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Africa Can Drum Up Large Infrastructure Deals with Food

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AFRICA CAN DRUM UP LARGE INFRASTRUCTURE DEALS WITH FOOD

DUNIA P. ZONGWE*

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I. INTRODUCTION

This Article describes why nations in Africa should trade their agricultural products for infrastructure investments. Between 1980 and 2010, the African continent has seen its share of global trade dwindle from 5.9% to 3.2%,¹ while foreign direct investment (FDI) converges on countries rich in primary commodities such as minerals and hydrocarbons.² In fact, investment flowing to Africa tails off if

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1. U.N. CONF. ON TRADE AND DEV., UNCTAD HANDBOOK OF STATISTICS, at 10, UN Sales No. B.11.II.D.1 (2011).

2. See James Thuo Gathii, *Beyond China's Human Rights Exceptionalism in Africa: Leveraging Science, Technology and Engineering*, 51 COLUM. J. TRANSNAT'L L. 664, 666 (2013) (observing that China largely invests in natural resources in Africa, activities that are “overwhelmingly correlated with hindering, rather than promoting economic growth”); see also Alec R. Johnson, *Rethinking*

capital inflows to extractive sectors are left out of the equation.³ Investment in other crucial sectors of the economy, notably infrastructure, has not fared better.⁴ Even though it is indispensable to economic growth, investment in infrastructure development has not kept pace with the development needs of African nations.⁵

Since the early 2000s, a number of African nations have managed to increase FDI by exchanging their natural resources for infrastructure finance.⁶ The capital attracted in this way amounts to billions of United States (U.S.) dollars, still it does not meet those countries' enormous needs. Today, Africa's infrastructure financing gap adds up to no less than 130 billion U.S. dollars a year.⁷ Moreover, resources-for-infrastructure (R4I) exchanges typically involve minerals or oil, which are non-renewable resources.⁸

Although agricultural products are responsible for the employment and livelihoods of many more people than the exports of other primary commodities, they have not yet become the main focus of foreign capital in Africa.⁹ Additionally, in the international trading system,

Bilateral Investment Treaties in Sub-Saharan Africa, 59 EMORY L.J. 919, 920 (2010).

3. Johnson, *supra* note 2, at 920.

4. See Uche Ewelukwa Ofofile, *Africa-China Bilateral Investment Treaties: A Critique*, 35 MICH. J. INT'L L. 131, 137 (2013) (noting that despite the fact that foreign investment from developing countries to the least developed countries has increased, only a very small percentage of those investments goes to non-traditional sectors, such as manufacturing and tourism).

5. U.N. HUMAN SETTLEMENTS PROGRAMME, THE GLOBAL URBAN ECONOMIC DIALOGUE SERIES: INFRASTRUCTURE FOR ECONOMIC DEVELOPMENT AND POVERTY REDUCTION IN AFRICA, at 50, UN Doc. HS/192/10E (2011).

6. See Dunia Prince Zongwe, *How Africans Trade Their Riches for Roads and Bridges: Three Stories*, in NEW AFRICAN THINKERS AGENDA 2063: CULTURE AT THE HEART OF SUSTAINABLE DEVELOPMENT 36, 43, 52 (Olga Bialostocka ed., 2018) [hereinafter Zongwe, *Three Stories*]; see also HÅVARD HALLAND ET AL., RESOURCE FINANCED INFRASTRUCTURE: A DISCUSSION ON A NEW FORM OF INFRASTRUCTURE FINANCING 5 (2014); VIVIEN FOSTER ET AL., BUILDING BRIDGES: CHINA'S GROWING ROLE AS INFRASTRUCTURE FINANCIER FOR SUB-SAHARAN AFRICA 55 (2009).

7. See Barclay Ballard, *Bridging Africa's Infrastructure Gap*, WORLD FIN. (Apr. 20, 2018), <https://www.worldfinance.com/infrastructure-investment/project-finance/bridging-africas-infrastructure-gap>.

8. See HALLAND ET AL., *supra* note 6, at 3.

9. Pascal Liu, *Impacts of Foreign Agricultural Investment on Developing Countries: Evidence from Case Studies 2-3* (FAO Commodity and Trade Policy

agricultural subsidies from European and North American states have flooded global food markets with their own agricultural exports, thereby ravaging agriculture in the developing world.¹⁰

As Asian giants like China and India rise, however, demand for agricultural products from Africa is likely to grow exponentially.¹¹ While African nations can engage in agricultural trade with Asia through traditional exports, nothing prevents African states from channeling parts of that demand towards infrastructure development. Such a channeling of demand for agricultural products occurred in 2007 when a Chinese state-owned firm started to build the Bui Dam in Ghana.¹²

This Article scrutinizes how Ghanaian and Chinese parties financed the Bui Dam through the export of cocoa and proposes this arrangement as a model for building up both infrastructure investments and agricultural exports in Africa. It further argues that the Bui Dam represents the superior form of international investment contract, not least because—unlike minerals and hydrocarbons—agricultural products are renewable and labor-intensive. At a time when the mainstream international investment regime suffers from a crisis of legitimacy,¹³ developing nations must actively search for

Research Working Paper No. 47, 2014).

10. See YASH TANDON, *TRADE IS WAR: THE WEST'S WAR AGAINST THE WORLD* 38-39 (2015) (stating that EU and US trade-distorting subsidies continue to cause a global problem for the agricultural system by “flood[ing] global markets with below-cost commodities, depressing prices, and undercutting producers in poor countries”).

11. Jack Perkowski, *China's Growing Food Problem/Opportunity*, FORBES ASIA (Sept. 25, 2014, 9:16 AM), <https://www.forbes.com/sites/jackperkowski/2014/09/25/chinas-growing-food-problemopportunity/#6b0aeccb4811>.

12. Dunia Prince Zongwe, *Ore for Infrastructure: A Contractual Model for the Optimization of China's Investments in the Mining Sectors of Africa* 307 (Aug. 2011) (unpublished Ph.D. dissertation, Cornell University) (on file with author) [hereinafter Zongwe, *Ore for Infrastructure*].

13. See Makane Moïse Mbengue & Stefanie Schacherer, *The 'Africanization' of International Investment Law: The Pan-African Investment Code and the Reform of the International Investment Regime*, 18 J. WORLD INV. & TRADE 414, 434 (2017) (observing that most international investment agreements stipulate reciprocal obligations on contracting states but do not impose any direct legal obligations on foreign investors under international law regarding the way they conduct business); see also Romulo Brillo, *Living Without Investment Treaties: The Brazilian Approach to Investment Policy Making and Dispute Settlement*, in INTERNATIONAL ECONOMIC LAW AND AFRICAN DEVELOPMENT 172, 172 (Laurence Boule et al. eds.,

alternative models or scenarios. And, at a time when trade volumes and capital inflows are shrinking,¹⁴ developing nations can ill-afford to ignore the possibilities offered by the Bui Dam scenario.

II. ARGUMENT FOR THE MAIN PROPOSITION

My main argument follows this truism of international economics: subject to certain conditions,¹⁵ a country will sell what it has in abundance to another country in exchange for what it has in shortage.¹⁶ China has substantial infrastructure capacity but has a shortage of food.¹⁷ Therefore, following the principle articulated above, China will “sell” its infrastructure capacity to another country in exchange for food.

Similarly, a country will buy what it has a shortage of from another country in exchange for what it has in abundance.¹⁸ Africa has vast agricultural potential but has a shortage of infrastructure capacity.¹⁹ Therefore, Africa will likely “buy” infrastructure capacity from another country in exchange for agricultural products.

To support these propositions, I have divided the rest of this Article into five parts. The first part explains the Bui Dam scenario. The second part provides background on this type of investment or trade transaction. In that section, I spell out what makes the Bui Dam model stand apart from other contracts and from traditional investment contracts. Then, I will discuss the weaknesses of the Bui Dam model. Finally, I will draw out policy implications flowing from the Bui Dam scenario.

2014); Ofodile, *supra* note 4, at 136.

14. See Laurence Boule et al., *International Economic Law and African Development – An Introduction*, in INTERNATIONAL ECONOMIC LAW AND AFRICAN DEVELOPMENT 1, 3-4 (Laurence Boule et al. eds., 2014).

15. See, e.g., HA-JOON CHANG, 23 THINGS THEY DON'T TELL YOU ABOUT CAPITALISM 125-29 (2011) (showing how South Korea prospered by largely ignoring what the theory of comparative advantage prescribed in terms of industrial policies).

16. See Michele Ruta, *Resources Trade and the WTO*, VOX CEPR POL'Y PORTAL (Aug. 4, 2010), <https://voxeu.org/article/trade-natural-resources-and-wto>.

