

***Building Bridges:
China's Growing Role as Infrastructure
Financier for Sub-Saharan Africa***

Executive Summary

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Executive Summary

In recent years, a number of emerging economies have begun to play a growing role in the finance of infrastructure in Sub-Saharan Africa. Their combined resource flows are now comparable in scale to traditional official development assistance (ODA) from OECD countries or to capital from private investors. These non-OECD financiers include China, India, and the Gulf states, with China being by far the largest player.

This new trend reflects a much more positive economic and political environment in Sub-Saharan Africa. Real GDP growth in the region has been sustained at 4 to 6 percent now for a number of years, and has benefited from an improved investment climate. The rise of the Chinese and Indian economies has fueled global demand for petroleum and other commodities. Africa is richly endowed with these and faces a historic opportunity to harness its natural resources and invest the proceeds to broaden its economic base for supporting economic growth and poverty reduction. In this context, south-south cooperation provides a channel through which the benefits of economic development in Asia and the Middle East can be transferred to the African continent, through a parallel deepening of trade and investment relations.

Chinese finance often goes to large-scale infrastructure projects, with a particular focus on hydropower generation and railways. More than 35 African countries are engaging with China on infrastructure finance deals, with the biggest recipients being Nigeria, Angola,

Sudan, and Ethiopia. The finance is channeled primarily through the China Export-Import (Ex-Im) Bank on terms that are marginally concessional, though significantly less so than those associated with ODA. A large share has gone to countries that are not beneficiaries of recent debt relief initiatives. In some cases, infrastructure finance is packaged with natural resource development, making use of a mechanism known as the “Angola mode.” Chinese finance is on a scale large enough to make a material contribution toward meeting Africa’s vast infrastructure needs. As such, it offers an important development opportunity for the region.

Despite the importance of Chinese finance for African infrastructure, relatively little is known about its value. The main purpose of this study is to quantify the magnitude of these financial flows from China by collating public information from a wide range of Chinese language sources. On this basis, it becomes possible to document the geographic distribution of resources, the types of infrastructure involved, the size and financing terms of the projects, and the modalities through which finance is being provided. The findings raise deeper questions about the economic, social, and environmental impacts of the projects concerned. These lie beyond the scope of this research, but are undoubtedly important and merit future attention.

Value of Chinese Infrastructure Finance

China and Africa have a long history of political and economic ties, which have

greatly intensified in recent years. Both bilateral trade and Chinese foreign direct investment (FDI) in Africa grew about fourfold between 2001 and 2005, accompanied by a major influx of Chinese enterprises and workers into the region. The natural resource sector, principally petroleum and to a lesser extent minerals, has been the major focus for both Chinese FDI to Africa and African exports to China. Nevertheless, China remains a relatively small player in Africa's petroleum sector relative to the OECD countries. The growth in commercial activity between China and Africa has been accompanied by a significant expansion of Chinese official economic assistance to the region, which is focused mainly on infrastructure and typically channeled through the China Ex-Im Bank.

To provide a clearer picture of the value and nature of this finance, a database of projects with Chinese finance was constructed, initially based on press reports and subsequently verified from public Chinese language Web sites. The database covers 2001–07. On the basis of this database, it can be estimated that Chinese financial commitments to African infrastructure projects rose from less than US\$1 billion per year in 2001–03 to around US\$1.5 billion per year in 2004–05, reached at least US\$7 billion in 2006—China's official “Year of Africa”—then trailed back to US\$4.5 billion in 2007.

About half of the 40 confirmed projects involved Chinese commitments of less than US\$50 million. However, Chinese finance has shown itself capable in about half a dozen cases of raising very large contributions of over US\$1 billion in value for single projects. Overall, at least

35 countries in Sub-Saharan Africa have benefited from Chinese finance or are actively discussing funding opportunities.

African leadership has typically welcomed China's fresh approach to development assistance, which eschews any interference in domestic affairs, emphasizes partnership and solidarity among developing nations, and offers an alternative development model based on a more central role for the state. However, a number of civil society commentators have expressed concerns about the social and environmental standards applied. The China Ex-Im Bank has its own environmental standards, and its policy is to follow the environmental regulations of the host country.

