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Chinese Resources-For-Infrastructure (R4I) Swaps: An Escape from the Resource Curse?

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ABSTRACT

This paper discusses whether resources-for-infrastructure (R4I) swaps employed by the Chinese government and companies reduce or increase the risk that a resource-rich country will fall prey to the resource curse. A review of academic literature shows two opposing views. Some scholars argue that rapid infusion of unconditional Chinese investment and financing strengthens a political structure that allows an elite to use resource wealth for unproductive and self-serving ends. Others argue that R4I swaps have a positive impact on economic development, act as an effective agency of restraint on the part of African governments and mitigate the threat of corruption.

A short overview of the resource curse debate and related policy responses is provided. China's emergence in Africa's natural resource sector is described, the workings of an R4I swap is explained and an overview of R4I swaps between 2001 and 2011 is provided.

The basis for the research is a comparative analysis of case studies of R4I swaps in Angola, the Democratic Republic of the Congo, Gabon, Ghana and Nigeria, and field research conducted by the author in Ghana.

The findings from the case studies do not support either of the opposing views. R4I swaps do not inherently exacerbate the resource curse nor are they a panacea for its ills. The developmental impact of R4I swaps depends on the capacity and willingness of African governmental institutions to harness the opportunities and mitigate the risks of R4I swaps.

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ABBREVIATIONS AND ACRONYMS

CDB	Chinese Development Bank
CIF	China International Fund
CSPOG	Civil Society Platform on Oil and Gas
DRC	Democratic Republic of the Congo
EITI	Extractive Industries Transparency Initiative
Exim	Export–Import Bank of China
FDI	foreign direct investment
FMA	Master Facility Agreement
HPIC	heavily indebted poor country
IMF	International Monetary Fund
R41	resources for infrastructure
Sicomines	Sino–Congolais des Mines

INTRODUCTION

The first decade of the new millennium saw the emergence of two separate phenomena that have influenced the governance of Africa's natural resources. First, national and international policy responses to the resource curse were designed and implemented. The 'resource curse' refers to poor developmental performance associated with many countries rich in natural resources. Second, Chinese companies became major players in Africa's natural resource sector. How these two phenomena are related is the question this paper seeks to answer.

A review of the academic literature shows two opposing views. Some authors argue that these two phenomena are at odds with each other. Chinese companies are criticised for not supporting international initiatives on transparency and accountability, such as the Extractive Industries Transparency Initiative (EITI). This lack of support is identified as a hindrance to the emergence of a new business model for resource extraction focusing on revenue transparency and minimising negative social and environmental impacts.¹

The rapid infusion of unconditional Chinese investment and financing is characterised by highly personalised deal-making involving the political elite and excluding outsiders. This strengthens a perverse political incentive structure by which the political elite uses resource wealth for unproductive and self-serving ends. Chinese investment with 'no strings attached' may enable unresponsive political institutions and inefficient policies to remain in place. Furthermore, Chinese companies are seen to exploit and undermine weak regulatory institutions to bolster their earnings and thereby exacerbate the resource curse.

Other authors claim that the so-called resources-for-infrastructure (R4I) swaps, employed by Chinese companies, have a positive impact on economic development and provide an escape from the resource curse. R4I swaps are seen to facilitate much-needed infrastructure investment. They allow African governments to invest in public works today, paying for them with future exports. R4I swaps therefore deliver tangible results, such as roads and hospitals, that benefit the general population. Improvements in roads, power generation and electricity coverage are considered to lower the cost of doing business and raise productivity. Furthermore, R4I swaps are regarded as an effective agency of restraint on the part of African governments, mitigating the threat of corruption.²

The central question of the paper is: do R4I swaps reduce or increase the risk that a resource-rich country will fall prey to the resource curse? To answer the question, the paper is structured as follows: First, a description of the resource curse is provided. Four key mechanisms through which the resource curse has an impact on resource-rich states are identified, as well as four corresponding policy responses. Second, China's growing engagement in Africa's natural resource sector is described, with particular emphasis on the R4I model of engagement. Third, R4I swaps are contextualised within the political economy in which they are embedded. This enables a better understanding of the economic and political relevance and impact of R4I swaps. Finally, the effect of R4I swaps on the four identified mechanisms of the resource curse is analysed, followed by a discussion of the effect on policy responses.

THE RESOURCE CURSE

The concept of a resource curse seeks to explain how some countries with an abundance of natural resources suffer from poor economic performance and poor governance. Oil-rich Nigeria and the mineral-rich Democratic Republic of the Congo (DRC) are frequently referred to as countries suffering from the resource curse. The concept of a resource curse is not uncontested.³ There are well-known examples of resource-rich countries that have achieved high economic growth and well-established democratic institutions, such as Norway and Botswana. Econometric literature shows mixed results. The pioneering study of Sachs and Warner (1995) shows a correlation between a country's dependence on oil and minerals and slow economic growth,⁴ which was confirmed by subsequent econometric studies.⁵ However, other statistical studies find no evidence of the resource curse.⁶

For the purposes of this paper, it is sufficient to conclude that natural resource abundance does not automatically turn into a curse or a blessing. Natural resource revenues can be used for good or for evil, depending on the quality of the institutions in place.⁷

A review of the resource curse literature allows for the identification of four broadly defined mechanisms that may lead to a resource curse.⁸ The first is that the high volatility of natural resource prices, especially of oil and gas, induces so-called boom-and-bust cycles which, in turn, may engender periods of significant macroeconomic instability. This instability may be intensified by procyclical fiscal policies, as a commodity boom usually fuels a spending boom. Much of the increased spending is channelled to investment projects and the government wage bill. The spending boom may spur inflation, encourage countries to engage in 'excessive' borrowing and thereby increase risk with regard to debt sustainability. When commodity prices fall, turning the 'boom' into a 'bust', government and business are forced to cut spending, which deepens economic contraction.⁹

Second, the growth of a natural resource sector may crowd out other economic sectors, especially manufacturing, which in the end negatively affects economic growth ('Dutch disease'). A resource boom may cause a shift of investment capital from manufacturing or agriculture to extractive industries, the so-called resource movement effect.¹⁰ Additionally, when money flows into the country, local prices rise; what economists call 'the appreciation of the real exchange rate'. When costs rise in sectors that produce tradable goods, these sectors face increasing difficulty in competing with imports and selling their products abroad. In this way the growth of the natural resource sector lowers the international competitiveness of other sectors such as manufacturing.

