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CAPTURING THE RAINS: A COMPARATIVE STUDY OF CHINESE INVOLVEMENT IN CAMEROON'S HYDROPOWER SECTOR

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Abstract

China is becoming a significant player in infrastructure construction around the world. In low-income countries in Africa and Asia, where infrastructure deficits have historically been a bottleneck to economic growth and investment, hydropower is one area in which Chinese financial resources and domestic expertise could contribute to energy infrastructure and security. However, many of China's hydropower projects remain controversial both domestically and overseas due to their social and environmental impacts, and perceived lack of transparency. This paper compares two partially-complete hydropower projects in Cameroon financed and constructed in the last five years: one financed by China Eximbank, the other financed by a multilateral consortium led by the World Bank. The single country case study offers an opportunity to evaluate the projects' tendering, approval, and implementation processes by the Cameroonian government, and to examine how the different financing arrangements have influenced implementation and approaches to environmental and social impacts and mitigation. Although both projects show similarities in their adherence to domestic laws and organizational regulations, the degree and rigor of implementation and the involvement of financiers in the process differs considerably.

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1. Introduction

Chinese infrastructure projects are becoming ubiquitous around Africa, one consequence of the country's "going global" policy that has seen the internationalization of its largest state owned enterprises (SOEs). Chinese construction firms are increasingly competing for international contracts as China's domestic infrastructure market has become saturated, and many of these international projects are supported by concessional loans and financing from China's policy banks. China's infrastructure projects and broader investments in the energy and extractive sectors have been a source of controversy. Western NGOs and advocacy groups have criticized China's apparent disregard for negative social and environmental impacts, as well as its relative lack of transparency.

China's hydropower boom in Africa emerged at a time when the World Bank had started to shy away from large infrastructure projects, due in part to their environmental and social impact. However, in the last decade, the number of World Bank-financed dams has risen dramatically as the institution, along with the other Multilateral Development Banks (MDBs), has again prioritized large-scale infrastructure. In the case of Cameroon, both China Eximbank as well as traditional multilateral donors have been active financiers in the hydropower sector. Cameroon has the potential to be the second most important producer of hydropower in Africa. As such, in recent years the country has sought to leverage foreign financing and expertise to build its hydroelectric capacity on a large scale.[1] Cameroon has begun constructing a number of hydropower dams and power stations across several river basins in its southern regions, with active participation by multiple Chinese infrastructure companies.

This paper first reviews the literature around Chinese and World Bank-funded hydropower projects, and gives an overview of Cameroon's energy and water context. It then looks at two hydropower projects in Cameroon—one financed by China Eximbank, and one financed by a multilateral consortium led by the World Bank—to assess decisions around project financing, contracting, and implementation processes. It highlights several differences and similarities in institutional relations between project stakeholders, financiers, and contracted firms, and examines the environmental, social and labor issues that arose in both projects. We find key differences in project management and enforcement between the two projects that stem from the differing influence of their respective financiers. This offers insight into Chinese practices around infrastructure project financing and assessment standards, as well as World Bank practices as a re-emerging donor in the field of hydropower.

2. Research Questions and Methodology

This case study raises the following questions:

1. Why did the Cameroonian government choose Chinese financing for one of the two selected infrastructure projects when alternative sources of finance from Multilateral Development Banks were available in the same period?
    a) Was Chinese financing lower cost or more readily available?
    b) Did Chinese financing hold fewer conditionalities or other, non-financial advantages?

2. Why did the financiers decide to fund their respective projects? How did the projects differ in implementation, and did the financier influence this process?

3. How do the two projects differ in their social and environmental impacts, as well as their mitigation strategies? What role do the financiers play in applying and enforcing social and environmental standards?

To answer these questions, the paper uses a comparative case study approach with process-tracing to examine the respective approaches of two donors in two particular projects: the Eximbank-financed Memve'ele hydroelectric dam, and the Lom Pangar project, financed by a World Bank-led consortium. Focusing on a single country allows us to "control" for country-level "fixed effects" in our comparison of host-country interactions with external actors. Memve'ele and Lom Pangar are two of several hydropower and dam projects that have been planned across Cameroon, and were selected for several reasons.

First, the financing and contracting surrounding both projects took place within a similar time period, and both began construction within the last five years. This means we can assume some consistency in the decisions and strategies of policymakers in the sector, allowing us to examine the rationale behind their selection of Chinese versus Western financiers.

Second, although the nature of the projects is different—one is a run-of-river dam, the other a regulating dam—both are of similar scale in project cost, meaning that they are comparable in terms of the financial risk incurred by the lender and borrower. Even though other hydropower projects, such as Mekin, were constructed in the same period, their scale and economic cost were much smaller. In addition, less information is available on the financing of the Mekin Dam than on the other two projects.