17. Zongwe, *Ore for Infrastructure*, *supra* note 12, at 139.

18. See Ruta, *supra* note 16.

19. Zongwe, *Ore for Infrastructure*, *supra* note 12, at 175.

III. THE BUI DAM SCENARIO

One of the greatest strengths of the Bui Dam scenario is that it reduces prohibitively high search costs.²⁰ Indeed, the Bui Dam project illustrates well the high costs of financing infrastructure for most resource-rich countries in Africa because of the credit risk, payment insecurity, and low creditworthiness faced by those countries.²¹ Most experts overlook the benefits of reducing search costs when evaluating the Bui Dam, R4I contracts, and the massive capital inflows to the continent.²²

The British-Australian geologist Albert E. Kitson first conceived the idea to build the Bui Dam in 1925.²³ With support from the World Bank and Australia, planning for the Dam began in 1960, three years after Ghana gained independence from the United Kingdom.²⁴ After this, many studies considered how a hydropower scheme could be developed on the Black Volta River at the Bui Gorge, from the J.S. Zhuk Hydroproject by the Union of Soviet Socialist Republics (U.S.S.R.) in 1966 to the feasibility study by the French Coyne et Bellier (now Tractebel Engineering) in 1995.²⁵ In October 2006, the latter updated their feasibility study, which enabled the Ghanaian government and the Chinese state-owned firm Sinohydro to commence the project.²⁶ Then, in July 2007, the Ghanaian President promulgated the Bui Power Authority Act.²⁷ The Act established the Bui Power Authority (BPA)²⁸ with the mandate to develop a “hydroelectric power project on the Black Volta River at Bui and any other potential power sites on the Black Volta River.”²⁹

Since Ghana achieved independence in 1957, successive

20. *Id.* at 351.

21. *Id.*

22. *Id.*

23. *Bui Dam Electricity Project, Ghana*, WATER TECH., <https://www.water-technology.net/projects/bui-dam-hydro-power-ghana/> (last accessed Dec. 12, 2018).

24. *Id.*

25. *Project Background*, BUI POWER AUTH., <https://www.buipower.com/node/139> (last visited Dec. 11, 2018).

26. *Id.*

27. *See generally* Act 740, Bui Power Authority Act, 2007 (Ghana).

28. *Id.* § 1.

29. *Id.* at pmb1.

governments unsuccessfully attempted to find foreign investors to fund and build the Bui Dam.³⁰ It was only in 2007 when the government of John Kufuor signed its first reported R4I deal with China that Ghana succeeded in raising the necessary funds to build the much-needed and long-awaited Bui hydroelectric complex.³¹ Sinohydro started work in 2007 and completed the Bui Dam in December 2013.³²

The Bui Dam is located in north-western Ghana within Bui National Park, an environmentally protected area.³³ Despite its location in a protected area, the Bui Dam project was still seen as the most technically and economically appealing hydropower site in the country after the Akosombo and Kpong hydro power plants.³⁴

The Dam generates 400 megawatts of power.³⁵ It mostly provides energy to the three northern regions of Ghana.³⁶ Although Ghana primarily designed it to generate hydropower, the project also features an irrigation scheme for developing agriculture, thereby presenting an opportunity to enhance ecotourism and fisheries.³⁷ The Dam also facilitates the irrigation of about 30,000 hectares of land.³⁸ The Bui Power Authority owns the Dam.³⁹ Its functions are to plan, execute, and manage the Bui hydroelectric project.⁴⁰

At first sight, the financing of the Bui Dam project looks ordinary. The Export-Import Bank of China (“China Exim Bank”) financed most of the project by a hybrid credit facility comprising a concessional loan of 263.5 million U.S. dollars and a buyer’s credit of 298.5 million U.S. dollars.⁴¹ All in all, China Exim Bank contributed

30. Zongwe, *Three Stories*, *supra* note 6, at 52-53.

31. *Id.* at 53.

32. *See Bui Dam Electricity Project, Ghana*, *supra* note 23.

33. *Bui Hydroelectric Power Dam Project in Ghana*, EJOLT (July 20, 2015), <http://www.ejolt.org/2015/07/bui-hydroelectric-power-dam-project-ghana/>.

34. *Project Background*, *supra* note 25.

35. *Id.*

36. *Benefits of the Bui Project*, BUI POWER AUTH., <https://www.buipower.com/node/133> (last visited Jan. 16, 2019).

37. *Project Background*, *supra* note 25.

38. *Bui Dam Electricity Project, Ghana*, *supra* note 23.

39. *Id.*

40. Act 740, Bui Power Authority Act, § 11(1) 2007 (Ghana).

41. *Finance Plan*, BUI POWER AUTH., <https://www.buipower.com/node/135>

562 million U.S. dollars to the project's total cost of 790 million U.S. dollars.⁴² The Bank offered the loans with a grace period of five years and a repayment period of twenty years.⁴³ So far, nothing unusual.

The agreement becomes unusual once the provisions regarding how Ghana would reimburse the loans are examined. By the terms of its agreement with China Exim Bank, Ghana had to repay the loans with about 30,000 tons of cocoa.⁴⁴ Paying with agricultural products constitutes an unusual development in international economic relations.⁴⁵ On deeper analysis, however, this unique arrangement can deliver several benefits, some unexpected. Indeed, the Bui Dam contract promotes agriculture while bypassing some of the obstacles posed by the global trading system.⁴⁶ One such obstacle is the subsidies by European and North American nations.⁴⁷

Agricultural sectors in Africa have been ravaged by these trade policies, which many in the African Union perceive to be unfair.⁴⁸ The 2005 World Trade Organization (“WTO”) case *Brazil v. United States* (known as the Cotton Four case), illustrates the harmful impact of subsidies.⁴⁹ The dispute in the Cotton Four case arose when the United States Congress passed the Farm Bill, which granted subsidies to U.S. farmers.⁵⁰ Those subsidies hurt the cotton producers in Benin, Burkina

(last visited Jan. 16, 2019).

42. *Id.*

43. *Bui Dam Electricity Project, Ghana*, *supra* note 23.

44. See Isaac Odoom, *Dam in, Cocoa Out; Pipes in, Oil Out: China's Engagement in Ghana's Energy Sector*, 52 J. ASIAN & AFR. STUD. 598, 608 (2015).

45. See *id.* at 603.

46. See *id.* at 609-10.

47. See Richard Mshomba, *How Northern Subsidies Hurt Africa*, AFR. RENEWAL (Sept. 2002), <https://www.un.org/africarenewal/magazine/september-2002/how-northern-subsidies-hurt-africa> (discussing the damage caused to African countries by U.S. agricultural subsidies).

48. See TANDON, *supra* note 10, at 18 (discussing the popular viewpoint at the African Union Trade Ministers meeting that Africa must reduce global trade in favor of intra-African trade).

49. See generally Appellate Body Report, *United States—Subsidies on Upland Cotton*, WTO Doc. WT/DS267/AB/R (adopted Mar. 3, 2005). See Panel Report, *United States—Subsidies on Upland Cotton*, ¶ 2.1, WTO Doc. WT/DS267/R (adopted Sept. 8, 2004).

50. See Panel Report, *United States—Subsidies on Upland Cotton*, *supra* note 49, ¶¶ 2.1, 7.2.

Faso, Chad, and Mali.⁵¹ In those four African nations, the cotton sector is the second-largest formal employer after the national governments.⁵² In these nations, approximately 900,000 farm units provide employment to between seven and eight million actively farming adults, who in turn support the livelihoods of the ten to thirteen million people (including children and non-farming adults) that comprise those farming units.⁵³

I cannot overemphasize the significance of agriculture for African economies. Agriculture is, alongside industry and services, one of the most important developmental issues in the WTO. Since 1995, agriculture has been on the WTO's agenda.⁵⁴

The Bui Dam scenario has the potential to revive Africa's exports of certain agricultural products and overcome trade barriers set by subsidies from other nations. African states can achieve these outcomes by exchanging agricultural exports for project finance or other types of international investments.

IV. THE BACKSTORY

It seems difficult to categorize the Bui Dam transaction. Most of those who have attempted to do so have described the transaction as traditional project finance,⁵⁵ while a few scholars regard it as a R4I

51. See Further Third Party Submission of Benin & Third Party Submission of Chad, *United States—Subsidies on Upland Cotton*, Annex E-4, ¶ 33, WTO Doc. WT/DS267/R/Add.1 (Oct. 3, 2003) (explaining the participation of Benin and Chad in a WTO dispute in response to the threat posed by US subsidies on upland cotton). See generally Third Party Submission of Benin, *United States—Subsidies on Upland Cotton*, Annex B-5, WTO Doc. WT/DS267/R/Add.1 (July 15, 2003) (discussing the magnitude of U.S. cotton subsidies and Benin's inability to compete with them).

52. David Boansi et al., *Cotton Lint Export Trade in the Midst of Distortion: What are the Competitiveness Statuses of Major Players in the Industry? Case of 12 Selected Countries*, 4 BRIT. J. ECON. MGMT. & TRADE 1785, 1786 (2014).

53. *Id.*

54. See generally Agreement on Agriculture, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 1867 U.N.T.S. 410.

55. See Frauke Urban et al., *Chinese Overseas Hydropower Dams and Social Sustainability: The Bui Dam in Ghana and the Kamchay Dam in Cambodia*, 2 ASIA & PAC. POL'Y STUD. 573, 577-78 (2015). See generally Oliver Hensengerth, *Interaction of Chinese Institutions with Host Governments in Dam Construction: The Bui Dam in Ghana* (Deutsches Institut für Entwicklungspolitik, Discussion

contract.⁵⁶ Although I cannot affirm with absolute confidence that the Bui Dam transaction is an instance of R4I dealing, I can definitively say that it does not fit any traditional investment agreement. Elsewhere, I have described the Bui Dam as a R4I deal.⁵⁷ While I still characterize this deal as unique, I am less confident that it falls entirely under the category of R4I deal for the reasons given in this Article.

