The Environmental Impact of China's Investment in Africa

David H. Shinn†

Introduction

There is a vigorous debate on the environmental impact of China's investment in Africa. Most of it occurs in the environmental advocacy community, which by its nature emphasizes the challenges, problems, and harmful impacts on the environment irrespective of the responsible country. China's environmental record both at home and in Africa has been the subject of criticism—much of it deserved.[1] Critical commentary from the environmental community and journalists occasionally results in rejoinders from Chinese officials, who tend to minimize the problem.

In all fairness, if a Chinese investment has no notable negative environmental impact, it rarely receives attention, and good practices are usually ignored by environmental groups and the media. For example, a recent dialogue on environmental and social sustainability involving Chi-

† Adjunct Professor, George Washington University's Elliott School of International Affairs.

1. *See, e.g.*, Yi Yimin, *Improving China's Aid and Investment to Africa with a More Open Attitude*, *in* 1 CHINESE RESEARCH PERSPECTIVES ON THE ENVIRONMENT 381, 384 (Yang Dongping ed., 2013).

nese environmental officials and the leadership of the African Development Bank concluded that "little publicity is given to the good practices among Chinese firms while the negative practices received wider media attention."[2] This analysis, which draws heavily on previous studies and research, has the same limitations but includes a perspective from China.

China's rapid economic development over the last three decades has led to significant environmental pollution and some poor policy choices. With more than 1.3 billion people, China has the world's largest population and has been the biggest energy consumer since 2010.[3] As the world's largest producer and consumer of coal, China is also the highest emitter of carbon dioxide that contributes to global warming.[4] The 2014 Report on the State of the Environment in China said that less than ten percent of 161 cities included in the national air quality monitoring system met national standards.[5]

With only seven percent of global water resources and increasing pollution problems, water scarcity is probably China's most important constraint for development.[6] Less than half of China's water can be treated and made safe for drinking, and another quarter of surface water is so polluted that it is unfit for industrial use.[7] In 2014, more than sixty percent of major cities had groundwater categorized as bad to very bad, and more than a quarter of China's key rivers were deemed unfit for human contact.[8] Lack of waste removal and proper processing, combined with negligent farming practices, overgrazing, and the effects of climate change have turned much of China's arable land into desert.[9]

China does understand, however belatedly, the seriousness of these challenges and is taking steps to address them.[10] Harrie Esterhuyse, research analyst at the Centre for Chinese Studies at Stellenbosch University in South Africa, warns that "the mitigation costs of pollution in China have risen to such high levels that [they] have begun to threaten broad-

2. *China welcomes AfDB's leadership in ensuring the sustainability of projects in Africa*, Afr. Dev. Bank Group (Dec. 31, 2013), www.afdb.org/en/news-and-events/article/china-welcomes-afdbs-leadership-in-ensuring-the-sustainability-of-projects-in-africa-12734/.

3. U.S. Energy Info. Admin., China: International energy data and analysis (2015), http://www.eia.gov/beta/international/analysis_includes/countries_long/China/china.pdf.

4. *See id.*

5. Han Yong, *Environmental Index: Measuring Up*, News China (Oct. 2015), http://www.newschinamag.com/magazine/measuring-up.

6. Scott Moore, *The Politics of Thirst: Managing Water Resources under Scarcity in the Yellow River Basin, People's Republic of China* 1 (Harvard Kennedy Sch. Energy Tech. Innovation Pol'y Res. Group, Discussion Paper No. 2013-08, 2014).

7. N.D., *Water Pollution: A Bay of Pigs Moment*, The Economist (Mar. 12, 2013), http://www.economist.com/blogs/analects/2013/03/water-pollution.

8. Eleanor Albert & Beina Xu, *China's Environmental Crisis*, Council on Foreign Rel. Backgrounders (Jan. 18, 2016), http://www.cfr.org/china/chinas-environmental-crisis/p12608.

9. *Id.*

10. Christine Loh, *Contrasting Realities: China's Environmental Challenge*, Hum. Rts. in China (July 18, 2011), www.hrichina.org/en/crf/article/5423.

based economic growth, indirectly feeding into structural inequality, which is a cause of political disaffection."[11]

A huge continental landmass with numerous island nations, Africa has many climate and ecological zones. As such, it is difficult to generalize about its environment. Of all the continents, Africa is the poorest.[12] It now has 1.1 billion people, and sub-Saharan Africa has the world's most rapidly growing population.[13] Africa is believed to be the continent both most vulnerable to global climate change, and the least able to adapt to it.[14] Key environmental problems today in parts of the continent include deforestation, desertification, reduced soil productivity, pollution, and the depletion of fresh water sources.[15] Africa has a recent history of periodic droughts, floods, and serious outbreaks of a wide variety of diseases.[16] While most African countries are paying more attention to environmental issues, the topic remains a relatively low policy priority.

I. Categorizing and Defining Foreign Direct Investment

The literature often fails to separate Chinese foreign direct investment (FDI) in Africa from its aid projects, commercial deals, and implementation of contracts for African governments and other organizations. All of these activities tend to be intermingled, especially in journalistic accounts. A majority of the major infrastructure projects that Chinese state-owned companies have constructed in Africa are commercial deals or come from the winning of contracts.[17] But it is not always so simple. For example, PowerChina, a state-owned company, has created separate units: Sinohydro International Corporation Limited and Sinohydro Resources Limited.[18] The former has responsibility for equipment, procurement, and construction contracts, while the latter normally does Build, Own, and Transfer (BOT) model projects.[19] Sinohydro International Corporation Limited projects do not qualify as FDI—the Soubré hydropower dam in Côte d'Ivoire is a case in point. Sinohydro Resources Limited projects might qualify as FDI. For example, the company is building a cement plant in Mozambique where it will hold fifty-five percent of its shares; this would

11. Harrie Esterhuyse, *Pollution and Social Stability in China: Dispelling the Obvious*, Ctr. for Chinese Stud. Comment. (Dec. 19, 2014), http://www.ccs.org.za/wp-content/uploads/2014/12/CCS_Commentary_Pollution_HE_2014.pdf.

12. Sarah Kiggundu, *Addressing Emerging Environmental Issues in 21st Century Africa*, Consultancy Afr. Intelligence (May 9, 2013), http://www.polity.org.za/article/addressing-emerging-environmental-issues-in-21st-century-africa-2013-05-09.

13. *Id.*

14. *Id.*

15. *Id.*

16. *Id.*

17. David Shinn, *China in Africa: Environmental Implications and the Law*, Int'l Pol'y Dig. (Oct. 25, 2015) [hereinafter Shinn, *China in Africa*], http://www.internationalpolicydigest.org/2015/10/25/china-in-africa-environmental-implications-and-the-law/.

18. *See Activist Guides to Sinohydro's Environment and Social Policies*, Int'l Rivers (Dec. 11, 2014), http://www.internationalrivers.org/resources/8463.

19. *See id.*

seem to constitute FDI.[20] On the other hand, the company is constructing a turnkey copper and cobalt mining project in the Democratic Republic of the Congo that does not seem to qualify as FDI.[21] African governments, Chinese companies, and institutions such as the Export-Import Bank of China contribute a majority of funding for these contracts and investments.[22]

There are also problems of definition. It can be difficult to determine what specific Chinese activities in Africa or other countries constitute FDI under commonly-used definitions. China has an official definition of inward FDI, which differs from the one the Organization for Economic Cooperation and Development (OECD) uses.[23] China's definition refers to investment in China by foreign enterprises, economic organizations, or individuals to open solely foreign-funded enterprises.[24] It also includes the running of Chinese-foreign equity joint ventures and participation in cooperative joint ventures, or co-development of resources with any enterprises or economic organizations within China in the form of spot exchange, real object, or technology.[25]

The OECD countries have a precise, short definition of FDI and many pages of more detailed guidelines.[26] According to the OECD, FDI has the goal of establishing a lasting interest by a resident enterprise in one economy (direct investor), in an enterprise that is resident in an economy other than that of the direct investor (direct investment).[27] This implies a long-term relationship between the direct investor and the direct investment enterprise, and a significant degree of influence on the management of the enterprise.[28] Direct or indirect ownership of ten percent or more of the voting power of an enterprise resident in one economy by an investor resident in another economy constitutes such a relationship.[29]

China does not seem to have an official definition for outward FDI and, in the case of China's investments in Africa, it is rarely possible to document whether they meet the OECD definition.[30] Consequently, when a Chinese company, either state-owned or private, declares that the project is an investment, it is exceedingly difficult to prove otherwise. This analysis assumes that declared investments qualify, but makes every effort to

20. *See* Press Release, Business Segment: Building Materials Sector, PowerChina Resources Ltd., http://pr.powerchina.cn/tabid/397/language/zh-CN/Default.aspx.

21. *See* Press Release, Business Segment: Mineral Resources Sector, PowerChina Resources Ltd., http://pr.powerchina.cn/tabid/395/language/zh-CN/Default.aspx.

22. Shinn, *China in Africa*, supra note 17.

23. *Id.*

24. Pan Jihua & John M. Forgach, *Going Global, Going Green: CCICED on Investment, Trade, and Environment*, China Council for Int'l Cooperation on Env't and Dev. 17 (2012), http://www.iisd.org/pdf/2012/going_global_going_green.pdf.

25. *Id.*

26. *See generally* OECD Benchmark Definition of Foreign Direct Investment, OECD (4th ed. 2008).

27. *Id.* at 48.

28. *Id.*

29. *Id.* at 48–49.

30. Shinn, *China in Africa*, *supra* note 17.

remove from the discussion Chinese aid projects, commercial deals, and implementation of contracts for African governments and the private sector. While these other Chinese activities can have a significant impact on Africa's environment, perhaps an even greater impact than FDI from China, they do not fall within the scope of the analysis.

II. Relative Concern About the Environment in Africa and China

It is useful to put the relative importance of environmental concerns in both Africa and China into perspective. Protection of the environment has never been a particularly high priority for African governments. African leaders have traditionally been much more concerned about issues such as disease, poverty, civil conflict, ethnic violence, and religious extremism.[31] While this remains the case, there is a growing awareness of the importance of good environmental practices and a concern that global warming will have especially negative implications for the continent.

A study by the Pew Research Center's Global Attitudes Project surveyed people in forty-four countries regarding five of the greatest dangers in the world: religious and ethnic hatred, inequality, AIDS and other diseases, nuclear weapons, and pollution and the environment.[32] The survey included nine African countries: Tunisia, Nigeria, Egypt, Senegal, Tanzania, Kenya, Ghana, South Africa, and Uganda. All but one African country ranked pollution and the environment as the least important of the five concerns.[33] Eight percent of Ugandan respondents answered that pollution and the environment was the greatest threat, leading it to be ranked in fourth place of the dangers, just ahead of religious and ethnic hatred, which was ranked in fifth place by seven percent of survey takers.[34] One survey of nine African countries does not document definitively the relative concern that government officials and ordinary people have about environmental issues. Based on the author's extensive experience in Africa, however, it tends to track with impressions acquired over the years.

In comparison, the situation for China is different. China was also one of the forty-four countries in the Pew study. Of the five dangers surveyed, pollution and the environment were ranked the highest, attracting the support of thirty-three percent of the respondents.[35] A separate Pew survey found that the Chinese public is increasingly concerned about the country's air and water quality.[36] In 2012, thirty-six percent of respondents agreed that air pollution was a very big problem.[37] In 2013, the per-

31. *See infra* notes 32–34 and accompanying text.

32. *See Greatest Dangers in the World*, Pew Res. Ctr. (Oct. 16, 2014), http://www.pewglobal.org/2014/10/16/greatest-dangers-in-the-world/.

33. *See id.*

34. *See id.*

35. *See id.*

36. *See Environmental Concerns on the Rise in China*, Pew Res. Ctr. (Sep. 19, 2013), http://www.pewglobal.org/2013/09/19/environmental-concerns-on-the-rise-in-china/.

37. *Id.*

centage increased to forty-seven percent.[38] In 2012, thirty-three percent thought that water pollution was a big problem.[39] The number then grew to forty percent in 2013.[40] This is significant because concerns in China about domestic challenges, such as those related to the environment, often manifest themselves later as policy priorities pursued by China outside its borders. The situation has reached a point where the environmental record of government officials has become an important part of their evaluation by the Communist Party; cadres are held accountable for their actions even after leaving their positions.[41]

III. Increasing Attention on the Environment by Chinese Companies Investing Overseas

The Export-Import Bank of China, the main financing institution for Chinese companies investing abroad, is one of the leaders in urging better environmental policies. In 2004, it developed its own environmental policy and impact assessments whereby it encouraged Chinese companies venturing overseas to comply with host country policies regarding sustainable development and environmental protection.[42]

Environmental concerns were not a significant part of the discussion in the early years of the Forum on China-Africa Cooperation (FOCAC).[43] China seemed to take a disengaged approach to the environmental practices of Chinese companies operating overseas. At the 2006 FOCAC in Beijing, Chinese and African leaders agreed to "intensify cooperation in environment protection, share experiences and boost sustainable development on both sides."[44] In 2006, an OECD working party on environmental performance met in Beijing where it agreed, together with the Chinese delegation, to a series of recommendations concerning environmental practices.[45] The recommendations included the need for improvement of Chinese "governmental oversight and environmental performance in the overseas operations of Chinese corporations."[46]

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38. *Id.*

39. *Id.*

40. *Id.*

41. *Raise the green lanterns*, THE ECONOMIST (Dec. 5, 2015), http://www.economist.com/node/21679500/.

42. Daouda Cissé et al., *State-Directed Multi-National Enterprises and Transnational Governance: Chinese Investments in Africa, Corporate Responsibility and Sustainability Norms* (Stellenbosch University Ctr. for Chinese Stud., Discussion Paper, Jan. 2014), http://scholar.sun.ac.za/handle/10019.1/95493.

43. LUCY CORKIN, CHINA, AFRICA, AND THE ENVIRONMENT 6 (2009).

44. Zhou Yan & Ou Sa, *Chinese, African Leaders Underscore Cooperation in Environment Protection*, XINHUA NEWS AGENCY (Nov. 5, 2006), http://news.xinhuanet.com/english/2006-11/05/content_5292754.htm?rss=1. *See* May Tan-Mullins, *Policy Meets Practice: Chinese Environmental Protection in Africa in the Wake of FOCAC VI*, *in* FOCAC VI: AFRICAN INITIATIVES TOWARD A SUSTAINABLE CHINESE RELATIONSHIP 50, 52 (Ross Anthony ed., 2015).

45. OECD, ENVIRONMENTAL PERFORMANCE REVIEWS: CHINA 14 (2007).

46. *Id.* at 30.