Sectoral Distribution of Chinese Infrastructure Finance

In terms of sectoral distribution, a large share of the Chinese finance is allocated to general, multisector infrastructure projects, within the framework of broad bilateral cooperation agreements that allow resources to be allocated in accordance with government priorities. However, it is clear that the two largest beneficiary sectors are power (mainly hydropower) and transport (mainly railroads).

In the power sector, China's activities have focused on the construction of large hydropower schemes. By the end of 2007, China was providing US\$3.3 billion toward the construction of ten major hydropower projects amounting to some 6,000 megawatts (MW) of installed capacity. Once completed, these schemes will increase the total available hydropower generation

capacity in Sub-Saharan Africa by around 30 percent. There have also been some activities in thermal generation and transmission, but on a much smaller scale.

China has made a major comeback in the rail sector, with financing commitments on the order of US\$4 billion for this sector. They include rehabilitation of more than 1,350 kilometers of existing railway lines and the construction of more than 1,600 kilometers of new railroad. To put this in perspective, the entire African railroad network amounts to around 50,000 kilometers. The largest deals have been in Nigeria, Gabon and Mauritania.

In the information and communication technology (ICT) sector, China's involvement mainly takes the form of equipment sales to national incumbents, either through normal commercial contracts or through intergovernmental financing tied to purchases of Chinese equipment by state-owned telecom incumbents. An important focus has been the development of national backbone infrastructure. In total in 2001–07, Chinese telecom firms supplied almost US\$3 billion worth of ICT equipment, mainly in Ethiopia, Sudan, and Ghana.

In the road and water sectors, China has been involved in financing a significant number of projects, but the sums involved are much smaller than in the other three sectors; no more than US\$700 million overall has gone to the two sectors combined.

Geographic Distribution of Chinese Infrastructure Finance

In terms of geographic distribution, Chinese finance has been highly concentrated, with about 70 percent going to just four countries: Nigeria, Angola, Sudan, and Ethiopia.

China's involvement in Nigeria, dating back to 2004, began relatively modestly with a number of projects in the telecom and power sectors. A substantial scale-up took place in 2006, when US\$5 billion of infrastructure projects were agreed, including the 2,600-MW Mambilla hydropower scheme and two major projects to upgrade and modernize the country's railway system. However, the status of all of these projects is currently under review by Nigeria's new administration.

In Angola, Chinese involvement dates back to the peace accords in 2002. The engagement was substantially scaled up in 2004, when a very substantial line of concessional credit was agreed with the China Ex-Im Bank to allow the government to repair infrastructure damaged in the country's 27-year civil war. So far, the government of Angola has drawn three installments totaling US\$4 billion from this credit line. The first installment, for US\$2 billion, is known to have been backed by 10,000 barrels per day of oil exports.

In Sudan, China has financed close to US\$1.3 billion of infrastructure projects, including the development of more than 2,200 MW of thermal generating capacity, the 1,250-MW Merowe hydropower scheme, and a number of other significant investments in the rail, road, and water sectors.

China's engagement in Ethiopia amounts to a total of US\$1.6 billion. The main focus has been on the ICT sector, particularly the Ethiopia Millennium Project to create a fiber-optic transmission backbone across the country and roll out the expansion of the GSM network. Most of these were financed under export seller's credit arrangements with the Chinese telecommunications operator ZTE for the supply of equipment to the Ethiopian national telecommunications incumbent.

Economic Complementarities

The growing ties between China and Africa, including China's emerging role as a major financier of infrastructure in the region, can be understood in terms of the economic complementarities that exist between the two parties. On the one hand, Africa counts among its development challenges a major infrastructure deficit, with investment needs estimated to be at least US\$20 billion per year and an associated funding gap on the order of US\$10 billion per year. China has developed one of the world's largest and most competitive construction industries, with particular expertise in the civil works critical for infrastructure development. On the other hand, as a result of globalization China's fast-growing manufacturing economy is generating major demands for oil and mineral inputs that are rapidly outstripping the country's domestic resources. Africa is already a major natural resource exporter, and with enhanced infrastructure could develop this potential even further, accelerating economic development in the region.