Ghana is not new to R4I contracting.⁵⁸ It has entered into three major R4I contracts,⁵⁹ and its economic engagement with China has increased in recent years.⁶⁰ Those R4I deals relate to the construction of the Bui Dam complex in 2007, the construction of other major infrastructure projects in 2011, and the exploitation of bauxite in 2017.⁶¹

After entering into the Bui Dam deal in 2007, Ghana struck a major R4I deal with China in 2011.⁶² In the 2011 deal, a consortium of Chinese firms committed to building a number of key infrastructure projects in return for oil.⁶³ Then, in 2017, Ghana signed a deal with China under which Sinohydro agreed to carry out Ghanaian government road projects in exchange for bauxite.⁶⁴ Per the agreement, China will receive refined bauxite worth two billion U.S.

Paper No. 3, 2011).

56. See, e.g., Peter Konijn, *Chinese Resources-for-Infrastructure (R4I) Swaps: An Escape from the Resource Curse?* 10, 12 (S. Afr. Inst. Int'l Aff., Occasional Paper No. 201, 2014).

57. See, e.g., Zongwe, *Three Stories*, *supra* note 6, at 53.

58. See, e.g., Konijn, *supra* note 56, at 10-12.

59. See Konijn, *supra* note 56, at 10-12; see also George Tubei, *10 Massive Projects the Chinese are Funding in Africa – Including Railways and a Brand-New City*, BUS. INSIDER S. AFR. (Sept. 25, 2018, 9:14 AM), <https://www.businessinsider.co.za/here-are-150-million-rand-projects-in-africa-funded-by-china-2018-9>.

60. See Odoom, *supra* note 44, at 598 (discussing recent developments in China's economic, political, and cultural engagement with Ghana).

61. See Konijn, *supra* note 56, at 10-12; see also Tubei, *supra* note 59.

62. Will Connors, *China Extends Africa Push with Loans, Deal in Ghana*, WALL ST. J. (Sept. 24, 2010, 12:01 AM), <https://www.wsj.com/articles/SB10001424052748703384204575509630629800258>.

63. See *id.*

64. Kwasi Kpodo, *Ghana Opposition Seeks IMF View on \$2 Billion Chinese Bauxite Deal*, REUTERS (Aug. 23, 2018, 3:09 PM), <https://www.reuters.com/article/us-ghana-bauxite-china/ghana-opposition-seeks-imf-view-on-2-billion-chinese-bauxite-deal-idUSKCN1L829W>.

dollars as payment for the roads.⁶⁵

So, what is a R4I contract? Confusion surrounds the exact description of this sort of commercial transaction. Most of the confusion arises from the fact that the different descriptions put forth by scholars fly in the face of the written text of R4I contracts.⁶⁶ I define a R4I contract as a contract which combines a mining or oil contract and an infrastructure project in order to extract minerals or hydrocarbons and to pay for major infrastructure projects with revenues generated from those extractive activities.⁶⁷ Typically, Chinese state-owned firms invest in and build the infrastructure, and extract minerals or hydrocarbons from the host country as payment for building the infrastructure.⁶⁸ The parties to R4I contracts lay down three classes of essential terms: terms regarding the development of natural resources; terms of the loan; and terms regarding the development of infrastructure.⁶⁹

I identified twenty R4I contracts (see table below). The total value of these contracts is no less than thirty billion U.S. dollars.⁷⁰

65. *Id.*

66. See Dunia Prince Zongwe, *Seeing the Whole Elephant: A Comprehensive Framework for Analyzing Resource-for-Infrastructure Contracts as Intended by the Parties*, 1 S. AFR. J. POL'Y & DEV. 38, 40 (2015) [hereinafter Zongwe, *The Whole Elephant*] (discussing that R4I contracts are compared with traditional investment contracts or the project financing of the infrastructure).

67. See Dunia Prince Zongwe, *Natural Resources for National Reconstruction: A New Generation of Investment Contracts* 36 (Soc'y of Int'l Econ. L., Working Paper No. 28, 2016) [hereinafter Zongwe, *Natural Resources for National Reconstruction*]; see also Zongwe, *The Whole Elephant*, *supra* note 66, at 39.

68. See Zongwe, *Natural Resources for National Reconstruction*, *supra* note 67, at 1.

69. Zongwe, *The Whole Elephant*, *supra* note 66, at 42-43.

70. See HALLAND ET AL., *supra* note 6, at 5.

Table: List of R4I contracts in Africa⁷¹

#	Investor	Host Country	Year	Status	Resource	Project	Financing (in million U.S. dollar increments)	Comments
1	China (CNPC)	Sudan	1998	Completed in 2006	Oil	Khartoum refinery	N/A	The refinery became operational in 2000, though it was completed in 2006.
2	China	Congo-Brazzaville	2001	Completed in 2011	Oil	Congo River (Imboulou) dam	280	The construction of the dam led to the building of an employee city, 45 buildings, hotel, a free health clinic, a school, and other facilities.
3	China	Sudan	2001	Completed	Oil	El-Gaili power plant	128	
4	China (UNIPPEC)	Angola (Sonangol)	2004	Mostly completed	Oil	General infrastructure and repair of infrastructure bombed in the country's civil war	4,500	The initial amount of the contract was two billion U.S. dollars, but a further amount of 2.5 billion U.S. dollars was added in 2007.
5	China (CNPC, CNOOC and Sinopec)	Nigeria	2005	Completed	Oil	Gas turbine power plant at Papalanto	298	
6	China	Nigeria	2006	Mostly	Oil	1,315-1,350	at least 849	Started in 2011,

71. Zongwe, *Natural Resources for National Reconstruction*, *supra* note 67, at 11.

				completed		kilometers of modern railway from Abuja to Kaduna (initially from to Lagos to Kano)		the project was expected to be completed by the end of 2014.
7	China (CNPC)	Nigeria	2006	Mostly completed	Oil	Rehabilita-tion of the Kaduna oil refinery	2,000	The project was expected to be completed in 2014.
8	China (CWE)	Guinea	2006	Agreement	Bauxite	515-750 megawatts Souapiti dam	1,000	When the new regime of Alpha Condé came to power it first re-assessed the contract.
9	China (CMEC)	Gabon	2006	Cancelled	Iron	Bélinga iron ore reserve and a mining complex (560 kilometers railway linking Bélinga to the Trans-gabonais, a harbor at Santa Clara, and a hydropower station and a steel mill)	3,000	The contract was cancelled by the Gabonese government over a lack of progress. On the other hand, exporting the iron ore is not easy as it is located hundreds of kilometers away from the Atlantic coast.
10	China	Zimbabwe	2006	Agreement, possibly not materialized	Chromium	New coal mines and 3 thermal power stations in Dande, the Zambezi valley on the Zambian border	N/A	
11	China (Sinohydro)	Ghana	2007	Completed in 2013	Cocoa	Bui Dam	794	

12	China (CREC)	DRC (Gécamines)	2008	Under construction	Copper, cobalt	Various basic mining and social infrastructure	6,000	
13	China (CIF)	Guinea	2009	Re-assessed	Various minerals	Various mining and social infrastructure	7,000	
14	China	Ghana	2010	Agreement	Oil	Various infrastructures	10,400	Agreement on infrastructure development between Ghana and China.
15	South Korea (Daewoo and Taejoo)	DRC	2011	Agreement	Copper	Water supply system in Kinshasa	1,000	The total value of this R4I deal is but an estimate. The 2011 Agreement itself does not disclose the total value of the deal.
16	China	Angola	2011	Agreement	Oil	General infrastructure	3,000	
17	China (UNIPEC)	Ghana	2011	Under construction	Oil	Gas infrastructure and the ICT infrastructure for the surveillance of the gas project	3,000	This 3 billion U.S. dollars contract is part of larger contractual agreement on infrastructure development between Ghana and China, signed in 2010 and worth 10.4 billion U.S. dollars (see Agreement #14 above).

18	China	Zimbabwe	2011	Completed in 2012	Diamonds	Military college in Mazowe, Harare	98	By 2015, the military college was turned into a full-fledged national defense university.
19	China (Sinohydro and CGGC)	Nigeria	2012	Under construction	Oil	3050 megawatts Mambilla power station	3,200	
20	China	Nigeria	2012	Under negotiation	Oil	General infrastructure	3,000	Negotiations are under way between Nigeria and two Chinese banks, China Development Bank and China Exim Bank.
21	China (Sinohydro)	Ghana	2018	Agreement	Bauxite	Road infrastructure	2,000	

Scholars have debated whether R4I agreements represent a novelty.⁷² Although I recognized R4I contracts as new in the world of international investments as early as 2009,⁷³ other scholars at the time claimed that R4I deals did not differ from traditional contracts.⁷⁴ Vivien Foster and others claimed in a World Bank report published in 2009 that R4I contracts are “by no means novel or unique,” and perpetuate a “long history of natural resource-based transactions in the oil industry.”⁷⁵ Deborah Bräutigam, for her part, traced the origins of R4I contracts to Japanese engagements with India and China in the

72. Compare FOSTER ET AL., *supra* note 6, at 55 (arguing that R4I contracts are not novel because they have documented use in Angola early in the 20th century), with DEBORAH BRÄUTIGAM, *THE DRAGON’S GIFT: THE REAL STORY OF CHINA IN AFRICA* 46-49 (2009).

73. Dunia Prince Zongwe, *Ore for Infrastructure: The Contractual Form of Economic Complementarities Between China and Africa*, in *THE CHINA MONITOR* 7, 8-9 (July 2009) [hereinafter Zongwe, *Economic Complementarities*].