Third, in the context of weak institutions, natural resource abundance may strengthen rent-seeking behaviour of political and economic elites. They may use natural resource revenues to finance the political patronage system on which their power rests, instead of building strong and accountable institutions that foster economic development.¹¹

Fourth, resource abundance may elicit a political struggle for control over the natural resources. This may increase the likelihood of armed conflict. Collier and Hoeffler argue that the risk of civil war is systematically related to a high dependence on the export of primary commodities and low national income.¹² The capture of primary commodity exports enables rebel groups to finance their struggle. The robustness of Collier and Hoeffler's statistical findings has been questioned and alternative explanations have been

offered. Resource abundance may weaken the capacity of the state to confront the rebel challenge.¹³

There is a wide variety of domestic and international policy responses to the resource curse. Four broadly defined categories of policy responses are found. First, some institutions, such as stabilisation funds and stockpiles, and microeconomic instruments, such as price indexation in oil and mining contracts and hedging, have been designed to limit the negative impacts of price volatility. Second, monetary and exchange rate policies were developed to deal with the macroeconomic instabilities related to the Dutch disease and the commodity boom-and-bust cycle. Third, countercyclical fiscal policies and commodity funds have been promoted to increase savings during the boom time and increase spending during the bust time. Fourth, external checks were introduced to increase transparency and accountability of the financial dealings between governments and companies, and to ensure the wise use of windfall profits.

A discussion of the effectiveness of the policy responses falls outside the scope of this paper.

CHINA AND NATURAL RESOURCES IN AFRICA

China's direct economic presence in Africa has increased dramatically since the turn of the century – after the Chinese government allowed a specific group of domestic firms to expand abroad through foreign direct investment (FDI) in 2001. China's trade with Africa has grown from \$10 billion in 2000 to \$166 billion in 2011, making China the largest single-country trading partner of Africa.¹⁴

China's strategic interest in Africa is threefold: (i) gaining access to energy and natural resources, (ii) expanding of export markets for its goods and services, and (iii) gaining political support for its one-China policy and counterbalancing the dominance of rich industrialised countries.¹⁵ The Chinese government aims to secure a reliable and affordable supply of energy, metals and mineral ores. Africa plays an important role in this global 'going out' strategy.

As a result, China's mostly state-owned oil, mining and construction companies have become major players in the natural resource sector in Africa within a short period.¹⁶ Chinese companies and banks are now among the largest buyers, investors, financiers and builders in the African oil, mining and (related) infrastructure sectors. In 2010 Africa's share of China's oil imports increased to 32%, second only to the Middle East with a 44% share. Angola and Sudan are China's main African oil suppliers.¹⁷ China's share of African mineral exports grew from 10% in 2008 to 15% in 2011. Similar increases were recorded for iron and steel (from 6 to 16%), and copper (from 16 to 48%).¹⁸

China's three largest oil companies have acquired significant ownership stakes in oil fields in Nigeria, Angola, Sudan, Gabon, Cameroon and other African countries.¹⁹ Chinese investments in mining are concentrated in Zambia, the DRC and South Africa.

The rapid expansion of trade and investment is facilitated by lines of credit extended by Chinese policy banks. The Export–Import Bank of China (Exim) provided \$38 billion in loans for over 1 000 infrastructure projects in Africa between 2003 and 2011.²⁰ Chinese construction companies are building roads, railways, power plants and dams all over the

continent. China–Africa scholar Bräutigam estimates that Chinese companies earned \$28 billion in revenue from contracted projects and service exports in Africa in 2009.²¹

RESOURCE FOR INFRASTRUCTURE SWAPS

An R4I swap involves the exchange of natural resources for infrastructure. The revenues from the export of natural resources such as oil or copper are used as collateral for a loan to finance infrastructure development. R4I swaps were pioneered by the Chinese state and Chinese companies in their engagement with resource-rich countries in Africa.²²

The first complex R4I swap was initiated in Angola in 2004. A \$2 billion loan from Exim was used to finance the reconstruction of infrastructure damaged in Angola's civil war. The export revenue from 10 000 barrels of oil a day over a period of 17 years would be used to repay the loan. In accordance with the loan agreement, 70% of public tenders for the infrastructure projects related to the R4I swap deal was to be awarded to Chinese construction corporations.

At the end of 2011 there were 10 major R4I swaps, either concluded or in the process of implementation in eight African countries (ie, Angola, Congo-Brazzaville, the DRC, Ethiopia, Gabon, Ghana, Sudan and Zimbabwe) with a total value of approximately \$22 billion (see Table 1).

Table 1: Resource-for-infrastructure swaps in Africa, between 2001 and 2011

No.	Country and year of commitment	Project description	Loan \$	Terms			Conditions (resource used)	Additional agreements to secure the loan
				Interest	Grace	Repayment rate (Period in years, % in years)		
1	Sudan, 2001	Construction of El Gaili Power Plant	128 million	–	–	–	Oil	
2	Congo-Brazzaville, 2001	Construction of Congo River Dam: Imboulou	280 million	–	–	–	Oil	
3	Angola, 2004 Extension in 2007	Reconstruction of damaged infrastructure	2 billion 500 million for 2007 extension	1–1,5% over LIBOR ^b	3–5	15–17	10 000 barrels oil a day for 17 years	70% of public tenders will be awarded to Chinese companies

No.	Country and year of commitment	Project description	Loan \$	Terms			Conditions (resource used)	Additional agreements to secure the loan
				Interest	Grace	Repayment rate (Period in years, % in years)		
4	Nigeria, 2005	Construction of power plants, railways and roads	298 million – 20 billion	The \$298 million extension of the Papalanto Power Plant was discussed. It was to be secured by the purchase of 30 000 barrels of crude oil a day. In total, \$20 billion worth of oil-backed loans for infrastructure projects were discussed. A report issued in 2009 concludes that the oil-for-infrastructure scheme had failed because on the Nigerian side there were hidden political agendas and no follow-up mechanisms to enforce the deals				
5	Gabon, 2006 Renegotiated in 2007 ^a	Construction of Belinga Iron Ore Mine and of infrastructure	2.2 billion	–	–	25	Repayment by mining Joint Venture Comibel (75% ownership Chinese companies) Iron ore concession for 25 years	
6	Guinea, 2006	Construction of Souapiti Dam	1 billion	An R4I swap was discussed to finance the construction of the dam and development of a bauxite mine. Exim declined to finance the Souapiti Dam construction because of political instability and inadequate financial guarantees				
7	Zimbabwe, 2006	Construction of three thermal power plants and chrome mine	1.3 billion	A memorandum of understanding was signed to finance three power plants with chrome export revenues. Reports issued in 2010 indicate that the agreement had not materialised				
8	Angola, 2007	Construction of schools and hospitals, and investment in energy and water	2 billion	1.25% over LIBOR	3	18	Oil	Conditions attached to Chinese exports were relaxed, and local content rules were tightened compared to the 2004 loan