Meeting Africa's Infrastructure Needs

Sub-Saharan Africa lags behind other developing regions on most standard indicators of infrastructure development, prompting African leaders to call for greater international support in this sphere. By far the largest gaps arise in the power sector, with generation capacity and household access in Africa at around half the levels observed in South Asia and about a third of the levels observed in East Asia and Pacific. Unreliable power supply leads to losses in industrial production valued at 6 percent of turnover. Furthermore, Africa's limited infrastructure services tend to be much costlier than those available in other regions. For example, road freight costs in Africa are two to four times as high per kilometer as those in the United States, and travel times along key export corridors are two to three times as high as those in Asia. It is estimated that Africa's deficient infrastructure may be costing as much as one percentage point per year of per capita GDP growth.

Since 1999, China's construction sector has seen annual growth of 20 percent, making China the largest construction market in the global economy. The competitiveness of Chinese contractors can be gauged by examining how well they fare in international tenders for projects funded by multilateral aid agencies such as the World Bank and the African Development Bank. In recent years, they have accounted for more than 30 percent by value of civil works contracts tendered by these two multilateral agencies, which makes them substantially more successful than contractors of any other nationality. Chinese contractors have been particularly successful in the road and water sectors and in countries such as

Ethiopia, Tanzania, and the Democratic Republic of Congo.

Addressing China's Natural Resource Requirements

China's natural resource imports from Sub-Saharan Africa reached US\$22 billion in 2006. Petroleum alone accounts for almost 80 percent of this trade, with the balance being timber and minerals. As a result, China now depends on Africa for around 30 percent of its oil imports, 80 percent of its cobalt imports and 40 percent of its manganese imports. Overall, Angola is by far the largest trading partner, followed by Republic of Congo, Equatorial Guinea, Sudan and South Africa.

Even so, it is important to remember that this expansion takes place from a very low base. China's oil companies remain relative latecomers to petroleum exploration and production in Africa. In recent years, China's oil companies have secured oil exploration and drilling rights in Angola, Chad, the Republic of Congo, Côte d'Ivoire, Equatorial Guinea, Ethiopia, Gabon, Kenya, Mali, Mauritania, Niger, Nigeria, São Tomé and Príncipe, and Sudan. However, the US\$10 billion of Chinese oil sector investments recorded in this study are barely a tenth of the US\$168 billion that other international oil companies have already invested in the region. Moreover, most of Africa's oil exports continue to go to OECD countries. In 2006, 40 percent of Africa's oil production was exported to the United States and 15 percent to Europe, compared with only 16 percent to China.

Similarly, Chinese companies have secured projects for minerals (including copper, iron, and bauxite) in countries

such as the Democratic Republic of Congo, Gabon, Guinea, Zambia, and Zimbabwe. The investment commitments associated with these are estimated at around US\$2 billion. In some cases, official assistance has simultaneously been used to provide rail and power generation infrastructure needed to facilitate export of minerals such as bauxite in Guinea or copper and manganese in the Democratic Republic of Congo. However, only 7 percent of Chinese infrastructure finance is directly linked to natural resource exploitation; most of the resources are directed to broader development projects.

Financing Aspects

China's approach to financial assistance is different from that of traditional donors, and forms part of a broader phenomenon of south-south economic cooperation between developing nations. The principles underlying this support are therefore ones of mutual benefit, reciprocity, and complementarity and are grounded in bilateral agreements between states. Unlike traditional ODA, Chinese infrastructure finance is channeled not through a development agency but through the Ex-Im Bank, which has an explicit mission to promote trade. Given the export promotion rationale, the tying of financial support to the participation of contractors from the financing country is a typical feature. A similar approach is being taken by the India Ex-Im Bank and has in the past been used by export credit agencies of other countries.

The vast majority of infrastructure financing arrangements discussed in this study were financed by the China Ex-Im Bank, which (like any ex-im bank) is devoted primarily to providing export

seller's and buyer's credits to support the trade of Chinese goods. These credits reached a total of US\$20 billion in 2005, making the China Ex-Im Bank one of the largest export credit agencies worldwide. In addition, the China Ex-Im Bank is the only Chinese institution that is empowered to provide concessional loans to overseas projects.