74. See FOSTER ET AL., *supra* note 6, at 55.

75. *Id.*

late 1950s and 1970s.⁷⁶ Others such as David G. Landry repeated Bräutigam's historical argument.⁷⁷

The descriptions of the above-mentioned scholars do not portray R4I deals accurately because they do not rely on the actual wording and provisions of the relevant contractual documents.⁷⁸ When Foster, Bräutigam, and the like assert that R4I contracts are not new, none of their claims refer to the texts of the previous contractual documents they mention.⁷⁹ In other words, their assertions lack the required empirical basis.

Unsurprisingly, another World Bank study, this time published in 2014, contradicted Foster as well as Bräutigam when it claimed that R4I contracts represent a "new form of financing infrastructure."⁸⁰ Moreover, the mainstream textbooks and references on international trade and investment have not so far discussed R4I contracts, in either their current form or the forms that some scholars allege that R4I deals assumed in the 1950s and the 1970s.⁸¹

The novelty of R4I contracts does not only lie in their structure, but also in the beneficial outcomes they engender. In most of the R4I contracts identified in the table above, the deals brought in inordinately large finance and, not unusually, the host country's largest investment in any single contract since the independence of that host country.⁸² For example, with R4I contracts, Angola drew in 4.5 billion U.S. dollars⁸³ and the Democratic Republic of the Congo

76. See BRÄUTIGAM, *supra* note 72, at 46-48.

77. David G. Landry, *The Risks and Rewards of Resource-for-Infrastructure Deals: Lessons from the Congo's Sicomines Agreement 6-7* (Johns Hopkins Univ., Working Paper No. 16, 2018).

78. See, e.g., Landry, *supra* note 77, at 6-7; FOSTER ET AL., *supra* note 6, at 55; BRÄUTIGAM, *supra* note 72, at 46-48.

79. See, e.g., Landry, *supra* note 77, at 6-7; FOSTER ET AL., *supra* note 6, at 55; BRÄUTIGAM, *supra* note 72, at 46-48.

80. See HALLANDE ET AL., *supra* note 6, at 13 (stating that a new form of financing infrastructure has been created in countries that are wealthy in natural resources).

81. See FOSTER ET AL., *supra* note 6, at 5 (discussing China's modern engagement with Africa starting in the 1950s at the Bandung Conference); see also BRÄUTIGAM, *supra* note 72, at 46-47 (explaining that in the 1970s China was primarily an agrarian economy).

82. Zongwe, *Natural Resources for National Reconstruction*, *supra* note 67, at 38.

83. The initial amount was two billion U.S. dollars. Subsequently, China

(DRC) six billion U.S. dollars.⁸⁴ Similarly, at the time the parties signed the deal, the Bui Dam project accounted for the largest capital inflows into Ghana since the country's independence.⁸⁵

Uche Ewelukwa Ofodile has stated that, despite “the rhetoric of mutual benefit” and win-win outcomes through the South-South cooperation discourse, South-South bilateral investment treaties (BITs) do not offer a different legal framework.⁸⁶ However, Ofodile reached that conclusion because she focused on BITs, a traditional investment tool.⁸⁷ Most scholars focus on BITs because they regard them as the main way of protecting FDIs.⁸⁸ They apply their minds attentively to BITs even after Jason Webb Yackee showed that investment contracts between foreign investors and host states occur because host states have for a long time managed to credibly commit to treat investors fairly through international contracts.⁸⁹ In particular, Ofodile has not referred to R4I contracts, nor has she identified them as distinct in the first place.⁹⁰ Yet R4I contracts better represent the

Eximbank added 2.5 billion U.S. dollars in two payments, bringing the total to 4.5 billion U.S. dollars. *Id.* at 11.

84. Under pressure from the International Monetary Fund, the government in the DRC renegotiated the R4I contract and put on hold three billion of the initial nine billion U.S. dollars. This renegotiation brought the value of the investment down to six billion U.S. dollars. *Id.*

85. See Zongwe, *Three Stories*, *supra* note 6, at 52.

86. Ofodile, *supra* note 4, at 197 (using the term South-South to refer to cooperation between countries from the southern hemisphere); see also Gathii, *supra* note 2, at 695 (arguing that the BITs China has signed with African countries are no different from the BITs African countries signed with Western countries).

87. Ofodile, *supra* note 4, at 138.

88. See, e.g., Won Kidane & Weidong Zhu, *China-Africa Investment Treaties: Old Rules, New Challenges*, 37 *FORDHAM INT'L L.J.* 1035, 1037 (2014) (stating that international investment agreements, particularly BITs, have become the principal means of protecting foreign investments).

89. See Jason W. Yackee, *Do We Really Need BITs? Toward a Return to Contract in International Investment Law*, 3 *ASIAN J. WTO & INT'L HEALTH L. & POL'Y* 121, 129 (2008) [hereinafter Yackee, *Do We Really Need BITs?*]; Jason W. Yackee, *Bilateral Investment Treaties, Credible Commitment, and the Rule of (International) Law: Do BITs Promote Foreign Direct Investment?*, 42 *L. & SOC'Y REV.* 805, 809 (2008); Jason W. Yackee, *Are BITs a Bright Idea? Exploring the Ideational Basis of Investment Treaty Enthusiasm*, 12 *U.C. DAVIS J. INT'L L. & POL'Y* 195, 221 (2005) [hereinafter Yackee, *Are BITs a Bright Idea?*].

90. See Ofodile, *supra* note 4, at 140-43.

South-South philosophy that Chinese leaders and firms proclaim.⁹¹ Additionally, China interacts with countries on the African continent by means other than BITs, such as forum and dialogue platforms, summits, frequent high-level official visits, and China's oft-cited non-interference policy.⁹²

Although the large loans that R4I contracts carry with them fan uneasiness about whether the host states can reasonably sustain the cost,⁹³ so far the contracts have not burdened host states with crippling debts.⁹⁴ In the case of the Bui Dam project, the Ghanaian Ministry of Finance and Economic Planning carried out a cost-revenue projection to ensure that the project would not entail unsustainable debts.⁹⁵

In addition, R4I contracts enable foreign investors to navigate and survive the adverse political economies of some resource-rich countries, including Venezuela and Angola.⁹⁶ Accountability and capacity challenges characterize those political and business environments, known as the "resource curse," which heightens a number of risks for the capital invested in the host country.⁹⁷ Such risks to capital include uncertain or unstable legal frameworks, changes in industry patterns, onerous contracts, heavy regulation of the economy, ideological hostility, and nationalism.⁹⁸

R4I contracts thus assist states that often lack the capacity to build

91. Zongwe, *Ore for Infrastructure*, *supra* note 12, at 128.

92. See U.N. CONF. ON TRADE & DEV., ECONOMIC DEVELOPMENT IN AFRICA REPORT 2010: SOUTH-SOUTH COOPERATION: AFRICA AND THE NEW FORMS OF DEVELOPMENT PARTNERSHIP, at 24, UN Sales No. E.10.II.D.13 (2010).

93. See FOSTER ET AL., *supra* note 6, at xviii; see also Konijn, *supra* note 56, at 16 (noting that many countries were still recovering from the 1980s and 1990s debt crisis).

94. HALLAND ET AL., *supra* note 6, at 27 (noting that revenues only have to cover operation and maintenance expenses).

95. Hensengerth, *supra* note 55, at 40.

96. William Laraque, *The US Asia-Pacific Pivot, China and The Philippines*, FIN. MAGNATES (Oct. 24, 2016), <https://www.financemagnates.com/institutional-forex/bloggers/institutional-forexbloggersthe-us-asia-pacific-pivot-and-china/>.

97. John Hammond, *The Resource Curse and Oil Revenues in Angola and Venezuela*, 75 SCI. & SOC'Y 348, 348 (2011).

98. See M. SORNARAJAH, THE INTERNATIONAL LAW ON FOREIGN INVESTMENT 89-90 (2017); see also PAUL E. COMEAUX & N. STEPHAN KINSELLA, PROTECTING FOREIGN INVESTMENT UNDER INTERNATIONAL LAW: LEGAL ASPECTS OF POLITICAL RISK 19 (1997).

on their own complex and large-scale infrastructure such as hydroelectric dams, national railways, or airports.⁹⁹ They also allow those construction projects to be completed despite institutionalized levels of corruption.¹⁰⁰ However, Peter Konijn argues that R4I contracts do not exacerbate or resolve the resource curse and that the developmental impact of R4I contracts depends on the ability and willingness of the host-government's institutions to harness the benefits and mitigate the risks of R4I contracts.¹⁰¹

However, Konijn did not consider that, compared to traditional investments, R4I contracts have attracted far more finance.¹⁰² R4I contracts yield results in spite of adverse political and business environments by channeling the financing of infrastructure projects directly to the contractor, bypassing the bureaucracy of the host state, and thereby decreasing the risk that infrastructure money will be embezzled.¹⁰³ This contractual mechanism is not a panacea for the resource curse, but it shows one way in which R4I contracts have enjoyed relative success in resource-rich and resource-cursed nations. In that sense, R4I contracts prove to be very pragmatic.

So far, this Article has demonstrated that R4I contracts differ from traditional investment contracts and offer unique advantages.¹⁰⁴ Still, to what degree does the Bui Dam deal resemble R4I contracts? The Bui Dam deal defies classification. One side of the deal—the infrastructure side—looks like classic project finance; the other side—the export of cocoa by Ghanaian farmers—seems to fall into the category of international trade agreements.¹⁰⁵ At the same time, the loan component of the deal looks like traditional trade finance.¹⁰⁶ In the end, is the Bui Dam deal the intersection of investment (i.e., project finance), trade, and finance? Or is the deal greater than the mere sum

99. See Konijn, *supra* note 56, at 5.

100. *Id.*

101. *Id.* at 25-26.