In addition to secondary literature and online research, this paper draws on fieldwork that consisted of approximately 18 interviews conducted in Cameroon in January 2016. Meetings were held with Chinese contractors, representatives from a number of Cameroonian government ministries, project management offices, and with World Bank and multilateral partners. One follow-up interview was conducted in Washington, DC in April 2016. The interviews were conducted in English, French, and Mandarin Chinese. The researchers started by talking to initial contacts at the China Ministry of Commerce (MOFCOM) counselor's office in Yaoundé and with a Cameroonian contact at the Prime Minister's Office. From there they used snowball sampling to identify additional contacts in relevant agencies. One researcher was able to conduct a short site visit to the Memve'ele project to observe construction and interview the company director, and was also able to speak to some local and Chinese staff on site.

3. Hydropower: Policy and Practice

Investment in hydropower is seen as increasingly necessary for power generation in Sub-Saharan Africa (SSA), and its status as a renewable energy resource renders it an attractive investment. The World Bank estimates that SSA possesses 300 GW of untapped hydro potential. However, hydropower is often perceived as controversial in the development finance sector due to the risks it entails in both the financing and construction phases. The capital-

intensive nature of large-scale dam projects presents institutional risks and opportunities for corruption. Their frequent dependence on loan financing also raises questions over debt repayment should projects fail or under-perform due to construction delays or environmental changes affecting generation.

In 2000, the World Commission on Dams (WCD) gave a somber assessment on the benefits of dams, concluding that, despite their water management benefits, many projects fall short of targets. Large dams show high variability in the water and electricity services offered, and tend to overrun both projected costs and scheduling. The Commission argued that the benefits do not outweigh the social and environmental costs of dam construction—particularly to livelihoods, displaced communities that need resettlement, and fisheries and wildlife—that are often inadequately addressed.[2] This prompted the Bank's shift away from dams, and a withdrawal of the Bank and traditional MDBs from large infrastructure projects for most of the following decade. This stance did not come without criticism. John Briscoe, a key architect behind the WCD, was highly critical of the influence of anti-dam NGOs and lobbyists during the process, and the implied paternalism of the WCD requirements over legitimate, mostly elected, governments, which had the effect of suppressing and hindering the development of much needed infrastructure in developing countries.[3]

The World Bank's Retreat and Resurgence

Throughout the 1980s, the Bank developed a plethora of safeguard policies and accountability mechanisms in order to address and mitigate some of the negative impacts of large hydropower projects. After a number of controversial projects were canceled, including the Sardar Sarovar dam in India and the Arun III project in Nepal, the Bank's Inspection Panel initiated its first review. The bank then moved away from large-scale infrastructure and its "pressure to lend" institutional culture, instead putting a greater focus on "soft" programs in health and education.[4]

Recent years have seen a revival in infrastructure finance, with the successful Nam Theun II project in Laos PDR as a turning point. Since the 1990s, the proportion of Bank lending to infrastructure doubled, increasing from 20 to 40 percent.[5] The 2009 Directions in Hydropower document committed the World Bank to scaling up hydropower, and the new energy strategy paper in 2013 outlined the Bank's future strategy to move away from coal towards hydropower and gas projects.[6] The creation of the Global Infrastructure Facility also indicates a new drive towards infrastructure investment, and possibly points to the Bank honing its competitive edge in infrastructure in the context of newly created international financial institutions like the Asian Infrastructure Investment Bank (AIIB) and the New Development Bank from the BRICS countries, which have pledged to operate with greater efficiency.[7] However, even with this return to relatively high-risk projects like hydropower, the discourse at the Bank emphasizes the need to address environmental and social challenges. The new Social and Environmental Framework from the World Bank in 2014 consolidates existing safeguard policies with the aim of balancing energy and infrastructure needs, and environmental management and social benefits, guided by a more streamlined set of policies.[8]

Chinese Dams Go Global

As a historically water-scarce country, China has built huge domestic capacity in hydro-engineering and water management, including the notorious Three Gorges Dam and the South-North Water Transfer project, both of which created massive social displacement in their construction and faced criticism from environmental activists. Half of the world's mega-dams are located in China, but Chinese dam construction firms are also increasingly involved in overseas projects, with the encouragement of the state's "Going Out" policies.[9] There is relatively little empirical study of Chinese hydropower dams abroad, and the number of dams reported to be Chinese-financed tends to be exaggerated by media reports.[10] Figures for the number of "Chinese" dams also vary widely. International Rivers reports 330 dams with Chinese involvement worldwide (i.e., constructed by a Chinese firm or contractor), and over 30 with Chinese financing in Africa; SAIS-CARI's estimate is much lower, and includes only 17 dams with confirmed financing from Chinese sources.[11]

Although the Chinese had financed small hydropower dams in Africa for many decades, Chinese involvement in dam construction became increasingly visible in Africa in the 2000s with several mega-dams, including Imboulou in the Republic of Congo. Ghana's Bui Dam, as one of the first "Chinese" dams completed by Sinohydro, has come under much scrutiny from civil society actors and scholars evaluating its wildlife management and impact mitigation vis-à-vis local populations.[12] However, studies of the project emphasize the key role of the host country government in how impact mitigation and social and environmental plans were carried out, with the Chinese firm having relatively little influence in this regard.[13] Comparative studies of the Eximbank-financed Bui dam in Ghana against the Kamchay project in Cambodia also found that host governments play a much more critical role in determining standards for infrastructure projects than the dam contractor.[14]

