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Forest Governance and International Partnerships in the Congo Basin

Theodore Trefon

The Congo Basin is home to the world's second-largest mosaic of tropical rainforests. These forests are essential to local populations for their livelihoods, and they matter to the international community for harboring biodiversity and potentially contributing to climate change mitigation. Over the past twenty years, international partnerships have played a crucial role in supporting scientific research and forest policy design. Such partnerships have helped yield major advances in expert knowledge of forest ecology, wildlife distribution, the carbon economy, people's role in traditional forest management practices, and forest governance from normative and political economy perspectives. Despite this progress, countries in the region still do not have clearly defined official forestry policies. This article—based on twenty-five years of related research and field experience—presents the partnership architecture that is gradually enabling stakeholders to rethink the decision-making process for this internationally recognized priority. While diplomacy and partnerships can foster progress, they will only be effective when scientific research is embedded in an environment of good governance and functioning democratic institutions.

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Introduction

In 2002, leaders from governments, the private sector, and nongovernmental organizations attended the World Summit on Sustainable Development in Johannesburg, South Africa. The United Nations convened the summit to discuss sustainable development ten years after the Rio de Janeiro Earth Summit. Then U.S. secretary of state Colin Powell, along with President Omar Bongo of Gabon and other dignitaries, launched the Congo Basin Forest Partnership (CBFP), a multi-stakeholder forum that now brings together approximately eighty-five partners—African countries, donor agencies, governments, international organizations, NGOs, scientific institutions, and private companies—all united to improve natural resource management and human well-being in the Congo Basin. The CBFP, one of many forest governance initiatives that have emerged over the past two decades, represents the spirit of this article, which describes the process by which international partnerships foster scientific research and diplomacy for tropical rainforest conservation.

This article focuses on why the Congo Basin forests matter and to whom, the impact of diplomacy and partnerships on forest governance, and increased scientific knowledge about this vast topography. The conclusion presents a circumspect analysis of future forest management scenarios by outlining opportunities and challenges. While many examples of scientific achievement and diplomatic success exist, obstacles relating to the implementation of workable solutions based on sustainable practices remain significant. My ambition here is to share a vision about how science, local indigenous knowledge, and international partnerships are gradually converging to rethink natural resource management in one of the world's most notoriously difficult regions in which to achieve sustainable development objectives.

Why the Congo Basin Matters

The Congo Basin extends into Cameroon, the Central African Republic (CAR), the Democratic Republic of the Congo (DRC), Equatorial Guinea, Gabon, and the Republic of the Congo. With a total area larger than the state of Alaska, it is home to the world's second-largest contiguous tropical rainforest, after Amazonia. Its 223 million hectares represent 70 percent of all Africa's forests. A mosaic of rivers, forests, savannas, and swamps, the Congo Basin is full of life, wealth, and mystery. The world's largest tropical peatland complex—crucial for carbon sequestration—straddles the DRC and the Republic of the Congo.[1] In one country alone, the DRC—home to more than half the basin's forests—there are an estimated 1,000 species of birds and the same number of freshwater fish, 421 types of mammals,[2] and 302 reptile species.[3] The area is also home to 30 primate species,[4] numerous emblematic

creatures such as elephants, gorillas, and chimpanzees, as well as endemic species such as bonobos and okapis. Although taxonomic inventories are incomplete because of insufficient research, available information points to equally impressive numbers of plant species (estimated at 10,000), insects, ants, and butterflies.[5] From this biodiversity perspective alone, the Congo Basin is one of the most amazing wilderness frontiers remaining on Earth.