At the 2009 FOCAC meeting in Sharm el-Sheikh, Chinese and African officials devoted more attention to environmental issues, especially climate change. They agreed to use FDI to bolster economic growth and sustainable development, but did not address the environmental practices of Chinese companies in Africa.[47] In 2010, eight Chinese academics, planners, and economists, along with the support of the Global Environmental Institute (a Chinese non-governmental organization) published a book titled *Environmental Polices on China's Investment Overseas*.[48] The authors concluded that environmental protection policies were badly lacking with respect to China's FDI and foreign aid.[49] They urgently called for China to issue guidelines regarding FDI, aid, and loans in other countries.[50]

There is growing evidence that China is now encouraging its companies to follow better environmental practices as they invest in Africa and other countries. Chinese companies are increasingly using environmental impact assessments, and sometimes even drawing on the expertise of Western companies that specialize in these studies.[51] This development is not surprising in light of the growing concern about environmental problems in China and a deeper understanding by the government that it is not in China's interest to export its bad practices overseas.[52] In 2013, China's Ministry of Commerce and Ministry of Environmental Protection issued voluntary guidelines that encouraged companies investing overseas to follow local environmental laws, assess the environmental risks of their projects, minimize the impact on local heritage, manage waste, comply with international standards, and draft plans for handling emergencies.[53] Bie Tao, an official in China's Ministry of Environmental Protection, commented that "no side will win if the environment is neglected, and we have many lessons in this regard."[54]

International environmental advocacy groups have been cautiously optimistic about the issuance of the guidelines. Grace Mang, Co-Program

47. *Forum on China-Africa Cooperation Sharm El Sheikh Action Plan (2010–2012)*, F. ON CHINA-AFRICA COOPERATION (Nov. 11, 2009), http://www.focac.org/eng/ltda/dsjbzjhy/hywj/t626387.htm. *See* Tan-Mullins, *supra* note 44, at 52–53.

48. Meng Si, *Environmental Policies on China's Investment Overseas*, CHINADIALOGUE (Oct. 9, 2010), https://www.chinadialogue.net/books/3811—Environmental-Policies-on-China-s-Investment-Overseas-/en.

49. *Id.*

50. *Id.*

51. Becky Davis, *Chinese Mining Group Sets Guidelines for Overseas Interaction*, N.Y. TIMES (Oct. 24, 2014), http://www.nytimes.com/2014/10/25/business/international/chinese-mining-group-sets-guidelines-for-overseas-interaction.html?_r=1.

52. Notification of the Ministry of Commerce and the Ministry of Environmental Protection on Issuing the Guidelines for Environmental Protection in Foreign Investment and Cooperation (promulgated by the Ministry of Commerce of the People's Republic of China and the Ministry of Environmental Protection of the People's Republic of China, Mar. 1, 2013, effective Feb. 18, 2013), http://english.mofcom.gov.cn/article/policyrelease/bbb/201303/20130300043226.shtml.

53. *Id.*

54. *China Asks Companies to Mind Environment When Investing Overseas*, BLOOMBERG NEWS (Feb. 28, 2013), http://www.bloomberg.com/news/articles/2013-02-28/china-asks-companies-to-mind-environment-when-investing-overseas.

Director at International Rivers, concluded that "the Chinese government has sent a strong signal to its companies that it expects them to act responsibly and lawfully when operating overseas."[55] Tao Hu, a senior associate at the World Resources Institute and previously an economist at a research center associated with China's Ministry of Environmental Protection, commented that the guidelines provide basic principles for Chinese companies to integrate environmental protection into their corporate strategies, but emphasized that the guidelines have no teeth. If companies choose to ignore the guidelines, there is no penalty.[56] Therefore, he suggested China might eventually have to implement mandatory guidelines.[57]

In 2014, the government-affiliated China Chamber of Commerce for Minerals, Metals, and Chemicals Importers and Exporters announced guidelines to regulate overseas mining investments and operations. The guidelines were developed in collaboration with the OECD, the German development agency GIZ, and Global Witness, an advocacy group that focuses on natural resource management. These guidelines encourage Chinese companies that invest overseas to pay careful attention to labor issues, environmental protection, supply chain due diligence, and human rights concerns. While it is too soon to judge the impact of these guidelines, initial reactions have been positive.[58]

Chinese state-owned and privately owned companies are also demonstrating greater interest in protecting the environment. One such example is the United Nations Global Compact, a "voluntary corporate responsibility initiative that commits businesses to align their operations and strategies with ten universally accepted principles in the areas of human rights, labor, environment, and anti-corruption."[59] Its seventh Principle emphasizes that businesses should "support a precautionary approach to environmental challenges."[60] This involves risk assessment, risk management, and risk communication.[61] According to Principle Eight, signatories should seek greater environmental responsibility through self-regulation and dialogue with employees and the public while adopting appropriate codes of conduct.[62] Principle Nine encourages businesses to develop and diffuse environmentally friendly technologies that use materials with efficiency and cleanliness.[63]

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55. Grace Mang, *Beijing Sends a Signal to Chinese Overseas Dam Builders*, INT'L RIVERS (Apr. 23, 2013), http://www.internationalrivers.org/blogs/262/beijing-sends-a-signal-to-chinese-overseas-dam-builders.

56. Tao Hu, *A Look at China's New Environmental Guidelines on Overseas Investments*, WORLD RESOURCES INST. (July 3, 2013), http://www.wri.org/blog/2013/07/look-chinas-new-environmental-guidelines-overseas-investments.

57. *Id.*

58. Davis, *supra* note 51.

59. Shinn, *China in Africa*, *supra* note 17.

60. *Id.*

61. *The Ten Principles of the UN Global Compact*, U.N. GLOBAL COMPACT, https://www.unglobalcompact.org/what-is-gc/mission/principles/principle-7 (last visited Nov. 8, 2015).

62. Shinn, *China in Africa*, *supra* note 17.

63. *Id.*

The Global Compact counts over 13,000 corporations and other stakeholders from about 170 countries as signatories.[64] By 2015, 272 Chinese businesses—private as well as state-owned, non-governmental organizations, and business associations—had signed up.[65] The first Chinese company to sign the Compact did so in 2000.[66] The Compact includes mostly small, medium, and large private companies, with the exception of a number of large state-owned companies with operations in Africa.[67] These member companies only represent a modest chunk of the several thousand Chinese companies operating in Africa.[68] Also, it is one thing to sign the Compact and another to implement its guidelines. In fact, little is required of signatories. Chinese companies, not unlike companies from other countries, have had a mixed response to the Compact. Members commit to make the Compact principles part of their business strategies in day-to-day operations and to submit an annual progress report.[69] For example, Huawei Technologies Co. Ltd. and PetroChina Co. Ltd., both of which are heavily invested in Africa, have a good track record for submitting their annual reports.[70] There is, however, a considerable variation in the degree of seriousness among Chinese companies in complying with the Compact.[71]

In 2012, a company engaged in Africa, the China Petroleum and Chemical Corporation (SINOPEC), announced that it was issuing the first white paper on environmental protection by a Chinese enterprise.[72] In the paper, SINOPEC said it was committed to providing sufficient funds for environmental protection and would adhere to clean production by raising resource efficiency and developing green energy, and to improving the emergency response systems to mitigate environmental risk.[73] In addition, SINOPEC said it was committed to the Global Compact.[74]

Daniel Compagnon and Audrey Alejandro, both at Sciences Po Bordeaux, point out an important distinction in the kinds of Chinese FDI going to Africa and elsewhere. State-owned companies with close ties to the Communist Party of China account for sixty-nine percent of the FDI in

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64. *Id.*

65. *Id.*

66. Paul Nash, *Global Compact Challenges Firms*, BUS. WEEKLY (Apr. 8, 2003), http://www.chinadaily.com.cn/en/doc/2003-04/08/content_162162.htm.

67. Shinn, *China in Africa*, *supra* note 17.

68. *Id.*

69. *Id. See* THE GLOBAL COMPACT, AFTER THE SIGNATURE: A GUIDE TO ENGAGEMENT IN THE UNITED NATIONS GLOBAL COMPACT (Mar. 2007).

70. U.N. GLOBAL COMPACT, https://www.unglobalcompact.org/participation/report/cop/create-and-submit/active/22464 (last visited Nov. 8, 2015).

71. Shinn, *China in Africa, supra* note 17.

72. *Id.*

73. *Id.*

74. *Id.*; *SINOPEC Releases Its White Paper on Environmental Protection for the First Time, the First of Its Kind in China*, CHINA COUNCIL FOR INT'L COOPERATION ON ENV'T AND DEV. (Dec. 04, 2012), www.cciced.net/enccied/newscenter/latestnews/201212/t20121204_243139.html.

Africa.[75] The remaining sources of FDI come from private Chinese investment banks with government connections: sovereign funds like the China-Africa Development Fund, Chinese provincial and local governments, and small private companies and individual businesses.[76] Compagnon and Alejandro concluded that companies most resistant to improved environmental practices in Africa are the small private companies and the medium-sized ones affiliated with Chinese provincial and municipal administrations.[77] Other experts and organizations that follow this issue have reached similar conclusions.[78]

China's largest companies are generally in the hands of the central government.[79] Combined with the state-owned banks, state-owned enterprises generate more than half of the revenue of China's five hundred largest companies.[80] Out of policy concerns, the government controls a majority of shares of firms in the defense, energy, and telecommunications industries. Companies owned by Chinese provinces control about another quarter of the total revenue.[81] These companies compete against each other as well as with private firms in highly fragmented industries.[82] These distinctions are important for a Western audience where the overwhelming majority of companies investing in Africa come from the private sector.

IV. Chinese Environmental Practice and Law

A basic understanding of China's environmental practice and law is necessary, because Beijing's domestic policies eventually tend to be reflected in its approach elsewhere, including Africa. Compagnon and Alejandro conclude that "Chinese companies reproduced in Africa [environmental] practices and attitudes they had routinely adopted at home."[83] They add that the strength of the environmental policy shift in China and the tendency of Chinese state-owned companies to project these policies

75. Daniel Compagnon & Audrey Alejandro, *China's External Environmental Policy: Understanding China's Environmental Impact in Africa and How it is Addressed,* 15 Envtl. Prac. 220, 220–21 (2013).

76. *Id.*

77. *Id.*

78. Johanna Jansson, Christopher Burke & Wenran Jiang, Chinese Companies in the Extractive Industries of Gabon & the DRC: Perceptions of Transparency 46 (2009); Jihua & Forgach, *supra* note 24, at 32; Meng Si, *Following the Money*, chinadialogue (Sept. 20, 2010), https://www.chinadialogue.net/article/show/single/en/3825-Following-the-money.

79. Shinn, *China in Africa, supra* note 17.

80. *Id.*

81. *Id.*

82. Paul Hubbard & Patrick Williams, *Chinese SOEs: Some are More Equal than Others*, E. Asia F. (Aug. 24, 2014), www.eastasiaforum.org/2014/08/24/chinese-soes-some-are-more-equal-than-others/.

83. For an analysis of China's environmental policy until 2008, see Peter Bosshard, *China's Environmental Footprint in Africa*, S. Afr. Inst. Int'l Aff. Pol'y Briefing, No. 3 (Apr. 2008).

overseas is the greatest hope for change.[84] Yi Yimin, a project officer at Moving Mountains (an international development charity based in Northern Ireland), says that to understand the environmental and social impacts of China's investments in Africa, one needs to understand the impacts of Chinese investment in China.[85]

Benjamin Shobert, founder of a private strategy group and senior associate at the National Bureau of Asian Research, recently concluded that "China's environmental concerns have reached a critical inflection point, and these issues are increasingly driving national policy in ways that have key implications for public health, energy outlooks, and efforts to address global climate change."[86] He emphasized that these environmental problems contribute to a fundamental vulnerability that China is facing today: an inadequate healthcare system.[87]

There has been a recent shift in China's focus on environmental challenges and the need to confront them. In 2008, China promoted the State Environmental Protection Administration to the Ministry of Environmental Protection and placed it under the control of the State Council, which is the approximate equivalent to the American cabinet.[88] In 2012, the Eighteenth National Congress of the Communist Party of China adopted "ecological civilization" as one of the five driving pillars of policy.[89] At the end of 2012, the National People's Congress enacted ten environmental laws and thirty resource protection laws.[90] Local people's congresses and governments adopted more than 700 local environmental rules and regulations, and the departments of the State Council issued hundreds of environmental regulations.[91] China's first environmental non-governmental organization appeared in 1994.[92] By the end of 2012, almost 8,000 environmental non-governmental organizations had registered with the Ministry of Civil Affairs.[93]

The China Council for International Cooperation on Environment and Development (CCICED) is a high-level advisory body authorized by the

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84. MARCUS POWER ET AL., CHINA'S RESOURCE DIPLOMACY IN AFRICA: POWERING DEVELOPMENT? 195–200 (2012); Weiyong Yang et al., *The Emergence of Environmental Regulation in China: Its Limits and Implications for the Petroleum Sector*, *in* THE ENVIRONMENTAL CHALLENGES FACING A CHINESE OIL COMPANY IN CHAD 29, 29-65 (Geert van Vliet & Géraud Magrin eds., 2012).

85. Yimin, *supra* note 1, at 384.

86. Benjamin A. Shobert, *The Key Drivers of China's Environmental Policies*, *in* CHINA'S ENERGY CROSSROADS: FORGING A NEW ENERGY AND ENVIRONMENTAL BALANCE 47, 49 (2014).

87. *Id.*

88. CHINA COUNCIL FOR INT'L COOPERATION ON ENV'T & DEV., POLICY RESEARCH REPORT ON ENVIRONMENT AND DEVELOPMENT: ENVIRONMENT AND SOCIETY FOR GREEN DEVELOPMENT 2013 44 (2014).

89. *Id.* at 13.

90. *Id.* at 44.

91. *Id.*

92. *Id.* at 42.

93. *Id.*

Chinese government.[94] Its governing body includes several non-Chinese officers, and it receives some outside funding.[95] CCICED concludes that transformative change concerning environmental protection is underway in China, although desired results will not be achieved until there are additional tools, capacity, and financing.[96] So far, the emphasis has been on controlling basic air, water, and soil pollution.[97] While progress is being made on some problems, new ones emerge such as wider groundwater pollution, and the changing sources and complexities of air pollution.[98] China's recent efforts to achieve "sustainable consumption" also have important implications for its trade and FDI, which will require more attention to the product life cycle, and participation in international certification and green standard programs.[99]

In 1989, the Eleventh Session of the Standing Committee of the Seventh National People's Congress adopted the comprehensive Environmental Protection Law of the People's Republic of China.[100] Article 1 states that the law is intended to protect and improve the environment by "preventing and controlling pollution and other public hazards, safeguarding human health, and facilitating the development of socialist modernization."[101] Article 2 defines environment broadly as "the total body of all natural elements and artificially transformed natural elements affecting human existence and development, which includes the atmosphere, water, seas, land, minerals, forests, grasslands, wildlife, natural and human remains, nature reserves, historic sites and scenic spots, and urban and rural areas."[102]

Article 6 says that "all units and individuals shall have the obligation to protect the environment and shall have the right to report on or file charges against units or individuals that cause pollution or damage the environment."[103] While Article 9 gives the State Council responsibility for establishing national standards for environmental quality, Article 16 assigns the responsibility to the local people's governments to take measures to improve the quality of the environment for areas under their jurisdictions.[104] According to Article 35, violators of the law shall "be warned or fined by the competent department of environmental protection administration or another department invested by law with power to conduct environmental supervision and management for" a specified list of

94. China Council for Int'l Cooperation on Env't & Dev., CCICED Annual Policy Report 2011: Economic Development Mode: Green Transformation i (2012).

