social costs across the length of the Nu River in Tibet and Yunnan. Scientific, objective and comprehensive conclusions should be derived from this strategic environmental assessment (SEA). A systems-scale analysis of the Nu River watershed can form the basis for more detailed EIAs and SIAs to be conducted for the “Nu River Integrated River Basin Plan” and any other relevant development projects.

The MEP, with the NDRC and MWR, has already established measures to strengthen and improve EIAs for integrated river basin planning and hydropower and water conservancy projects. If there are concrete plans for hydropower or water resources development on the Nu, the EIAs must be disclosed in a timely manner, and decision-making processes must include public participation.



Figure 6: Coffee picking is practiced throughout the World Heritage land (Credit: Green Watershed)

Regarding the existing small hydropower on the tributaries of the Nu, the Yunnan Provincial Government should also commission an independent, third-party investigation into the ecological impacts of small hydropower on the World Heritage Site’s natural assets and undertake ecological restoration work. The national park pathway is preferable in the long term for Nujiang and Yunnan, especially if local communities can derive a sustainable income from eco-tourism and natural resource conservation and maintenance activities. The World Natural Heritage and new National Park are invaluable ecological assets for Yunnan, China, and the world – effectively protecting endemic

biodiversity and intact ecosystems through a comprehensive and cohesive national park system will provide immeasurable benefits towards establishing an ecological civilization.

To prevent the national park system from being mismanaged by factional in-fighting in government, and to prevent the over-commercialization of ecological resources, the central government should establish independent national park management bodies under participatory governance of government bodies, communities, experts and public interest group stakeholders.

In the early stages of the national park development, the government should experiment with multiple approaches and consider lessons learned from International and domestic experiences in order to find the best balance between preserving natural environments and fostering economic development.

The government should not issue preferential industry policies that encourage companies to monopolize incoming investment and violate community resource rights. In order to prevent external capital from overtaking community interests, community self-organization should be promoted to increase consciousness of public interest and free, prior and informed consent rights.

Community participation in park management, tourism management and poverty alleviation efforts should be included in the planning, design and operation of national parks. Doing so will serve to improve collaboration between government agencies and the people and to better preserve the ecological environment, creating a more harmonious and equitable society.

8.3 Effective social protections necessary for sustainable development

The majority of undeveloped hydropower potential lies in Southwest China, in the traditional home regions of dozens of China's minority nationalities and indigenous peoples. Various NGOs have conducted research along several river basins, including the Jinsha, Min, Dadu, Lancang, Nu and Yarlung Tsangpo Rivers, finding that hydropower development has severely impacted the livelihoods of ethnic minority communities, affecting individual homes and properties, agricultural fields, communal natural resources and fracturing social relations.

In many cases, hydropower developers did not respect the right of indigenous people and local communities to be informed, express opinions, and participate in decision-making processes. Many hydropower companies and local government lack even basic awareness of indigenous rights due to the absence of indigenous-specific laws and regulations in China. Though a number of policies and regulations have been passed by the national government to allow for more public involvement in resettlement and compensation planning, at the ground level it is difficult to monitor and enforce, leading to the continued inequitable treatment of resettled communities. In ethnic minority areas, the government has not been able to adequately address how to respect minority and indigenous groups' rights in hydropower development projects.

With regard to Nu River hydropower's impacts on the people of Nujiang Prefecture, 92% of which belong to minority nationality groups, environmental civil society groups formed a coalition of affected community representatives, environmental protection officials, academic experts from social and natural sciences, democratic parties and media figures to protect the Nu River and empower its communities. Through a concerted campaign that focused on environmental impacts, geological risks,

resettlement inequities and procedural violations, joint grassroots awareness raising and policy advocacy efforts successfully prevented destructive hydropower development on the Nu River mainstream.

Recommendations

The relevant government agencies must develop clear guidelines and enforceable policies for large-infrastructure development (including hydropower and water conservancy projects) in minority nationality areas. The government's development plans in Western regions should incorporate ethnic minority rights safeguards into development plans. Hydropower development project plan should be based on the comprehensive and holistic consideration of energy security, economic development, ecological environment protection and minority rights safeguards.

According to Reform Requirements of the 18th Party Conference, hydropower development in the Western regions must include safeguards for ethnic minority people's rights and interests, which should encompass not only economic factors, but political and cultural rights as well. As such, a separate impact assessments system should be established with respect to the unique sociocultural rights of minority nationalities and indigenous peoples.