102. *Id.* at 16.

103. Zongwe, *Three Stories*, *supra* note 6, at 55.

104. See Zongwe, *Ore for Infrastructure*, *supra* note 12, at 17.

105. *Id.* at 272-73, 307 (“The Ghana Marketing Board, a state-owned institution, will export cocoa products to China to pay for the construction of the Bui Dam.”).

106. See *What is Trade Finance?*, TRADE FIN., <https://tradefinanceanalytics.com/what-is-trade-finance> (last visited Feb. 12, 2019) (explaining that trade finance helps mitigate risks).

of its parts? And, if R4I contracting departs from traditional investment agreements, is the Bui Dam therefore a unique version of a unique generation of international commercial contracts? For the time being, I can draw out the differences between R4I contracts and the Bui Dam scenario, leaving the question as to the definite classification of the Bui Dam deal for later.

The infrastructure built through an R4I scenario counts as perhaps the most obvious advantage of a Bui Dam sort of deal. Through the Bui Dam project, the hydroelectric dam that the Ghanaian government sought for so long became reality.¹⁰⁷ Gathii denies that, if a country needs infrastructure, merely investing in that sorely needed infrastructure is necessarily good.¹⁰⁸ He believes that such a view sets “an extremely low baseline to establish whether China’s presence in Africa has a positive impact.”¹⁰⁹ Yet the economic analysis of law contradicts Gathii because it takes the position that the proper ideal of the legal system is to maximize the satisfaction of individuals’ preferences.¹¹⁰ Thus, any law, agreement, or deal that satisfies the preferences, the ‘utility,’ or the ‘needs’ of individuals or specific governments¹¹¹ is ‘good’ in an economic sense, regardless of whether those needs relate to infrastructure, agricultural products, or minerals. That “extremely low baseline” actually determines whether a lawyer or an economist considers a deal more or less efficient.¹¹²

The Bui Dam agreement outperforms R4I contracts in its distributive design. First, different actors come into the picture. Often, R4I contracts involve a consortium of Chinese state-owned firms and

107. See *Bui Dam Electricity Project, Ghana*, *supra* note 23.

108. See Gathii, *supra* note 2, at 666 (highlighting that China’s presence in Africa does not necessarily mean it has a positive effect).

109. *Id.* at 666-67.

110. See NICHOLAS L. GEORGAKOPOULOS, *PRINCIPLES AND METHODS OF LAW AND ECONOMICS: ENHANCING NORMATIVE ANALYSIS* 21 (2005) (stating in chapter two of the book that the economic analysis of the law posits that “the proper ideal of the legal system is the promotion of social welfare, that is, the maximization of the satisfaction of individuals’ preferences”).

111. Here, I assume that the person in question *wants* what he *needs*. Just like the Ghanaian government wanted the hydroelectric dam that it also needed. Indeed, satisfying what a person needs, but that he does not want, does not amount to satisfying that person’s preferences.

112. Thuo Gathii, *supra* note 2, at 666-67.

a host state or a firm owned by the host state.¹¹³ By contrast, the Bui Dam project involved a major Chinese state-owned firm, Sinohydro, and cocoa farmers—a transaction mediated by the Ghana Marketing Board.¹¹⁴ The involvement of cocoa farmers meant that the Bui deal not only benefited Ghana by generating employment and taxes, it also boosted demand for the work of cocoa farmers considerably.¹¹⁵ The ripple effects do not stop there as farmers tend to support entire families.¹¹⁶

Indeed, the economic and distributive impacts of R4I contracts are broader thanks to agriculture. Though the importance of agriculture has decreased for several developing countries over the years, the sector remains a critical core of developing economies.¹¹⁷ In developing countries, about sixty percent of people live in rural areas, and two-thirds of those people live in extreme poverty and engage in subsistence farming.¹¹⁸

Second, the Bui Dam scenario is twice more labor-intensive than R4I contracts. This outcome flows from the observation that the infrastructure development creates employment and, at the same time, the agricultural exports create even more employment than the infrastructural side.¹¹⁹ As indicated above, the Bui Dam construction project created thousands of jobs.¹²⁰ The dramatic increase in the demand for agricultural exports generated more jobs and more work

113. See, e.g., Convention de Collaboration entre La Republique Democratique du Congo et la Societe Sinohydro Corporation Relative Au Developpement D'un Projet Minier et D'un Projet. D'infrastructures en Republique Democratique Du Congo, China-Dem. Rep. Congo, art. 3.1, Janvier 2008, <http://congominer.org/system/attachments/assets/000/000/276/original/B5bis-Sicomines-Convention-Incl-Anx-2008-Consortium-Entreprises-Chinoises-RDC.pdf?1430928308> [hereinafter DRC Framework Agreement].

114. Zongwe, Ore for Infrastructure, *supra* note 12, at 272-73.

115. See *id.*

116. See Boansi et al., *supra* note 52, at 1786.

117. See Evan Pennisi, *Agriculture Creates an Economic Future for Developing Countries*, GLOBALEDGE (Dec. 12, 2012, 10:40 AM), <https://globaledge.msu.edu/blog/post/1400/agriculture-creates-an-economic-future-f>.

118. MICHAEL P. TODARO & STEPHEN C. SMITH, ECONOMIC DEVELOPMENT 437-38 (2015).

119. See Zongwe, Ore for Infrastructure, *supra* note 12, at 359-60.

120. Kwadjo Oto, *Bui City Project to Create About 4000 Jobs*, GHANAWEB (Sept. 6, 2007), <https://www.ghanaweb.com/GhanaHomePage/NewsArchive/Bui-City-Project-To-Create-About-4000-Jobs-130130>.

for cocoa farmers. Last but not least, unlike R4I contract types, scenarios like the Bui Dam can last indefinitely because the resource involved (i.e., an agricultural product) is renewable, unlike minerals and hydrocarbons.

V. COMPLICATIONS

Despite its many benefits, the Bui Dam project was not smooth sailing, and a host of problems emerged which indicate that the Bui Dam model is not flawless.¹²¹ The Bui Dam exemplifies how this type of infrastructure can hurt development.¹²² The social implications of large-scale infrastructure projects have been known to include: resettlement of individuals and local communities; psychological stress; loss or declines of livelihood; changes to lifestyles and traditions; negative effects on fishing and agricultural activities; and restrictions on access to quality of water and land, as well as other types of environmental damage.¹²³

The first major issue that arose from the Bui Dam projects concerned the number of local workers hired to work on the construction of the Dam.¹²⁴ After construction on the Dam began, authors emerged with exaggerated claims about China's hiring its own people to work on the Bui Dam project.¹²⁵ In one instance, and without independently verifying the claims, author Howard French quoted a Ghanaian who stated that the Chinese had employed 600 of their own workers to build the dam and "only hired a few [Ghanaian workers], and it is only to do unskilled labor."¹²⁶ If French had bothered to verify those claims he would have realized, as Giles Mohan and May Tan-Mullins' empirical research later showed, that 3,000 Ghanaian workers were hired to do the project.¹²⁷ As Mohan and Tan-Mullins'

121. *Bui Dam in the Black Volta River, Ghana*, ENVTL. JUSTICE ATLAS, <https://ejatlas.org/conflict/bui-dam-ghana> (last visited Jan. 24, 2019).

122. *See Bui Dam, Ghana*, INT'L RIVERS, <https://www.internationalrivers.org/resources/bui-dam-ghana-3608> (last visited Jan. 24, 2019) (noting that thousands were relocated and lost critical possessions and land).

123. Urban et al., *supra* note 55, at 573.

124. *See* HOWARD FRENCH, CHINA'S SECOND CONTINENT: HOW A MILLION MIGRANTS ARE BUILDING A NEW EMPIRE IN AFRICA 167-168 (2014).

125. *Id.*

126. *Id.* at 199.

127. Giles Mohan & May Tan-Mullins, *Chinese Migrants in Africa as New*

revealed, local workers by far outnumbered Chinese migrants.¹²⁸ Furthermore, the claims that French uncritically quoted do not take into account the fact that the Bui Dam project created considerable demand for the cocoa sold by countless Ghanaian farmers.¹²⁹

Second, the Ghanaian authorities did not disclose most of the details regarding the deal. Specifically, they did not publish the Bui Dam deal in its entirety.¹³⁰ In fact, high-ranking stakeholders from both Ghana and China refused to release critical documents such as turnkey contracts.¹³¹ Nonetheless, Ghanaian authorities divulged some information about the deal. Notably, they set up the official website of the Bui Dam,¹³² which provided—and still provides—information about how Ghana, together with their Chinese partners, built the hydroelectric complex. That said, the majority of what is known about the project comes from secondary sources.¹³³

It was the resettlement and displacement of people living in the vicinity of the Bui Dam that most significantly tainted this construction project.¹³⁴ The resettlement was particularly disturbing, the Ghanaian authorities relocated local populations to areas that have far less fisheries resources.¹³⁵ The Ghanaian authorities had to relocate

Agents of Development? An Analytical Framework, 21 EUR. J. DEV. RES. 588, 595 (2009).