The forests are essential to the 118 million people who live across the basin. Forests provide agricultural land, building materials, fish, bushmeat, and nontimber forest products, as well as essential ecosystems services such as climate and water regulation, carbon sequestration, soils, and biological diversity. Low levels of human development and moderate to high levels of corruption throughout the region—with the exception of sparsely populated, oil-rich Gabon—would be far worse without these forest resources. In addition to these pragmatic subsistence priorities, many central Africans perceive their forests as mystical places where the living and the dead rendezvous in ritual ceremonies, making the cosmic link between their ancestors and future generations. These forests could well be home to the plants, roots, or barks that will save lives through medicines yet to be discovered. Indeed, bioprospecting is a growing business with implications ranging from indigenous people's intellectual property rights to global health. (See Table 1 for selective data relating to forest governance in the Congo Basin.)

Table 1: Forest Governance in the Congo Basin

Country	Population in millions[1]	Number of hectares of forest in millions[2]	Forest as percentage of total land area[2]	Human development indicators[3]	Corruption index[4]
Cameroon	24.3	21.2	45.7%	154/188	145/176
Central African Republic	5.5	22.8	36.5%	188/188	159/176
Democratic Republic of the Congo	81.3	133.6	58.9%	178/188	156/176
Equatorial Guinea	.7	1.6	58.2%	137/188	Not available
Gabon	1.7	21.8	84.5%	109/188	101/176
Republic of the Congo	4.8	22.5	65.8%	135/188	159/176
Total	118.3	223.5	–	–	–

Sources:
Central Intelligence Agency, *World Factbook*, https://www.cia.gov/library/publications/the-world-factbook/rankorder/2119rank.html
"Rainforests," *Mongabay*, http://rainforests.mongabay.com; UN Development Programme, *Human Development Report 2016,* http://hdr.undp.org/sites/default/files/2016_human_development_report.pdf;
Transparency International, "Corruption Perceptions Index 2016," "https://www.transparency.org/news/feature/corruption_perceptions_index_2016.

The Changing Forest

Central African farmers view shifts in rainfall patterns and crop yields as examples of global climate change; they may not know the causes, but they are aware of the impacts. Most scientists agree that human activity contributes to global climate change. In 2013, the Nobel Foundation awarded its peace prize to the Intergovernmental Panel on Climate Change (IPCC), acknowledging its contribution to supporting this connection. The timing of this award coincided with a growing international consensus that coordinated action worldwide is urgent.

Global environmental issues and the Congo Basin's environment are clearly intertwined. In 2007, the IPCC authored a report providing evidence that at least 17 percent of global greenhouse gas emissions result from deforestation. The UN Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD) offers a higher percentage: "Deforestation and forest degradation, through agricultural expansion, conversion to pastureland, infrastructure development, destructive logging, fires, etc., account for nearly 20% of global greenhouse gas emissions, more than the entire global transportation sector and second only to the energy sector."[6] With specific reference to tropical deforestation, the Union of Concerned Scientists suggests the proportion is 10 percent.[7] Forest governance is therefore one of the priorities included in the UN Framework Convention on Climate Change (UNFCCC).

So important for locals as well as the future of the planet, these forests are under threat. Drivers of deforestation and degradation vary from country to country but can be grouped into two categories. The widely cited work of Geist and Lambin indicates proximate causes, meaning human activities (agricultural practices, road and infrastructure development, and tree removal for industrial export, fuelwood, and local construction) and social processes (demographic pressure, urbanization, trade, governance, and culture).[8] All these causes and processes are interconnected. Slash-and-burn agriculture in areas of high population density near roads or rivers is the principal driver of deforestation and degradation in the region. Large-scale land acquisitions by multinational companies with potentially unpredictable impacts on land use are likewise taking place. Similar to the situation with

industrial logging companies, some of the companies with concessions are serious about social and environmental priorities, others less so.