In accordance with the law, government authorities should institutionalize and protect minority people's rights to be free from discrimination, rights to equally participate in and share in regional economic development benefits, rights to choose to maintain their traditional values, religious beliefs and unique ways of life, and rights to protect their land, rivers, forests and pastures that they lived in and managed for many years.

Hydropower companies and local governments should minimize relocation of ethnic minorities of hydropower development, and must resolutely put an end to forced relocation. The government, at the central, provincial and local levels, holds the responsibility of supervising large-scale infrastructure development and development-induced resettlement processes.

Projects such as hydropower or water conservancy dams, if given approval, should ensure that affected people's procedural rights are respected, including providing options and choices, adequate time for consideration, and sufficient and understandable information.

The relevant government agencies, such as the Yunnan Provincial Resettlement Bureau, should establish an effective grievance and redress mechanism that is accessible for rural minority nationality communities, and should proactively address and provide fair compensation for harms to local communities.

In developing safeguards, accountability and compensation mechanisms, the government should involve minority nationality representatives and experts in planning and design processes, in order to adequately account for the potential impacts to material, physical and psycho-social dimensions of minority people's well-being and health.

With regards to existing hydropower projects' impacts, the government should carry out post-project social impact assessments to retroactively account for affected communities' socioeconomic and

cultural losses. A potential means of providing reparations for harms to local communities is for the local government and companies to take measures to help communities preserve and pass on minority cultural heritage, language, traditions and customs.

Government should encourage social organizations and civil society groups to play an active role in hydropower decision-making processes to provide objective and independent appraisals of development plans.

Government agencies and civil society groups can cooperate to provide various levels and forms of participatory consultation platforms such as public hearings, expert consultation workshops, risk assessments, legitimacy surveys, participatory social impact assessments, development needs assessments, stakeholder negotiations, citizen's juries, consensus meeting, community mapping, among many other mechanisms. The government should encourage the deployment of these tools in its relevant departments, in order to more effectively identify environmental and social impacts, provide social supervision and protect the rights and interests of the people.

Diversified social governance is the common practice and successful experience of industrialized countries in the global North and has proven to result in more equitable and sustainable allocation of resources. Regarding hydropower development, the government should encourage individual citizens, non-governmental organizations, community representatives, scholars and experts to participate in public affairs. Through deliberative policy- and decision-making processes, civil society can share the responsibility of managing public affairs in a way that will account for the shortfalls of top-down decision-making.

Ultimately, the goals of a harmonious society and ecological civilization are best served by a diversity of voices and perspectives in conservation and development decision-making practices. As China becomes increasingly important in influencing global markets and local environments, it is necessary for the Chinese government to involve and collaborate with different stakeholders to ensure that transboundary water governance can be beneficial for all those who rely on the waters of the Nu-Salween-Thanlwin River.



Figure 7: Natural beauty of the Nujiang in early spring (Credit: Green Watershed)

Annex: List of Policies

Subject Area	Policy / Law / Regulation	Chinese	Issuing Body	Date
Socioeconomic Development	10 th FYP Outline for National Economic and Social Development (2001-2005)	中国国民经济和社会发展第十个五年规划纲要 (2001-2005)	NPC	2001
	11 th FYP Outline for National Economic and Social Development (2006-2010)	中国国民经济和社会发展第十一个五年规划纲要 (2006-2010)	NPC	2006
	12 th FYP Outline for National Economic and Social Development (2011-2015)	中国国民经济和社会发展第十二个五年规划纲要 (2011-2015)	NPC	2011
	13 th FYP Outline for National Economic and Social Development (2016-2020)	中国国民经济和社会发展第十三个五年规划纲要 (2016-2020)	NPC	2016