No.	Country and year of commitment	Project description	Loan \$	Terms			Conditions (resource used)	Additional agreements to secure the loan
				Interest	Grace	Repayment rate (Period in years, % in years)		
9	Ghana, 2007	Construction of Bui Dam	292 million	1% over LIBOR	5	17	Cocoa sales agreement for 40 000 tonnes for 17 years	
			270 million (2025)	2%	5	17		
10	Democratic Republic of the Congo, 2007 Renegotiated in 2008/9	Development of cobalt and copper mines, and construction of infrastructure	3 billion	4.4%	–	25	Repayment by mining Joint Venture Sino–Congolais des Mines (Sicomines) (Chinese companies 68% ownership) Concession: 10.6 million tonnes copper, 626 619 tonnes cobalt	1 in 5 workers can be Chinese 12% of the work has to be subcontracted to Congolese companies
11	Angola, 2009	Construction of roads, energy, agriculture, schools and hospitals	6 billion	1.5% over LIBOR	5	17	Oil	
12	Zimbabwe, 2009	Development of platinum mine	5 billion	A memorandum of understanding was signed to swap 50% equity in a \$40 billion platinum concession for a \$5 billion concessional credit line. In 2011 a credit line limited to \$3 billion was still under discussion				

No.	Country and year of commitment	Project description	Loan \$	Terms			Conditions (resource used)	Additional agreements to secure the loan
				Interest	Grace	Repayment rate (Period in years, % in years)		
13	Zimbabwe, 2011	Construction of National Defence College	98 million	2%	7	20	Diamonds from Maranga	If there is any change of laws or government policies in Zimbabwe making it difficult for either party to perform its obligations, China could declare all the sums payable immediately
14	Ghana, 2011	Infrastructure for oil extraction, and mining and agriculture	1.5 billion	2.95% (over 6 month LIBOR)	5	15	13 000 barrels of oil a day for 15.5 years	A minimum of 60% is required to be paid to Chinese contractors
			1.5 billion	2.85%	5	15		
Total			22,768 million					

- a In February 2012 *Africa-Asia Confidential* reported that the Belinga mining concession had been removed from Chinese mining company CMEC and awarded to Australia's BHP Billiton. However, this has not yet been confirmed.
- b LIBOR London Interbank Offered Rate.

Source: Author

Four other major R4I swaps were also negotiated, but failed to materialise. Negotiations with Nigeria over a number of years regarding oil-backed infrastructure loans worth \$20 billion ultimately failed.²³ The same fate was in store for negotiations with Guinea (for a bauxite-backed loan of EUR²⁴ 1 billion) and Zimbabwe (for chromium- and platinum-backed loans worth \$1.3 billion and \$5 billion respectively). In all of these cases the Chinese banks withdrew from negotiations because they considered the risks to be too great.

The 14 R4I swaps can be divided into single- and multipurpose swaps. The single-purpose swap involves the construction of a large-scale turnkey energy project (eg, a thermal power plant or hydropower dam) by a Chinese construction company financed by Exim through a resource-backed loan. The loan is secured by long-term sales agreements

of oil or other primary commodities (eg, cocoa). There are three single-purpose R4I swaps: the El Gaili Power Plant in Sudan, the Imboulou Dam in Congo-Brazzaville and the Bui Dam in Ghana.

The multipurpose swap involves the construction of a wide range of infrastructure projects in transport (eg, railways, roads or ports), education (eg, schools), health (eg, hospitals), energy (eg, power plants), agriculture or water. The infrastructure projects are financed by a line of credit supplied by Exim or the Chinese Development Bank (CDB), generally on non-concessional terms and conditions. The loan is tied to the purchase of Chinese goods and services. For example, in the case of the 2004 Angolan oil-backed loan, 70% of the \$2 billion loan was contracted out to Chinese construction companies. The loan is explicitly not tied to political conditions. This makes R4I swaps particularly attractive to African political elites.

The loan is secured through either compensatory trade or ownership stakes in mining. In the case of compensatory trade the future revenue from oil or mineral exports is used to repay the loan. In some cases compensatory trade involves long-term oil supply contracts with Chinese oil companies.

In the case of the R4I swap in Ghana the loan required the Ghanaian government and GNPC to enter into a long-term contract for the purchase of Jubilee oil (off-take agreement). The proceeds will be transferred to an escrow account for the purpose of servicing the loan. On 1 March 2012 the Ghanaian parliament approved an off-take agreement with Unipac Asia, a wholly owned subsidiary of Sinopec. Under the off-take agreement, Unipac will purchase 13 000 barrels of oil a day for a period of 15.5 years. The agreement will end at any time before this date if all outstanding amounts under the loan agreement are repaid in full.

There are four multipurpose R4I swaps with compensatory trade: three R4I swaps in Angola and one in Ghana.

In the case of the ownership stake model Chinese companies enter into a joint venture with local and mostly state-owned mining companies to develop and operate a mining project (eg, iron ore in Gabon and a copper mine in the DRC). Part of the revenue from the mining operation is used to repay the infrastructure loan. There are three multipurpose R4I swaps with ownership stakes: Gabon, the DRC and Zimbabwe (see Box 1).

Box 1: 'The Democratic Republic of the Congo's deal of the century'

In 2007 a \$9 billion R4I swap was struck between the DRC and China. It was the largest of its kind and the deal was worth more than the DRC's state budget in that year. A Sino-Congolese mining joint venture, Sino-Congolais des Mines (Sicomines), was created and awarded mining concessions for 10 million tonnes of copper and 600 000 tonnes of cobalt. The Chinese parties to the joint venture Sicomines are two of the world's largest construction companies, China Railway Engineering Corporation (railways) and Sinohydro (dams), and a smaller mining company Zhejiang Huayou (cobalt). The Chinese stake in Sicomines is 68%. DRC state-owned mining company Gécamines holds the other 32%.

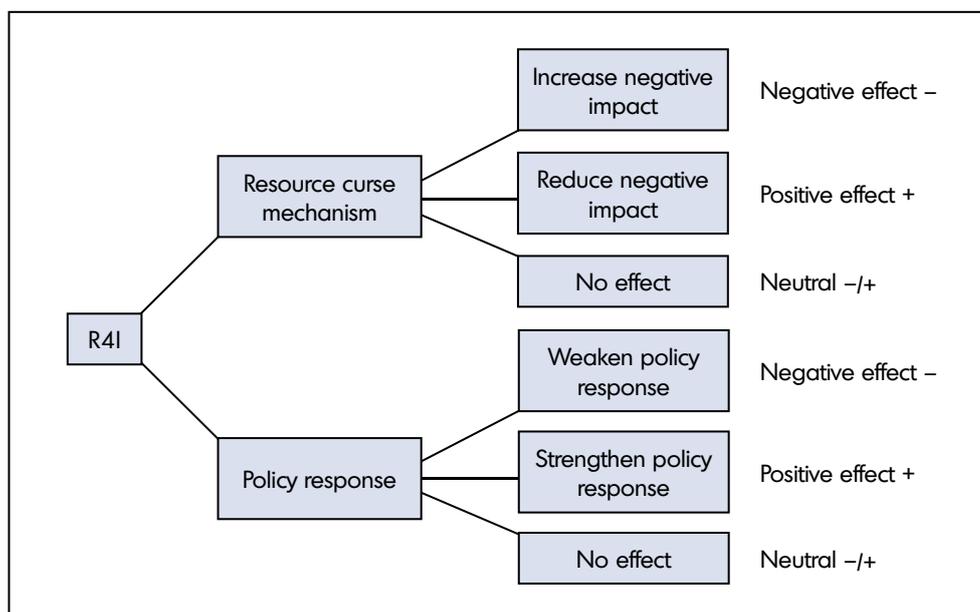
In return for the mining concessions, Exim pledged to provide \$9 billion in finance for the construction of roads, railways, hospitals, dams and mining operations. Exim loans are tied to the procurement of at least 88% of Chinese goods and services.