Deforestation in the Congo Basin is, however, less significant than in other areas along the tropical belt. Indeed, "net deforestation rates are more than two times higher in South America and four times higher in Southeast Asia."[9] While these rates have increased significantly in the two Congos, they have stabilized in CAR and appear to have dropped in Cameroon, Equatorial Guinea, and Gabon. This does not mean deforestation and degradation hot spots do not exist. One major challenge is "the empty forest": standing trees on land with diminishing biodiversity. As wildlife is either sacrificed to the poacher's rifle or lost because of human population pressure and subsequent habitat loss, the ecological structure of forest ecology shifts. In the past decade, Gabon has lost 80 percent of its forest elephant herd to poachers,[10] and eastern DRC has lost the same percentage of its endemic Grauer's gorillas over the past two decades.[11] These losses appear to have a negative impact on forest sustainability in the short term; the long-term consequences are still unknown.[12]

International Partnerships in the Congo Basin

A constellation of international initiatives reflects global recognition of the Congo Basin forests' importance. Many seek to modify local communities' way of life and their land-use patterns. Encouraging people to desist from slash-and-burn agriculture is an example of such social engineering. Scientific research, policy design and implementation support, capacity building, and financial efforts are among the principal and oftentimes overlapping collaboration priorities. Private companies and philanthropic foundations are also increasingly engaged in the region. The Howard G. Buffett Foundation's multimillion-dollar contribution to Virunga National Park in the DRC is an example.[13] Highlighting a few of these initiatives will support the argument that diplomacy and other forms of international partnerships are helping establish the prerequisite knowledge base for improved forest governance.

A high-level diplomatic initiative that showcases all three dimensions of science diplomacy (i.e., science *for* diplomacy, diplomacy *for* science, and science *in* diplomacy) is the Central African Forests Commission (COMIFAC). This intergovernmental body, responsible for coordinating forest and environmental policy to promote conservation and sustainable management, is the region's main platform for dialogue among environment ministries, international scientists, and donors. Launched in Yaoundé, Cameroon, in 1999, it has ten member countries,[14] two of which (DRC and Rwanda) were at war at the time, indicating its unifying capability as a South-South convener. COMIFAC collaborates with the CBFP and

other regional initiatives such as the Central African Protected Areas Network (RAPAC) and the Central African Forest Observatory (OFAC).[15]

Multilateral donor partnerships likewise serve as an example of North-South cooperation, and have contributed to climate change adaptation and mitigation initiatives. The Green Climate Fund (GCF) marshals funding for low-emission and climate-resilient development in developing countries. Created by the UNFCCC, the GCF has mobilized more than $10 billion since 2014. It supports work relating to fuelwood, agriculture, timber harvest, and mining to assist countries in limiting their greenhouse gas emissions. Because the GCF is focused on supporting countries that are highly vulnerable to climate change, those in the Congo Basin are eligible beneficiaries.[16] Likewise, the UN-REDD program helps developing countries reduce forest emissions and enhance forest carbon stocks while contributing to national sustainable development.[17] The program's crosscutting themes of forest governance, land tenure, gender equality, and stakeholder engagement are particularly relevant to its activities in the Congo Basin. However, the program's success is contingent upon political will and financial support, which are not firmly secured. UN-REDD also faces conceptual and implementation challenges in the Congo Basin. While the program's emphasis is on forests at risk of degradation and deforestation in the near term, most conservation initiatives in the Congo Basin focus on landscapes almost exclusively on lands not at immediate risk. A gap therefore exists between the objectives of low-emission development and biodiversity conservation. In terms of implementation, the program fosters a de facto dependency on national administrations, which are underequipped with respect to service delivery capacity and motivation.

Initiatives in central Africa suffer from short-term funding cycles; four-year projects predominate. There are, however, some exceptions. The German-government-owned development bank Kreditanstalt für Wiederaufbau (KfW; Reconstruction Credit Institute) works with the DRC government to establish sustainable funding mechanisms for protected-area management.[18] Now in its third decade, the Central Africa Regional Program for the Environment (CARPE) is supported by the U.S. Agency for International Development (USAID) and, more recently, by the Norwegian government. Phase I (1995–2002) focused on understanding the legal, social, biological, and administrative context of Congo Basin forests and inventorying forest resources. Phase II (2003–2013) promoted comprehensive regional land-use planning to identify conservation and sustainable development priorities. Phase III (initiated in 2013) is focused on implementation of priority actions. CARPE can claim some successes. It has been instrumental in reducing forest loss and fostering a better understanding of ecological processes and effective conservation. The program has also been catalytic in developing new tools and approaches to forest governance. However, the scale needed to improve

long-term land-use management has yet to be achieved. Moreover, CARPE has not helped reconcile conservation with socioeconomic development to a significant degree.