	12 th Five-Year-Plan for Western Development	西部大开发十二五规划（2011-2015）	NPC	February 2012
	11 th FYP Outline for Yunnan National Economic and Social Development (2006-2010)	云南省国民经济和社会发展第十一个五年规划纲要（2006-2010）	YPG	2006
	12 th FYP Outline for Yunnan National Economic and Social Development (2011-2015)	云南省国民经济和社会发展第十二个五年规划纲要（2011-2015）	YPG	2011
	13 th FYP Outline for Yunnan National Economic and Social Development (2016-2020)	云南省国民经济和社会发展第十三个五年规划纲要（2016-2020）	YPG	2016
	11 th FYP Outline for Nujiang National Economic and Social Development (2006-2010)	怒江州国民经济和社会发展第十一个五年规划纲要（2006-2010）	NPG	2006
Energy and Power	12 th FYP for Renewable Energy Development (2011-2015)	可再生能源发展十二五规划（2011-2015）	NDRC	July 2012
	12 th FYP for Water Resources Development (2011-2015)	水利发展十二五规划（2011-2015）	NDRC, MWR	June 2012
	12 th FYP for Hydropower Development (2011-2015)	水电发展十二五规划（2011-2015）	NEA	July 2012
	Notice on Matters concerning the Division of Main Rivers in Hydropower Construction and Management	关于水电建设管理主要河流划分有关事项的通知	NDRC	August 2004
	Notice on the Orderly Development of Small Hydropower to Effectively Protect the Ecological Environment	关于有序开发小水电切实保护生态环境的通知	MEP	June 2006
	Notice on Further Strengthening the Preliminary Hydropower Construction Work in the Southwest	关于进一步加强西南地区水电建设前期工作有关问题的通知	NDRC	September 2007

	Notice on the Establishment of the National Energy Commission	关于成立国家能源委员会的通知	NDRC General Office	January 2010
	Notice on Issues Concerning the Strengthening of Hydropower Management in River Basins	关于加强流域水电管理有关问题的通知	NDRC	February 2016
	Opinions on Increasing Land Use Policy Support to Promote Construction of Large and Medium-sized Water Resources and Hydropower Projects	关于加大用地政策支持力度促进大中型水利水电工程建设的意见	MLR, NDRC, MWR, NEA	February 2016
	Provincial Energy Development Planning Management Measures	省级能源发展规划管理办法	NEA	February 2016
	Yunnan Provincial Energy Industry Development Plan (2009-2015)	云南省能源产业发展规划纲要 (2009-2015)	YPG	2009
	Opinion on Strengthening the Development and Management of Medium and Small Hydropower	关于加强中小水电开发利用管理的意见	YPG	July 2016
	Interim Management Measures for Medium and Small Hydropower Development, Use and Construction in Nujiang Prefecture	怒江州中小水电资源开发利用和建设管理暂行办法	NPG	February 2015
	Nujiang Prefecture Implementation Opinion on Halting Medium and Small Hydropower Development	怒江州关于停止中小水电开发的实施意见	NPG	April 2016
Natural Resources and Environmental Protection	Land Administration Law	土地管理法	NPC	January 1999
	Environmental Protection Law	环境保护法	NPC	January 2015
	Environmental Impact Assessment Law	环境影响评价法	NPC	September 2003
	Regulation on Environmental Impact Assessment of Planning	规划环境影响评价条例	State Council	October 2009
	Interim Measures on Examination of River	河流水电规划报告及规划环境影响	NDRC, MEP	November 2011

	Hydropower Planning and its EIA	响报告书审查暂行办法		
	Notice on Further Implementation of Ecosystem Protection Measures of Hydropower Development	关于深化落实水电开发生态环境保护措施的通知”.	MEP, NEA	May 2014
	Notice on Further Strengthening EIA of Water Resources Planning	关于进一步加强水利规划环境影响评价工作的通知	MEP, MWR	March 2014
	Interim Measures for Administration of Aquatic Genetic Resources Nature Reserves	水产种质资源保护区管理暂行办法	MOA	March 2011
	Notice on Strengthening Environmental Protection of Hydropower Projects	关于加强水电建设环境保护工作的通知	MEP, NDRC	January 2005
	Regulation for Environmental Impact Assessment of River Basin Planning	江河流域规划环境影响评价规范	MWR, MOE	May 1993
	Water Law	水法	NPC	August 2002
	Fisheries Law	渔业法	NPC	August 2004
	Water Resources Planning and Administration Measures (for Trial Implementation)”	水利规划管理办法（试行）	MWR	April 2010
	Notice on Further Strengthening Environmental Impact Assessment of Water Conservancy Planning	关于进一步加强水利规划环境影响评价工作的通知	MEP, MWR	March 2014
	Interim Measures for Administration of Aquatic Genetic Resources Protected Areas	水产种质资源保护区管理暂行办法	MOA	March 2011
	Decision on Accelerating the Implementation of Water Conservancy Development Strategy to Promote Yunnan Economy	关于加快实施兴水强滇战略的决定	YPG	April 2011
	Regulations of Nujiang on Water Resources Protection and Development	怒江水资源保护与开发条例	NPG	August 2012