Advocacy groups such as International Rivers as well as scholars have been critical of the prospect of Chinese dam contractors "exporting" domestic practices to other developing countries.[15] However, China's domestic norms and regulations over dam construction and management have also been evolving. China Eximbank has developed an environmental policy that requires companies operating overseas to conduct environmental impact assessments and project reviews before, during, and after construction.[16] Chinese firms have also evolved in their approach toward corporate social responsibility and international norms and standards, recognizing that to compete internationally they needed to move towards international best practices. Sinohydro, as one of the most prominent Chinese engineering companies abroad, developed in 2011 new standards for social sustainability, adapted from World Bank safeguard policies and international practice. However, after the company was restructured, newer updates to this policy appear to reflect a weaker commitment to higher standards, which many observers saw as a disappointing regression.[17]

Hydropower in Cameroon's Energy Strategy

Building on this research, we examine the variations in projects within the same country. Although Cameroon possesses the second highest hydropower generation potential in Africa after the Democratic Republic of Congo—roughly 12,000 MW—much of it remains undeveloped, and power shortages remain an ongoing problem.[18] Less than a quarter of

rural households have access to electricity, and just over 50 percent of urban households are connected to the electrical grid.[19] Figure 1 shows the locations of the country's hydropower sites: prospective projects are marked yellow, and Lom Pangar and Memve'ele are labelled in blue.

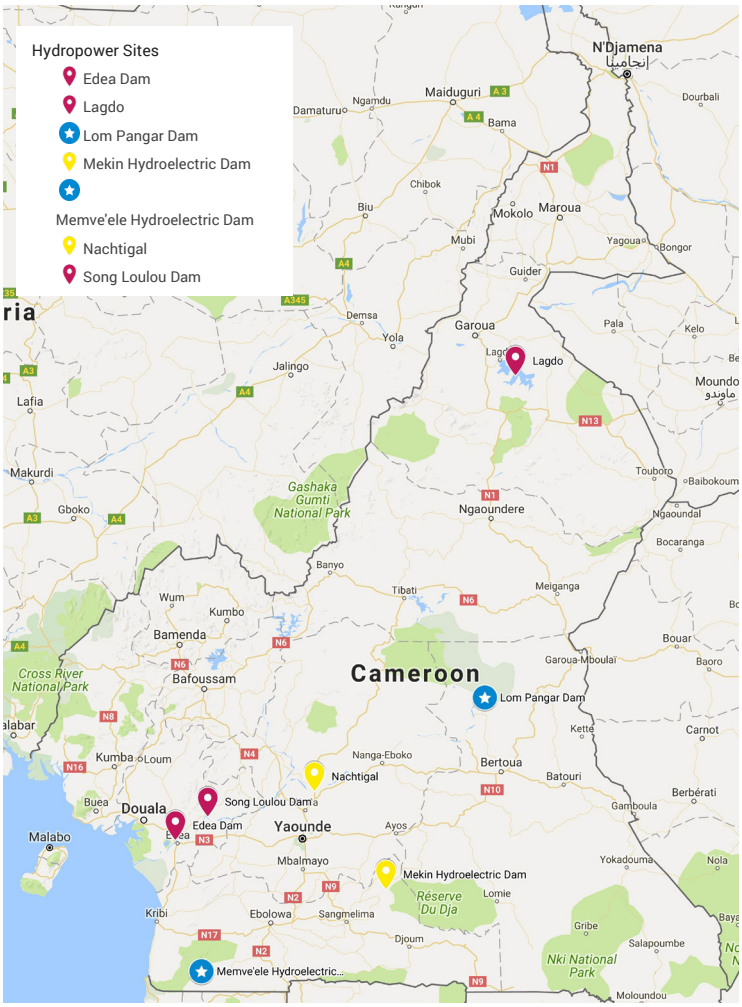

Figure 1: Cameroon's hydropower capacity[21]

As such, foreign investment and expertise in hydropower holds significant potential for Cameroon's energy supply and security, as well as the country's broader economic development. Approximately 70 percent of the country depends on hydropower from three major hydropower dams: Song Loulou, Edea and Lagdo (marked in pink in Figure 1). Much of this energy is consumed by industrial sources, notably the Alucam smelter near Edea. The Government of Cameroon (GOC) aims to expand power generation in the country to 10,000 MW by 2018. This will comprise the development of both thermal and hydropower capacity through a new thermal gas plant in Kribi, and future hydropower projects on the Sanaga basin, including Song Ndong, Song-Mbengue, and Nachtigal.

According to GOC, China is the single largest lender to Cameroon, which has an external debt of 139 billion Central African Francs (CFA; around US$242 million).[20] China Eximbank is in involved in a number of major infrastructure projects, including the Kribi port expansion, as well as the Memve'ele and Mekin hydropower projects. Interestingly, the Lagdo dam from the 1970s was originally financed through Chinese concessional loans, and constructed by the Chinese state-owned company that would later become China Water and Electric, one of the contractors in this study.

