An Offer You Can Refuse: A Host Country's Strategic Allocation of Development Financing

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As numerous contributions to this issue of make clear, it is impossible to disentangle questions of water security from questions of infrastructure. Indeed, it is the weakness of Africa's infrastructure that explains, at least in part, the deep concerns over water scarcity and climate change. In 2009, the Africa Infrastructure Country Diagnostic project of the World Bank addressed the infrastructure gap, highlighting how water resource management crosscuts sanitation, agricultural production, and power supply:

> Though water is vital for agriculture, only 5 percent of Africa's cultivated land is irrigated. Hydropower is also largely undeveloped in Africa; less than 10 percent of its potential has been tapped. Water for people and animals is vital for health and livelihoods, yet only 58 percent of Africans have access to safe drinking water.[1]

Among these myriad challenges, the World Bank noted that "Power is by far Africa's largest infrastructure challenge, with 30 countries facing regular power shortages and many paying high premiums for emergency power." Approximately 40 percent of total infrastructure spending is associated with power, and about "one-third of power investment needs (some $9 billion a year) are associated with multipurpose water storage for hydropower and water resources management." In view of the large demand for power-sector investments, and even if Africa's domestic financing can capture potential efficiency gains, "Africa would still face an infrastructure funding gap of $31 billion a year, mainly in power."[2] A 2021 report shows that only 11 percent of the technically feasible hydropower potential has been developed in Africa.[3]

However, hydropower projects (HPP) are coming under increasing scrutiny because of their social and environmental impacts.[4] As essays in this volume by Jennifer Derr, Allen Isaacman, and Harry Verhoeven highlight in the diverse contexts of Egypt, Ethiopia, and Mozambique, the cost-benefit ratios of HPPs are greatly skewed in favor of powerful, vested elites.[5] Newly created reservoirs can increase the energy output of HPPs, but they flood large tracts of land to the detriment of the local ecology and populations. The impact of changing hydrology is not limited to the immediate areas around the project, but also affects distant upstream and downstream regions. Very large hydropower projects can even influence surrounding climate and precipitation patterns.[6]

Partially in response to these concerns, the World Bank has been retreating in recent decades from financing large HPPs.[7] The World Commission on Dams (WCD transmission lines that accompany HPPs, nor their role in consortium financing for mega HPPs, such as the US$4.1 billion Caculo Cabaça HPP in Angola, both of which increased their financing profile (see Table 1).

China is not the only emerging financier for HPPs in developing countries. The Export-Import Bank of India has financed Rwanda's Nyabarongo HPP; a consortium of Arab financiers, including the Arab Fund and the Islamic Development Bank, have financed Sudan's Roseires II HPP; and the Brazilian construction firm Odebrecht has undertaken multiple HPPs in Africa, particularly in Lusophone countries.[9] Nonetheless, China still leads the pack both in terms of financing and contracting.

The flurry of projects that were financed in the new millennium formed part of the broader China-Africa engagement that traces its roots to the Non-Aligned

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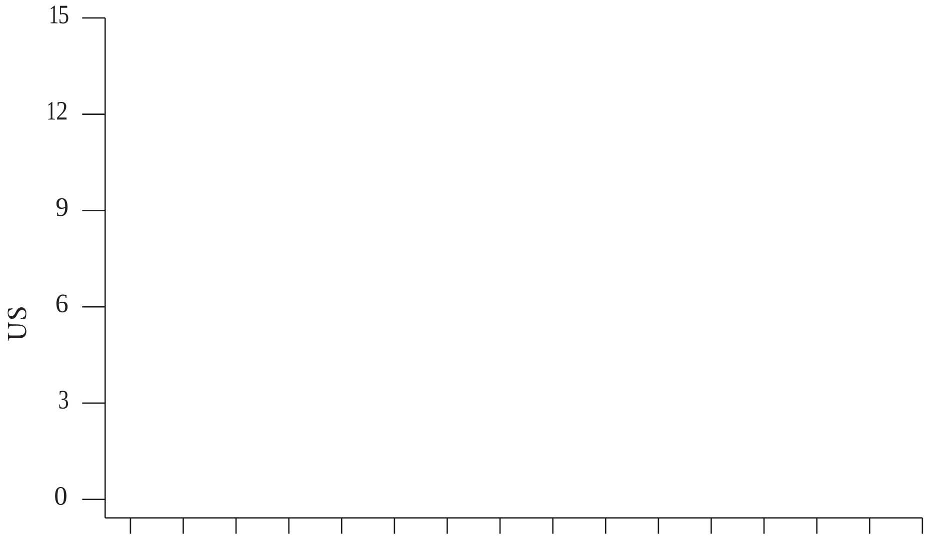
HPP