	Opinions on Accelerating the Development of Ecological Civilization	关于加快推进生态文明建设的意见	CPC Central Committee and State Council	April 2015
	General Plan for the Reform of the Ecological Civilization System	生态文明体制改革总体方案	CPC Central Committee and State Council	September 2015
Social Protection	Regulation on Land Requisition Compensation and Resettlement of Migrants for Large and Medium Water Conservation and Power Construction Projects	大中型水利水电工程建设征地补偿和移民安置条例	State Council	September 2006
	Notice on Completing Tasks Surrounding “First Resettle then Construct” Effort of Hydropower Projects	关于做好水电工程先移民后建设有关工作的通知	NDRC	February 2012
	Notice on Carrying Out Preparation of 13 th FYP for Large and Medium Reservoir Development Post-Resettlement Support	关于开展大中型水库移民后期扶持十三五规划编制工作的通知	MWR, NDRC, MOFCOM	2015
	Guiding Opinions on Nu River Middle and Lower Reaches Hydropower Development Resettlement	云南省怒江中下游水电开发移民安置指导意见	YPG	October 2008
	Detailed Rules for the Implementation of Large and Medium Water Conservation and Power Construction Projects Land Requisition Compensation and Resettlement (for Trial Implementation)”	怒江州大中型水利水电工程建设征地补偿和移民安置管理实施细则（试行）	NPG	December 2009
	Management Measures to Implement Resettlement for Large and Medium Scale Water Conservancy	云南省大中型水利工程移民安置实施管理办法	Yunnan Province Resettlement Bureau	January 2016

	Projects in Yunnan Province			
National Parks and Protected Areas	Regulations of the People's Republic of China on Nature Reserves	中华人民共和国自然保护区条例	State Council	January 2011
	Measures for Supervision and inspection of National Nature Reserves	国家级自然保护区监督检查办法	MEP	July 2015
	Forest Law	森林法	NPC	April 1998
	Forest Law Implementing Regulations	森林法实施条例	NDRC	January 2000
	Management Regulations on Land in Nature Reserves	自然保护区土地管理办法	MLR	July 1995
	Management Regulations on Forests and Wildlife Nature Reserves	森林和野生动物类型自然保护区管理办法	State Council	July 1985
	Regulations on Scenic Areas	风景名胜区条例	State Council General Office	December 2006
	Administrative Regulation of Yunnan Province of PRC on Natural Reserve	云南省自然保护区管理条例	YPG	March 1998
	Opinions of Yunnan Provincial Government on Promoting National Park Construction Pilot Projects	云南省人民政府关于推进国家公园建设试点工作的意见	YPG	December 2009
	Yunnan Province National Park Management Regulations	云南省国家公园管理条例	Yunnan People's Congress	November 2015
	Approval of Yunnan Provincial Government on Establishment of Nujiang Grand Canyon National Park	云南省人民政府关于建立怒江大峡谷国家公园的批复	YPG	May 2016
	Yunnan Province Biodiversity Conservation Strategy and Action Plan (2012-2030)"	云南省生物多样性保护战略与行动计划 (2012-2030)	Yunnan Academy of Biodiversity	April 2013
	Administrative Measures for Declaration and Protection of World Natural Heritage, Natural and Cultural Heritage (for Trial Implementation)"	世界自然遗产、自然与文化双遗产申报和保护管理办法	MOHURD	November 2015

Transboundary Policies and Commitments	Nine Principles on Encouraging and Standardizing Outward Investment	关于鼓励和规范我国企业对外投资合作的意见	State Council	October 2006
	Guiding Opinion of the State Council on Encouraging and Standardizing Enterprises' Cooperation in Outbound Investment	国务院关于鼓励和规范企业对外投资合作的意见	State Council	April 2007
	Guidelines to the State-owned enterprises Directly under the Central Government on Fulfilling Corporate Social Responsibilities	关于中央企业履行社会责任的指导意见	SASAC	December 2007
	Circular to Regulate the Overseas Investment and Cooperation of Chinese Companies	关于进一步规范我国企业对外投资合作的通知	MOFCOM, MOFA, SASAC	June 2008
	Guidelines for Environmental Protection in Foreign Investment and Cooperation	对外投资合作环境保护指南	MOFCOM, MEP	February 2013
	Sanya Declaration of the First Lancang-Mekong Cooperation (LMC) Leaders' Meeting--For a Community of Shared Future of Peace and Prosperity Among Lancang-Mekong Countries		MOFA	March 2016
	Joint Statement on Production Capacity Cooperation		State Council	March 2016
	Guidance on Promoting Green Belt and Road	关于推进绿色“一带一路”建设的指导意见	MEP, MOFA, MOFCOM, NDRC	May 2017
	The Belt and Road Ecological and Environmental Cooperation Plan		MEP	May 2017