The International Monetary Fund (IMF) successfully pushed for a renegotiation of the deal in 2009, arguing that the non-concessional loan was too big for the DRC and that the government guarantee would increase the DRC's external debt to an unsustainable height. After a personal visit by former IMF Managing Director Dominique Strauss-Kahn in May 2009, then President Laurent Kabila agreed to lower the loan to \$6 billion.²⁵

The R4I swaps are an eye-catching and relatively unique feature of Chinese engagement in the natural resource sector in Africa. For some authors it has become one of the most distinctive characteristics of Beijing's engagement with Africa in the first decade of the 21st century.²⁶ While R4I swaps are an important instrument of engagement, they are by no means the only model employed. In 2008, 35 African countries were engaged in infrastructure finance deals with China and only a handful of these were R4I swaps.²⁷ Chinese banks have become Africa's most important external financier of infrastructure, providing about two-thirds of new infrastructure spending finance on the continent since 2007.²⁸ Chinese construction companies have also been successful in competitive bidding for infrastructure contracts. According to some estimates, 49% of all contracts executed by Chinese construction companies in Africa are won through international competitive bidding, while about 40% of contracts are won through closed bidding between Chinese companies only, facilitated by concessional loans and grants from the Chinese government.²⁹

R4I swaps and the resource curse

I now return to the central question of the paper: do R4I swaps reduce or increase the risk that a resource-rich country will fall prey to the resource curse? The question is addressed in two ways. First, the effect of R4I swaps on resource curse mechanisms is discussed. An R4I swap is considered to have a positive effect when it reduces the negative impact of a resource curse mechanism. The impact is negative if it increases the impact of a resource curse mechanism. The effect is neutral if it does neither of the above. The same line of reasoning is applied to distinguish the positive, negative and neutral effects of R4I swaps on policy responses.

Figure 1: The impact of R4I swaps on the resource curse

Source: Author

The following discussion is based on a comparative analysis of case studies of R4I swaps in Angola, the DRC, Gabon, Ghana and Nigeria, and field research by the author in Ghana in May 2012.³⁰

Some cautionary comments on the case studies are warranted. First, there is a lack of reliable data as most of the loan agreements between Chinese authorities and African governments are confidential. The Chinese and African governments publish very little information. Most of the case studies are based on newspaper articles, publicly accessible databases, interviews and observations of the researcher.³¹

Second, only a few R4I swaps have been completed to date. The majority of the R4I swaps are in the process of implementation or even preparation. It is too early to know the long-term effects of the R4I swaps. This obviously limits the scope of the research and does not allow for definitive answers to the questions raised in this paper.

The central question does not imply that R4I swaps can be held single-handedly responsible for the resource curse. This is certainly not the case. Chinese companies have become major players but by no means dominate the natural resource sector in any given African country. Even in the *hypothetical* case that the impact of R4I swaps is largely negative, there is no justification to single out Chinese companies in relation to the resource curse. The central question of the effect on the resource curse needs to be understood within a wider context of domestic and foreign actors. R4I swaps are implemented in resource-rich countries that run the risk of the resource curse or already suffer from it.

The political economy of R4I swaps

The effect of R4I swaps on the resource curse must be contextualised within the political economy in which the R4I swaps are embedded. The starting point is the overall lack

of infrastructure development in Africa. According to World Bank estimates, the cost of addressing Africa's infrastructure needs, sometimes called the 'infrastructure gap', amounts to \$93 billion a year.³² Although most of the infrastructure cost is domestically financed, there is a funding gap of \$31 billion a year. The opportunities for African governments to access large-scale external finance are limited. The traditional donors involved in Africa's infrastructure (ie, the European Union (EU), US and World Bank) are not willing to fill this funding gap. On the contrary, based on Organization for Economic Co-operation and Development statistics, the EU and its member countries allocated approximately \$1 billion in 2009 for infrastructure works for the whole of sub-Saharan Africa.³³ In addition, most of the governments involved in R4I swaps had strained relations with international financial institutions in the first decade of the 21st century (see Box 2).

Box 2: Angola, International Monetary Fund and resource-for-infrastructure swaps

In March 2004 China provided Angola with a \$2 billion loan facility after negotiations with the IMF on a new credit facility had collapsed, because the Angolan government did not want to comply with IMF conditions. The IMF insisted on increased transparency, a macroeconomic stabilisation policy and lowering inflation, which implied cutting public expenditure. As a consequence, Angola's reconstruction programme would have to wait until macroeconomic indicators improved.³⁴ Angolan President José Eduardo dos Santos turned to China, as these conditions were unacceptable to Angola. The \$2 billion loan facility from China provided the Angolan political elite with a welcome and timely alternative to the IMF credit.

The infrastructure-funding gap varies significantly among countries. For Angola and the DRC, the gap was larger as long periods of internal conflict had destroyed even the little infrastructure that had existed. The R4I swap that the DRC arranged with the Chinese would more than double the existing road and railway infrastructure in the country.³⁵

Infrastructure development is, besides being an economic priority, also a key element in the political strategies of incumbent elites. In election times, new public works are heralded as major achievements of the ruling political party. It is used by political elites to legitimise their exercise of power. Because of their size, R4I swaps are a visible part of the state-led push in building roads, railways and buildings, among other public works. As a consequence, the success or failure of an R4I swap becomes a political issue in most of the countries.

An example of this politicisation is the R4I swap that formed a crucial element in Kabila's economic and political strategy. He had won the 2006 presidential elections on the promise to rebuild the war-torn DRC citing *les Cinq Chantiers* (the Five Public Works). *Les Cinq Chantiers* refers to almost all of the country's practical needs: infrastructure, health, education, water and electricity, and housing and employment.³⁶ His re-election campaign in 2011 focused on his capacity to deliver these public works. Western donors were not willing to finance them as the DRC had failed to comply with IMF conditions. Therefore, Kabila had to look for other sources to finance his reconstruction programme.