4. Case Studies

I. Project Memve'ele

The Memve'ele project is a large-scale hydro-electric run-of-river dam and hydroelectric generator plant located on the Ntem river, in the southern littoral region of Cameroon. The project comprises an earthfill dam of 20 meters in height, and is expected to generate around 210 MW of electricity for Cameroon's electrical grid. The project is financed by China Eximbank and the Government of Cameroon, and the contractor is Sinohydro. Construction is expected to be complete in 2017.

Funding

The total cost of the dam is estimated to be US$637 million, 85 percent of which is financed by China Eximbank, and the other 15 percent pre-financed by the Cameroonian government. A loan was signed in May 2011 between the Chinese ambassador and the Cameroonian Minister of Economy, Planning and Regional Development, for a loan of US$541,566,018 in the form of an export buyer's credit, according to MOFCOM.[22] Cabestan (2015) specifies the loan repayment terms to have a 16-year maturity with a 6-year grace period, with an interest rate that tracks the Euribor 6 month rate, plus 310 basis points.[23] Our conversations with the Director of Project Memve'ele were less specific: the loan he noted was at a commercial rate determined by Sinosure, which he estimated to be around "5 to 6 percent"; he specified a slightly lower maturity period of 15 years, with a 5-year grace period.[24]

Project Background

Plans for the Memve'ele project had been circulating around the GOC for over 30 years, around the same time as the plans for the Lom Pangar dam began. The project manager explained that the government wanted to diversify the country's hydropower production away from the Sanaga basin, where most of the current hydropower capacity (Edea, Song Loulou) is situated. The Ntem River, and the Memve'ele falls in particular, was chosen as a site for potential hydropower development, as it would not experience the same climatic cycles and dry seasons as the Sanaga basin. The GOC first partnered with the Japanese International Cooperation Agency (JICA) to conduct feasibility studies, and a steering committee was established under the Ministry of Water and Energy to develop the project. However, the project was delayed in the 1990s by economic crisis until 2005 when the committee was revived.

A Build-Operate-Transfer (BOT) agreement was signed in 2007 with Southern Energy, a subsidiary of British firm Globaleq, which won the initial tender.[25] Construction was to begin in 2009, but this arrangement fell through in the same year after Globaleq pulled out due to "lack of progress on a number of issues."[26] According to the respondents at Project Memve'ele, this was due to the GOC being unable to fulfill the conditions of the agreement, which included the construction of the roads to the project and transmission grid, and to secure a power purchase agreement (PPA) with the state utility Sonel.[27]

At this point, Sinohydro, the second firm that had pre-qualified during the tender process, was approached by the GOC to take over the project; Sinohydro promised project financing from China Eximbank as a condition for their contract. As part of the agreement, it would also construct all the necessary roads. As other sources of financing were unlikely to emerge, and the GOC was unwilling to conduct another tendering process—a condition for financiers such as the African Development Bank (AfDB)—Sinohydro was selected as the project contractor.

Implementation

The project is being built through an Engineering, Procurement, and Contracting (EPC) model (a "turnkey" project) with Sinohydro's 16th Bureau. The project involves a barrage that is 1,260 meters long and 14 meters high, with two overflow channels and a grand spillway to the generating plant. The dam site is around 26 km^2. The plant has four generators and turbines of 51.6 MW each. Construction began January 2013, and as of January 2016, was estimated to be 74 percent complete. The director of 16th Bureau noted that the construction of the dam was currently three months ahead of schedule. He also noted that representatives from China Eximbank would visit every six months to verify that work was completed according to specification.

A separate project to construct the transmission lines to Ebolowa, the nearest town, has also been contracted to Sinohydro 16th Bureau (also with Eximbank financing), which will connect the dam to Cameroon's southern network and to Yaoundé. However construction on this project has not yet started, due to issues surrounding land expropriation and compensation, according to Sinohydro staff, and the estimated completion date is yet unknown.[28] The construction of the dam and transmission lines is managed by Project Memve'ele, created under the Ministry of Water and Energy. A separate entity will be created to manage power production, although the level of progress on that front is still unclear.

Environment and Social Management

The dam is situated near the Campo Ma'an National Park, which has raised concerns from civil society organizations over the effects of the dam and its construction on local wildlife. The dam design is run-of-river, which entails relatively minimal impacts in terms of flooding from the barrage. However, the transmission lines may cut through park territory, and the reservoir and site will submerge a part of the park.[29] Two villages, Nyabizan and Alem, will be submerged by the project, and will have to be relocated. There have also been concerns over the effects of an influx of project construction workers for poaching near the project site area. The GOC has commissioned environmental and social impact assessments (ESIA) in 2010 for Eximbank approval, which were conducted by Finnish consultancy Pöyry in partnership with Alphatech, a Cameroonian firm. These, along with an environmental and social management plan (ESMP) and a compensation and resettlement plan, were conducted in accordance with Cameroonian law, as well as World Bank standards, although the documents are not accessible online.[30]

Separately from the dam project, the GOC also created "Accompaniment Programme Socio-Economic Memve'ele" (PASEM), implemented by Project Memve'ele, which is intended

to benefit the socio-economic development of the local village populations in neighboring Campo Ma'an, as well as compensate for some of the dam's impacts, and provide them with public services in health, education, and infrastructure.[31] French consultancy firm Coyne et Bellier, which was initially hired for feasibility studies in 2006, were brought back into the project for technical assistance, after construction had begun, to assist the GOC in monitoring and evaluation, and the implementation of the social and environmental management plans, as well as the PASEM.