receive considerable coverage, with headlines such as "While We [British] Indulge our Victorian Urge to Give Alms to Africa, Beijing Is Pumping Black Gold" and "How China's Taking Over Africa, and Why the West Should Be VERY Worried."[12] In recent years, more nuanced studies have tackled the impact of Chinese development finance and contracting in Africa. The epithet of "rogue donor," in which China flouts conditionality to finance dictators accused of abuses, along with the accusation of "debt trap diplomacy," in which China supposedly offers unsustainably large loans to desperate borrowers to gain political leverage over them, have been challenged.[13] Empirically rich field studies are emerging on the environmental and social impact (ESI) of Chinese-financed and Chinese-contracted projects in Africa, painting a complex and nuanced picture.

For instance, development scholars Keyi Tang and Yingjiao Shen have found that the Chinese-financed and Chinese-contracted Bui HPP in Ghana "has improved local urban households' access to electricity and increased their ownership of electric appliances."[14] Public administration scholars Nancy Muthoni Githaiga and Wang Bing's analysis of Kenya's Mombasa-Nairobi Standard Gauge Railway, financed mostly with China Eximbank loans, indicated that the railway has had both positive and negative impacts: the project is associated with growth in the trade and construction sectors, but there are concerns about its sustainability and impact at the local level in terms of generating enough revenue to cover operation costs and loan repayment, its large external debt profile, and its opaque tendering process.[15] Economist Bruno Martorano and colleagues have found that Chinese development assistance in social sector projects, such as piped water, can successfully improve households' well-being, while assistance to other sectors, such as communication and transportation, does not exhibit significant results.[16] Economist Axel Dreher and colleagues have pointed out that "Chinese development finance boosts short-term economic growth: an additional project increases growth by between 0.41 and 1.49 percentage points two years after commitment, on average."[17]

International relations scholar May Tan-Mullins and colleagues observed that

> Chinese dam builders usually attempt to adhere to the social and environmental policies and guidelines of the host country, in so far as they exist. In the absence of such policies and guidelines, Chinese dam builders will usually attempt to follow China's domestic policies and guidelines. The national host context therefore determines the quality of the impact mitigation of large dams. However, according to our interviewees, many of these guidelines are not enforced, are very general and need to be more sector specific.[21]

And development scholar Oliver Hensengerth's study of Sinohydro in Ghana's Bui HPP shows

> that the contractual setting in which Chinese companies operate and the governance setting of the host country are the key factors in determining whether or not strict environmental protection measures are implemented in projects with Chinese involvement and whether Chinese firms apply international norms, the norms of the host country, or Chinese norms.[22]

In a comparative study of two HPPs in Cameroon, one financed by the World Bank and one by China Eximbank, development scholars Yunnan Chen and David Landry also found that Eximbank is more inclined to leave the ESI enforcement to the host country, and does not pressure the host to alter enforcement practices as the World Bank does.[23] The 2015 Brookings report points out that even though the World Bank has "played a critical, though sometimes controversial, role in setting standards for investment design, evaluation, and implementation. . . . Ultimately, however, it is the African nations that must agree on the standards and principles that they will apply."[24]

This essay will demonstrate through the case study of the Mount Coffee HPP in Liberia that host countries strategically allocate financing from different sources to different projects, based on domestic development needs, administrative capacity, flexibility of financiers, and institutional memory between the host and the financiers. More broadly, this case study provides empirical observations of host countries' agency and strategic calculus in the financier-host relation, as well as the limits of China's role in Africa's hydropower sector.