95. *Id.*

96. *Id.* at 17.

97. *Id.* at 19.

98. *Id.*

99. *Id.*

100. *[Excerpts from] Environmental Laws and Policy Documents*, 43 Chinese L. & Gov't 18, 20 (2010) [hereinafter *Environmental Laws*].

101. *Environmental Protection Law of the People's Republic of China (1989)*, 37 Chinese L. & Gov't 18, 58 (2004).

102. *Id.*

103. *Id.*

104. *Id.* at 59–60.

infractions.[105]

As China's environmental challenges have become more serious, there has been growing interest in the use of the court system to deal with polluters. Traditional environmental litigation includes tort cases that seek compensation for harm caused by environmental pollution and "administrative failure to act" cases brought by local citizens against polluters, property developers, and others.[106] The rights of individuals and other bodies to take environmental complaints to courts are contained in Article 6 of the Environmental Protection Law cited above and Article 124 of the General Principles of Civil Law, which states that "any person who pollutes the environment and causes damage to others in violation of state provisions for environmental protection and the prevention of pollution shall bear civil liability in accordance with the law."[107] The primary criminal law provision in the event of "major environmental pollution accidents" has historically been Article 338 of the Chinese Criminal Law, which allows for a maximum criminal sentence of seven years.[108] In egregious cases involving fires, explosions, and the breaching of dikes, Article 115 allows for life imprisonment or even the death sentence.[109]

Since 2005, there has been increasing support to establish an environmental public interest litigation system, which allows any citizen, social organization, and state organ to bring a lawsuit in a state judicial organ for the sake of the public interest.[110] A related recent development, especially since 2007, has been the rapid growth of environmental courts in China following a pollution crisis in parts of the country.[111] More than 130 environmental courts developed between 2007 and 2013.[112] They include environmental divisions within the Intermediate People's Court, and environmental divisions or separate tribunals at the basic court level.[113] They also include environmental panels and environmental *xunhui* courts, which usually allow judges to work onsite at agency offices.[114] China's environmental public interest litigation and the creation of environmental courts have been significant legal and judicial developments.[115]

While the environmental courts are intriguing innovations, one study of them suggests that economic growth in China tends to trump environmental concerns.[116] Part of the appeal of the courts is their flexibility in

105. *Id.* at 63. For additional information on China's environmental laws and policy documents, see *Environmental Laws*, *supra* note 100, at 18-25.
106. Alex L. Wang, *Environmental Courts and Public Interest Litigation in China*, 43 CHINESE L. & GOV'T 4, 4–5 (2010).
107. *Id.* at 5.
108. *Id.* at 6.
109. *Id.*
110. *Id.* at 6–7.
111. *Id.* at 9.
112. Rachel E. Stern, *The Political Logic of China's New Environmental Courts*, 72 CHINA J. 53, 53 (2014).
113. *Id.* at 54–55.
114. Wang, *supra* note 106, at 9.
115. *Id.* at 15.
116. *See* Stern, *supra* note 112, at 61.

the hands of local officials. They demonstrate responsiveness to environmental concerns while sometimes aiding or at least not obstructing economic developments and social stability.[117] Rachel Stern, assistant professor of law and political science at the University of California, Berkeley, concludes that "China's environmental courts are not a step toward judicial empowerment, as they might appear at first glance, but an effort to shore up state capacity through an institution designed to coordinate and act as a backstop for government agencies."[118] The courts constitute part of a broader effort to encourage environmental protection as a policy priority,[119] as judges do not necessarily see neutrality as part of their job.[120] Additionally, the courts fit into a tradition of socialist courts as consciousness-raising institutions and serve to support social control.[121]

In 2015, China began to implement its updated 1989 Environmental Protection Law (EPL), which suggests that China has become more serious about improving environmental quality.[122] The most significant additions and provisions to the EPL include: (1) increasing the seriousness of the consequences for violating China's environmental laws, (2) expanding the scope of projects subjected to environmental impact assessments, and (3) allowing nongovernmental organizations to take legal action against polluters in the public interest.[123] Article 58 allows non-governmental organizations to file claims in the People's Court if they (1) are registered with the civil affairs department at or above the municipal level and (2) have been focused on environment-related public interest activities for five consecutive years or more.[124] Only about three hundred non-governmental organizations meet both of these requirements.[125] Chinese environmental non-governmental organizations are relatively new, lacking in resources, and struggling to cope with numerous environmental issues.[126] Few of them are paying any attention to overseas investments by Chinese companies.[127]

Environmental non-governmental groups face major challenges in China. Chai Jing, a former anchor for state-run China Central Television, produced with official support a powerful documentary on air pollution in

117. *Id.*
118. *Id.*
119. *See id.*
120. *See id.* at 61–62.
121. *See id.* at 62; Qie Jianrong, *The Struggling Environmental Courts and Environmental Public-Interest Litigation*, *in* 1 CHINESE RESEARCH PERSPECTIVES ON THE ENVIRONMENT 325, 325–34 (Yang Dongping ed., 2013).
122. *See* Robert L. Falk & Jasmine Wee, *China: China's New Environmental Protection Law– Implications for Overseas Investors, Joint Ventures and Trading Partners*, MONDAQ (2014), www.mondaq.com/x/345932/Environmental+Law/Chinas+New+Environmental+Protection+Law&login=true.
123. *See id.*
124. *Id.*
125. *See id.*
126. *See* Michael M. Gunter & Ariane C. Rosen, *Two-Level Games of International Environmental NGOs in China*, 3 WM. & MARY POL'Y REV. 270, 273–80 (2012).
127. *See* Lo Sze Ping & Yi Yimin, *Transgressing Global and Local: Environmental NGOs and China's Overseas Investment*, *in* 1 CHINESE RESEARCH PERSPECTIVES ON THE ENVIRONMENT 369, 378–79 (Yang Dongping ed., 2013).

China called *Under the Dome*.[128] Released on February 28, 2015 and promoted by the *People's Daily* online website, it immediately attracted tens of millions of viewers.[129] It described a Ministry of Environmental Protection that was unable to do anything about a steel industry that ignored environmental rules and is helpless against state-run oil companies.[130] China's censors ordered the documentary, which had been praised by the new minister of environmental protection, removed from the internet on March 6, 2015.[131] While Premier Li Keqiang and the Minister of Environmental Protection acknowledged the governmental failings and promised to enforce China's environmental laws, the banning of the documentary revealed divisions in the government on the handling of air pollution, and marked a setback for civil society groups seeking to improve the situation.[132]

One study concluded that China's environmental legislation is strong on paper, but its implementation tends to be weak.[133] Much depends on the efforts of local governments, which have considerable autonomy, and other state agencies. Policies implemented at the provincial and municipal level are often characterized by apathy and lack of oversight.[134] CCICED argues that large state-owned companies such as China National Petroleum Corporation, SINOPEC, and China National Offshore Oil Corporation "have adopted a series of rigorous environmental protection standards."[135] At the same time, CCICED acknowledges that "Chinese enterprises still appear to be 15–20 years behind" their Western counterparts when it comes to the adoption of modern social and environmental approaches to their outward FDI.[136] Two Chinese environmental specialists concluded that China has made steady progress on environmental legislation but still has an unsatisfactory enforcement system.[137] In particular, they argue that there are inadequate sanctions for those who damage the environment and

128. *See* Edward Wong, *China Blocks Web Access to 'Under the Dome' Documentary on Pollution*, N.Y. Times (Mar. 6, 2015), http://www.nytimes.com/2015/03/07/world/asia/china-blocks-web-access-to-documentary-on-nations-air-pollution.html?_r=0.

129. *See id.*

130. *See id.*

131. *See id.*

132. *See* Christina Larson, *China Hails, Then Bans a Documentary*, Bloomberg Businessweek (Mar. 12, 2015), http://www.bloomberg.com/news/articles/2015-03-12/china-hails-then-bans-antipollution-film-under-the-dome; Edward Wong & Chris Buckley, *Chinese Premier Vows Tougher Regulation on Air Pollution*, N.Y. Times (Mar. 15, 2015), http://www.nytimes.com/2015/03/16/world/asia/chinese-premier-li-keqiang-vows-tougher-regulation-on-air-pollution.html?_r=0.

133. *See* David H. Shinn, *The Environmental Impact of China's Investment in Africa*, Int'l Pol'y Dig. (Apr. 8, 2015) [hereinafter Shinn, *Environmental Impact*], http://www.internationalpolicydigest.org/2015/04/08/the-environmental-impact-of-china-s-investment-in-africa/.

134. Compagnon & Alejandro, *supra* note 75.

135. Si, *supra* note 78.

136. *See id.*

137. *See* Feng Jia & Bo Xiaobo, *China's Environmental Law Fails to Effectively Ensure Fairness*, *in* 1 Chinese Research Perspectives on the Environment 285, 285–94 (Yang Dongping ed., 2013).

too few incentives for those who protect it.[138]

The Ethics Institute of South Africa organized in 2014 a dialogue in Pretoria for African and Chinese delegates to discuss "Sustainable Business Relations between China and Africa."[139] The final report concluded that Chinese companies are starting to implement pollution control practices and are increasingly promoting the use of clean energy and environmentally friendly practices.[140] They are also giving greater attention to the establishment of standards and reporting on environmental and social impact assessments.[141] In spite of these advances, however, the report said that Chinese businesses still observe minimal adherence to local environmental standards, rather than a complete adherence to the best environmental management practices.[142]

V. Moving Polluting Industries to Africa

There is a new concern that China will address domestic industrial pollution by relocating some of its highest polluting industries (such as the steel, glass, leather, and cement industries) to Africa, Latin America, Eastern Europe, and other parts of Asia.[143] For example, sulfur dioxide, nitrogen dioxide, and dust from heavy manufacturing in Hebei Province are fouling the air in Beijing.[144] The easiest solution is to reduce the number of highly polluting industries around Beijing, which the government is in the process of doing.[145] At the same time, African countries are pressing China to invest in more job-creating industries.[146]

Hebei Iron & Steel, China's largest producer owned by Hebei Province, announced in 2014 that it would build a plant capable of making five million tons of steel annually in South Africa.[147] The company plans to start production in 2017 and may close its mills in Hebei.[148] By 2023, Hebei provincial authorities hope to relocate offshore the production of

138. *See id.* at 290.

139. *See* Institute For Global Ethics, Sustainable Business Relations Between China and Africa: Report on the Dialogue in South Africa 25–27 (Ignace Haaz ed., 2015).

140. *See id.* at 15.

141. *See id.*

142. *See id.*

143. *See* Dexter Roberts, *China's Plan to Export Pollution*, Bloomberg Businessweek (Nov. 27, 2014) [hereinafter Roberts, *China's Plan*], http://www.bloomberg.com/bw/articles/2014-11-27/chinas-pollution-solution-move-factories-abroad.

144. *See* Dexter Roberts, *Air Pollution Turned This Chinese City into a Ghost Town*, Bloomberg Businessweek (Feb. 26, 2015), http://www.bloomberg.com/news/features/2015-02-26/air-pollution-turned-this-chinese-city-into-a-ghost-town.

145. *See id.*

146. *See generally* Shuaihua Cheng & Guoyong Liang, *Social Responsibility of Chinese Investment in Africa: What Does It Mean For EU-China Cooperation on Development Policy Towards Africa?*, Int'l Ctr. For Trade & Sustainable Dev. (May 6, 2011), http://www.ictsd.org/bridges-news/trade-negotiations-insights/news/social-responsibility-of-chinese-investment-in-africa.

147. Roberts, *China's Plan*, *supra* note 143.

148. *See id.*

twenty million tons of steel and thirty million tons of cement.[149] In 2015, Sinosteel announced plans to develop a major steel plant in Kenya.[150] The managing director of Sentuo Steel Limited said that the company is adding 500,000 metric tons annually to the company's existing 300,000 metric ton plant at Tema in Ghana.[151]

Chinese tanneries in Africa have already raised concerns. China-Africa Overseas Leather Products SC began operations in Ethiopia in 2010 and almost immediately encountered pollution complaints.[152] Forced to shut down for forty days, the tannery seems to have resolved the problems.[153] Jeronimo Group Industries & Trading PLC, a subsidiary of Chinese glove-making firm Phiss, has been operating in Somaliland since 2008.[154] Local residents complained that the company has been dumping waste into the river, causing harm to the livestock industry.[155] The Somaliland government has been reluctant to intervene for fear that the intervention would discourage additional foreign investments.[156] As the environmental implications of these industries become fully appreciated, people in recipient countries will almost certainly ask more questions about the advisability of accepting highly polluting industries, even though African governments' desire to create jobs will likely prevail over environmental concerns.

In response to these concerns, Lin Songtian, Director General of the Department of African Affairs at the Ministry of Foreign Affairs of the People's Republic of China and former ambassador to Liberia and Malawi, said defensively that the environmental complaints were instigated by the Western media, which is worried that Africa would improve its industrial capacity and achieve political and economic independence.[157] He added that having experienced serious environmental problems in China, his government did not want to see African countries following the path of pollution

149. *See* Sean Silbert, *Province Near Beijing Aims to Move Polluting Factories Overseas*, L.A. TIMES (Nov. 19, 2014), http://www.latimes.com/world/asia/la-fg-china-pollution-factories-overseas-20141119-story.html.

150. Margaret Wahito, *Chinese Steel Maker to Open Mega Plant in Kenya*, CAP. FM KENYA (Mar. 30, 2015), http://www.capitalfm.co.ke/business/2015/03/chinese-steel-maker-to-open-mega-plant-in-kenya/.

151. *New $53M Chinese Steel Company to Boost Ghana Industry*, GHANA BUS. NEWS (June 4, 2015), https://www.ghanabusinessnews.com/2015/06/04/new-53m-chinese-steel-company-to-boost-ghana-industry/.

152. *See* Li Lianxiang, *By the Bootstraps*, CHINA DAILY (June 14, 2013), http://africa.chinadaily.com.cn/weekly/2013-06/14/content_16620709.htm.

153. *See id.*; Berhanu Fekade, *Chinese Tannery Caught Red-Handed While Attempting to Export Semi-Finished Leather*, REPORTER (May 11, 2013), http://www.thereporterethiopia.com/index.php/news-headlines/item/479-chinese-tannery-caught-red-handed-while-attempting-to-export-semi-finished-leather.

154. Sean Williams, *Chinese Factory Accused of Poisoning Somaliland Water Supplies*, THE GUARDIAN (July 2, 2013), http://www.theguardian.com/environment/2013/jul/02/chinese-factory-somaliland-water.