II. Lom Pangar Hydroelectric Project (LPHP)

Lom Pangar project is located in Eastern Cameroon on the Sanaga river basin. The project involves a regulating dam, a 30 MW power plant and network of transmission lines to neighboring Bertoua as part of a rural electrification project that will connect 2,400 households nearby to the grid. The project is financed by a consortium of donors including the World Bank, African Development Bank, the Agence Developpement Francais (AFD), and the European Investment Bank (EIB). The contractor is China Water and Electricity (CWE). As of January 2016 the construction of the dam was completed. The entire project is expected to be complete in 2017.

Funding

The total cost of the dam is US$494 million. The financing for different parts of project is divided between the multilateral donors, with the rest financed by the GOC. Seventy-four percent of the dam itself is financed by the World Bank, and 26 percent by the EIB. The rates and tenor for each financier is listed in detail below in Table 1. The AfDB is separately financing the 30 MW power plant and transmission lines, along with the rural electrification project, while the social and environmental plans are financed by the AFD.[32]

Project History

Discussions for the Lom Pangar have been ongoing for over 20 years, according to representatives at the World Bank. It was initially proposed as part of a wider plan to increase the hydropower generation capacity of the Sanaga basin. By conserving water in the rainy season to release in the dry season, it was estimated to be able to boost the production capacity of the downstream hydroelectric plants, Edea and Song Loulou, by around 120 MW. The project makes other hydropower development feasible, and the Bank is also involved in developing another hydroelectric dam downstream, Nachtigal, for which construction is set to start in 2017.[33]

During the 1990s, the planning for the dam was stalled, as the World Bank's focus was on private-sector projects and soft infrastructure, and because hydropower was perceived as too risky. One GOC respondent commented that China Eximbank had expressed interest in financing the project around 2006, and suggested that this is what had spurred the renewed interest in the project among the multilateral donors.[34] The project was given more consideration by the World Bank in 2005 and 2006, as it began to re-engage with infrastructure projects. The discussions with the GOC were then renewed. An identification mission was conducted in 2006, and a following concept mission took place in 2009, to conduct feasibility studies and

impact assessments. CWE was contracted in 2011 through an open competitive tender, having submitted the least costly bid. The loan was finally submitted to the Board of Directors in 2012 and approved.

Implementation

The construction of the regulating dam for Lom Pangar was awarded to CWE, as a single-discipline tender. While Memve'ele was contracted as an Engineering, Procurement, and Construction model, which meant that Sinohydro was responsible for both the design and construction phases of work, Lom Pangar's project design was contracted separately to a French firm, ISL Engineering, while CWE was contracted to construct the works according to specifications, without providing inputs in the design.[35] The dam itself is 46 meters by 7 meters, and the reservoir will cover an area of around 540 square kilometers. The construction of the dam took place from the end of 2011 to 2015. As of Jan 2016, the barrage construction was complete, with the 30 MW power plant and transmission lines still in early stages of construction. Coyne et Bellier (C&B) was hired to monitor the work as independent evaluators. World Bank representatives conduct site visits three times a year to monitor compliance with the specifications and environmental standards. The project's management falls under the purview of the Electricity Development Corporation (EDC), a separate entity created under the Ministry of Water and Energy specifically to manage the Lom Pangar project and future potential hydropower projects.

The project experienced some setbacks after the World Bank Group Integrity Vice Presidency released a report that highlighted some potential fraudulent behavior on the part of CWE, which reportedly occurred during its prequalification process. The firm allegedly used false information and references in support of its bid.[36] Reportedly, it had used documentation and projects from other Chinese dam companies as its own. Although the firm was barred from further World Bank contracts for two years (which meant it was unable to sign any new contracts or addenda that required further funding from the Bank), it was allowed to continue working on the project, as the fraudulent documents were not perceived to impact its ability to construct the project according to the cost and contract requirements.[37]

Social and Environmental Impacts

The project is located in a sparsely populated area and resettlement is less of an issue than with the Memve'ele project; Lom Pangar will result in 57 houses and 16 families requiring resettlement due to the dam construction and transmission projects.[38] However, the nature of the dam and reservoir carries severe environmental impacts, which will result in significant flooding in parts of the Deng Deng national park and gorilla reserve. The flooded area will also affect parts of the Chad-Cameroon pipeline, which will operate under water for some parts of the year. Respondents also noted issues relating to water toxicity and pollution in the reservoir, which required measures to safeguard fish and wildlife populations during the process of filling the dam. The park itself has been expanded to compensate for the areas that will be submerged by the dam, and the project will also finance infrastructure for the park and the protection of its wildlife, such as "eco-guards." AFD finances all social and environmental aspects of the project, and Coyne et Bellier is tasked with monitoring compliance.