In 2012, Liberian President Ellen Johnson Sirleaf signed the first of a series of financing agreements, predominantly grants, followed by contracts, with financiers from Organisation for Economic Co-operation and Development (OECD) countries for the reconstruction of the Mount Coffee HPP. These signings occurred despite explicit interest from Chinese officials and Chinese companies to both finance and contract the project. The desire to fund and carry out the rehabilitation of the Mount Coffee HPP was supposed to demonstrate China's commitment to the newly reestablished Sino-Liberian diplomatic ties in 2003. The unexpected setback for Beijing makes the Mount Coffee project a "hard case" for Chinese dominance in the sector: if Chinese financing and contractors are indeed dominating the African hydropower sector, how is it that China is not able to make headway into the Mount Coffee project despite explicit interest in it? OECD financiers and contractors were not the only partners available to Liberia, so the outcome of staying with OECD partners is not one of necessity, but one of choice. Mount Coffee is a rare case that demonstrates host country agency vis-à-vis financiers, but also shows the limit of financiers' influence in development project financing.

In 1964, U.S.-based Stanley Engineering Company was contracted to carry out the design, specification, and supervision of a 34-megawatt hydropower station on the St. Paul River, 27 kilometers north of the Liberian capital, Monrovia. The project was funded by a mix of Western financiers: four different World Bank loans between 1970 and 1978 totaling US$24 million, and two loans totaling US$4 million from the German government. The project contained four vertical Francis turbines, three dam sections, ten flood control gates, and a 69 kilovolt substation and transmission line. Upon completion in 1967, the Mount Coffee HPP was Liberia's largest source of electricity, supplying 35 percent of the country's capacity.

The first Liberian Civil War broke out in 1989. In 1990, rebel forces led by Charles Taylor took control of the power station and ceased its power generation. Operators were prevented from entering the facility to open the spillway gates, causing the dam to overtop during the rainy season. Throughout the next fifteen years of civil war, the power station's electrical, mechanical, and transmission equipment were looted.[25] When the democratically elected government of Ellen Johnson Sirleaf took office in 2006, they faced the challenge of rebuilding a country whose infrastructure had been destroyed by conflict. Electricity access was particularly dismal. Even before the decimation of the Mount Coffee project, only 13 percent of the population had access to electricity. By the time surveyors returned, only part of the dam and the steel pressure pipes remained.

The Mount Coffee project is a run-of-the-river hydropower project. This type of HPP takes advantage of a bend in the river that also straddles an elevation change. The geography allows the construction of a "shortcut" across the bend, through which water upstream of the bend travels down at a higher speed to propel the turbines installed at the bottom of the shortcut. Water exiting the turbines is fed back into the river downstream. Such a design alone does not require the flooding of large reservoirs and is therefore often considered as having a less nefarious ESI than projects that require damming and flooding. However, the output of run-of-the-river projects is generally more variable due to rainfall.[26]

In November 2006, the U.S. Trade and Development Agency (USTDA), an independent agency designed to support "U.S. goods and services for priority development projects in emerging economies," opened two grant lines for a

"Technical and Financial Feasibility Study for the Reconstruction and Expansion of the Mount Coffee Hydropower Facility in Liberia." In May 2007, the Liberian government issued a tendering for feasibility studies for the rehabilitation and expansion of the project, with the support of a US$400,000 grant from the USTDA. The tendering was then postponed and later reopened in September 2007 with a modified budget. The grant amount was also increased to US$531,500. Only U.S. firms could bid for the project, per the agreement of grant projects funded by the USTDA. However, the contractor may utilize Liberian subcontractors for up to 20 percent of the grant amount.