155. *Id.*

156. *Id.*

157. Lin Songtian, *Africa: Continent and China Industrial Capacity Cooperation Aims for Win-Win*, ALLAFRICA (July 13, 2015), http://allafrica.com/stories/201507131170.html.

first and cleaning up later.[158] China, he said, would help African countries establish industrial access standards and "will regulate Chinese businesses to abide by the four principles of industrial capacity cooperation."[159] This is clearly a situation, however, where African leaders will have to insist on the highest environmental standards for those industries that relocate to Africa.

VI. African Environmental Practice and Law

With fifty-four countries in Africa, it is impossible, except at the most basic level, to generalize about African environmental practices and law. The 1963 Charter of the Organization of African Unity contained no reference to environmental protection.[160] The adoption of the African Convention of Nature and Natural Resources (the Algiers Convention) in 1968 was the first pan-African effort to deal with environmental issues.[161] In 1985, African governments established the African Ministerial Conference on the Environment (AMCEN) to promote regional cooperation in addressing environmental concerns.[162] AMCEN is now the main policy-making forum for discussing Africa's environmental problems.[163] African leaders began to take greater interest in environmental challenges in the late 1980s and 1990s.[164] In 2003, the African Union replaced the Organization of African Unity and adopted the comprehensive Revised African Convention on the Conservation of Nature and Natural Resources (the Revised Convention).[165] The Revised Convention makes a strong commitment to poverty reduction and socio-economic development.[166] Once the Revised Convention comes into force, it will replace the 1968 Algiers Convention for those African states that have ratified it.[167]

While the Algiers Convention had the potential to become a comprehensive treaty on the environment for African countries, it never achieved that goal.[168] The 2003 Revised Convention will be an improvement only if its provisions are adequately financed, effective institutional mechanisms are put in place, and there is a strong non-compliance mechanism.[169] The African Court of Justice and Human Rights, which will have jurisdiction over matters concerning the Revised Convention, has not yet adjudicated

158. *Id.*
159. *Id.*
160. Emeka Polycarp Amechi, *Linking Environmental Protection and Poverty Reduction in Africa: An Analysis of the Regional Legal Responses to Environmental Protection*, 6 L. Env't & Dev. J. 112, 117 (2010).
161. *Id.* at 115.
162. *Id.* at 119.
163. *Id.*
164. *Id.* at 117.
165. *Id.* at 118.
166. *Id.* at 126.
167. *Id.*
168. Bolanle T. Erinosho, *The Revised African Convention on the Conservation of Nature and Natural Resources: Prospects for a Comprehensive Treaty for the Management of Africa's Natural Resources*, 21 Afr. J. Int'l & Comp. L. 378, 385 (2013).
169. *Id.* at 393.

any cases.[170] So far, only eight countries have ratified the Revised Convention; it will not enter into force until it has been ratified by fifteen African countries.[171] This fact—and the subsequent lack of discussion about the Revised Convention in African Union meetings—suggest a continuing lack of priority that African governments give to environmental protection.[172] African leaders understand the link between natural resources and economic development.[173] They must now demonstrate that environmental protection is not a competing interest for scarce financial resources, but a complementary one.[174]

The African Union has developed an Action Plan of the Environment Initiative of the New Partnership for African Development.[175] It identifies eleven regional environmental issues such as climate change, desertification, and integrated waste management as priority program areas for regional environmental cooperation.[176] Like the Revised Convention, it emphasizes that the environment must be treated in a way that accelerates poverty reduction and sustainable development.[177] A number of African sub-regional organizations have also taken up environmental issues. The Southern African Development Community (SADC) has committed member states to sustainable development and ratification of multilateral environmental agreements.[178] SADC has approved the Environment and Sustainable Development Policy and Strategy Document and a Protocol on the Environment.[179] The five members of the East African Community ratified a protocol for sustainable development of the Lake Victoria Basin.[180] The Senegal River Basin Organization, Niger Basin Authority, and the Nile Basin Initiative were established to improve water resource management.[181]

These continental and sub-regional environmental initiatives have suffered, however, due to slow policy implementation, inadequate environmental legislation at lower level institutions, poor legal enforcement, and

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170. *Id.* at 395.

171. *Id.*

172. *Id.* at 393–95.

173. *Id.* at 396.

174. *Id.* at 396–97. For a more encouraging account of African countries' efforts to combat desertification and Chinese assistance in this regard, see Alioune Thiam, *Challenges in Combating Desertification in Sub-Saharan Africa, Which Role for China?*, 1 AFR. E.-ASIAN AFF.: THE CHINA MONITOR 16, 18–33 (2014).

175. *Id.* at 26–27.

176. *Id.*

177. Amechi, *supra* note 160, at 119.

178. *Environment & Sustainable Development*, SADC (2012), http://www.sadc.int/issues/environment-sustainable-development/.

179. *See id.*

180. Protocol for the Sustainable Development of Lake Victoria Basin, Nov. 29, 2003, http://www.internationalwaterlaw.org/documents/regionaldocs/Lake_Victoria_Basin_2003.pdf.

181. ANDERS EKBOM, AFRICA ENVIRONMENT AND CLIMATE CHANCE POLICY BRIEF 1, 14 (2009), http://sidaenvironmenthelpdesk.se/wordpress3/wp-content/uploads/2013/04/Africa-Environmental-and-Climate-Change-Policy-Brief-20090525.pdf.

insufficient financial and human capacity to carry out the agreements.[182] It has also been difficult to integrate environmental initiatives into national development plans and poverty reduction strategies.[183]

The approach of individual African countries towards protection of the environment varies enormously.[184] Some countries have impressive legislation in place, while others lag behind. Even in the case of countries with a relatively strong commitment to the environment and reasonably good legislation, there are serious shortfalls in funding and human capacity to implement programs to protect the environment.[185]

In 1997, Ethiopia approved its first comprehensive environmental initiative, and subsequently implemented strategies and laws to support sustainable development.[186] Ethiopia enacted a wide range of legal, policy, and institutional frameworks regarding the environment, water, forests, climate change, and biodiversity.[187] Ethiopia has also signed a number of international environmental treaties.[188] The African Development Bank expressed satisfaction with the government's institutional framework for natural resource management and the environment.[189] Ethiopia takes environmental protection more seriously than most African countries do, but it continues to suffer from inadequate implementation and enforcement.[190] Pollution monitoring, reporting, and verification of abatement measures have been weak. Lack of human capacity has been the main constraining factor.[191]

Mali has relatively well-developed environmental legislation, having initiated a political and institutional framework dealing with climate change.[192] In 2010, it established the National Agency for Environmental and Sustainable Development, which was responsible for implementing environmental policy and integrating bureaucratic responses.[193] Mali also has a strategy for a green economy and climate change.[194] In 2011, the

182. Shinn, *Environmental Impact*, *supra* note 133.

183. *Id.*

184. For a detailed review of Chad's environmental regulations, see Géraud Magrin et al., *The Legacy of the Exxon-Doba Project: Petroleum-Related Environmental Regulations in Chad Prior To CNPC's Arrival*, *in* THE ENVIRONMENTAL CHALLENGES FACING A CHINESE OIL COMPANY IN CHAD 77, 77-110 (Geert van Vliet & Géraud Magrin eds., 2012).

185. *See generally* EMELIE CÉSAR & ANDERS EKBOM, ETHIOPIA ENVIRONMENTAL AND CLIMATE CHANGE POLICY BRIEF (May 27, 2013), http://sidaenvironmentalhelpdesk.se/wordpress3/wp-content/uploads/2013/05/Ethiopia-Environmental-and-Climate-Change-policy-20130527.pdf.

186. *Id.* at 10.

187. Shinn, *China in Africa*, *supra* note 17.

188. *Id.*

189. CÉSAR & EKBOM, *supra* note 185, at 12.

190. Shinn, *China in Africa*, *supra* note 17.

191. *Id.*

192. *Id.*

193. *Id.*

194. *See* OLOF DRAKENBERG & EMELIE CÉSAR, MALI ENVIRONMENTAL AND CLIMATE CHANGE POLICY BRIEF (July 5, 2013), http://sidaenvironmenthelpdesk.se/wordpress3/wp-content/uploads/2013/05/Mali-Environmental-and-Climate-Change-Policy-Brief-Final-draft.pdf.

World Bank improved Mali's score for environmental policy and institutions.[195] In 2012, however, a coup d'état resulted in a ninety percent reduction in the budget of the Ministry of Environment and Sanitation's environmental department.[196] In addition, Mali has low regard for environmental legislation and weak human capacity for environmental improvement.[197] To make progress, Mali must increase international financing, improve legal frameworks, and strengthen human capacity.[198]

Environmental legislation and policy is of reasonable quality in Mozambique. Several laws and policies safeguard the environment and allow communities to benefit from the extraction of local natural resources.[199] Mozambique has signed many of the major multilateral environmental agreements.[200] The government appears to appreciate the importance of natural resource management and included sections on the environment and climate change in its 2011–2014 Poverty Reduction Action Program.[201] On the other hand, implementation, monitoring, and the link between policy statements and budget allocations are weak. Funding for environmental protection falls below the minimum recommended by the World Bank.[202] There is also poor coordination among the environmental departments in the sector ministries.[203]

Zambia's body of environmental law is scattered throughout more than thirty-three pieces of legislation, assigning responsibilities to at least ten line ministries.[204] The 1997 Environmental Impact Assessment regulations require assessments for all investments that have a major impact on the environment, as well as adequate environmental mitigation measures.[205] Zambia's Sixth National Development Plan 2011–2015 includes the environment as a cross-cutting issue and addresses climate change.[206] The Ministry of Tourism, Environment, and Natural Resources and the Environmental Council of Zambia have a comprehensive environmental mandate. In practice, however, environmental management largely depends on the interest and competence of line ministries, which have not prioritized it.[207] The environmental institutions are weakly linked to development planning, finance, and sector institutions, and lack political power

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195. *Id.*
196. Shinn, *China in Africa*, *supra* note 17.
197. *Id.*
198. *Id.*
199. *See* GUNILLA ÖLUND WINGQVIST, ENVIRONMENT AND CLIMATE CHANGE POLICY BRIEF—MOZAMBIQUE (Mar. 2013), http://sidaenvironmenthelpdesk.se/wordpress3/wp-content/uploads/2013/09/Mozambique_Env-and-CC-Policy-Brief_March-2013.pdf.
200. *Id.*
201. *Id.*
202. *Id.*
203. *Id.*
204. Shinn, *China in Africa*, *supra* note 17.
205. *Id.*
206. REPUBLIC OF ZAMBIA, SIXTH NATIONAL DEVELOPMENT PLAN 2011–2015 38–39 (Jan. 2011), http://siteresources.worldbank.org/INTZAMBIA/Resources/SNDP_Final_Draft__20_01_2011.pdf.
207. Shinn, *China in Africa*, *supra* note 17.

and human capacity.[208] They also face severe funding constraints; environmental issues are heavily dependent on international funding.[209] Thus, Zambia struggles to manage its environment sustainably.[210]

Most African states have weak bureaucracies. While their environmental laws are sometimes impressive, implementation is often lacking.[211] In many African countries, the environmental laws and standards are much lower than accepted international norms.[212] African governments have signed many treaties and agreements but have generally failed to articulate coherent solutions to their environmental problems.[213] Given the weak enforcement of African environmental protection measures, individual Chinese companies operating in Africa will have discretion as to whether they assume responsibility for sound environmental practices. Most African governments do not consider the issue a high priority or do not have the resources to improve the situation significantly.

VII. Amount and Composition of Chinese FDI to Africa

It is important to put China's FDI to Africa in the context of all FDI flows to Africa. Investment by every country or company that sends FDI to Africa has potential environmental implications. Thus, it follows that Western companies have environmental records in Africa that are similar to those of Chinese companies in more recent years, given that their cumulative investments far exceed China's FDI in Africa.[214] While this analysis is not about the environmental impacts of Western companies, it is important to recall that the records of some of these companies are also subject to severe criticism. It is equally important to understand that cumulative non-Chinese FDI in Africa is significantly greater than cumulative Chinese investment.[215] Since the beginning of the twenty-first century, China has become one of the most important sources of FDI for Africa on an annual basis.[216] This phenomenon, combined with China's perceived environmental lapses, has brought more attention to the environmental impact of Chinese investment.

Quantifying China's total cumulative FDI in Africa is difficult. The official Chinese government figure is $21.23 billion as of the end of

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208. *Id.*

209. *Id.*

210. *Id.*

211. *Id.*

212. Compagnon & Alejandro, *supra* note 75, at 223. Negusu Aklilu makes the argument that African countries must do a better job of passing appropriate environmental legislation and then enforcing it. Negusu Aklilu, *Greening Africa-China Relations: African Agents Punching Below their Weight?*, 2 J. CHINA & INT'L REL. 26, 42 (2014).

213. Erinosho, *supra* note 168, at 396.

214. David Shinn, *China's Investments in Africa*, CHINA US FOCUS (Nov. 1, 2012), http://www.chinausfocus.com/finance-economy/chinas-investments-in-africa/.

215. *Id.*

216. *See id.*

2012.[217] There is the problem noted earlier of defining China's FDI. China only began an annual publication of official communiques of FDI, which it calls outward direct investment (ODI), in 2003.[218] China distinguishes between financial and non-financial FDI; financial FDI was excluded from the official figures before 2006.[219] The reliability of the data is limited for several reasons. The data capture only certain forms of investment. The procedures for obtaining permission to invest outside China are cumbersome, leading some investors—especially in the private sector—to invest without observing the process. China also relies on information supplied by foreign partners.[220] Significant Chinese FDI goes to Hong Kong and Macau, where some of it continues to other parts of the world, including Africa. Such transactions are not captured as Chinese FDI to Africa.[221] The same problem exists with tax havens such as the British Virgin Islands and the Cayman Islands.[222] The net result is that cumulative Chinese FDI in Africa is considerably higher than the official figure, but the actual amount is not known.

Even with an assumption of more Chinese FDI in Africa than acknowledged by the government of China, China's FDI still falls substantially below that of several other countries. For example, at the end of 2012, American companies had cumulative FDI in Africa totaling $61.4 billion, a larger figure than even the highest estimates for Chinese FDI in Africa at that time.[223] Of course, American companies have been investing in Africa over a longer period of time than Chinese companies. Put differently, the official figure for China's investment flow to Africa in 2012 was $2.52 billion.[224] Global FDI flows to Africa in 2012 totaled $55 billion.[225] Using Beijing's conservative figure, China provided less than five percent of all FDI going to Africa in 2012.[226] The environmental practices of other foreign companies investing in Africa vary and there are likely a few with an equal or worse record than those from China.

The principal recipients of Chinese FDI have been South Africa, Nigeria, Algeria, Sudan, Zambia, and Angola.[227] They received seventy-five per-

217. INFO. OFFICE OF THE STATE COUNCIL OF THE PEOPLE'S REP. OF CHINA, CHINA-AFRICA ECONOMIC AND TRADE COOPERATION 2013, (Aug. 2013) [hereinafter CHINA-AFRICA COOPERATION], http://english.gov.cn/archive/white_paper/2014/08/23/content_2814749]82 986536.htm.