The ecologically sensitive nature of the project has triggered several World Bank safeguard policies relating to forestry, natural habitats and others. A number of mitigation plans were adopted by the project management and financiers as a condition of loan approval and disbursement, and an independent social and environmental panel was created by the EDC to monitor and advise on the environmental and social aspects on the Lom Pangar project, which are listed in the World Bank project appraisal report. This also involved participatory approaches, including socio-economic surveys and seminars, to consult with stakeholders and clarify expectations.[39]

Table 1: Project comparison breakdown

	Memve'ele	Lom Pangar
Project type	Large run-of river hydroelectric dam & generator	Large regulating dam & hydroelectric plant
Hydroelectric Capacity	210 MW	30 MW
Financing bodies	China Eximbank	World Bank, AfDB, ADF, EIB
Project total cost	US$637 million	US$494 million
Loan amount	US$542 million (Eximbank)	US$132 million (World Bank); US$29 million (AfDB); US$40 million (EIB); US$79 million (ADF)
Loan terms	Euribor (6 month) + 3.10%, 15 year, 5 year grace period[40]	0.5%, 40 years, 10 year grace period (World Bank). 2.5%, 25 years, 8 year grace period (AFD) 0.75%, 50 years, 10 year grace period (AfDB) 4.5%, 20 years, 5 year grace period (EIB)
Contractor	Sinohydro 16th Bureau	China International Water and Electric
Contract type	Engineering, Procurement, and Construction	Civil works contract
Project Manager	Project Memve'ele	Electricity Development Corporation
First Involvement of Financiers	2009	2005
Loan signing	2011	2012
Construction began	January 2013	December 2012
Project completion (dam only)	September 2017 (projected due March)	December 2015

5. Comparative Analysis

Financing and Contracting

One primary question raised by this comparative study is why and how the GOC decided between China Eximbank and the World Bank for the two projects' financing. Plans for both had floated around for decades, and were originally supposed to be financed in some part by western multilateral sources: the UK/JICA-led public-private partnership (PPP) model with Globaleq for Memve'ele, and the World Bank-led consortium for Lom Pangar. Our research findings reject the hypothesis that Chinese financing was chosen for being cheaper. Indeed, the loan for Memve'ele was offered at a commercial rate much higher than the loan for Lom Pangar, and it was tied to the contractor, Sinohydro. Respondents from Sinohydro commented that as Eximbank was active in several projects around Cameroon, including the smaller Mekin dam and the Kribi port expansion, the awarding of its concessional loans was competitive. However, the Chinese loan appears to have been a saving grace for the project, without which it would have almost certainly stalled again.

Although both projects were contracted to Chinese construction firms, a primary difference between them was how they became involved. CWE came on to the LPHP in 2011 after the project management and independent evaluators had been hired, through a competitive open tender process, albeit through some fraudulent means. Meanwhile, although according to a representative at the MOFCOM Cameroon, Eximbank concessional finance requires a competitive tender process, the granting of its commercial loan was conditional on hiring a Chinese contractor.[41] A number of respondents commented positively on the speed and efficiency of the Chinese loan, lending support to our second hypothesis that Chinese financing in this case was accepted for its efficiency and expediency. On the one hand, the total period from Sinohydro's first involvement with the project to the signing of the loan took about two years. On the other hand, for LPHP, the World bank reignited the project in 2005, but it was only submitted to the board and approved in 2012, seven years later. One interviewee noted the long bureaucratic process entailed by working with the international financial institutions (IFIs): each had its own expectations and rules that needed to be juggled, with "draconian" conditionalities. He added that, ultimately, it was worth the trade-off, and noted that there was "lots of suffering at the start, but then you are happy later."[42]

Environmental and Social Impacts

The qualitative difference between the projects should be noted in evaluating their environmental impacts: as a run-of-river project, Memve'ele does not depend on a large storage dam to generate hydropower; the flooded area is comparatively much smaller and less impactful. In contrast to popular views of Chinese-financed projects in Africa, from the perspective of the financiers, China Eximbank financed a much less environmentally risky project than the World Bank.

Both projects complied fully with the legal requirements for impact assessments, social and environmental management plans, and compensation and resettlement plans (CRP). Both projects' management employed European consultancy firms to conduct the assessments,

in which they reported to follow World Bank and international best practice. Both projects experienced similar risks in the construction phase, with problems of wildlife poaching, in-migration of workers, pest and disease issues, management of aquatic systems during the dam-filling, and management of forest-clearing for the construction site. As with LPHP, the Memve'ele project's accompanying social and development plan, developed and implemented by the Ministry of Water and Energy, also includes a plan for establishing a conservation zone (l'UTO) for parts of the Campo Ma'an park. Both projects also finance anti-poaching efforts, including guards for the national parks, and public health programs in the local area to counter HIV, malaria and other diseases resulting from water-borne pests. However, although both projects ostensibly adhere to national and international standards, the capacity on both sides to manage these impacts and enforce compliance differs considerably.