U.S. interest in the project was neither coincidental, nor did it manifest itself in isolation. The United States had a long history of intervening in Liberia's politics, dating back to the end of the U.S. Civil War in 1865.[27] Relations with the United States soured during Charles Taylor's administration, who was perceived as an illegitimate warlord by Washington despite considerable domestic support, but improved when Ellen Johnson Sirleaf was sworn into office as the first elected female head of state in Africa.[28] Born of Indigenous parents but raised in an Americo-Liberian household, she later completed her master's degree in public administration at Harvard University. She continues to maintain a largely positive image in the West, eventually receiving the Nobel Peace Prize in 2011.[29]

While the tendering for the rehabilitation of the Mount Coffee project was underway, in July 2007, the Economic and Commercial Office (ECC) of the Chinese embassy in Liberia translated a Liberian news article, which quoted the CEO of Liberia Electricity Corporation (LEC) in stating that the upgrade and repair of the Mount Coffee HPP and the accompanying Via Storage Reservoir upstream would cost about US$500 million. A team of specialists (that is, Stanley Consultants) were already on the ground to explore the possibility of expanding the project to up to 100 megawatts. The ECCs are typically physically located within Chinese embassies but are under the jurisdiction of China's Ministry of Commerce. Part of the ECC's role is to facilitate Chinese businesses operating in foreign countries. Most of the press releases from Liberia's ECC cover signing of local contracts with Chinese companies, groundbreaking ceremonies of Chinese-contracted projects, or official visits by local and Chinese officials to Chinese-contracted projects. The articles that the ECC chooses to translate and publish are not a random selection; they only inoleJ 0/2 (emoniTthey .l5)sthe Tw [Chinorracted still maintained relations with Taipei, and Beijing wanted to demonstrate the benefits of switching sides.

It is unclear who and how many bids were submitted for the feasibility study, but by the end of 2007, the LEC awarded the contract to the U.S.-based Stanley Consultants. This outcome was not surprising. Stanley Consultants was the original design engineer of the Mount Coffee HPP when it was first constructed in the 1960s. Stanley Consultants' recommendations included repairs for the dam, strengthening the turbine's anchors, and repairing the foundations of the powerhouse's building structure. Moreover, the Mount Coffee project's dependence on rainfall as a run-of-the-river project was problematic since it was meant to serve as Liberia's largest generating facility for years to come. Thus, Stanley Consultants developed the project to be compatible with a potential upstream storage facility, the Via Reservoir, to improve reliability and output in the future.

In September 2008, development officials from Japan, the Netherlands, Norway, Sweden, the United States, the United Nations, and the International Monetary Fund, as well as representatives from other international financial and donor institutions arrived in Liberia to attend the Liberia Reconstruction and Development Committee (LRDC) forum. The LRDC, a government-donor group, was created in 2006 after Sirleaf took office.[30]

dissatisfaction with the slow progress was reiterated multiple times during the conference: "If you say, put it through our bidding process, I will say no. I'll give

[illegible]	[illegible]	[illegible]	[illegible] US	[illegible]

[illegible] HPP

[illegible]	[illegible]	[illegible]	[illegible]	US [illegible]	[illegible]
2010	EIB	Grant	1.5	$2	1%
2012	EIB	Loan	50	$64	29%
2013	Norway	Grant	NOK450	$75	34%
2014	Germany	Grant	25	$32	15%
2014	Liberia	Budget	$45	$45	21%
Total $218 million					

[illegible]

tors behind this choice, one that stands out in particular was that Mount Coffee's original Francis turbines were supplied by the U.S. manufacturer Allis Chalmers in 1966 and 1971, and Voith Hydro subsequently bought out Allis Chalmers in 1986.