218. *See* Thierry Pairault, *Chinese Direct Investment in Africa*, 37 RÉGION ET DÉVELOPPEMENT 259, 263 (2013).

219. *See id.*

220. *See id.* at 264.

221. *See id.* at 267.

222. *See id.* at 267–68.

223. *See* JAMES K. JACKSON, CONG. RES. SERV., U.S. DIRECT INVESTMENT ABROAD: TRENDS AND CURRENT ISSUES 4 (2013).

224. CHINA-AFRICA COOPERATION, *supra* note 217.

225. *See* U.N. CONF. ON TRADE & DEV., WORLD INVESTMENT REPORT 2014 OVERVIEW 3 (2014).

226. *See* Denise Leung & Lihuan Zhou, *Where Are Chinese Investments in Africa Headed?*, WORLD RES. INST. (May 15, 2014), http://www.wri.org/blog/2014/05/where-are-chinese-investments-africa-headed.

227. Pairault, *supra* note 218, at 269.

cent of China's FDI flows to Africa between 2003 and 2010.[228] Unsurprisingly, these countries are well-endowed with either minerals or oil.[229] But, except for Sudan, these are among the primary destinations for FDI from other countries.[230] Excluding the financial sector, in 2009 about thirty-nine percent of China's FDI to Africa went into mining and energy, twenty-five percent into manufacturing, and sixteen percent into construction.[231] These are all sectors that tend to have high environmental impacts. By the end of 2014, the top five industries for China's FDI stock in Africa were construction at 24.7 percent, mining at 24.5 percent, financial services at 16.4 percent, manufacturing at 13.6 percent, and scientific research and technology services at 4.2 percent.[232]

VIII. Chinese FDI and Economic Sector Impacts

As is the case for most FDI in Africa, Chinese investment is concentrated in sectors of the economy that are especially vulnerable to environmental concerns. China has traditionally been more important as a buyer of African energy than as a developer of oil and gas.[233] Because of Western sanctions, Sudan was an exception. China played an early and important role by investing in the development of Sudan's oil fields, pipelines, and refinery infrastructure.[234] In recent years, China has devoted more FDI to developing energy in additional African countries such as Gabon and Angola.[235] Nevertheless, Western companies opened most of Africa's oil and gas resources and continue to be the most important players.[236] Oil companies in China and other Western countries have been criticized for their environmental practices. For example, in Angola, British Petroleum and Chevron routinely conduct environmental impact assessments, while SINOPEC does not.[237] On the other hand, the Western majors routinely flare gas from their wells in the Niger Delta, a process that contributes significantly to global warming.[238]

Chinese companies have invested in mining projects throughout much of Africa, including the Democratic Republic of the Congo, Guinea, Zambia, South Africa, and Gabon. These projects require large initial

228. *Id.* at 270.
229. *See id.* at 269.
230. *Id.* at 269–70.
231. *Id.* at 277.
232. U.N. Dev. Programme, 2015 Report on the Sustainable Development of Chinese Enterprises Overseas (2015), http://www.cn.undp.org/content/china/en/home/library/south-south-cooperation/2015-report-on-the-sustainable-development-of-chinese-enterprise.html.
233. *See* Stephanie Hanson, *China, Africa, and Oil*, Wash. Post (June 9, 2008), http://www.washingtonpost.com/wp-dyn/content/article/2008/06/09/AR2008060900714.html.
234. *See* Power, *supra* note 84, at 216.
235. *See* Hanson, *supra* note 233.
236. *See id.*
237. *See* Power, *supra* note 84, at 215; Tan-Mullins, *supra* note 44, at 53–54.
238. Power, *supra* note 84, at 215–16. For a broader discussion of China's environmental interaction in Africa, see *id.* at 216–20.

investments in technology, equipment, and infrastructure, so China's state-owned companies tend to dominate in this sector.[239] The mines are sometimes located in ecologically fragile areas with a high risk of environmental degradation.[240] The mines often generate greenhouse gases and solid and liquid waste, including hazardous products like cyanide and mercury.[241] The mines can also harm the mining communities and persons living in the vicinity of the mining activity.[242] Chinese companies often negotiate mining concessions in the absence of competitive bidding and environmental assessments.[243] African governments contribute to the problem by failing to insist on environmental impact statements and enforce existing environmental regulations.[244] In recent years, however, Chinese companies have paid more attention to mitigating the harmful impacts.[245]

While some Chinese fishing companies have FDI in Africa, most Chinese activity involves offshore fishing in accordance with treaties and agreements not directly linked to FDI. About two-thirds of China's global catch comes from the seas adjacent to Africa.[246] The China National Fisheries Corporation has eight offices in Africa, and factories in Mauritania and Senegal.[247] China Fishery Group Limited also has investments in Africa, although only about six percent of its 2014 revenue came from African waters.[248] Chinese fishing vessels have been criticized for worsening food insecurity in Africa because they catch small species such as mackerel, which is the main source of food and income for small-scale African fishermen.[249] A more serious problem resulting from this illegal fishing is the depletion of the marine resource base and the attendant ecological impacts.[250] Chinese companies are also accused of failing to respect fishing quotas and infringing fishing zone regulations.[251]

239. *See id.* at 207.
240. *See id.*
241. *See id.*
242. *See id.*; Tan-Mullins, *supra* note 44, at 54.
243. *See* POWER, *supra* note 84, at 204.
244. *See id.*
245. *See id.* at 217.
246. *Id.* at 202; Daniel Pauly et al., *China's Distant-Water Fisheries in the 21st Century*, 15 FISH & FISHERIES 474, 475, 483 (2004).
247. POWER, *supra* note 84, at 202; *China National Fisheries Corporation – Group Headquarters*, FISH INFO. & SERVICES (2015), www.fis.com/fis/companies/details.asp?1=e&company_id=32635.
248. Press Release, China Fishery Group Ltd., Full Year Financial Statement and Dividend Announcement for the Year Ended September 28, 2014 (Nov. 22, 2014), www.chinafisherygroup.com/ir/newsroom.html/.
249. POWER, *supra* note 84, at 203.
250. *Id.* at 208.
251. *Id.* at 203, 208. Greenpeace reports how the China National Fisheries Corporation and other Chinese companies under-declare the gross tonnage of their fishing vessels, whether Chinese flagged or owned and operated under other flags through joint ventures, and jeopardizes the sustainable and equitable exploitation of West African marine resources. GREENPEACE, SCAM ON THE AFRICAN COAST: THE HIDDEN FACE OF CHINESE AND JOINT-VENTURE VESSELS TONNAGE FRAUD IN SENEGAL, GUINEA BISSAU AND GUINEA (May 2015), http://www.greenpeace.org/africa/Global/africa/graphics/Amigo/Scam%20on%20the%20African%20Coast%20FINAL%20PROOF(1).pdf.

China is the largest importer of Africa's tropical wood, receiving more than three-quarters of its timber exports, mostly in the form of raw logs until prohibited by African governments.[252] While most of this activity constitutes trade, some of it involves FDI by Chinese logging and timber trading companies. By 2010, Chinese companies owned about twenty-five percent of the timber concessions in Gabon.[253] Increasingly, Chinese companies have left trading to become concession holders in order to ensure a steady supply of timber for the Chinese market.[254] For example, more than ninety percent of Mozambique's timber goes to China, while Equatorial Guinea exports about seventy percent of its wood products to China, the Republic of the Congo exports about fifty percent to China, and Gabon exports about forty percent to China.[255] Gabon is Africa's largest timber exporter and in 2009 Gabon provided almost four percent of China's total timber imports.[256]

Poor forest governance in Africa has resulted in serious unsustainable or illegal harvesting. This has caused the loss of biodiversity and the abuse of forest communities' rights. For example, the Hong Kong-owned Vicwood Pacific acquired the Cameroon subsidiaries of the Thanry Group, one of the largest logging companies in the Congo River Basin.[257] Cameroon exports about eleven percent of its timber to China.[258] Between 2000 and 2002, the Thanry Group was fined more than $1.3 million for violating forestry laws, including cutting undersized trees, logging outside legal boundaries, and logging in unallocated concessions.[259] A recent investigative study of China's importation of illegal timber from Cameroon concluded that it might jeopardize Cameroon's agreement with the European Union to fight illegal logging and illicit timber commerce.[260]

The Center for International Forestry Research concluded in a review on Chinese forest practices in four African countries that Chinese companies have a tendency to violate local laws alongside African counterparts and some European companies.[261] The violations, which sometimes

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252. *The Africa-China Timber Trade: Diverse Business Models Call for Specialized Policy Responses*, CTR. FOR INT'L. FORESTRY RES. 1 (2014) [hereinafter *Africa-China Timber Trade*], http://www.cifor.org/publications/pdf_files/infobrief/4518-brief.pdf.

253. *Id.* at 3 (finding China's portion of Gabon's total concessions went from 1.08 percent to twenty-five percent from 1999 to 2009).

254. *Id.* at 3–4.

255. Kerstin Canby, *China and the Global Market for Forests and Livelihoods*, FOREST TRENDS (2008), http://www.forest-trends.org/documents/files/doc_1033.pdf.

256. POWER, *supra* note 84, at 203.

257. Michelle Chan-Fishel, *Environmental Impact: More of the Same?*, *in* AFRICAN PERSPECTIVES ON CHINA IN AFRICA 139, 146 (Firoze Manji & Stephen Marks eds., 2007).

258. Xiufang Sun, *Forest Products Trade Between China and Africa*, FOREST TRENDS (April 2014), at 20.

259. Chan-Fishel, *supra* note 257, at 146–47. *Accord* Alison Hoare, *Illegal Logging and the Related Trade: What Progress and Where Next*, CHATHAM HOUSE (July 15, 2015), https://www.chathamhouse.org/publication/tackling-illegal-logging-and-related-trade-what-progress-and-where-next.

260. Kingsley M. Nfor, *Chinese Capital Drives Deforestation in Cameroon*, THE STANDARD-TRIBUNE (Oct. 21, 2015), http://www.standard-tribune.com/?p=3056.

261. *Africa-China Timber Trade*, *supra* note 252, at 7.

involve the active participation of African government officials, include abuse of permits and concession licenses, bribery, operating without management plans, under-reporting export volume, smuggling raw logs, and harvesting and transporting undesignated species.[262] If these practices by both Chinese and non-Chinese companies continue, the unsustainability of Africa's hardwood timber will be the greatest threat to the environment.[263]

China's government is sensitive to the criticism encountered by its companies in the forestry sector and has made progress in countering illegal logging.[264] In 2009, the State Forestry Administration and the Ministry of Commerce issued voluntary guidelines that encouraged Chinese companies to manage, utilize, and protect overseas forests in order to play a positive role in sustainable development of global forest resources.[265] In 2013, the International Institute for Environment and Development, the Chinese Academy of Forestry, and the Global Environmental Institute held a two day meeting in Beijing to discuss the perception and evidence concerning China-Africa forest governance from both the Chinese and African perspectives.[266] In 2014, China co-hosted an international workshop on promoting legal and sustainable trade and investment in forest products, where it discussed its draft guidelines for Chinese companies.[267] The Environmental Investigation Agency praised the process but argued that the draft guidelines will be ineffective because they are voluntary and too limited in scope.[268]

The environmental issue for which China has attracted the most criticism is the importation of products taken from African endangered species, especially elephant ivory and rhino horn.[269] China is the world's

262. *Id.* at 7–8.

263. *See* James Meyers, *China in Africa's Forests*, INT'L INST. FOR ENV'T & DEV. (Mar. 20, 2013), http://www.iied.org/china-africa-forests.

264. Laura Wellesley, *Trade in Illegal Timber: The Response in China*, CHATHAM HOUSE (Dec. 10, 2014), https://www.chathamhouse.org/publication/trade-illegal-timber-response-china.

265. *See generally A Guide on Sustainable Overseas Forests Management and Utilization by Chinese Enterprises*, ST. FORESTRY ADMIN. (May 6, 2010), www.forestry.gov.cn/portal/main/s/224/content-401396.html.

266. K. Tran-Thanh et al., *China-Africa Forest Governance Learning Platform: Report of an Inception Event and Future Agenda*, INT'L INST. FOR ENV'T & DEV. (2013), http://pubs.iied.org/pdfs/G03633.pdf.

267. *See International Workshop on Promoting Legal and Sustainable Trade and Investment of Forest Products*, FOREST TRENDS (2014), http://www.forest-trends.org/documents/files/doc_4363.pdf.

268. Envtl. Investigation Agency, Environmental Investigation Agency comments on the draft Guidelines for Overseas Sustainable Forest Products Trade and Investment by Chinese Enterprises (July 2014), http://eia-international.org/wp-content/uploads/EIA-Comments-on-China-Guidelines-July-2014-English_Final.pdf.

269. Michael McCarthy, *Top of the Conference Agenda: The Last Chance to Save the Rhino*, THE INDEPENDENT (Feb. 28, 2013), www.independent.co.uk/environment/nature/top-of-the-conference-agenda-the-last-chance-to-save-the-rhino-8513792.

largest importer of illegal ivory.[270] The poaching of African elephants has reached the point where it threatens the long-term viability of the species.[271] While most of this activity falls into the category of illegal trade involving African suppliers and Chinese merchants living in both Africa and China, some of it has indirect links to Chinese FDI. Chinese timber companies operating in Mozambique have been charged with adding elephant tusks to shipping containers of wood products destined for China.[272] In 2011, for example, 126 tusks were found in a container of timber belonging to a Chinese company, Tianhe.[273] Chinese nationals also play a major role in the illegal trade of rhino horn. Almost eighty percent of the reported seizures of rhino horn in Asia, the largest market for the product, between 2009 and 2012 took place in China.[274] The influx of Chinese immigrants to southern Africa led to a rise in the trafficking, although Vietnamese nationals are beginning to dominate the trade.[275] Chinese rhino horn smugglers are also linked to the abalone smuggling market in South Africa, a market that is dominated by Chinese smugglers.[276]

On the other hand, in recent years China has become the single most important source of financing for, and builder of, hydropower dams in Africa.[277] These projects are done under contract with African govern-

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270. Fergus Ryan, *China and US Agree on ivory ban in bid to end illegal trade globally*, THE GUARDIAN (Sept. 26, 2015), http://www.theguardian.com/environment/2015/sep/26/china-and-us-agree-on-ivory-ban-in-bid-to-end-illegal-trade-globally.