There was also a significant gap in the level of rigor demanded by the financiers. Because of its extremely sensitive nature, the LPHP project team at the Bank took over five years before submitting the loan for approval in 2012, in order to conduct the necessary environmental studies and compensation plans. The comprehensive social and environmental management plan was designed to comply with all World Bank safeguards, as well as national laws and regulations, and included the expansion of Deng Deng Park and the financing for conservation management. Meanwhile, the Eximbank loan to Memve'ele was approved much more quickly. Eximbank's environmental policy demands an environmental impact assessment, which is to be reviewed and approved as a condition for the loan disbursement. However, in line with China's international non-interference norms, Eximbank requires that standards for compliance be based on domestic laws and regulations, and it does not offer feedback or revisions to the plan.[43] Both projects are subject to regular inspections from their respective financiers: around three times a year for the World Bank and Lom Pangar; and every six months for Eximbank and Memve'ele. According to Coyne et Bellier, there were also some differences in the projects' respective compensation schemes: in the Memve'ele project, displaced households were compensated for their houses and crops in accordance with Cameroonian law; however the World Bank compensation rates were reportedly higher, and compensation extended not only to material losses, but also to livelihoods and lost economic activity.[44]

Although Coyne et Bellier is involved in the evaluation of both projects, its capacity is more limited in the Memve'ele project where it is mainly providing technical assistance to the government, rather than operating as an independent monitor. C&B was only brought on after Sinohydro had begun construction and was thus unable to monitor compliance in many early phases of the project, such as during the deforestation of the project site. A representative at the Ministry of Forestry and Wildlife noted the differences in the financiers' attitudes toward monitoring and compliance: while the World Bank would "threaten" them over certain issues, such as gorillas and deforestation, and even required a certified company to carry out the deforestation, there was more flexibility in the Memve'ele project.

One interviewee gave an example of an issue that arose in the resettlement plans for Memve'ele, when a resettlement area turned out to have been already assigned to a private forestry concession. Although this was a problem, he emphasized that with the Chinese, it didn't stop construction, whereas with the World Bank, work would have certainly stopped.[45] The lightning speed of Memve'ele's construction was not a total boon, however. According to C&B, although the dam construction itself was ahead of schedule by three months, studies of the

resettled population, which were commissioned by Project Memve'ele to local consultancies as part of the social impact plans, were reportedly far behind schedule. This in turn delayed the resettlement process, generating concerns over potential delays for the projects' commission.[46]

Labor and Construction

A common theme in both projects was that, while both Chinese contractors—Sinohydro and CWE—were said to have performed well in the technical aspects of the project, the companies' compliance with social and labor standards was more problematic; labor tensions and problems of communication were endemic in both projects. Both construction sites employed a large number of local workers—LPHP was expected to generate 800 local jobs, while Memve'ele employed around 1,500 Cameroonian workers, many of who were hired from the neighboring areas. Both projects experienced issues with labor protests—although neither Chinese company discussed this during our interviews, a number of media sources have reported on strikes that have occurred at both construction sites. Workers at Memve'ele protested in June 2015 against poor working conditions, including unfair dismissals, harassment, and assaults.[47] This was allegedly broken up by the police in July, prompting intervention by the Minister of Labor and Social Security.[48] CWE also experienced three labor strikes in 2012, which focused on low pay and poor working conditions, including grievances against discrimination between Chinese and local workers. However, the company responded with the publication of a document in 2014 regarding observation of human rights, clarifying its compliance in areas such as housing standards and workers contracts, which the document emphasized "followed the labor laws of Cameroon." It also justified the need for hiring security personnel "to assure the safety of necessary facilities" during the strike and highlighted changes to workers' meal subsidies, which were agreed to be borne between CWE and EDC.[49]

Both sites appear to have segregated Chinese and local workers' housing, with generally lower standard housing being provided for local workers than for Chinese staff, although this also reflects differences in work status. Respondents at the World Bank noted that local expectations about housing, though legally valid, were unrealistic in a remote construction site setting. Some practices did technically contravene Cameroonian labor law. For example, the law stipulates that each employee must be given one day of holiday per week and a single room. LPHP project workers were given four days off each month instead of one day per week, and they lived in shared accommodations with four to a room. However according to project staff, these were consistent with World Bank's own standards for labor and housing for infrastructure projects in such remote locations.[50] A more serious practice that prompted intervention from the Bank was over the provision of food for workers: CWE was mandated to provide food in the contract, but interpreted this as providing it at the workers' own expense. This misunderstanding was a breach of contract for the Bank, which was concerned not only for the welfare of the workers having to pay for food, but the spillover effects this would have locally, for example, on illegal poaching.