128. *Id.*

129. See Paul W.J. Yankson et al., *The Livelihood Challenges of Resettled Communities of the Bui Dam Project in Ghana and the Role of Chinese Dam-Builders* 36 DEV. POL'Y REV. 476, 481-86 (2017).

130. See Konijn, *supra* note 56, at 14.

131. See *id.*; James Habia, *The Bui Dam Impact on Ghana-China Relations: Transparency, Accountability and Development Outcomes from China's Sino Hydro Dam Project in Ghana* 22 (Sept. 24, 2009) (unpublished Master's thesis, Massachusetts Institute of Technology) (on file with the Massachusetts Institute of Technology Library system).

132. *Welcome to Bui Power Authority*, BUI POWER AUTH., <https://www.buipower.com/> (last visited Jan. 27, 2019).

133. See, e.g., Urban et al., *supra* note 55, at 578; Hensengerth, *supra* note 55; *Bui Dam, Ghana*, *supra* note 122; *Bui Dam Electricity Project, Ghana*, *supra* note 23; *China Signs Financing for Ghana's 400-MW Bui*, HYDROWORLD (Sept. 8, 2008), <https://www.hydroworld.com/articles/2008/09/china-signs-financing-for-ghanas-400-mw-bui.html>.

134. Hensengerth, *supra* note 55, at 30-31.

135. *Id.* at 31.

at least eight villages¹³⁶ and 1,216 individuals.¹³⁷ They resettled some fishing communities miles away from fishing areas.¹³⁸ Other communities complained that their new lands were not as good for farming.¹³⁹ Still other communities faced the danger of schistosomiasis diseases brought on by the new dam.¹⁴⁰ In the end, many of the resettled people lost their livelihoods.¹⁴¹

Chinese firms did not take part in the resettlement of the affected communities, nor did they engage in planning the Bui Dam.¹⁴² The Ghanaian government directed both the planning and the resettlement.¹⁴³ Nonetheless, the social and environmental consequences involved in building the hydroelectric dam remain a liability for the entire project.¹⁴⁴ The Ghanaian government can certainly praise itself for having done much better during the resettlement necessary to make way for the Bui Dam than it did during the resettlement occasioned by the construction of the Akosombo Dam.¹⁴⁵ All the same, the construction of the Bui Dam imposed heavy costs on surrounding local communities.¹⁴⁶

Related to the issue of resettlement and displacement is the issue of environmental degradation. Environmental activists protested against the Bui Dam project.¹⁴⁷ Even with an environmental impact

136. *Id.* at 25 (indicating that eight villages had to be relocated and that, by June 2010, the Ghanaian government had already relocated four villages).

137. *See id.*; *see also Bui Dam, Ghana, supra* note 122 (claiming that the Ghanaian authorities had to relocate as many as 2,600 people).

138. *Bui Dam, Ghana, supra* note 122.

139. *Id.*

140. *Id.*

141. *See id.*

142. Hensengerth, *supra* note 55, at 43; *see also* FRENCH, *supra* note 124, at 199 (reporting that, although they were not directly involved in the resettlement of affected communities, the Chinese contractors built the new replacement villages, which consisted of “simple and functional complexes”).

143. *Id.*

144. *See* Hensengerth, *supra* note 55, at 43-44.

145. FRENCH, *supra* note 124, at 199 (quoting a local chief who said that, in order to build the Akosombo Dam, people were resettled in bad conditions, for instance, some people were relocated close to the turbines and people were generally given less land).

146. *See, e.g.*, Hensengerth, *supra* note 55, at 30-31 (discussing the “bleak picture” and the harsh realities of resettling many local communities).

147. *Bui Dam Electricity Project, Ghana, supra* note 23.

assessment and a feasibility study following the signature of Ghana's deal with China,¹⁴⁸ the project consisted in diverting the Black Volta River, a project that was completed in December 2008.¹⁴⁹ The Bui Dam required the flooding of 444 square kilometers of land,¹⁵⁰ degrading that area in the process. More disturbing, the flooded area included a national park, an environmentally protected area.¹⁵¹ More specifically, the project inundated about twenty-one percent of the 700-square-mile Bui National Park.¹⁵²

Another concern relates to the effectiveness of domestic state-owned corporations. The foreign investor involved in the Bui project was Sinohydro, a state-owned Chinese firm.¹⁵³ However, the deal raises question about the effectiveness of the Ghanaian state-owned corporations. This question should concern policy makers because of its implications for long-term development. Indeed, if domestic firms had the capacity to build the hydroelectric complex in the first place, Ghana would not have needed state-owned firms from China or any other foreign nations to participate in the project. Ideally, host countries should aim to build this sort of large-scale infrastructure on their own, hiring local firms and using local expertise.

It is a signature feature of China's investments in Africa that those investments involve state-to-state business models.¹⁵⁴ The relative success of the state-to-state model in Africa suggests that state-to-state dealings better promote and protect FDIs than BITs.¹⁵⁵ Furthermore, the state-to-state model confirms that the Bui Dam deal and R4I

148. *See id.*

149. *Id.*

150. *Id.*

151. *Bui Dam, Ghana, supra* note 122.

152. Urban et al., *supra* note 55, at 578; *Bui Dam, Ghana, supra* note 122.

153. *Bui Dam, Ghana, supra* note 122.

154. *See* CHRIS ALDEN ET AL., CHINA RETURNS TO AFRICA: A RISING POWER AND A CONTINENT EMBRACE 7, 16 (2008); *see also* Zongwe, Ore for Infrastructure, *supra* note 12, at 131-32.

155. *See* Zongwe, Ore for Infrastructure, *supra* note 12, at 107-08 (arguing that, while traditional wisdom thought of BITs as promoting foreign investment, this was unsupported by evidence and the state-to-state model has empirically shown a dramatic increase in foreign investment in Africa through China's FDI and R4I contracts); *see also* Yackee, *Do We Really Need BITs?*, *supra* note 89, at 121-23 (recommending that policy makers forgo bilateral investment treaties in favor of an investment regime based on contracts).

contracts do not serve neoliberal agendas.¹⁵⁶

Yet in contrast to how they appear at first glance, the state-to-state arrangements behind the Bui Dam deal and R4I contracts do not necessarily entail strengthening host states.¹⁵⁷ A closer look at the Bui Dam project shows that Ghanaian state institutions almost exclusively participated in planning and securing the necessary permits and licenses.¹⁵⁸ Meanwhile, Chinese contractors did most of the financing and entirely built the dam.¹⁵⁹ Therefore, the project did not so much strengthen the role of the host state in development as much as it *displaced* it.¹⁶⁰ Policy makers must therefore make sure that arrangements like the Bui Dam scenario do not weaken the host state and its ability to design and drive development. Though funding may come from a foreign state or firm, development must be internally driven.

Another complication relates to the valuation of the R4I contracts and the Bui Dam deal. Valuing those contracts is very difficult and prone to errors. Landry evaluates the R4I contract between China and the DRC using the net present value (NPV) method.¹⁶¹ This attempt to value a R4I contract raises a number of issues. First of all, Landry uses the NPV method to explain whether the R4I contract is a good investment from the Chinese perspective, whereas the contract expressly uses the internal rate of return (IRR) method.¹⁶²

156. Cf. Zongwe, Ore for Infrastructure, *supra* note 12, at 107-08 (discussing how state involvement is useful to both Chinese investors and traditional project finance structures).

157. See generally Hensengerth, *supra* note 55, at 9-14 (discussing the planning of the Bui Dam, including various stages of state-to-state engagement between China and Ghana).

158. See *id.* at 14-17.

159. See *id.* at 34-35.

160. See *id.* (illustrating China's role as financier, contractor, and constructor of the Dam). I am grateful to Michelle Egan for making that observation after my presentation at the SIEL Biennial Conference at American University Washington College of Law on July 14, 2018.

161. Landry, *supra* note 77, at 5, 7 (explaining that the NPV method calculates the difference between the present value—the current monetary worth of cash flows using a discount rate—of its present and future inflows and outflows of cash).

162. DRC Framework Agreement, *supra* note 113, art. 13(3)(3) (providing that the DRC must ensure that the conditions of its collaboration with the consortium of Chinese firms yield an IRR of nineteen percent). See *id.* at 10.

Moreover, even if the NPV method proved the better way of valuing the R4I contract, the method grossly understates the 'strategic value' of the contract for the Chinese.¹⁶³ It wrongly assumes that China or the Chinese state-owned firm engage in those deals only to make a profit. This assumption is mistaken because, on several occasions, Chinese investments have adopted much longer-term perspectives.¹⁶⁴ Third, the NPV was based on economic conditions as they existed in 2016—a period characterized by depressed commodity prices.¹⁶⁵ The question is whether conditions in 2016 accurately reflect economic conditions throughout the life of the R4I contract.

Although Landry used that method to evaluate the R4I contract between China and the DRC, that exercise illustrates the difficulties involved in trying to value the Bui Dam deal as well.¹⁶⁶

VI. UPSHOT OF WHAT IS PROVEN

I must establish the basic premises of my argument if I want to substantiate the conclusion I reached in this Article. This task requires rehashing some principles that are already well established in the field, namely absolute advantage and comparative advantage. These principles originate in classical economics.¹⁶⁷

Most scholars credit Adam Smith with formulating the principle of absolute advantage.¹⁶⁸ The idea behind absolute advantage assumes that a nation will produce and export goods that it can produce more cheaply than other countries, thanks to its labor costs, its weather,

163. See Landry, *supra* note 77, at 4, 7 (describing the economic benefits China has received from R4I contracts as it has risen in prominence as a provider of development finance).