The Central African Forest Initiative (CAFI) is another multidonor central African initiative that emphasizes donor coordination and alignment of bilateral assistance to partner countries.[19] With mostly Norwegian government support, CAFI's objective is to "recognize and preserve the value of the forests in the region to mitigating climate change, reducing poverty, and contributing to sustainable development...through the implementation of country-led, holistic low emissions development investment frameworks that include national policy reforms and measures addressing drivers of deforestation and forest degradation."[20]

Another voice comes from the Interfaith Rainforest Initiative, which contributes to the debate about the compatibility between scientific knowledge and religious beliefs.[21] Religious leaders, inspired by Pope Francis's encyclical letter *Laudato Si'* and encompassing Christian, Muslim, Jewish, Hindu, Buddhist, and Daoist observance, have joined forces with indigenous peoples in an effort to end deforestation. Launched by Norway's King Harald V in 2017 and convened by Norway's International Climate and Forest Initiative, Rainforest Foundation Norway, and the UN Development Programme, this effort seeks to mobilize world leaders to include forest conservation in climate change strategies.

Fostering Scientific Research and Building Technical Capacity

Scientific research in the Congo Basin has received the support of many donors interested in the region.[22] Initiatives include a crosscutting, capacity-building component because technical, scientific, and administrative capacity is weak. National governments rarely invest requisite funding to train technical experts; in many cases, governments rely on external partners for capacity building.

With a specific emphasis on scientific training, the Ecole Régionale Postuniversitaire d'Aménagement et de Gestion Intégrés des Forêts et Territoires Tropicaux (ERAIFT), in Kinshasa, DRC, trains a cadre of regional graduate students in integrated and interdisciplinary forest management approaches.[23] Since its creation in 1999, ERAIFT has graduated approximately thirty master's and doctoral students from some ten African countries each year. Operating under the aegis of the UN Educational, Scientific, and Cultural Organization (UNESCO), ERAIFT has created a community of environmental ambassadors who work with forest administrations, communities, national park services, and donors. ERAIFT models diplomacy *for* science; it was sparked by a regional need for forest experts, receives funding from a host of bilateral and multilateral donors, and partners with similar

research institutions in the Amazon Basin. The Center for International Forestry Research (CIFOR) leads comparable training at the University of Kisangani in the DRC. Similarly, the World Resources Institute (WRI) is active in the Republic of the Congo and DRC, providing policy-design mentoring in the field of integrated land-use planning through its Strengthening Central Africa Environmental Management and Policy Support project funded by CARPE.

Independent monitoring of land use and forest cover is another area that has received significant international funding, advanced by new knowledge through online forest-monitoring systems. The WRI's Global Forest Watch (GFW)[24] and the University of Maryland, funded in part by CARPE, specialize in analysis using remotely sensed data and partnerships with institutions such as the Joint Research Centre of the European Commission. GFW uses open-access state-of-the-art technology to track deforestation, land-cover change, forest fires, and commodity production to empower people to better manage forests. The need for verification from the ground has inspired community-based initiatives such as Citizen Voices for Change (CV4C), which has received funding from the European Union to improve forest governance in five Congo Basin countries.