The Sicomines deal (see Box 1) was a timely opportunity for Kabila to finance his election promises.

In short, R4I swaps are embedded in a political economy that prioritises infrastructure development as a means to promote economic development and political legitimacy. This occurs in a global context where the availability of and access to external financing for infrastructure development are limited. This context partly explains the 'popularity' of R4I swaps among African governments.

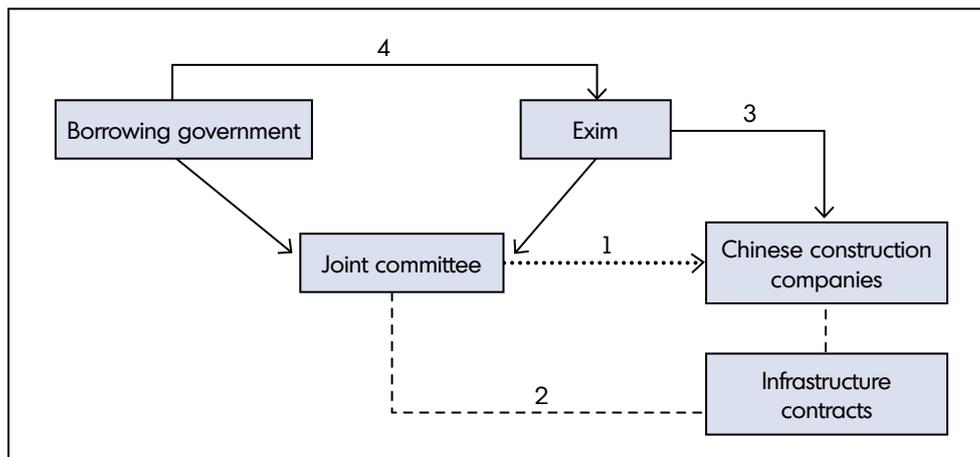
Resource curse mechanism 1: Price volatility and boom-and-bust cycles

This section examines how R4I swaps relate to the first resource curse mechanism: mismanagement of a boom-and-bust cycle associated with high volatility of natural resource prices. Mismanagement may result from procyclical spending, excessive borrowing and a politically motivated increase in the government wage bill.

The core purpose of R4I swaps from the African perspective is to leverage natural resource wealth for infrastructure development. The R4I swaps were negotiated and implemented in the first decade of the 21st century when resource-rich countries in Africa experienced a long boom in commodity prices. In this context R4I swaps increase procyclical government spending, as they allow for quick, large-scale investments in infrastructure. This may deepen macroeconomic instability if not adequately managed. The case studies do not indicate that the R4I swaps have increased procyclical spending to the extent that it threatens macroeconomic stability. However, this may be partly explained by the fact that the commodity boom still continues.

Firstly, the IMF and the World Bank critically assessed the R4I swaps as they were seen to pose a risk to debt sustainability. Most of the countries were recovering from the debt crisis of the 1980s and 1990s, and were negotiating debt relief under the heavily indebted poor countries (HIPC) programme. Because of their large size relative to the economies of Angola, the DRC, Gabon and Ghana, the IMF and World Bank were worried that the R4I swaps would lead to a new debt build-up.³⁷ In the case of the DRC, as mentioned in Box 1, the original \$9 billion loan was considered much too large in view of the country's total \$13 billion foreign debt. Under pressure from the IMF, the loan was reduced to \$6 billion.³⁸ Secondly, the IMF and World Bank prefer a transparent public finance model in which all resource revenues go into the national budget and are then used, among other things, to repay outstanding debts.³⁹ The R4I swaps bypass this preferred model as future revenue is mortgaged and cannot be used for other purposes.

In resource-cursed countries, a spending boom frequently entails an increase in the government wage bill, primarily motivated by patronage politics. This is certainly not the case in an R4I swap, as financial flows are completely managed on the Chinese side. This is a distinctive feature of the R4I swap. Funds are not transferred to the borrowing government (see Figure 2).

Figure 2: Financial flows in an R4I swap

Source: Author

Figure 2 shows the flow of finance in a simplified way. A joint commission with representatives of the borrowing government and Exim awards the contracts for the infrastructure projects (line 1). The contracts are awarded to Chinese companies, pre-selected and approved by the Chinese government. After completion of the infrastructure project, payment to the contractor needs to be approved by the joint committee (line 2). Exim pays the construction companies, after approval of the joint commission (line 3). The revenues from natural resource exports are placed in an escrow account and used to repay the loan (line 4).

Resource curse mechanism 2: The crowding out of other sectors, or Dutch disease

This section looks at how R4I swaps relate to the second resource curse mechanism: economic sectors, other than natural resources, wither away because they have limited access to investment capital and cannot compete with imports as local prices for tradable goods have increased.

It is in relation to this mechanism that some scholars expect the largest positive impact of R4I swaps.⁴⁰ They argue that the R4I swaps finance infrastructure development, which has a large long-term pay-off in the form of lower transportation and production costs. This will, in turn, lower the cost of doing business and improve international competitiveness of all economic sectors, which will reduce the risk of Dutch disease.

The argument assumes that the ‘right’ infrastructure projects are chosen, that projects are of good quality and reasonably priced, and will be proficiently maintained over their lifecycle. If, however, R4I swaps result in costly, low-quality and badly designed infrastructure projects – the so-called white elephant projects that are unproductive and abandoned when the money runs out – the argument is less convincing. This type of infrastructure spending obviously does not lower the cost of doing business.

As has been shown, the lack of infrastructure development in Africa is substantial, and this is certainly the case for the countries involved in R4I swaps. The R4I swaps therefore do address an urgent need. However, the fact that there is a huge need for infrastructure

investment does not guarantee that in the framework of R4I swaps the 'right' projects are financed. Research on R4I swaps in Angola and the DRC does not, however, suggest that the 'wrong' projects were financed either.⁴¹ There is no mention in the research of white elephant projects or criticism of the choice of infrastructure projects. In Angola the first \$2 billion R4I swap was used to finance projects on energy, water supply and education. The second \$2 billion was used for road and transportation projects.⁴²

Box 3: The \$3 billion R4I swap in Ghana

On 26 August 2011 the Ghanaian Parliament approved the Master Facility Agreement (MFA) with the CDB. The MFA sets out the terms and conditions for a \$3 billion R4I swap. The loan is awarded on non-concessional terms. On signing of the loan agreement, a 1% commitment fee is awarded. Chinese construction companies must execute a minimum of infrastructure projects equal to 60% of the loan amount.⁴³

The CDB loan is by far the largest any Ghanaian government has ever contracted. In Parliament the government argued that the loan would help to reduce the country's infrastructural deficit, estimated at \$1.6 billion a year between 2010 and 2020. The government argued that the loan was secured on very competitive terms in the light of Ghana's middle-income status and declining prospects of accessing concessional loans.