271. *See* Yufang Gao & Susan G. Clark, *Elephant Ivory Trade in China: Trends and Drivers*, 180 BIOLOGICAL CONSERVATION 23, 29 (2014). Retired National Basketball Association star, Yao Ming, has become a spokesperson for saving the African elephant by discouraging the purchase of ivory. Bryan Walsh, *10 Questions with Yao Ming*, TIME (Dec. 4, 2014), http://time.com/3617658/10-questions-with-yao-ming/. China has worked cooperatively with South Africa and Kenya to develop frameworks to staunch the illegal trade in wildlife, but the problem continues to increase. Meryl Burgess & Harrie Esterhuyse, Policy Briefing, *Preparing for FOCAC VI: China-South Africa Co-operation in Conservation and Renewable Energy*, CTR. FOR CHINESE STUD., STELLENBOSCH U. 2 (Aug. 2015). The Chinese embassy in Addis Ababa (a key hub for the transport of ivory to Asia) and the Ethiopian Wildlife Conservation Authority hosted a workshop in 2015 to address the illegal ivory trade. Key officials from China concerned with the issue addressed the participants. *See China Joins Ethiopia to Address Ivory Trafficking*, TRAFFIC (May 14, 2015), http://www.traffic.org/home/2015/5/14/china-joins-ethiopia-to-address-ivory-trafficking.html.

272. Huang Hongxiang, *The Chinese Ivory-smugglers in Africa*, CHINADIALOGUE (Nov. 27, 2013), http://www.chinadialogue.net/article/show/single/en/6540-The-Chinese-ivory-smugglers-in-Africa.

273. *Id.*

274. Liu Hongqiao, *Is China's Appetite for Rhino Horn Increasing?*, CHINADIALOGUE (Dec. 16, 2013), https://www.chinadialogue.net/article/show/single/en/6580-Is-China-s-appetite-for-rhino-horn-increasing-.

275. *Id.*

276. Huang Hongxiang, *Rhino Horn Trade Thrives in Jo'burg*, MAIL & GUARDIAN (Oct. 4, 2013), http://mg.co/za/article/2013-10-04-00-rhino-horn-trade-thrives-in-joburg.

277. *See* Peter Bosshard, *China Conquers Africa's Hydropower Market*, INT'L RIVERS (Aug. 1, 2006), http://www.internationalrivers.org/resources-china-conquers-africa%E2%80%99s-hydropower-market-1800; Terri Hathaway, *What is Driving Dams in Africa?*, INT'L RIVERS (Dec. 10, 2010), http://www.internationalrivers.org/resources/what-is-driving-dams-in-africa-1695.

ments and do not qualify as FDI.[278] These projects, however, have both important positive and potentially negative environmental impacts. On the positive side, the dams provide a clean source of power that is usually more affordable than energy produced from sources with higher carbon emissions.[279] On the negative side, some but not all of these projects had environmental, social, economic, and cultural costs.[280] Chinese, German, and French companies built the Merowe Dam on the fourth cataract of the Nile in Sudan, and China and Arab countries financed the dam.[281] It never had a proper environmental impact statement and displaced more than 50,000 people from the Nile Valley.[282] China's Export-Import Bank financed the Mphanda Nkuwa Dam on the Zambezi River in Mozambique.[283] It did not have an adequate environmental impact assessment and could derail efforts to restore the lower Zambezi Delta.[284] China is building the Bui Dam on the Volta River in Ghana.[285] It will flood nearly a quarter of Bui National Park, destroying habitat for hippos and causing the resettlement of 2,600 people.[286] China's biggest bank provided a $500 million equipment loan for the Gibe III Dam on the Omo River in Ethiopia.[287] Environmentalists claim Gibe III will have devastating social and environmental impacts on the Lower Omo Valley and Lake Turkana in neighboring Kenya.[288]

Wind and solar power have minimal environmental downsides.[289] China is the world's largest manufacturer and exporter of solar panels.[290] Africa remains a small but growing percentage of its export market.[291] China is demonstrating increasing interest in small renewable energy projects both as a way to make money for its companies and to assist African countries in the development of this sector.[292] Chinese companies such as Yingli Solar and Suntech Power Holdings are establishing joint ventures in South Africa, Benin, Sierra Leone, and Mozambique.[293] China's

278. *See, e.g.*, *Chinese Dams in Africa*, Int'l Rivers, http://www.internationalrivers.org/campaigns/chinese-dams-in-africa (last visited Apr. 7, 2016).
279. Power, *supra* note 84, at 210.
280. *Id.*
281. Tan-Mullins, *supra* note 44, at 54.
282. *Chinese Dams in Africa*, *supra* note 278.
283. *Id.*; Yimin, *supra* note 1, at 387.
284. Power, *supra* note 84, at 211; Yimin, *supra* note 1, at 387; *Chinese Dams in Africa*, *supra* note 278.
285. *Chinese Dams in Africa*, *supra* note 278.
286. *Id.*; Power, *supra* note 84, at 211.
287. *Chinese Dams in Africa*, *supra* note 278.
288. *Id.* For additional information on China's role in building the Merowe Dam, see Bosshard, *supra* note 83, at 3–4.
289. *See* Björn Conrad et al., Towards an Energizing Partnership?: Exploring China's Role as Catalyst of Renewable Energy Development in Africa 21–22 (2011).
290. *See id.* at 31.
291. *See id.*
292. Harrie Esterhuyse, *Focusing FOCAC on Bankability: Turning Ink on Paper into Renewable Energy Power*, Ctr. for Chinese Stud. Comment. (Sept. 14, 2015), http://www.ccs.org.za/wp-content/uploads/2015/09/CCS_FOCAC_Funding_for_Renewable_Energy_HE_2015_1.pdf.
293. *Id.* at 17, 32, 40; Power, *supra* note 84, at 205.

Hanergy Group announced it is investing $1 billion to construct a 400 megawatt solar power plant in Ghana.[294] In 2014, Chinese solar manufacturer Jinko Solar Holding Company opened a factory in Cape Town, South Africa, making it the first Chinese producer of solar panels in Africa.[295] Chinese wind turbine manufacturers such as the China Longyuan Power Group are also expanding into African markets.[296] The company announced the development of two wind farms in Northern Cape Province of South Africa of 100 and 144 megawatts each.[297] These developments show that Chinese trade and FDI are making a positive contribution to Africa's environment in the wind and solar sectors.

IX. Chinese FDI and Africa's Environment: Case Studies

The examples of Chinese investments discussed below demonstrate the generally negative impacts of Chinese investments on the environments of African countries. Reports of neutral or even positive environmental impacts of FDI from any company, irrespective of nationality, are rarely documented. As a result, this section presents an overtly negative and therefore potentially biased account. Regardless of potentially one-sided environmental findings, it is undisputed that Chinese companies must improve their environmental practices as they continue to invest in African countries.[298]

A. Oil Sector Investment in Sudan and South Sudan

Chevron discovered oil in Sudan in the late 1970s and was responsible for the early development of oil wells in the region.[299] As a result of continuing civil war in Sudan, however, and worsening relations between Sudan and the United States, Chevron sold its concessions in 1992.[300] The China National Petroleum Corporation (CNPC) was one of the first foreign companies to express an interest in taking over Chevron's concession.[301] In 1995, China signed an agreement with Sudan for oil concessions in

294. *China to Help Ghana Construct 1 Bln USD Solar Plant*, XINHUA (Mar. 20, 2015), http://news.xinhuanet.com/english/2015-03-20/c_134081951.htm.

295. Ehran Goossens, *JinkoSolar Africa Plant Is First for China Manufacturers*, BLOOMBERG (Aug. 11, 2014), http://www.bloomberg.com/news/articles/2014-08-11/jinkosolar-africa-plant-is-first-for-china-manufacturers.

296. CONRAD, *supra* note 289, at 17, 32–33, 41; POWER, *supra* note 84, at 205.

297. CONRAD, *supra* note 289, at 40; Mao Pengfei, *Longyuan Expands Out of China With SA Win*, WIND POWER MONTHLY (Oct. 30, 2013), http://www.windpowermonthly.com/article/1218678/longyuan-expands-china-sa-win. *See also* Burgess & Esterhuyse, *supra* note 271, at 3–4 (noting that problems in the renewable energy sector have caused Chinese companies to become more risk averse, resulting in a reduction in FDI or an increase in the use of local partnerships in an effort to mitigate risk).

298. Shinn, *Environmental Impact*, *supra* note 133.

299. *Fact Sheet Two: A History of Oil in Sudan*, UNDERSTANDING SUDAN (2009), http://understandingsudan.berkeley.edu/oil/oilresources/l2fs2-historyofoilinsudan.pdf.

300. *Id.*

301. Ismail S.H. Ziada, Oil in Sudan: Facts and Impacts on Sudanese Domestic and International Relations 5 (2007) (unpublished Doctorate manuscript) (on file with the Universidad Autonoma de Madrid).

exchange for credit at reduced interest rates, thereby helping China's oil companies invest in Sudan.[302] In late 1996, CNPC took the largest share (forty percent) of the Greater Nile Petroleum Operating Company, the umbrella organization responsible for developing the oil fields in Sudan.[303] In 2000, CNPC established the Petrodar Operating Company, which included the Malaysian national oil company, several minority stakeholders, and eventually SINOPEC and the Indian national oil company.[304] CNPC subsequently developed the pipeline and refinery infrastructure and drew on the services of subsidiary Chinese companies for oil services and construction.[305] Among these companies were the Zhongyuan Petroleum Engineering Company, Great Wall Drilling Company, and the China Petroleum Engineering and Construction Corporation.[306] Through these various projects, CNPC financed most of Sudan's oil sector development.[307] Between 1999 and 2011, Sudan was China's sixth largest source of imported oil, supplying on average five and a half percent of total imports annually.[308]

Sudanese oil production peaked in 2007 at about 483,000 barrels per day.[309] A natural decline in small and medium-sized oil fields as well as a lack of investment in secondary recovery resulted in falling production.[310] The independence of South Sudan in 2011 and subsequent division of the country left about seventy-five percent of known oil reserves in South Sudan and twenty-five percent in Sudan.[311] These divisions led to disputes between Sudan and South Sudan over fees for use of the pipeline infrastructure in Sudan and led to a lengthy shutdown of production in South Sudan.[312] Not long after the shutdown was resolved, civil war broke out in South Sudan in late 2013, significantly reducing production and forcing the evacuation of hundreds of Chinese workers from the oil fields.[313]

The development of oil fields required seismic surveying and led to hundreds of kilometers of bulldozed tracks, destroying farmland and increasing deforestation.[314] Road construction disrupted water flows, which damaged irrigation systems and forced the evacuation of several

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302. Ben Wang, *China's Oil Diplomacy and State-Backed Investments in the Partition of Sudan*, 2 PENN ST. J. INT'L AFF. 9, 10–11 (2012).
303. LUKE PATEY, THE NEW KINGS OF CRUDE: CHINA, INDIA, AND THE GLOBAL STRUCTURE FOR OIL IN SUDAN AND SOUTH SUDAN 61–65 (2014).
304. *Id.* at 106.
305. *Id.* at 113.
306. *Id.* at 112–13.
307. Email from Deborah Brautigam, Director, SAIS China Afr. Res. Initiative, to author (Mar. 10, 2015 12:50 EST) (on file with author).
308. PATEY, *supra* note 303, at 118.
309. DANIEL LARGE & LUKE PATEY, RIDING THE SUDANESE STORM: CHINA, INDIA, RUSSIA, BRAZIL & THE TWO SUDANS 12 (2014).
310. *Id.*
311. *South Sudan Country Profile,* BBC NEWS (July 5, 2011), www.bbc.co.uk/news/world-africa-14069082.
312. *South Sudan Restarts Oil Production*, FIN. TIMES (Apr. 7, 2013), http://www.ft.com/cms/s/0/f570b2a6-9f62-11e2-b4b6-00144feabdc0.html#axzz3qV1Z0dsB.
313. LARGE & PATEY, *supra* note 309.
314. PATEY, *supra* note 303, at 189.

communities.[315] The discharge of contaminated "produced water" from oil reservoirs and the improper disposal of drilling mud and other wastes were the most damaging impacts on the environment. These practices killed livestock and caused serious illnesses in nearby communities.[316] Chinese companies tried to mitigate the negative environmental impacts of oil production by building water wells, schools, and hospitals in affected communities.[317] Chinese companies also contributed to improvements in agriculture, new road construction, better access to markets, and wider mobile phone coverage.[318] Despite these contributions, Luke Patey, who has carefully researched the China-Sudan oil relationship, concluded that it was no surprise that CNPC engaged in environmental degradation because "the company has a deplorable track record in environmental management at home."[319]

Despite Chinese companies' impacts on the environment, Sudan's Ministry of Energy and Mining is responsible for overseeing environmental laws and regulations in the oil sector.[320] Sudan's Petroleum Wealth Act and Environmental Protection Act set down the rules for environmental preservation.[321] These Acts, however, make clear that Sudanese government officials were more interested in advancing the oil industry than implementing environmental laws.[322] Absence of careful government supervision encourages oil companies to engage in poor environmental practices,[323] and environmental impact assessments in Sudan are often substandard and conducted only after operations have begun.[324] Others were shelved after completion with little follow-up.[325] As a result, Chinese

315. *Id.*

316. *Id.* For environmental complaints in South Sudanese communities, see Leben N. Moro, *Chinese Oil Companies & Local Communities in Unity State, South Sudan*, *in* OIL, SECURITY, AND COMMUNITY ENGAGEMENT 26, 26 (Saferworld ed., 2013); Ranga Gworo, *Oil Companies & Community Relations in Unity State*, *in* OIL, SECURITY, AND COMMUNITY ENGAGEMENT 36, 37 (Saferworld ed., 2013).

317. PATEY, *supra* note 303, at 171.

318. *Id.* at 189.

319. *Id. But see* Qian Zhen, *Chinese Oil Companies in South Sudan's Conflict Environment*, *in* OIL, SECURITY, AND COMMUNITY ENGAGEMENT 31, 32–33 (Saferworld ed., 2013) (discussing the efforts undertaken by Chinese corporations to offset negative environmental impacts in Africa).

320. *Petroleum, Mining, & Industries,* GOV. OF THE REP. OF S. SUDAN, http://www.goss.org/index.php/ministries/petroleum-mining (last visited Nov. 9, 2015).

321. Osman Mirghani Mohamed Ali, *The Role of EIA Studies in the Management & Conservation of Cultural Heritage in the Sudan*, *in* CULTURAL HERITAGE IMPACT ASSESSMENT IN AFRICA 44, 45 (Herman Kiriam et al. eds., 2010).

322. Asim I El Moghraby, *State of the Environment in Sudan*, *in* 2 ENVIRONMENTAL IMPACT ASSESSMENT TRAINING RESOURCE MANUAL, UNEP 27, 35 (2002).

323. *S Sudan Official: Oil Companies Did 'Nothing' to Protect Environment,* RADIO TAMAZUJ (Sept. 23, 2015), https://radiotamazuj.org/en/article/s-sudan-official-oil-companies-did-nothing-protect-environment.