In the case of labor rights, a crucial difference between the two projects was the ability and willingness of EDC and the World Bank to enforce contractor behavior at the Lom Pangar site. According to a World Wildlife Fund report, CWE integrated environmental protection measures including improvements to waste collection, transport, and sanitation only after

EDC threatened to halt the project following a site visit from the World Bank that issued these recommendations. A respondent at C&B also confirmed that when it filed a complaint against CWE for practices that were "non-standard" according to contract, the Bank stepped in, halting funding until CWE improved. The respondent explained that C&B at Memve'ele had tried the same, and filed many reports on "non-standard" behavior with the project manager. However, in this case there was no follow through by the GOC to Eximbank, and C&B's recommendations to the GOC for funding to be cut were not applied.[51]

Political Economy and Institutional Relations

The two projects' financing also had different effects at the institutional level. Project Memve'ele was established to oversee the design and construction of the dam, and falls under the direct purview of the Ministry of Water and Energy. Meanwhile EDC, which manages LPHP, was created under the Ministry as an autonomous body, with the aim of managing all future hydropower developments in the country. Currently it is only responsible for Lom Pangar. Interviewees within the government did not know whether EDC would also take over the management of Memve'ele, Mekin, or any other planned dams after their construction was complete.

It is clear, however, that the close relationship between the World Bank and specific agencies has created some bureaucratic competition within the government. The Bank has been pushing for a greater role for EDC in managing future hydro projects, including the forthcoming 330 MW Nachtigal hydroelectric dam that will be built downstream in the Sanaga basin, which will be partially funded by the International Finance Corporation (IFC). Representatives at the World Bank voiced support for EDC to be the main institutional player for future hydropower projects, as they had greater expertise not only in the technical aspects of such projects, but also in managing environmental and social impact mitigation issues, through working with the Bank itself. However, other ministries have also competed for influence: disputes emerged between the EDC and the Ministry of Water to control the management of the Sanaga basin, as the multiple projects that would be made possible by the Lom Pangar dam in the basin and the energy sold from them would generate significant revenues. Whichever agency managed the basin's institutional arrangements would also control these revenue flows. Meanwhile, from the perspective of the government, despite the length of time it took for Lom Pangar to be approved, and the relatively onerous bureaucracy of working with multiple donors, the World Bank was now seen in a more positive light by the Cameroonian government after the successful implementation of LPHP.

One final question remains: how and why did the two sets of financiers come to fund their respective projects? The Lom Pangar has been justified as a public good project, offering beneficial spillovers for hydropower generation downstream; as such, it was financed concessionally, whereas Nachtigal will be financed with the IFC through a commercially-oriented PPP. Meanwhile, some have expressed skepticism regarding the political economy of Memve'ele and its economic value. Most have conceded that the project was not a "white elephant"—a superficial project with little economic value—and believe that, overall, it was a sound project technically. However, one interviewee at the World Bank contended that it was ultimately a political project, rather than an economically sound investment. It will provide

power for a few years until Nachtigal is online, but the project reportedly still does not have a power purchase agreement with the state utility company.[52] Delays over resettlement and land compensation issues as part of the transmission projects raise questions over when the project will start generating revenue to begin loan repayment, and what will be the cost of the electricity it will generate. This raises further questions over Eximbank's motivation to finance the loan: while it guaranteed a project contract for Sinohydro, there has been little sign of pressure from the Chinese financier to ensure a return on its capital.

6. Conclusion

Africa's underdeveloped hydropower potential has made it an attractive destination for both Chinese and Western finance, both of which can make valuable contributions to energy security and infrastructure. Our comparative case study finds that despite popular negative conceptions of Chinese dams and infrastructure in Africa, the reality on the ground is more nuanced. We find that the Chinese-financed project complied with all legal requirements and with Eximbank's own policies. However, in managing both foreseen and unforeseen social and environmental impacts, the type of response, and degree of responsibility taken by the financiers differed. Both projects struggled with problems surrounding the Chinese contractors and labor issues. However, the autonomous managers of the World Bank project enjoyed far better capacity and enforcement mechanisms, and a greater willingness to use them to force compliance.

Both China Eximbank and the World Bank have upped their game in prioritizing environmental norms and standards: however, the severity of these standards, and the means by which they are applied, differ. The World Bank, while aggressively re-entering the hydropower sector, has demonstrated its prioritization of its safeguard policies and the political will to enforce them—in the case of LPHP, stepping in to support the EDC in managing breaches of contract. On the other hand, China Eximbank is evolving in its stance towards norms of environment and social impact mitigation. In the case of Memve'ele, it appears to have played a silent role in the overall project implementation: while environmental impact mitigation and assessments were a condition of the loan disbursement, enforcement and monitoring was largely the responsibility of the GOC, for better or worse, showing a gap between theory and practice. There is something of a trade-off, as some GOC respondents intimated, between Chinese and Western IFI financing: while financing from China is faster and less onerous, it comprises a risk of more issues arising at later stages of project implementation.

Both Chinese contractors also struggled to meet international standards with respect to labor and environmental issues. However, both companies acknowledged the need to comply with international norms of environmental and social impact management, and to engage in CSR activities overseas. On a meta-level, the willingness of both firms to discuss these issues—to a limited degree—demonstrates their recognition of the growing importance of these norms and practices, and willingness to engage with them. However, the comparative case shows how two firms with different financiers can be subject to different levels of pressure to do so. As current practices evolve, market competition may play an increasing role in ensuring the respect of these norms and practices. China's domestic overcapacity has pushed an increasingly number

of firms to enter the Cameroonian market, making the recognition and institutionalization of these norms and standards even more important as competition for these international contracts grows.

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