The loan will be used to finance infrastructure projects in the oil and gas, road, rail, health, education, water, and other sectors in line with the Ghana Shared Growth and Development Agenda.⁴⁴

The first tranche of \$700 million of the \$3 billion R4I swap is used to finance the construction of a gas processing plant and pipeline from the Jubilee oil field. A World Bank assessment of the R4I swap is positive about the gas infrastructure project. Among the list of projects to be implemented under the R4I swap, the gas infrastructure project deserves 'the highest and most urgent attention'.⁴⁵ The economic justification is judged to be sound, as gas will be used for local electricity generation instead of being re-injected or flared.

Quality and pricing of infrastructure projects

There are questions about the quality of infrastructure projects in R4I swaps. Work by Chinese construction companies in Africa is generally perceived to be of an inferior quality.⁴⁶ There are well-known examples of Chinese-built projects in Africa with quality problems. The Luanda General Hospital, built by Chinese company COVEC in 2006, had to be closed in 2010 because of serious cracks in the walls.⁴⁷ In Zambia the Chinese-built road from Lusaka to Chirundu was partly swept away by rains.⁴⁸

However, different scholars challenge the popular perception of low-quality work. Corkin argues that poor-quality work is the result of poor supervision by local institutions. Chinese construction companies will deliver high-quality work if local authorities properly enforce building codes and quality standards.⁴⁹ Bräutigam claims that the quality of projects financed under official Chinese aid is generally very good.⁵⁰

Research on R4I swaps does not suggest that infrastructure projects suffer from serious quality problems.

Another contentious issue is the *pricing* of infrastructure projects in R4I swaps. Generally, Chinese construction companies are known to outcompete their non-Chinese rivals on price. In some cases Chinese companies have undercut competitors by 50% on the price of the bid.⁵¹ As mentioned before, Chinese construction companies have been very successful in winning international tenders, including those managed by the World Bank. The competitive advantage of Chinese companies is based on access to cheap credit, low supply-chain costs and low labour cost.

However, price negotiations for infrastructure projects in R4I swaps are not based on open tender processes; the model preferred by the IMF and World Bank. Contracts are negotiated within a closed tender procedure overseen by the Chinese government between a small and select group of large state-owned construction companies. The fact that Chinese companies are able to bid low in competitive international tenders does not guarantee that they will do so in the context of R4I swaps when there is little or no competition in closed tender procedures. Again, lack of information further fuels concern that infrastructure projects are overpriced and do not offer value for money. It also fosters suspicion that deals are being struck that mainly benefit host country elites or reflect their weak negotiating capacity. In Ghana the Civil Society Platform on Oil and Gas (CSPOG) accused Sinopec of inflating the building costs of the gas-processing plant and the pipelines that transport the gas from the Jubilee field. According to the chairperson of the CSPOG, the Sinopec-built gas-processing plant costs \$40 million more than another, which is considered superior.⁵²

The case studies on Angola and the DRC suggest that the risk of overpricing is manageable.

In Angola a joint committee selects the winning bid out of three to four bids from companies proposed by the Chinese government. The projects are inspected by independent third parties and overseen by another technical joint committee.⁵³

Jansson reports that the prices of infrastructure projects in the DRC R4I swap are comparable or slightly higher than the prices of similar projects won by Chinese companies in open tender processes issued by the World Bank.⁵⁴ The Congolese government uses the prices of earlier international tenders as a reference and is in the process of developing a standardised price comparison tool.⁵⁵ This increases the bargaining power of the Congolese government to ensure value for money.

Generally, the case studies on R4I swaps acknowledge the positive contribution that R4I swaps can make to infrastructure development.⁵⁶ However, as mentioned before, it is difficult to assess their long-term economic impact, as many infrastructure projects have not yet been completed.

Wider economic impacts

The wider economic impacts of R4I swaps are questioned on two fronts. First, there are concerns that R4I swaps are skewed in favour of the Chinese parties.⁵⁷ As mentioned before, there is little information on the financial details of the R4I swaps. Only the interest rate, and grace and repayment periods are publicly known. The pricing of the oil in off-take agreements and minerals in mining concessions is not known. The lack of information has led to accusations that the value of the traded oil and mining concessions is actually much larger than the loan amount against which it is mortgaged. If natural

resources that are used to secure the loan are undervalued, it is to the benefit of the lender, as it lowers the risk of non-repayment.

For example, a mining expert commissioned by Global Witness estimated total revenues from the copper and cobalt mining concessions in the DRC's R4I swap (see Box 1) at a minimum of \$40 billion.⁵⁸ However, comparing the value of the \$6 billion loan with the value of the copper and cobalt mining concession to assess if the R4I swap is skewed is not correct, according to Jansson. She argues that once the infrastructure loans are fully reimbursed, the joint venture Sicominex will pay taxes like any other mining company.⁵⁹

Second, research on R4I swaps in Angola shows that Chinese construction companies have very weak linkages with the local economy.⁶⁰ Chinese companies involved in R4I swaps in Angola largely import their own materials, equipment and workforce. It is estimated that for some infrastructure projects, less than 5% of all materials was sourced locally.⁶¹ Some Chinese companies have set up their own brick factories to ensure a stable supply of building materials.⁶² The companies therefore score very low in terms of generating local employment and sub-contracting to local construction companies. The weak linkages are partly explained by the nature of the Exim loan agreement, which stipulates that at least 70% of procurement of goods and services needs to come from China. However, domestic factors also play an important role. The local construction industry in Angola lacks the capacity to supply the necessary materials and skilled labour. The Angolan government is not willing to promote local content development, as this is perceived to slow work down.⁶³

R4I swaps have greatly facilitated the entry of Chinese construction companies into Africa's construction sectors. R4I swaps provide a low-risk environment for Chinese construction companies since payment by Exim is secured after completion of the project. As mentioned before, Chinese companies have a strong competitive edge over other foreign companies when it comes to cost and access to capital. Large state-owned Chinese companies can access competitively priced capital from Chinese policy banks and do not have to turn to international capital markets. They are not subject to short-term pressures from shareholders, which allow them to operate on low profit margins and expand their market share. Chinese companies are less subject to the scrutiny and oversight that are common for Western companies, which are listed on stock exchanges.

The entry of Chinese companies has therefore intensified market competition. Increased international competition in the construction sector may bring benefits for the host country. Western construction companies are forced to compete with cost-effective Chinese firms and to lower their prices.

With regard to the infrastructure projects financed through R4I swaps, Corkin argues that Chinese companies have lowered the price of construction in Angola, having 'broken the monopoly of the Portuguese and Brazilian companies'.⁶⁴

Resource curse mechanism 3: Rent-seeking behaviour

This section looks at how R4I swaps relate to the third resource curse mechanism: rent-seeking behaviour in the context of patronage politics.