A major difference between Mount Coffee's contracting process and what Sinohydro is familiar with was that different components of the project were independently contracted. A second invitation to bid was issued in November 2013 for the rest of the project. There were clear signals from the Chinese EEC in Liberia encouraging Chinese companies to compete for this project: it was the only project whose bidding profile was translated on EEC's website. It is unclear if any Chinese companies participated in the bid, but ultimately no Chinese companies participated in the project. UK-based Dawnus Construction was awarded the contract for civil works; Austrian-based Andritz won the contract for the hydraulic steelwork and auxiliary systems; Swedish ELTEL was tasked with the transmission lines to Monrovia; the construction work camp contract went to a joint venture consisting of three Liberian companies; the Norwegian Norplan AS and the German Fichtner GmbH won the contract to serve as the owner's engineer in representing Liberia; the NCC, a subsidiary of the Saudi company Rezayat, was awarded the contract for substations; and the operations training and maintenance contract went to the Swiss company Hydro Operation International.[36] This group of international contractors formed the Project Implementation Unit of the Mount Coffee project. While Chinese companies could potentially compete for the Via Reservoir project, plans for that project have yet to be announced by Liberia.

In December 2013, the Mount Coffee rehabilitation project officially broke [illegible] HPP

[illegible]	[illegible]	[illegible]	[illegible]	US [illegible]
2015	Millennium Challenge Corporation (U.S. MCC)	Grant	$147	$147
2015	EIB	Loan	20	$22
2015	Norway	Grant	NOK92	$11
2015	Germany	Grant	30	$32
				Total $434 million

[illegible]

between the two governments" described a grant to Botswana in 2009, and an agricultural center in Nigeria was "agreed upon by the two sides during President Buhari's state visit to China last April [and] is going to be fully funded as a grant project in this category."[37] To a certain extent, the way Chinese grants are used by both China and the grant recipients is more like an allowance, with the only semi-rigid condition being that Chinese contractors are prioritized when possible.

Nothing stopped the Monrovia government from using Chinese grants to shore up financing for Mount Coffee in 2015, particularly when Liberia's own contributions fell short. However, that might not have been the best approach since OECD financiers are more than willing to fill budget shortfalls for projects that qualify, while Chinese grants can be used to plug other budget shortfalls, especially for projects that are not financeable by the OECD. In other words, Chinese grants were more useful as a "slush fund" for Liberia. Even if China routinely practices "stadium diplomacy" to maximize its project visibility or to benefit Chinese contractors, it would be difficult to argue that the SKD renovation, repeatedly financed with Chinese grants, was forced upon Liberia.[38] In the decade immediately following the reestablishment of diplomatic relations, China's priority was to demonstrate, to the few countries left who still had diplomatic relations with Taiwan, the benefits of establishing relations with Beijing; strong-arming Liberia into accepting a stadium renovation project would be counterproductive. A more likely explanation is that the demand from Liberia for the stadium was met by Chinese supply, which was simply not available from OECD financiers.[39]

Since OECD financing has a comparatively higher grant element but is more restrictive in terms of environmental and social assessment (

It is important to point out that Liberia's decision not to work with China on the Mount Coffee rehabilitation project did not imply a general snubbing of China, or its exclusion from many other important infrastructure projects. Since reestablishing diplomatic relations in 2003, a slew of grants were signed for a range of initiatives (see Table 6). The amount of the grants offered by China to Liberia is unusual considering what other African countries have received.[42] Cumulative grant amounts from 2003 to 2015 exceeded US$110 million. However, even when budgets were tightened in 2015 due to the Ebola epidemic, Liberia opted to request additional funding from existing financiers for the Mount Coffee HPP.