324. Luke A. Patey, *Crude Days Ahead? Oil and the Resource Curse in Sudan*, 109 AFR. AFF. 617, 633 (2010).

325. *Id.*

companies and oil workers became the targets of violence by local communities.[326]

B. Oil Sector Investment in Chad

ExxonMobil, Chevron, and Malaysia's PETRONAS have the longest and most significant engagement in Chad's oil sector, which has been producing oil since 2003.[327] When China resumed diplomatic relations with Chad in 2006, investment in the oil industry was at the top of China's agenda.[328] CNPC purchased all the shares related to a permit in Chad that were held by a Canadian oil company.[329] CNPC then solicited $1 billion in Chinese financing to build a 311-kilometer pipeline connecting oil fields in the Bongor Basin in east-central Chad to a refinery about fifty kilometers north of the capital of N'Djamena, in what was known as the Rônier project.[330] While the project is innovative, the scope is small. The refinery has a maximum production capacity of 40,000 barrels a day, but is processing well under this amount.[331] There have been persistent disagreements between CNPC and the government of Chad on the price of fuel produced in the refinery, resulting in the closure of the refinery at one point.[332]

Environmental regulations for the oil sector are more developed in China than in Chad, but earlier experience in Chad with Western oil companies and the World Bank resulted in relatively sophisticated standards that were usually enforced.[333] It is not clear if China's laws and regulations relating to environmental impact assessments apply to the project in Chad.[334] In any event, CNPC began an environmental assessment of the Rônier project in 2008, which was completed in about a year.[335] The CNPC China Design Institute conducted the study on the refinery while a Chadian engineering consultancy firm reviewed the oilfields and pipe-

326. PATEY, *supra* note 303, at 189–90. Luke Patey commented to the author in Washington on October 20, 2014 that CNPC has been responsible for a lot of environmental damage in South Sudan, just as it has been in China. On the other hand, he noted that Chinese oil companies operating in Canada follow environmental regulations and do not abuse the environment. Patey concluded that it is up to the host government to enforce local laws.

327. ROMAIN DITTGEN & DANIEL LARGE, CHINA'S GROWING INVOLVEMENT IN CHAD: ESCAPING ENCLOSURE? 5, 10 (2012).

328. *See generally id.*

329. Shinn, *Environmental Impact*, *supra* note 133.

330. *Id.*

331. DITTGEN & LARGE, *supra* note 327, at 9–12; Géraud Magrin & Gilbert Maoundonodji, *The Rônier Project for China and for Chad: The Challenges of a New Petroleum Adventure*, *in* THE ENVIRONMENTAL CHALLENGES FACING A CHINESE OIL COMPANY IN CHAD 119, 124-25 (Geert van Vliet & Géraud Magrin eds., 2012).

332. DITTGEN & LARGE, *supra* note 327, at 15–18.

333. Yiran Lin et al., *CNPC's HSE System Put to the Test in Chad*, *in* THE ENVIRONMENTAL CHALLENGES FACING A CHINESE OIL COMPANY IN CHAD 151, 155 (Geert van Vliet & Géraud Magrin eds., 2012).

334. *Id.* at 166.

335. *Id.* at 168–69.

lines.[336] Neither study was fully disclosed to the public, which is contrary to Chadian law but in compliance with Chinese law.[337] Construction began in the oil fields and along the pipeline route before approval of the environmental assessment.[338] This was contrary to both Chadian and Chinese law.[339] The study on the refinery (sixty percent owned by CNPC and forty percent owned by the government of Chad) was completed and approved by the appropriate ministries before the start of construction.[340]

Once construction was underway, residents complained about traffic noise and air pollution caused by CNPC truck convoys, and drew attention to untreated wastewater at one of the company's waste sorting plants.[341] CNPC took corrective measures.[342] There was reportedly minimal impact on biodiversity and wildlife in the project's vicinity.[343] CNPC agreed to offer compensation to villagers whose agricultural land had been displaced but at a less generous level than the compensation Exxon had previously provided.[344] A study in 2009 and 2010 that compared the Exxon-led investment in Chad to the Rônier project concluded that both companies experienced relatively similar non-compliances during the construction phase related to dust, noise, quarries, waste material, road accidents, compensation, and other concerns.[345] Both companies addressed the problems quickly.[346] The major difference was Exxon's transparency, while CNPC established extremely restrictive procedures for communication with external stakeholders.[347] Dialogue posed a real challenge for CNPC, which tended to meet only with officials in the Ministry of Petroleum, while Chinese executives working with CNPC rarely met with local authorities.[348]

CNPC's situation in Chad subsequently deteriorated. In 2013, Chadian oil minister Djerassem le Bemadjiel suspended all CNPC operations for flagrant environmental regulation violations while exploring for crude oil.[349] The minister alleged that CNPC did not have the equipment for cleaning up oil spills and intentionally allowed oil to spill.[350] In 2014, Chad withdrew five exploration permits after CNPC refused to pay a $1.2

336. *Id.*
337. *Id.* at 169–70.
338. *Id.* at 170.
339. *Id.*
340. *Id.* at 169.
341. *Id.* at 172.
342. *Id.*
343. *Id.* at 175.
344. *Id.* at 178.
345. *Id.* at 181.
346. *Id.*
347. *Id.* at 181–82.
348. *Id.* at 182–84.
349. Bate Felix, *Chad Suspends China's CNPC Unit Over Environment*, REUTERS (Aug. 14, 2013), http://www.reuters.com/article/2013/08/14/us-chad-china-cnpc-idUSBRE97D0VN20130814.
350. *Chad Suspends Chinese Oil Company for Environmental Violations*, DAILY NATION (Aug. 13, 2013), http://www.nation.co.ke/News/africa/Chad+suspends+Chinese+oil+company+for+environmental+violations/-/1066/1946990/-/y15l18/-/index.html.

billion fine for "unacceptable practices" that led to oil spills around drilling sites.[351] The Chadian government also announced that it intended to press charges against CNPC at courts in N'Djamena and Paris.[352] At the end of 2014, the minister announced that CNPC agreed to pay $400 million in compensation for environmental violations and to give Chad a ten percent share in its active oilfields as well as a twenty-five percent stake in future productive fields.[353] Chad agreed to drop its arbitration case against CNPC, and allow it to export oil through the Chad–Cameroon pipeline.[354] It is possible that the alleged environmental violations were a ploy by Chad to force China to pay more for its oil concessions.

C. Mining Investments in the Democratic Republic of the Congo (DRC)

In 2008, a consortium of Chinese companies (sixty-eight percent stake) and the DRC's Gécamines (thirty-two percent stake) signed a joint venture agreement under the name Sino-Congolais des Mines (Sicomines).[355] The package included both development assistance and FDI.[356] The lead Chinese company is China Railway Engineering Corporation, subsequently joined by Sinohydro, Zhejiang Huayou Cobalt, and China Machinery Engineering Corporation.[357] The original agreement, which was not initially made publicly available, was said to constitute a $9 billion loan from China for both mining investment and national infrastructure to be repaid with profits from Sicomines' copper and cobalt mines.[358] After the Paris Club donors and International Monetary Fund raised concerns about the loan's negative impact on the DRC's debt, the project was scaled back in 2009 to an estimated $6 billion: $3 billion for national infrastructure and $3 billion for the mining investment.[359]

The agreement included mining rights for Sicomines in Gécamines' concession near Kolwezi, known as Dikulwe-Mashamba (DIMA), one of the

351. M&G Africa Reporter & AFP, *Chad Scraps Chinese Oil Permits Over Alleged Environmental Violations*, Mail & Guardian Afr. (Dec. 10, 2014), http://mgafrica.com/article/2014-08-11-chad-scraps-chinese-oil-permits-over-alleged-environmental-violations.

352. *Chad Withdraws Chinese Exploration Permits*, Al Jazeera (Aug. 10, 2014), http://www.aljazeera.com/news/africa/2014/08/chad-withdraws-chinese-exploration-permits-2014810124614151839.html. *See Chad Uses Environmental Rules to Keep Tight Grip on Oil Sector*, World Pol. Rev. (Oct. 14, 2014), http://www.worldpoliticsreview.com/trend-lines/14202/chad-uses-environmental-rules-to-keep-tight-grip-on-oil-sector.

353. *Settlement is Reached with CNPC,* The Economist (Nov. 5, 2014), http://country.eiu.com/article.aspx?articleid=672467451&Country=Chad&topic=Economy&subtopic=Forecast&subsubtopic=Economic+growth&u=1&pid=113525195&oid=113525195&uid=1.

354. *Id.*

355. Johanna Jansson, *The Sicomines Agreement: Change and Continuity in the Democratic Republic of Congo's International Relations* 12, 23 (South African Inst. of Int'l Affairs, Occasional Paper No. 97, 2011).

356. *Id.* at 12.

357. *Id.*

358. *Id.* at 10, 11, 15.

359. *Id.* at 10, 14.

world's largest confirmed copper reserves.[360] DIMA contains an estimated ten million tons of copper and cobalt, profits from which will be divided between China and the DRC in accordance with their sixty-eight percent and thirty-two percent ownership stakes.[361] The DIMA concession is located largely within long-standing Gécamines pits, where deforestation occurred many years ago and little additional impact on forests is expected.[362] New quarries may be opened, however, with environmental impacts.[363] The law requires approval of an environmental mitigation and rehabilitation plan, an environmental impact assessment, and a project environmental management plan.[364] There is concern that the Chinese companies and the DRC signed the agreement without any prior assessments or plans.[365] It is also unclear who is to implement any environmental plans due to the ownership structure of the joint venture and the fact that the DIMA concession is a Gécamines holding.[366] During early prospecting, Sicomines reportedly destroyed some agricultural fields and disturbed local schools.[367] Additionally, approximately 200 local residents were displaced without compensation,[368] and there is a possibility that thousands of residents could be evicted.[369]

A representative of the embassy of China in Kinshasa said his government does not have responsibility for environmental impact statements or their implementation, but Chinese companies are familiar with them. Chinese investment banks require such statements but are not in a position to enforce their implementation.[370] Sinohydro did submit an environmental and social management plan, but it is unclear if other Chinese companies submitted plans and assessments and, if so, whether they had been approved.[371] Similar to other African countries, Chinese companies have been reluctant to make public plans and assessments associated with environmental impacts.[372] As a result, the perception of Chinese inattention to the environment may be more negative than the situation merits.[373] In the

360. Louis Putzel & Noel Kabuyaya, *Chinese Aid, Trade and Investment and the Forests of the Democratic Republic of Congo* 25 (Ctr. For Int'l. Forestry Research, Working Paper No. 82, 2011).
361. *Id.* at 25.
362. *Id.*
363. *Id.* at 25, 26.
364. *Id.* at 26.
365. *Id.*
366. *Id.*
367. *Id.*
368. *Id.*
369. *Id.* at 26–27.
370. *Id.* at 12.
371. *Id.*
372. *See* Claude Kabemba, *The Dragon is Not Green Enough: The Potential Environmental Impact of Chinese Investment in the DRC, in* CHINESE AND AFRICAN PERSPECTIVES ON CHINA IN AFRICA 139, 148–49 (Axel Harneit-Sievers et al. eds., 2010).
373. *See, e.g.*, Hans E. Petersen & Sanne van der Lugt, *Chinese Participation in African Infrastructure Development: The Case of the DRC and Zambia*, Report written for the China-DAC Study Group Event on Infrastructure (2010), http://www.ccs.org.za/wp-content/uploads/2011/05/Petersen_Lugt_ENG.pdf. *See also* Kabemba, *supra* note 372, at 150–51.

case of the DRC, China faces additional criticism because a number of small, private Chinese companies, which are the most significant mine operators in Katanga region, have a track record for poor environmental practices.[374] Although these companies are unrelated to the Sicomines agreement, they tend to give all Chinese mining companies a bad name.

The DRC created the Environmental Study Group to collect environmental data, coordinate all activities related to environmental and social assessments, ensure compliance with environmental standards, promote the environmental assessment capacity of the government, and prepare an annual environmental report.[375] As of 2011, the organization had only seventeen employees and had to outsource the review of environmental assessments to multidisciplinary panels.[376] The DRC's environmental regulatory capacity is especially weak, which underscores the need for Chinese companies and those from other countries to act responsibly.[377]

D. Oil and Iron Ore Investments in Gabon

In 2002, Gabon designated a quarter of its territory as a nature reserve to protect mainly pristine rainforest that hosts a variety of flora and fauna.[378] Environmental concerns over Chinese practices first arose when SINOPEC began prospecting for oil in the Loango National Park.[379] A U.S.-based environmental non-governmental organization, Wildlife Conservation Society, and a local environmental group accused SINOPEC of dynamiting and polluting the National Park and destroying the forest with the construction of new roads.[380] In 2006, the government of Gabon ordered SINOPEC to halt its exploration activities.[381] SINOPEC subsequently had the Dutch company that did the original environmental assessment partner with a Gabonese organization and the World Wildlife Fund to do a new assessment, which one study says was of high quality.[382] SINOPEC then resumed its exploration for oil.[383]

The problem with SINOPEC occurred at the same time that the China National Machinery and Equipment Import and Export Corporation

374. *See* Samentha Goethals et al., *Chinese Mining Operations in Katanga: Democratic Republic of the Congo,* Rts. & Accountability in Dev. 5, 6 (Sept. 2009), www.raid-uk .org/sites/default/files/drc-china-summary.pdf.
375. *See* Putzel & Kabuyaya, *supra* note 360, at 9.
376. *Id.*
377. Kabemba, *supra* note 372, at 151, 152.
378. Rasmus Reinvang & Jo Egil Tobiassen, *Investing in Global Warming: A Survey of Energy and Environment-related Investments in China by the World's Second Largest Sovereign Wealth Fund in 2008, with Recommendations*, WWF Norway 20 (2009); Ian Taylor, *China's environmental footprint in Africa*, chinadialogue (Feb. 2, 2007), https://www. chinadialogue.net/article/741-China-s-environmental-footprint-in-Africa.
379. Reinvang & Tobiassen, *supra* note 378, at 20; Taylor *supra* note 378.
380. Taylor, *supra* note 378.
381. Johanna Jansson, Christopher Burke & Wenran Jiang, *Chinese Companies in the Extractive Industries of Gabon & the DRC: Perceptions of Transparency*, Ctr. for Chinese Stud., Stellenbosch U. 16 (2009).
382. *Id.*
383. *Id. See* Taylor, *supra* note 378.