Annex: List of Scholars and Academics

Scholars advocating hydropower on Nu River:

- He Zuoxiu 何祚庥, a research fellow of Institute of Theoretical Physics and member of Chinese Academy of Sciences, believed that it is necessary to vigorously develop hydropower. He thinks that Nu River hydropower development would not affect the ancient forests, and the "Three Parallel Rivers" World Natural Heritage and that hydropower development is the only feasible measure for Nu people to achieve prosperity
- Lu Youmei 陆佑楣, a water conservancy and hydropower engineering expert, member of Chinese Academy of Engineering, who also served as Vice Minister of the Ministry of Water Resources and Electric Power²⁰⁴, and the Ministry of Energy, General Manager of China Three Gorges Project Corporation.
- Feng Jiankun 冯建昆, former Party Secretary of Yunnan Nationalities University, together with He Yaohua edited and published "Nu River, Lancang River, and Jinsha River: Research on the Exploitation of Hydropower Resources and the Protection on Environment," and wrote the essay "Scientific Development Concept and Nu River Hydropower Development" stating that Nu River hydropower development is necessary for the revitalization of the Nu economy and poverty alleviation.
- He Yaohua 何耀华, director of China Southwest Ethnic Studies Association, and former president of Yunnan Academy of Social Sciences, also chairman of Southwest National Research Association, wrote, collected and published papers supporting hydropower development, and disseminate it as policy input for decision-making to Party and government organs and senior leaders.
- Chen Houqun 陈厚群, Academician of Chinese Academy of Engineering, believed that Nu River hydropower planning must have a detailed feasibility study conducted with careful consideration of the input of earthquake and hydropower experts participating in the planning
- Xu Xiwei 徐锡伟, Director of Institute of Geology, China Earthquake Administration, opinion was a dam would be safe as long as it was not located on a geological fault, in addition a reasonable design and good construction quality
- Guo Shunmin 郭顺民, research fellow at the Institute of Geology, participated in the Nu River hydropower development security assessment, saying that all dams proposed in the planning were not in the fault zone, and the seismic risk is lower than that of the dams on Jinsha River.
- Jiang Pu 蒋溥, research fellow at the Institute of Geology.

Scholars advocating careful decision-making on hydropower:

- Xu Daoyi 徐道一, researcher at Institute of Geology, China Earthquake Administration.
- Sun Wenpeng 孙文鹏, researcher at Beijing Research Institute of Uranium Geology.

²⁰⁴ Ministry of Water Resources and Ministry of Electric Power were merged during state agency restructuring from 1958-1979 and 1982-1988, when the Ministry of Water Resources became a separate entity.

- Zheng Yuxin 郑玉歆, Deputy of the NPC and Director of the Center for Environment and Development of Chinese Academy of Social Sciences, who wrote “Realizing Scientific and Democratic Decision-Making of Hydropower Projects.”
- Zheng Yisheng 郑易生, researcher at the Institute of Quantitative & Technical Economics, Chinese Academy of Social Sciences, Deputy Director of the Center for Environment and Development of Chinese Academy of Social Sciences, who wrote “Dissenting Opinion on ‘Disorderly Development Covered Up by Hydropower Being Green Energy’” and “On the Survival and Development of Nu”, while emphasizing the need for careful hydropower development in “Why the Hydropower Development Decision-Making on Nu River Needs to be Careful,” and “Precautionary Principle vs Nu River Development.”
- Liu Shukun 刘树坤, a water conservancy and hydropower expert, and former director of The Department of Hydraulics in Institute of Water Resources and Hydropower Research (IWHR), participated in the “River Decade Project” organized by Green Earth Volunteers (GEV) from 2007 to 2015. His view of Nu River hydropower development is that it is best not to develop hydropower on the basis of three reasons: Firstly, its unique value in natural landscape and national cultural and biological resources have increasingly shown to be something that may become a unique resource in China. Secondly, as the Three Parallel Rivers World Natural Heritage Site, its value will be increasing. Thirdly, the basin's residents will benefit from this unique value²⁰⁵. In 2016, he wrote “Dam Construction Should Be Clear on Its Influence on the Environment” and proposed that environmental protection should be given greater weight than economic development. While not constructing several power plants can be compensated for by other methods, the Nu River's unique landscape, culture and ecological system are irreplaceable once changed.²⁰⁶
- Li Dun 李楯, professor at Tsinghua University's Center for Modern Chinese Studies, participated in the first expert review of the Nu River EIA. His view is that the key question before a project being launched is whether or not a rigorous legal procedure has been followed, whether the information is transparent, and whether the interests of local peoples are guaranteed. As to dam construction, usually, the first beneficiary is the power sector, followed by the local government; it is very difficult for local people to participate in the process of benefit distribution under the current system.
- Fan Xiao 范晓, engineer of Sichuan Geology and Mineral Bureau Regional Geological Survey Team, carries out geological and ecological investigations of mountains and rivers, forests, and meadows in the southwest China all year around. He wrote many times advocating for protection of the Nu River, with works such as “Impacts of Hydropower Project on Geological Environment and its Potential Hazard” and “Discussion on Nu River Hydropower Development from the Great Risk of Reservoir-Induced Earthquakes.” Mainly based on some of China's biggest hydropower dams being idle because of serious overcapacity, his new article in September 2016 “China's Energy Demands Do Not Need Such Large-Scale