164. See Wu Yabin & Bai Xiao, *China's Infrastructure Development Strategy in Africa: Mutual Gain?*, BRIDGES AFR., Mar. 2017, at 16 (describing the social benefits of Chinese infrastructure investments in Africa as mutually beneficial in terms of technology transfer, capacity building, improvement of living standards, and friendly international relations).

165. Landry, *supra* note 77, at 20.

166. See generally *id.* at 5, 18, 24.

167. See, e.g., Hollis B. Chenery, *Comparative Advantage and Development Policy*, 51 AM. ECON. REV. 18, 18-51 (1961).

168. Robert A. Blecker, *The 'Unnatural and Retrograde Order': Adam Smith's Theories of Trade and Development Reconsidered*, 64 ECONOMICA 527, 527-28 (1997).

natural resources endowment, and other factors.¹⁶⁹ The absolute advantage therefore depends on lower production costs.¹⁷⁰

By contrast, David Ricardo maintained that, even if a country could produce and export goods A, B, C more cheaply than other countries, it would still make sense for that country to specialize in one of the three goods.¹⁷¹ This counter-intuitive answer to the question of which goods to produce is referred to as comparative advantage.¹⁷² Unlike absolute advantage, comparative advantage relies on lower opportunity costs, as opposed to lower production costs.¹⁷³

The flip side of comparative advantage is that nations should trade the goods that they can produce efficiently (i.e., with lower opportunity costs) for the goods that they produce less efficiently.¹⁷⁴

The principle of comparative advantage still forms the basis, or the “engine,” of international trade.¹⁷⁵ The theory also explains why China would import certain agricultural goods from certain African countries. Most importantly, it provides the economic rationale for R4I contracts or other international contracts of the Bui Dam type.¹⁷⁶

169. See ADAM SMITH, AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS 182-97 (Thomas Cadell & William Strahan eds., 9th ed. 1799) (arguing that it is more advantageous to import a foreign product, rather than to produce the product domestically, when the foreign country has superior resources and a greater capacity to produce it).

170. See *id.*

171. See generally DAVID RICARDO, ON THE PRINCIPLES OF POLITICAL ECONOMY AND TAXATION 12-17 (Everyman Library ed., J.M. Dent 1911) (1817) (discussing the exchangeable value of labor costs and critiquing Smith’s theories of labor valuation); see Alan O. Sykes, *Comparative Advantage and the Normative Economics of International Trade Policy*, 1 J. INT’L ECON. L. 49, 50-53 (1998) (illustrating the theory of comparative and absolute advantage in a numerical hypothetical).

172. See Sykes, *supra* note 171, at 49-53 (predicting that nations will specialize in the production of goods in which they have comparative advantage and export those goods to other countries in exchange for goods in which they lack comparative advantage).

173. *Id.* at 52 (illustrating opportunity costs using a hypothetical).

174. Carmen G. Gonzalez, *Deconstructing the Mythology of Free Trade: Critical Reflections on Comparative Advantage*, 17 BERKELEY LA RAZA L.J. 65, 71 (2006).

175. Sykes, *supra* note 171, at 49, 52; see also Gonzalez, *supra* note 174, at 71-72 (describing how comparative advantage legitimizes and allows free trade).

176. See Xiao Ye, *Africa-China: A Path to Mutual Prosperity?*, MAKING IT MAG. (Feb. 25, 2011), <http://www.makingitmagazine.net/?p=3050> (highlighting China and sub-Saharan Africa’s advantageous trade relationship as it relates to Africa’s

In other words, by importing products such as cocoa from countries such as Ghana, China imports what it cannot produce more efficiently than cocoa farmers in Ghana. Yet I still have to establish that China cannot produce those agricultural goods efficiently.

The appetite of China's growing population of 1.4 billion people has made it difficult for the country to achieve agricultural self-sufficiency.¹⁷⁷ A 2017 *Bloomberg* report claims that China simply cannot produce enough food for its people.¹⁷⁸

This situation is not unique to China. Africa itself, Asia, and South America will add at least another two billion mouths to feed in the next generation.¹⁷⁹ This does not necessarily mean that food shortages will worsen in the future. Nor does it foretell any doomsday famine scenarios like the one presented in the 18th century by Thomas Malthus,¹⁸⁰ which predicted that the earth's resources, including agricultural resources, will not be able to feed the ballooning global population. Today, technology can help the world's resources keep up with its growing population.¹⁸¹ Instead, this situation suggests that the current and future demographic and economic structure of demands for food sustains – and will sustain – the Bui Dam model. Competition from food-importing nations in the global South will further sustain the model.

Four decades ago, China embarked on a major agricultural reform.¹⁸² This reform—which evolved over the years—consisted of four parts: imposing market controls; improving farm efficiency; curbing land loss; and increasing imports.¹⁸³ As part of this effort,

comparative advantage in labor intensive agricultural exports).

177. *Farming the World: China's Epic Race to Avoid a Food Crisis*, BLOOMBERG NEWS (May 22, 2017), <https://www.bloomberg.com/graphics/2017-feeding-china/>.

178. *Id.*

179. *See id.*

180. *See* THOMAS MALTHUS, AN ESSAY ON THE PRINCIPLE OF POPULATION 4-5 (Elec. Scholarly Publ'g Project ed., 1998) (1798) (arguing that while the ability of a person to cover their needs with their income increased “incrementally,” population—if unchecked—could increase geometrically.)

181. Edward A. Ackerman, *Population, Natural Resources, and Technology*, 369 ANNALS AM. ACAD. POL. & SOC. SCI. 84, 84, 94, 97 (1967).

182. *Farming the World: China's Epic Race to Avoid a Food Crisis*, *supra* note 177.

183. *See id.*

China has been increasing its imports and buying overseas agricultural products such as beef and soybeans.¹⁸⁴

This has led to the so-called “land grabs” in countries like Mozambique.¹⁸⁵ However, most of the hype about land grabs is not borne out by the facts on the ground. As Brautigam pointed out, *none* of those headlines about China’s grabbing lands in Africa proved true.¹⁸⁶ Rather than supplying its own supermarkets back home, China’s land projects in Africa appear to aim mostly at boosting food production in poor countries, thereby increasing China’s global influence.¹⁸⁷ While this motivation can also drive the Bui Dam-like contractual arrangements, it is much less sustainable than food imports driven by the importer’s needs to feed its large population. Indeed, China could in the near future decide to prioritize goals other than seeking to build political capital overseas. However, potential demand from large nations such as India could compensate for the lower demand resulting from such policy changes.¹⁸⁸

While it may not have yet reached agricultural self-sufficiency, China has the capacity to build infrastructure not only at home, but also abroad.¹⁸⁹ Infrastructure refers to the all the basic inputs needed for the economy to function properly.¹⁹⁰ Infrastructure is significant as it constitutes a key component of trade logistics.¹⁹¹

184. *Id.*

185. John Vidal, *Oxfam Warns of Spiraling Land Grab in Developing Countries*, THE GUARDIAN (Sept. 22, 2011, 2:00 PM), <https://www.theguardian.com/environment/2011/sep/22/oxfam-land-grab-developing-countries>.

186. DEBORAH BRAUTIGAM, *WILL AFRICA FEED CHINA?* 12-13 (2015).

187. *Farming the World: China’s Epic Race to Avoid a Food Crisis*, *supra* note 177. This apparent goal corresponds to China’s Africa Policy, whose most important principle is ‘co-development.’ See Li Ashan, *China’s New Policy Toward Africa*, in CHINA INTO AFRICA: TRADE, AID AND INFLUENCE 21, 32 (Robert I. Rotberg ed., 2008).

188. See FOSTER ET AL., *supra* note 6, at xviii (stating that other nations such as India have also emerged as major financiers for African infrastructure development).

189. See Ruth Gordon, *The Environmental Implications of China’s Engagement with Sub-Saharan Africa*, 42 ENVTL. L. REP. NEWS & ANALYSIS 11109, 11113 (2012) (describing how China has sent contractors to develop both physical and soft infrastructure in Africa in exchange for securing a flow of natural resources to China).

190. Afeikhen Jerome, *Infrastructure in Africa: The Record 2* (Afr. Dev. Bank, Economic Research Paper No. 46, 1999).

191. See, e.g., *International LPI*, WORLD BANK, <https://lpi.worldbank.org/>

Lack of finance represents the greatest obstacle to infrastructure development on the African continent. Infrastructure projects are capital-intensive, and African states have not yet managed to attract enough project finance.¹⁹² Out of the fifty-one projects identified by the Programme for Infrastructure Development in Africa (PIDA), only four have reached an advanced stage of implementation.¹⁹³

The World Bank estimates that, in 2010, African states spent forty-five billion U.S. dollars a year on infrastructure, but needed ninety-three billion U.S. dollars a year—a funding gap of thirty-one billion dollars.¹⁹⁴ By 2018, that funding gap rose to at least 130 billion U.S. dollars a year.¹⁹⁵ Most states in Africa suffer from massive infrastructure deficits and very weak infrastructural bases, though huge variations exist among countries on the continent.¹⁹⁶ To be sure, nine out of the ten countries with the world's lowest quality of infrastructure related to trade and transport (for instance, ports, railroads, roads, and information technology) come from Africa.¹⁹⁷

What perhaps best symbolizes China's leading role in developing infrastructure in Africa is the construction of the 200 million U.S. dollars headquarters of the African Union in Addis Ababa, Ethiopia.¹⁹⁸ The One Belt, One Road initiative illustrates China's ability to export

international (last visited Jan. 23, 2019).