(CMEC) and Sinosteel Corporation were at an early stage of developing a multi-billion dollar iron ore concession in the Bélinga Mountains.[384] China's Export-Import Bank was to provide the financing for developing the mine and infrastructure.[385] The joint venture company known as Comibel would then repay the loan through its mining revenues over twenty-five years.[386] The project included construction of the Ivindo Dam to provide power, a 560 kilometer railway line linking Bélinga to the coast, and a deep water harbor north of Libreville, the capital.[387] Negotiations over the terms of the project were privately held in the office of Gabon's president.[388] The World Bank and several non-governmental organizations objected to the secretive nature of the discussions and also to the fact that the Ivindo Dam would have negative impacts on the Ivindo National Park.[389]

In 2008, Marc Ona Essangui, the president of Brainforest, an environmental nongovernmental organization in Gabon, sent a letter to the president of China's Export-Import Bank complaining that the infrastructure work being done by CMEC in the Ivindo National Park had caused massive deforestation and threatened the Kongou falls on the Ivindo River.[390] Brainforest said that the project might also cause heavy pollution, resulting in harm to the local fishing industry.[391] The letter pointed out that Gabonese law requires CMEC to conduct a local information campaign to explain the impact of the project on the local people, something it had not done.[392] In addition to sending the letter, Essangui allegedly attempted to incite a rebellion and thus was briefly arrested in Gabon.[393] Thereafter, in 2009, he received the Goldman Environmental Prize for Africa.[394]

In 2011, Comibel lost the rights to Bélinga's iron ore deposits because development of the project had fallen behind schedule.[395] In 2013, the government of Gabon reached an agreement with Comibel to take back the

384. Chris Alden & Christopher R. Hughes, *Harmony and Discord in China's Africa Strategy: Some Applications for Foreign Policy*, 199 China Q. 563, 571 (2009).

385. *Id.*

386. Johanna Jansson, *Chinese Investments in Gabon's Extractive Industries*, Pambazuka News (July 8, 2010), http://www.pambazuka.org/global-south/chinese-investments-gabon%E2%80%99s-extractive-industries.

387. *See Belinga Dam, Gabon*, Int'l Rivers, https://www.internationalrivers.org/resources/belinga-dam-gabon-3597 (last visited Feb. 7, 2016).

388. *See generally id.*

389. *Id. See generally* Romain Dittgen, To Bélinga or Not to Bélinga? China's Evolving Engagement in Gabon's Mining Sector (Nov. 2011); Alden & Hughes, *supra* note 384, at 571–72.

390. Letter from Marc Ona Essangui, Pres. of Brainforest, to Li Ruohu, Pres. of China Export-Import Bank (Oct. 20, 2008) (on file with Int'l Rivers).

391. *Id.*

392. *Id.*

393. Ben Block, *In Gabon, Activists Challenge Chinese Mine*, Worldwatch Inst. (Apr. 28, 2009), www.worldwatch.org/node/6088.

394. *Id.*

395. Sarah Tzinieris, *Bidding for Untapped Gabon Iron Ore Reserve, World's Largest, Could Spark Mining Sector*, Mining.com (June 20, 2014), www.mining.com/web/bidding-for-untapped-gabon-iron-ore-reserve-worlds-largest-could-spark-mining-sector/.

iron-ore deposits and reopen bidding for exploiting the ore.[396] Gabon also revised the mining code to take into account these earlier problems.[397] Nevertheless, the proposed open pit iron-ore mine continues to attract opposition from local residents and environmental groups on the grounds that it is located in an area of high biodiversity near Ivindo National Park.[398] While Gabon expects to open the auction process for exploitation of the iron ore in 2016, it is not clear if Chinese companies will join the bidding.[399]

E. Timber Trade and Investment in Mozambique

China is the largest importer of Mozambique's hardwood timber, receiving about ninety percent of exports in recent years.[400] An estimated eighty percent of all logging in Mozambique is illegal.[401] A huge percent of the timber exported to China, therefore, has been harvested illegally.[402] Some species of tree require more than two hundred years to reach maturity and are highly prized by manufacturers in China, and also as finished goods by consumers around the world.[403] Consequently, proper management of these forests and ensuring their sustainability is a critical issue. Chinese timber engagement in Mozambique traditionally constituted trade rather than FDI.[404] In fact, this became one of the complaints heard locally.[405] Chinese companies emphasized quick returns by purchasing indigenous timber rather than investing in processing facilities and sustainable forest management.[406] One study concluded that Chinese operators have no interest in the sustainable development of the forestry sector.[407] Instead, Chinese operators are interested in making profits, and when all of the easy money dries up they go elsewhere.[408]

There are no Chinese investors in Mozambique's more permanent forestry plantations.[409] Chinese nationals preferred to purchase timber

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396. *Id.*
397. *See id.*
398. *Id.*
399. *See id.*
400. ENVIRONMENTAL INVESTIGATION AGENCY, FIRST CLASS CRISIS: CHINA'S CRIMINAL AND UNSUSTAINABLE INTERVENTION IN MOZAMBIQUE'S MIOMBO FORESTS 3 (2014) [hereinafter FIRST CLASS CRISIS], http://eia-international.org/first-class-crisis-chinas-criminal-and-unsustainable-intervention-in-mozambiques-miombo-forests.
401. *See id.*
402. *Id.* at 2; CHINA AND MOZAMBIQUE: FROM COMRADES TO CAPITALISTS 12–14 (Chris Alden & Sérgio Chichava eds., 2014).
403. Laura A. German & Sheila Wertz-Kanounnikoff, *Sino-Mozambican Relations and Their Implications for Forests* 37 (Ctr. for Int'l Forestry Research, Working Paper No. 93, 2012).
404. *Id.* at 21–24.
405. *See id.* at 37–38.
406. *Id.* at 37.
407. CATHERINE MACKENZIE, FOREST GOVERNANCE IN ZAMBÉZIA, MOZAMBIQUE: CHINESE TAKEAWAY! 17 (Apr. 2006), www.illegal-logging.info/uploads/Mozambique_China.pdf.
408. *Id.*
409. German & Wertz-Kanounnikoff, *supra* note 403.

through a licensed Mozambican rather than work as a Chinese operator.[410] If there were illegal activity or some other problem, the Chinese trader was then one step removed from the operations. In the mid-2000s, however, Chinese entrepreneurs began to acquire their own concessions in order to ensure access to timber supply.[411] For example, Mozambique First International Development (MOFID) is a Chinese company that developed a timber concession in the Cabo Delgado province.[412]

The most common illegal activities in the timber trade include harvesting in excess of licensed amounts, harvesting without a license, and harvesting in an area other than the licensed area.[413] There is also the illegal transit and purchase of timber and the illegal export of unprocessed logs.[414] There is evidence of discrepancies between the maximum allowable amount of timber to be cut, official records, and Chinese imports.[415] In 2009, Chinese-owned Kings Way "was caught attempting to smuggle illegal timber into China and subsequently fined."[416] In 2013, Kings Way was again caught smuggling illegal timber and lost its operating license for a year.[417] During the same year, MOFID also had its license suspended for one year for attempting to smuggle illegal timber to China.[418] In 2015, Mozambique opened an investigation of illegal timber exports to China, stating that it had identified seventy containers of wood known as chanate shipped from the port of Beira without authorization.[419]

In 2011, the director of Mozambique's Forest Authority met with senior officials of the Chinese State Forestry Administration. This meeting had the purpose of agreeing on a memorandum of understanding on joint objectives for sustainable forest management.[420] Key themes included law enforcement, technical and financial capacity building of Chinese companies owning forest concessions in Mozambique, and the development and sharing of databases on logging and the timber trade.[421] While this was a step in the right direction, it is not clear whether the two parties have

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410. *Id.* at 33.

411. *Id.*

412. Environmental Investigation Agency, First Class Connections: Log Smuggling, Illegal Logging, and Corruption in Mozambique 7 (2013).

413. Shinn, *Environmental Impact, supra* note 133.

414. Mackenzie, supra note 407, at vi.

415. First Class Crisis, *supra* note 400, at 2.

416. *Id.*

417. *Id.*

418. *Id.* at 7. For a list of earlier infractions by Chinese companies and nationals, see Mafalda Ferreira Piçarra, *Revisiting Sino-Mozambican Cooperation: China's Inroads into the Agriculture and Forestry Sectors*, 72 Afr.-E. Asian Aff.: The China Monitor 20, 27–28 (2012). *See also* Daniel Ribeiro, *Disappearing Forests, Disappearing Hope: Mozambique, in* Chinese and African Perspectives on China in Africa 155, 156–58 (Axel Harneit-Sievers et al. eds., 2010).

419. Tom Bowker, *Illicit Wood Exports to China Prompt Mozambique Investigation*, Bloomberg Bus. (Sept. 8, 2015), http://www.bloomberg.com/news/articles/2015-09-08/illicit-wood-exports-to-china-prompt-mozambique-investigation.

420. First Class Crisis, *supra* note 400, at 8.

421. *Id.*

signed the memorandum.[422] In 2013, officials from Mozambique and China organized a workshop for Chinese companies operating in the country.[423] They discussed the Chinese State Forestry Administration's voluntary guidelines for companies operating overseas.[424] One month after the workshop, several of the companies in attendance were caught illegally exporting logs.[425] Mozambique imposed penalties on the offending companies, but China took no action.[426]

Forest sector policies in Mozambique are subverted by China's policies, the business practices of Chinese companies, the personal interests of Mozambican elites, and the petty corruption of local government officials.[427] Mozambican leaders are also reluctant to press China and its companies too forcefully because of fear of jeopardizing significant Chinese investment in the country.[428] Daniel Ribeiro, a founder of an environmental non-governmental organization in Mozambique, concluded, "At the end of the day we Mozambicans must take the lion's share of the blame for this environmental tragedy. Mozambique set the corrupt rules of this game and Mozambique invited the corrupt players. China is just good at exploiting our rules of injustice, corruption and abuse."[429]

Conclusion

Western and many of Africa's independent media and environmental organizations have a generally negative perception of the environmental impacts of Chinese investments in Africa.[430] Although there are exceptions, the government-controlled press and African officials tend to eschew criticism of Chinese companies.[431] Even though the perception of Chinese performance is more negative than the reality of the situation, there is plenty of room for legitimate criticism. The issue is that generally critical accounts get more attention than positive ones, and negative stories are more likely to be recycled year after year.[432] Regardless of the improvements in the operations of Chinese companies, the changes are slow to be covered by the press and environmental groups.[433]

To a considerable extent, Chinese environmental policy, lending institutions, and companies investing in Africa are playing catch-up. In 2004,

422. *Id.*
423. *Id.*
424. *Id.*
425. *Id.*
426. *Id.* at 8–9.
427. Piçarra, *supra* note 418, at 29.
428. Alden & Chichava, *supra* note 402, at 183.
429. Ribeiro, *supra* note 418, at 162. *See* MOZAMBIQUE MINISTRY OF AGRICULTURE, FOREST LAW ENFORCEMENT IN MOZAMBIQUE: AN OVERVIEW MISSION REPORT 12 (Sept. 2003), www.fao.org/forestry/12933-2-0.pdf.
430. SOFIE GEERTS ET AL., AFRICANS' PERCEPTIONS OF CHINESE BUSINESS IN AFRICA: A SURVEY 13 (2014).
431. *Id.* at 14.
432. Shinn, *Environmental Impact*, *supra* note 133.
433. *Id.*

China's Export-Import Bank adopted voluntary environmental guidelines, which became public in 2007.[434] The guidelines state that projects that are harmful to the environment or do not obtain environmental approval will not be funded. If there are unacceptable environmental impacts during project implementation, the Export-Import Bank requires immediate remedial action or it will discontinue financial support.[435] World Bank president Paul Wolfowitz, however, pointed out in 2006 that eighty percent of the world's commercial banks in their financing arrangements respected the Equator Principles, a framework for managing environmental and social risks.[436] The large Chinese banks did not apply them.[437] Wolfowitz acknowledged that Chinese banks are relatively new to financing investment in Africa. He urged them not to make the same mistakes that, for example, France and the United States made earlier in Zaire.[438]

Ian Taylor, who has written extensively on China-Africa relations, commented in 2007 that numerous examples exist where Chinese companies have been caught flouting environmental laws and collaborating with criminals in the exploitation of Africa's natural resources. He noted that while Western companies do the same, "the lack of a powerful environmental lobby within China that can effectively critique Beijing's actions in Africa is a real worry."[439] Peter Bosshard of International Rivers wrote in 2008 that China has started the process of establishing environmental guidelines for overseas investments. He emphasized that the guidelines need to become more comprehensive and binding. He concluded that "strengthening China Exim Bank's environmental policies will help mitigate the environmental impacts of Chinese investments in Africa."[440]

In more recent years, the government of China has become more sensitive to criticism of overseas investment by Chinese companies. It has made a concerted effort to improve environmental guidelines and encourage their implementation. It also encourages Chinese companies to apply Chinese laws and standards in their overseas operations.[441] Generally large state-owned companies have been more receptive than medium and small companies, especially those in the private sector.[442] Until now, Chinese companies operating overseas are only subject to voluntary guidelines.[443] Unless China makes these guidelines mandatory and attaches penalties to infractions, the guidelines will not likely change the behavior of many companies. Denise Leung, a former official in China's Ministry of Environ-

434. Shinn, *China in Africa*, *supra* note 17.
435. Bosshard, *supra* note 83, at 6.
436. *Id.* at 5.
437. *Id.*
438. *Id.* For the Equator Principles, see *Equator Principles,* THE EQUATOR PRINCIPLES ASS'N (June 1, 2015), www.equator-principles.com/.
439. Taylor, *supra* note 378.
440. Bosshard, *supra* note 83, at 8.
441. Stephen Marks, *Is China Greening Africa?*, PAMBAZUKA NEWS (Dec. 16, 2010), http://www.pambazuka.net/en/category.php/features/69639.
442. Shinn, *Environmental Impact*, *supra* note 133.
443. *Id.*

mental Protection and now with the World Resources Institute, argued for mandatory principles while with the Ministry, but believes even voluntary guidelines will have a positive impact on large companies interested in their public image.[444]

It is important to acknowledge the difficulty of enforcing environmental guidelines on Chinese companies operating in Africa, especially when the press in China and many African countries is carefully controlled by the government, and environmental advocacy organizations tend to be weak. One area where Chinese companies have consistently performed poorly (although some are improving) regards the relative lack of transparency in the handling of sensitive environmental issues. The enforcement of the Foreign Corrupt Practices Act of 1977 has allowed the United States to have considerable success in stemming bribery overseas.[445] Perhaps China could apply similar legislation to environmental standards.

Many African countries are worse off than China as they attach low priority to environmental protection, have understaffed environmental bureaucracies, and even worse records for countering corruption.[446] In an attempt not to jeopardize Chinese investment or good relations with the government of China, numerous African officials are reluctant to call out Chinese companies that engage in unacceptable environmental practices.[447] This situation does not provide an incentive for companies that are focused on making a quick profit to engage in responsible but more expensive environmental practices, especially where there are many African officials and business persons who are prepared to accept the lower standards. It will often be up to the Chinese company to take the initiative. It is in the interest of both China and the African countries to pursue sound environmental practices and sustainable development. Africa's development partners, including the United States, could also improve the environmental situation by building the human capacity in African countries to monitor and regulate the environment.

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444. Denise Leung, *How Are China's Overseas Investments Affecting the Environment?*, World Resources Inst. (May 9, 2013), http://www.wri.org/print/37502.
445. Shinn, *Environmental Impact*, supra note 133.
446. *Id.*
447. *Id.*