²⁰⁵ Yicai Daily. (2008, Feb 22). “Liu Shu Kun: Reflections on the “flood” of hydropower development” / “刘树坤：水电开发“泛滥化”反思”. <http://finance.people.com.cn/GB/6913936.html> (Chinese)

²⁰⁶ Ecological Civilization of China Research and Promotion Association / 中国生态文明网. (2016, Sep 19). “Construction of large dams should make clear impacts on ecosystem” / “大坝建设应搞清楚对生态环境的影响”. <http://www.cecrpa.org.cn/llzh/llvj/8968.htm> (Chinese)

Hydropower Development” illustrates that there is no viable economic rationale in terms of energy demand for Nu River hydropower development.²⁰⁷

- Shen Xiaohui 沈孝辉, Senior Engineer, State Forestry Administration, wrote “Rivers should adopt gradual management, Nu River should not be developed into cascade.” During the NPC and the Chinese People's Political Consultative Conference (CPPCC) sessions in 2004, through CPPCC delegate Mr. Liang Congjie, Shen Xiaohui submitted two proposals (“Protect the Natural River Nu, Stop Water and Electricity Cascade Development” and “Classification and Planning for River Basin, Coordination of Ecological Protection and Economic Development”) to the CPPCC and the NPC. The proposals recommended that the EIA Law and Water Law must be implemented in order to veto Nu River hydropower development.
- Li Bosheng 李渤生, researcher at the Institute of Botany of CAS, director of East Asian Nature Conservation Research, Monitoring and Training Center, has conducted 61 in-depth investigations in Tibet, Sichuan, and Yunnan. He said that the Nu River is a very difficult area to conduct scientific expeditions in because traveling in the Hengduan Mountains is very inconvenient, mainly from the north of Gongshan up to Tibet, and that a lot of places on the Nu basically have had no scientific investigation conducted there, because researchers have never set foot there. Despite that, his team has found a lot of important information, so those potential problems are even more important to address before discussing Nu River dam construction, and that this situation should be treated scientifically.
- Huang Guangcheng 黄光成, researcher at the Institute of Ethnic Literature in the Yunnan Academy of Social Sciences, died in May 2013. Through the platform of democratic political participation and as a counselor to the Kunming municipal government, he transformed some of his research into proposals at the CPPCC session and the NPC session, into counselor's advice, or into the information submitted to the Central Committee, all of which helped to promote broader attention. During the NPC and CPPCC sessions of Yunnan Province in 2004, he submitted the proposal in the name of the NLD (National League for Democracy) “Nu River Development Needs Comprehensive Planning,” which evoked strong response from democratic parties. Huang Guangcheng is the author of “Biography of Lancang River and Nu River.”²⁰⁸ The book has been published twice and translated into Japanese.

²⁰⁷ Fan, Xiao. (2016, Oct 3). “China’s energy needs do not need large-scale hydropower development” / “范晓：中国的能源需求并不需要如此大规模的水电开发”.

<http://note.youdao.com/share/index.html?id=2a76a908e17ca32890fa2e7b75cfb15a#/> (Chinese)

²⁰⁸ Huang, Guangcheng. (2009). “The importance of living life without neglect – Huang Guangcheng Academic Research Biography” / “生命中不能怠慢之重—黄光成研究院学术自述”.

<http://www.sky.yn.gov.cn/jgsz/yjys/mzwxjys/kydtr/3678523252722742186> (Chinese)