Are Chinese companies intrinsically incapable or unwilling to build high-ESA-performing HPPs, or do Chinese financiers have a penchant for low-ESA-performing projects? Past records show this is clearly not the case: Bankasoka and Gouina are run-of-the-river HPPs in Sierra Leone and Mali, respectively. Bankasoka was financed jointly by the UN Industrial Development Organization and the Chinese government and contracted to Hunan Construction Engineering Group Cooperation; Gouina was financed solely by China Eximbank and constructed by Sinohydro. Sondu-Miriu in Kenya is another run-of-the-river HPP financed by Japan and contracted to Sinohydro. However, as the Mount Coffee case demonstrates, [illegible], the host country chooses the better financing offers available, and that often means OECD

[illegible]	[illegible]	[illegible]	US [illegible]
Dec. 2005	Grant	Agricultural equipment	$1
Jan. 2006	Grant	Unknown	$2.5 (CNY 20)
	Zero-interest loan	SKD Sports Complex renovation and other projects	$5 (ten-year

Nov. 2013	Grant	SKD Sports Complex; Monrovia Vocational Training Center; ministerial building complex	$36
Apr. 2015	Grant	Ebola medication	$0.2
	Grant	LBS technical assistance	$1 (CNY 6.5)
Mar. 2018	Grant	SKD Sports Complex; LBS, and National Clinical Reference Laboratory	Unknown

[illegible]

ing as a singular source for dam and irrigation projects. The empirical outcome that seems to associate Chinese financed and contracted projects with higher ESI is a case of self-selection; OECD financiers compete harder for a smaller range of high-ESI projects than Chinese financiers. Chinese contractors are interested in all contracts, both low- and high-ESI ones, and will accord similar efforts to winning both types of contracts. In contrast, OECD financiers have fewer projects that they can finance due to ESI concerns, and thus focus comparatively more of their capacity to accessing projects that are low impact only, including offering better grant-element financing. One implication from this observation is that ask-

Chinese, by the largest state-owned electric utility company in China, with Chinese companies as the intended audience.

This self-image of having high technical ability accompanied by low cost is shared by Chinese hydropower construction companies. State-owned Assets Supervision and Administration Commission issued a press release in 2006 highlighting Sinohydro's progress in African hydropower, particularly in the company's ability to streamline bidding, financing, and construction. The article further states that Sinohydro targets "large projects, large markets," particularly projects with a higher impact on the country or the region.[46] By the 2010s, interest in smaller HPPs among Chinese companies was also increasing. In an interview with experts at the International Center on Small Hydropower, a research group jointly managed by China's Ministry of Commerce and Ministry of Water Resources, they emphasized that small hydroprojects are uniquely suitable for Africa due to their low entry cost, and Chinese companies have technical and cost advantages in developing small African hydroprojects. In other words, the shift toward smaller projects is less a reaction to ESI concerns, and more a cost-reducing solution.[47] While the Chinese government is increasingly aware of the environmental impacts of their projects, the rhetoric remains that hydropower is a relatively cheap and clean energy source.[48]

The case of the Mount Coffee HPP demonstrates that, despite the apparent power asymmetry between financiers and the host country, given sufficient competition in b 4ce an2Td [(J 0 (e tha)1 (t h)5 (y)7 opoa(s)0ecj 1aa)1m3 respond and prioritize resources. These factors, being intimately tied to preferences and perceptions, are often only best known by the host countries themselves.

Given the importance of competition for host country agency, the gradual reentry of the World Bank into HPPs since the WDC may prove beneficial in the long run. The World Bank's Dams and Development Project (DDP), particularly the fourth DDP forum in 2005, stressed the importance of moving on from "polarized discussion on whether to build dams or not to a more constructive discussion about how to build 'good' dams if they emerge as the best option." Competition cannot be achieved by replacing one monopoly with another, and having a competitive alternative to Chinese financiers and contractors will offer more choices for host countries to exercise their agency. The growing demand for small HPPs from host countries may be a chance for both OECD and Chinese actors to cooperate, combining stringent ESA and better financing terms with low cost and quick delivery.

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