R4I swaps do not attach political conditions to financial flows, consistent with China's overall foreign policy. The no-strings-attached financing has been criticised for its neglect of transparency and accountability issues in resource-rich and/or undemocratic countries. This criticism also extends to R4I swaps. The \$2 billion R4I swap in Angola in 2004 is the most cited example in this regard.⁶⁵

In the years leading up to the R4I swap in 2004 the Angolan government had negotiated a credit facility with the IMF. The IMF insisted that the Angolan government should increase the transparency of its public accounts, following a critical report by Human Rights Watch, which revealed that more than \$4.2 billion, mostly oil revenue, could not be accounted for in the public accounts between 1997 and 2002.⁶⁶ The efforts of the IMF to improve the transparency of public accounts failed when China offered a \$2 billion credit line with no strings attached. The R4I swap allowed the Angolan government to resist external pressure to be more open and accountable with regard to the use of its resource wealth.

Other scholars provide a more nuanced view of the Chinese role. Shaxson calls the perception that Angola has been 'let off the hook' on corruption by Chinese loans largely misplaced: it is oil that insulates Angola from outside pressure and not Chinese lending.⁶⁷ Bräutigam points out that the Chinese loan was one of many resource-backed loans provided by international banks that did not require increased transparency of public accounts. Shortly after the Chinese loan a consortium of Western banks arranged an even larger oil-backed loan.⁶⁸

Rent-seeking can take many forms. According to a 2008 World Bank report on the mining sector in the DRC, rent-seeking behaviour includes:⁶⁹

offers of or solicitations of bribes and illicit payments to or by government officials; fraudulent declarations to the tax authorities; embezzlement of state funds; conflict of interests of officials who have an ownership stake in companies doing business with the government; inappropriate use of position to influence government decisions; and others.

Transparency International's Corruption Perception Index is arguably one measure of rent-seeking behaviour. R4I swaps are implemented in countries that score low to very low on the Corruption Perception Index, with the possible exception of Ghana (see Table 2). The Corruption Perceptions Index ranks countries based on how corrupt their public sector is perceived to be. The score indicates the perceived level of public sector corruption on a scale of 0–10, where 0 means that a country is perceived as highly corrupt and 10 means that a country is perceived as very clean.

Generally, large-scale and high-cost infrastructure projects offer opportunities for rent-seeking behaviour. Interestingly, within this context R4I swaps are considered by some scholars to mitigate the threat of rent-seeking behaviour. As shown earlier, no money is transferred to the borrowing government. The Chinese bank that provides the loan manages the financial flows. Some scholars argue that the likelihood of embezzlement of public funds destined for infrastructure projects would have been much higher if management of financial flows had been left to public officials in countries perceived to be highly corrupt.⁷⁰

Table 2: Country scores on Transparency International's Corruption Perceptions Index in 2011

Country	Rank	Score
Ghana	69	3.9
China	75	3.6
Gabon	100	3
Congo-Brazzaville	154	2.2
Zimbabwe	154	2.2
Angola	168	2
Democratic Republic of the Congo	168	2
Sudan	177	1.6

Source: Transparency International, 2011 Corruption Perception Index, database. Berlin: Transparency International, 2011, <http://cpi.transparency.org/cpi2011/>, accessed 31 August 2012

This argument is difficult to validate for obvious reasons. As the argument is based on a comparison with a *hypothetical* case in which money was channelled through public accounts in the host countries, it cannot be tested. Furthermore, the secrecy that surrounds rent-seeking behaviour complicates research: who will admit involvement in rent-seeking behaviour? No doubt, the core of the argument is correct: large-scale embezzlement by *African officials* of funds provided by Chinese banks for infrastructure projects is not possible, simply because they do not have access to these funds.

However, there are reasons to be somewhat less optimistic about the mitigating effect of R4I swaps. First, as shown in Table 2, China scores only slightly higher on the Corruption Perceptions Index than most of the borrowing countries in Africa. This raises the question of rent-seeking behaviour on the Chinese side, either on their own or in collaboration with corrupt African officials.

On 13 August 2011 *The Economist* reported on the questionable role of the privately owned, Hong Kong-based China International Fund (CIF and also called 'China-Sonangol' or 'Queensway Syndicate') in oil-for-infrastructure swaps between China and Angola.⁷¹ CIF is characterised as a little-known, opaque and unaccountable business syndicate well connected to the Angolan political elite. It has a highly complex corporate structure that includes 60 interlocking companies in seven countries, including tax havens such as the Virgin and Cayman Islands. These complex offshore structures are used by African elites to benefit personally from the R4I swaps, according to Global Witness analyst Judith Poultney.⁷²

Most of the infrastructure projects undertaken by CIF in Angola ran into trouble in 2007. Work on three railway projects, a new international airport and 200 000 units of social housing came to a halt, allegedly due to miscalculation of operating costs and disbursement problems. The Angolan Ministry of Finance intervened and acquired new funding to ensure the completion of the projects. The new funds involved Brazilian and Portuguese credit lines and \$3.5 billion in treasury bonds.⁷³

Second, the case studies of the failed R4I swaps with Nigeria, Gabon and Guinea reveal the vulnerability of R4I swaps to rent-seeking behaviour by political elites. In the case of Nigeria, R4I swaps were negotiated during the last years of the presidency of Olusegun Obasanjo (1999–2007). Obasanjo was reportedly ‘fed up’ with the major Western oil companies that were not willing to invest in refineries or other infrastructure outside their core business of oil extraction. He invited Chinese companies to engage in strategic deals, which included major infrastructure projects. The R4I swap with China initially included the construction of Kaduna refinery, Lagos–Kano railway and a hydroelectric complex at Mambilla.⁷⁴ At that time Obasanjo sought to change the Nigerian constitution to allow for his re-election after two four-year terms. Some scholars argue that Obasanjo needed considerable funds to ‘persuade’ the political class to support the desired constitutional change and that big infrastructure would ‘provide’ these funds.⁷⁵ The plan failed and President Umaru Musa Yar’Adua took office in May 2007. The new president immediately commissioned an investigation into the way oil blocks had been awarded during the Obasanjo presidency. The investigation committee strongly criticised the R4I swaps for lack of transparency and non-performance on infrastructure commitments. There was widespread suspicion that the R4I swaps were designed to serve personal and political interests (of the previous president) and not developmental ones. As a consequence, the R4I swaps were cancelled and some oil block concessions were taken away from Sinopec.