192. See AFRICA'S INFRASTRUCTURE: A TIME FOR TRANSFORMATION 1 (Vivien Foster & Cecilia Briceño-Garmendia eds., 2010).

193. Ballard, *supra* note 7.

194. See Foster & Briceño-Garmendia, *supra* note 192, at 1, 8.

195. Ballard, *supra* note 7.

196. See also Rabah Arezki & Amadou Sy, *Financing Africa's Infrastructure Deficit: From Development Banking to Long-Term Investing* 6 (Brookings Inst., Global Views Paper No. 2, 2016), <https://www.brookings.edu/research/financing-africas-infrastructure-deficit-from-development-banking-to-long-term-investing/>; see *Global Rankings 2018: Logistics Performance Index*, WORLD BANK, <https://lpi.worldbank.org/international/global?sort=asc&order=Infrastructure#> (last visited Jan. 19, 2019) [hereinafter *Global Rankings 2018*].

197. See *Global Rankings 2018*, *supra* note 196 (reporting that, out of 160 countries, the ten countries with the lowest quality of infrastructure related to trade and transport were, in descending order of quality, Equatorial Guinea, Eritrea, Angola, Zimbabwe, The Gambia, Sierra Leone, Somalia, Afghanistan, Guinea-Bissau, and Guinea).

198. Jenni Marsh, *Skyscrapers, Trains, and Roads: How Addis Ababa Came to Look Like a Chinese City*, CNN (Sept. 3, 2018, 8:22 AM), <https://www.cnn.com/2018/09/02/africa/addis-ababa-china-construction/index.html>.

its capacity to spur infrastructure development in Africa.¹⁹⁹ The Middle Kingdom extended this initiative across the African continent.²⁰⁰ As part of that initiative, China paid eighty percent of the \$11.17 billion dollars cost of building the Nairobi-Mombasa railway line in Kenya, completed in mid-2017.²⁰¹

Thus, while China has a shortage of certain agricultural products, it has great and exportable capacity to build various kinds of infrastructure. By contrast, Africa has enormous agricultural potential, but huge deficits and a low base in infrastructure. This situation gives rise to the complementarities that made the Bui Dam deal between Ghana and China possible.²⁰²

To recap, African nations can increase infrastructure investments in Africa through R4I contracts. As a matter of fact, nations that have entered into large-scale R4I contracts have managed to attract the greatest amount of investment that the countries had seen since their respective independence.²⁰³

The downside of R4I contracts and most capital flows to Africa is that the capital flocks to countries rich in minerals and hydrocarbons, such as Nigeria, Angola, and Mozambique, while ignoring the many countries on the continent that are not so well blessed.²⁰⁴

In recent years, African states have increased investments in infrastructure, though the funding gap between the infrastructure investments needed and the infrastructure finance actually received remains huge.²⁰⁵ Still, China has recently emerged as Africa's largest

199. See James McCully, Note, *Does "One Belt, One Road" Mean "One Country, One System?" An Analysis of Hong Kong's Vanishing Autonomy Through an "One Belt, One Road" Influence Educational Scholarship*, 44 SYRACUSE J. INT'L L. & COM. 397, 400 (2017).

200. Ballard, *supra* note 7.

201. *Id.*

202. See also Zongwe, *Economic Complementarities*, *supra* note 73, at 7 (making a similar argument, but more generally about R4I contracts, and not specifically focusing on or discussing the Bui Dam deal); Dunia P. Zongwe, *The Competitive Edges of China's Resource-for-Infrastructure Investment Contracts in Africa*, 2 PEKING U. J. LEGAL STUD. 227, 227 (2010).

203. See Zongwe, *Natural Resources for National Reconstruction*, *supra* note 67, at 38 (discussing the occurrence in Angola, the DRC, and Ghana).

204. *Id.* at 1, 7-8.

205. E.g., Foster & Briceno-Garmendia, *supra* note 192, at 1 (placing the gap at

infrastructure financier.²⁰⁶ China has evinced its interest in channeling some of the finance it sends to Africa through R4I contracts.²⁰⁷ R4I contracts thus prove a tool to attract investments into the infrastructure sectors, where investment is usually not as large as in the extractive sectors.

The Bui Dam scenario shows that countries that do not have minerals and hydrocarbons can nonetheless attract massive infrastructure investments, as long as they have agricultural products to export.²⁰⁸ The good news is that most African countries have agricultural potential. The Cotton Four case makes it plain that the continent heavily relies on agriculture and has the potential to use agricultural exports to attract infrastructure investments.²⁰⁹ In addition, scenarios like the Bui Dam project can enable African states to go around the trade barriers in agricultural subsidies set by the richer countries of the global North.²¹⁰

In fact, R4I contracts will allow African states to kill two birds with one deal: R4I contracts will allow them to attract massive investments in infrastructure while at the same time allowing them to increase their agricultural exports – something they cannot do under the existing rules of the world trading system.

VII. POLICY IMPLICATIONS

A series of policies implications can be derived from the Bui Dam project experience in Ghana. The Bui Dam scenario demonstrates that developing nations can leverage growing demand from Asia to develop their agricultural exports and infrastructure. A policy question that arises is whether such a deal should be structured as an investment contract or a trade agreement. Is the Bui Dam contract trade or investment, or both? The answer to this question matters because it

ninety-three billion dollars a year).

206. FOSTER, ET AL., *supra* note 6, at xi.

207. See Zongwe, *Natural Resources for National Reconstruction*, *supra* note 67, at 1 (describing China's interest in Africa's natural resources).

208. See Hensengerth, *supra* note 55, at 38 (describing the use of cocoa in the Bui Dam arrangement).

209. Cf. Panel Report, *United States—Subsidies on Upland Cotton*, *supra* note 49, ¶ 7.1212 (speaking generally of West African nations' reliance on cotton).

210. Cf. Mshomba, *supra* note 211.

determines which rules apply: trade or investment. If the latter, then the relevant BIT will apply.²¹¹ The answer to that question also determines where the parties to a dispute should refer their matter to: for example, a regional trade dispute-resolution mechanism or the WTO, on the one hand, or the International Center for the Settlement of Investment Disputes (ICSID) on the other. The 2007 R4I contract between China and the DRC expressly indicates that, if the parties fail to resolve disputes amicably, the parties should refer their disputes to ICSID;²¹² however, in the majority of cases, the parties have not disclosed all the express terms that would put their contracts in one or the other category.

Related to that question is the matter of whether the Bui Dam deal is a type of R4I contract, or is it an altogether different type of contract? While the Bui Dam arrangement shares several similarities with R4I contracts, it differs from R4I contracts in a few crucial respects: it does not involve minerals or hydrocarbons, or any joint venture between the host state and a foreign investor.²¹³

Either way, the contract reinforces the role of the state in development. This feature leads to another policy question: does the Bui Dam scenario reject neoliberal theories to embrace the developmental state theory? This question is far-reaching as far as the long-term prosperity of developing countries is concerned. In particular, it may inform national policy makers as to the nature of their development policies going forward. To avoid the risk of state displacement, policy makers must strengthen domestic political institutions and contractual arrangements to safeguard national interests, such as the protection of the environment.²¹⁴ Specifically, to move away from reliance on Chinese finance and state-owned firms, policy makers in Africa must vigorously pursue transfer of technology and knowledge from their Chinese counterparts to African workers

211. See DRC Framework Agreement, *supra* note 113, art. 15(3) (obliging the DRC to respect the BIT it entered into with China).

212. DRC Framework Agreement, *supra* note 113, art. 21.

213. See generally Zongwe, *Natural Resources for National Reconstruction*, *supra* note 67, at 1, 18, 36 (describing generally R4I contracts).

214. See Hensengerth, *supra* note 55, at 43-44 (stating “responsibility for ensuring that provisions concerning environmental supervision are upheld ultimately rests with the Ghanaian president and the Bui Power Authority”).

and firms.²¹⁵

Policy makers should also consider the Bui Dam model because it allows host states to attract massive finance without burdening themselves with very high or unsustainable debts.²¹⁶ Stakeholders have long worried those fast-flowing financial streams to the African continent may drown states in unsustainable debt.²¹⁷ Fortunately, so far, the available evidence support the view that both R4I contracts and the Bui Dam deal do not lead to such nightmare scenarios.²¹⁸ I attribute this fortunate outcome to the barter-like character of those deals.

Perhaps the most important question regarding development policy arises when considering the persistent debates and concerns about whether African countries really stand to gain from this new type of international business transaction and when considering my recommendation that developing states adopt deals like the Bui Dam more often and whenever possible. Indeed, the greatest challenge for policy makers consists in finding a reliable way to measure the costs and benefits of enacting a Bui Dam scenario.

215. Thuo Gathii, *supra* note 2, at 682-87, 690.

216. *See generally* Hensengerth, *supra* note 55, at 40 (stating that the Bui Dam loan agreement “will not impact debt sustainability”).

217. *E.g.*, Konijn, *supra* note 56, at 16.

218. *See* Hensengerth, *supra* note 55, at 40 (projecting that the dam would pay for itself once operational); Zongwe, *Ore for Infrastructure*, *supra* note 12, at 289.