Science for Sustainable Development and Conservation

These collaborative initiatives have enabled researchers, policy makers, and activists to deepen their understanding regarding the challenge of reconciling conservation and development. This learning process is starting to translate into improved policy design, aided by information widely available through worldwide databases and open-source research sharing. Furthermore, natural scientists and social scientists have learned to transcend the confines of their own disciplines and ideological prejudices. For example, interdisciplinary research for climate mitigation and adaptation carried out by biologists (who quantify biomass) and anthropologists (who discuss fallow patterns with farmers) is an expanding research topic. A generation ago, these scientists hardly spoke to one another; today they actively participate in a collaboration institutionalized in donor project-proposal templates.

The governments of Congo Basin countries, donors, development agencies, environmental NGOs, and researchers are gradually learning from the experiences of the past two decades to improve policy design. An emerging trend is multi-stakeholder participatory management. Until the 1990s, people were often considered the problem in protected areas, and repressive policies were therefore the rule. That perception has evolved. It is now recognized that people also offer solutions to forest governance challenges and need to be consulted, informed, and involved. Social scientists from the fields of history, politics, and anthropology

played a key role in formulating arguments for this recognition. Appropriation, benefit sharing, consultation, negotiation, participation, and transparency are widening the environmental governance lexicon to connect peoples' rights with secure land tenure.

Community-based natural resource management (CBNRM), another evolving approach, helps communities identify their needs and manage forest resources consensually, which implies that rules are agreed upon by community members and recognized by governments. Reflecting traditional management practices, CBNRM seeks to modernize community institutions by encouraging them to share economic benefits, secure land rights, and empower women to assume leadership roles. CBNRM has given rise to various avatars, including community-based conservation that harmonizes conservation and development goals with community forestry. All Congo Basin countries except the Republic of the Congo have passed community forestry legislation in recent years, granting forest management decision-making rights to communities. CBNRM is an important forest governance approach that requires scientific inputs from forest ecologists and social scientists.

Conceptually creative and realistic forest strategies at the local institutional-landscape level are on the drawing board. Nevertheless, additional work must be done to recognize community rights in a culturally sensitive way. The region's forests are rife with greed, opportunism, and mistrust, with competing stakeholders vying for power. The legality-legitimacy cleavage, an unresolved source of conflict between communities and state authorities, adds to this challenge. Throughout most of the Congo Basin, communities are governed by customary institutions, which they perceive as being legitimate. Governments, conversely, consider that land and resources belong to the state by virtue of normative frameworks. States in the region tend to tolerate this hybrid form of tenure unless there are competing claims from logging, agro-industrial, or mining concessions, or protected areas which represent high economic stakes. Consequently, dendrologists, bioengineers, geologists, conservation biologists, and environmental lawyers all play a role in forest diplomacy.

Remote sensing can be considered as a tool to facilitate forest diplomacy. It provides useful data about land-cover change such as deforestation and degradation hot spots around urban areas, roads, and rivers. Remote sensing also supports the link between population pressure and forest-cover change. Moreover, these data are utilized by policy makers to design forest management strategies based on quantifiable information. Using this kind of satellite imagery, diachronic forest maps are generated and compare changes in forest cover over time. Similarly, remote sensing and related new tools provide detailed information to companies

such as Walmart, McDonald's, Unilever, and Mars, whose executives have sought to ensure that their supply chains do not contribute to deforestation. Globally, 366 companies with a combined net worth of $2.9 trillion have committed to eliminating deforestation from their supply chains.[25] Such a commitment is an important trend in protecting forests, because approximately 70 percent of deforestation results from clearing for palm oil, soy, beef, cocoa, and other agricultural commodities.[26]

International scientific partnerships have expanded the understanding of tropical biodiversity's complex web. The image of a forest scientist clutching a GPS and a mobile device has replaced that of a lumberjack with a chain saw. The threefold function of tropical forests, increasingly understood in ways that drive and improve policy making, consists of:

1. **Productive**: high-value industrial timber, construction materials for local use, fuelwood, nontimber forest products, farm food and fish, bushmeat
2. **Environmental**: biodiversity, climate regulation, aesthetic, carbon sequestration, water and soil benefits
3. **Social**: subsistence and well-being for local communities.