The case of the failed R4I swap in Gabon is very similar to the Nigerian one. Late President Omar Bongo Ondimba initiated the Belinga iron ore project in 2007 and called it the ‘Gabonese deal of the century’. However, when his son Ali Bongo was elected into power in 2009 he promised to review the contract with China Machinery Engineering Corporation and, as a consequence, the R4I swap was stopped.⁷⁶

Political instability and inadequate financial guarantees were reportedly the main reasons for Exim to withdraw from negotiations with the Guinean government on the \$1 billion Souapiti Dam.⁷⁷

Third, some R4I swaps have not been free of accusations of embezzlement and corruption, although not all accusations are backed up by hard evidence. In 2005 Asia–Africa Confidential reported accusations of corrupt use by Angolan officials of the \$2 billion credit line.⁷⁸ Apparently, the loan was to be used as political slush fund in the run-up to the 2006 election and for prestige projects. After the accusations had become public, Dos Santos sacked Cabinet Secretary Antonio van Dunem, who was responsible for managing the credit line. In Ghana a member of the opposition party accused the government of transferring part of a signature bonus of \$30 million into private pockets.⁷⁹ In the DRC a parliamentary commission questioned the payment of \$23 million by Gecamines to a company on the British Virgin Islands, related to the signature bonus of \$100 million (received by Gecamines).⁸⁰ The above examples indicate that R4I swaps are vulnerable to rent-seeking behaviour by both corrupt Chinese and African officials. The institutional arrangements of R4I swaps do not include strong accountability mechanisms.

Resource curse mechanism 4: Political struggle leading to conflict

This section looks at how R4I swaps relate to the fourth resource curse mechanism: political struggle over control of resource revenues leading to armed conflict.

The case studies of Angola, the DRC and Ghana show how R4I swaps are embedded in an elite strategy to bolster political stability. The successful delivery of public works has been important in galvanising the regime's image domestically and providing much-needed legitimacy. The case studies of failed R4I swaps in Nigeria, Gabon and Guinea demonstrate their vulnerability to intra-elite political struggles. When Obasanjo and Omar Bongo were replaced, the political support for the R4I swaps quickly evaporated.

Although R4I swaps are instrumental in, or subject to, political struggle, they do not neatly fit the resource curse argument because the political struggle is more about infrastructure spending and less about control over resource revenues. The case studies mentioned in the previous section also link rent-seeking behaviour to infrastructure spending.

None of the case studies reports any link between R4I swaps and intensified political struggle over resource revenues to the extent that it leads to armed conflict. This either means that there is no such link or that it fell outside the scope of the case studies.

R4I swaps and policy responses

There is very little knowledge and awareness of the resource curse concept in China.⁸¹ It is not a familiar concept rooted in Chinese development experience. Furthermore, Chinese actors do not share the basic assumptions underlying the resource curse concept. Instead, a different conceptual framework is applied. Problems of governance and conflict are seen to arise from poverty. Therefore, the right answer is economic development and not the promotion of good governance or the introduction of external checks on transparency and accountability.

Chinese companies are not inclined to support international governance-oriented policy responses to the resource curse. They are not in favour of being subject to externally imposed conditions such as the EITI. Furthermore, these policy responses are seen to contradict China's non-interference or 'no strings attached' policy. The lack of support has led to criticism that Chinese companies undermine international efforts to promote good governance. Because China does not require anti-corruption measures and does not hold African leaders accountable, this will exacerbate the resource curse. This argument is difficult to validate because it is based on the assumption that international policy responses to the resource curse would be more effective if Chinese companies would support these policy responses. However, as Alden and Alves point out, conditionalities attached to Western aid and loans have generally not led to the desired behavioural changes in neo-patrimonial regimes;⁸² in other words, the Western efforts to promote good governance have not been particularly successful – an observation that has not escaped Chinese policymakers.

In the case of Angola, Alden and Alves observe an improvement of transparency indicators related to public revenues and expenditures in the same period as the R4I swaps were implemented. This suggests that closer ties with China do not automatically lead to a decline in transparency.

A research paper published in 2009 by the Centre for Chinese Studies at the University of Stellenbosch on perceptions of transparency reveals that the majority of Chinese companies active in the extractive industries in Gabon and the DRC have no knowledge of the EITI.⁸³ However, according to the researchers, when Chinese company representatives

were informed about the EITI, they showed a positive attitude towards transparency and the EITI. Chinese companies' representatives would welcome greater transparency but were sceptical about its prospects of success in the DRC. The research finds few differences between the way Chinese companies operate in Africa and other international companies.⁸⁴ The differences that exist have to do with factors such as company size and culture.

CONCLUSION

The findings from the case studies presented in this paper do not support either of the opposing views, as mentioned in the introduction. R4I swaps do not inherently exacerbate the resource curse nor are they a panacea for its ills. R4I swaps offer opportunities and are accompanied by risks.

The impact of R4I swaps on the four resource curse mechanisms is summarised in Table 3.

Table 3: Effects of R4I swaps on the resource curse

Resource curse mechanism	Impact of R4I swap on the resource curse mechanism
Price volatility and boom-and-bust cycle	<ul style="list-style-type: none"> • Increase in procyclical spending may intensify periods of macroeconomic instability (-) • No wage bill increase motivated by political ends (+)
Crowding out of other sectors, or Dutch disease	<ul style="list-style-type: none"> • Infrastructure projects lower cost of doing business and improve competitiveness (+) • Effect depends on how quality and pricing of infrastructure projects are managed (+/-) • Wider economic impacts depend on how risk (in that the R4I swap is skewed in favour of Chinese parties) is managed (+/-) • Chinese companies have weak linkages with the local economy in some countries (-) • Entry of Chinese construction companies has intensified market competition and brought down the cost of construction (+)
Rent-seeking behaviour	<ul style="list-style-type: none"> • No-strings-attached financing may lower external pressure to increase transparency and accountability with regard to use of resource wealth (-) • Lower risk of large-scale embezzlement of funds by African officials destined for infrastructure projects (+/-) • R4I swaps are vulnerable to rent-seeking behaviour (-)
Political struggle and armed conflict	<ul style="list-style-type: none"> • No link between R4I swaps and intensified political struggle over resource revenues leading to armed conflict (+)

+ = positive effect

- = negative effect

+/- = neutral effect

Source: Author

R4I swaps offer access to low-cost, large-scale financing for infrastructure development at times when governments are faced with a large infrastructure gap and limited availability of external finance. Infrastructure improvements will lower the cost of doing business and, in turn, will improve international competitiveness. There are risks related to the quality and pricing of the infrastructure projects but research shows that these risks have and can be managed.

Weak linkages with the local economy limit the direct economic impact of R4I swaps. This is mainly due to the loan condition that a major part of goods and services must be procured in China. It is highly unlikely that the procurement rules of R4I swaps will change in the near future with the aim of strengthening linkages with the local economy.

R4I swaps may reduce the opportunities for embezzlement of Chinese funds by African officials but are, nevertheless, vulnerable to rent-seeking behaviour by both parties.

The developmental impact of R4I swaps depends on the capacity and willingness of African governmental institutions to harness the opportunities and mitigate the risks. This is a reflection of the general discussion on the developmental impact of China's engagement in Africa.

ENDNOTES

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