The China Ex-Im Bank is increasingly making use of a deal structure—known as the “Angola mode” or “resources for infrastructure”—whereby repayment of the loan for infrastructure development is made in terms of natural resources (for example, oil). This approach is by no means novel or unique, and follows a long history of natural resource-based transactions in the oil industry. In the case of the China Ex-Im Bank, the arrangement is used for countries that cannot provide adequate financial guarantees to back their loan commitments and allows them to package natural resource exploitation and infrastructure development. The study documents eight resource-backed deals of this kind (including the credit line to Angola) worth more than US\$3 billion and covering petroleum, mineral resources, and agricultural products.

The China Ex-Im Bank's terms and conditions are agreed on a bilateral basis, with the degree of concessionality depending on the nature of the project. The World Bank's Debtor Reporting System offers some insight into Chinese lending to Sub-Saharan Africa, including both infrastructure and non-infrastructure loans. On average, the Chinese loans offer an interest rate of 3.6 percent, a grace period of 4 years, and a maturity of 12 years. Overall, this represents a grant element of around 36

percent, which qualifies as concessional according to official definitions. The variation around all of these parameters is considerable across countries; thus interest rates range from 1 to 6 percent, grace periods from 2 to 10 years, maturities from 5 to 25 years, and overall grant elements from 10 to 70 percent. Chinese loans compare favorably with private sector lending to Africa but are not as attractive as ODA, which tends to provide a grant element of around 66 percent to Africa. The Chinese Ministry of Commerce's database for Chinese contractors provides some data on grant-funded projects, each of which is typically less than US\$30 million in value.

In the context of recent debt relief initiatives, Chinese lending to Africa has prompted a renewed discussion about debt sustainability. A comparison of recent debt relief figures with estimates of potential indebtedness to China suggests that some of the major beneficiaries of Chinese finance, accounting for more than one third of the total, were countries that did not benefit from Western debt relief initiatives, such as Angola, Sudan, and Zimbabwe. The only beneficiaries of Western debt relief that have contracted relatively large debts to China are Guinea, Mauritania, and Nigeria. It is also worth noting that China has itself provided US\$780 million of debt relief to African countries in recent years.

The Wider Landscape

China is by no means the only major emerging financier for infrastructure projects in Africa. India has also been using its Ex-Im Bank to support the development of power projects in countries such as Nigeria and Sudan

where it is developing natural resource interests. Indian infrastructure deals in Africa averaged US\$0.5 billion per year in 2003–07, associated with significant natural resource investments. In addition, Arab countries provided an average annual US\$0.5 billion for infrastructure finance in Africa in 2001–07. This has taken the form of relatively small projects (on the order of US\$20 million) with a heavy emphasis on road investments.

Overall, infrastructure resources provided to Africa by the emerging financiers jumped from around US\$1 billion per year in the early 2000s to around US\$8 billion in 2006 and US\$5 billion in 2007. These flows are now broadly comparable in magnitude to the ODA of OECD donors (amounting to US\$5.3 billion in 2006) and to the resources emanating from private participation in infrastructure, or PPI (amounting to more than US\$8 billion in 2006).

Resource flows of the magnitude provided by the emerging financiers are large enough to make a material contribution toward meeting Africa's infrastructure financing needs of US\$22 billion per year. The contribution is most material in the power sector. In ICT, emerging financiers' contribution is less significant and, moreover, comes on top of already abundant sources of finance from PPI. In transport and water, the contribution of emerging financiers remains relatively small in relation to needs.

Notwithstanding some overlap, there is a significant degree of complementarity in the main areas of focus for each of the three major sources of external finance. PPI seeks the most commercially lucrative opportunities in ICT. Emerging financiers focus on productive infrastructure (primarily power generation and railroads). Traditional ODA focuses on the finance of public goods (such as roads and water supply) and plays a broader role in power system development and electrification. A similar pattern of specialization emerges with respect to geography, with different countries relying to differing degrees on the various sources of finance.

Conclusion

The advent of China and other emerging players as important financiers represents an encouraging trend for Africa, given the magnitude of its infrastructure deficit. The investments made by these emerging financiers are unprecedented in scale and in its focus on large-scale infrastructure projects. With new actors and new modalities, there is a learning process ahead for borrowers and financiers, both new and old alike. Salient issues are the development of national capacity to negotiate complex and innovative deals, and to enforce appropriate environmental and social standards for project development. In sum, the key challenge for African governments is how to make the best strategic use of all external sources of infrastructure funding, including those of emerging financiers, to promote growth and reduce poverty on the continent.

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