Leveraging this improved knowledge to promote restoration strategies on degraded and deforested land is a priority for the African Forest Landscape Restoration Initiative, under the Bonn Challenge.[27] By definition, forest landscape restoration reflects the process of regaining ecological functionality and enhancing human well-being on deforested or degraded forest land. More than just planting trees or managing watersheds, such an endeavor requires the involvement of local stakeholders and respect for land rights and land-use practices. Forest restoration is a critical concept linked to sustainable forest livelihoods. More than previous approaches, it offers balance between a focus on shrinking intact habitats and those under heavy anthropogenic pressure.

This investment in research has contributed to a fundamental paradigm shift: tropical forest management now is based on social and governance issues, not just strict scientific knowledge about seed dispersal, tree height, or species distribution. At present, CARPE's partners are designing and implementing a landscape approach to forest governance in the Congo Basin, seeking compromises across competing demands for food, subsistence income, biodiversity conservation, and ecosystem services. This approach is based on co-managing the needs and aspirations of all landscape actors in an integrated manner. Stakeholders, however, often are distrustful of new initiatives related to conservation; working toward a shared vision requires patience and commitment to a long-term strategy. CARPE has adopted a landscape approach and appreciates that success or failure in forest governance depends on how well relationships of trust are established. So far,

however, attributes needed for a landscape approach at a meaningful scale have not been consolidated.

An Uncertain Future

Scientists and policy makers understand Congo Basin forest dynamics better today than a generation ago as a result of diplomacy and international partnerships. Efforts are leading to unprecedented popular mobilization and public awareness about tropical forest degradation. Data and analysis have entered the public sphere, shaping decisions in venues from boardrooms to climate change conferences. Congo Basin leaders have embraced these approaches as well—at least at the discourse level. A wide gap, however, remains between what is desirable conceptually and feasible politically and financially. Funding mechanisms are unsustainable and fluctuate according to erratic donor ideologies. Current conservation models and land-management strategies tend to replace the state, rather than fostering cooperation with governments as full-fledged partners, underscoring the lack of trust among donors, NGOs, and local stakeholders.

Forest management in the Congo Basin also suffers from a silo approach. Industrial loggers have different priorities than conservationists, for example, and land-use planners are bogged down with immature policies and legislation, weak institutions, and competing claims from renewable and nonrenewable resources. Numerous donor-led programs offer an array of activities to achieve expected results, but no consensual vision has been reached on how the countries' forest resources should be managed in the coming decades or how they could contribute to development. Researchers and practitioners have launched appeals for more holistic management approaches, a potentially positive paradigm shift, but advances in concrete linkages between the forest-sector sensu stricto and the agriculture, energy, transportation, and development sectors heretofore have been insufficient. This is an obstacle because it is difficult to design a viable forest strategy without incorporating other sectors.

The urgency of saving Congo Basin forests has led decision makers to act imperfectly, guided by the will to act at all costs. In addition to prioritizing the creation of sustainable funding mechanisms, future policies would benefit from realizing that positive change takes longer than expected in central Africa. In addition, it must be acknowledged that isolated success stories become especially meaningful if the scale is commensurate with the size and needs of the Congo Basin. Increased and continued investment in natural and social scientific research is necessary, as well as reinforced support for regional and international collaboration and policy co-creation. SD

Endnotes

1. Greta C. Dargie et al., "Age, Extent and Carbon Storage of the Central Congo Basin Peatland Complex," *Nature* 542, no. 7639 (2017): 86–90, doi:10.1038/nature21048.
2. Richard Eba'a Atyi and Nicolas Bayol with Sebastién Malele Mbala et al., "The Forests of the Democratic Republic of Congo in 2008," in *The Forests of the Congo Basin—State of the Forest 2008*, ed. Carlos de Wasseige et al. (Luxembourg: European Union, 2009), 122, available at http://www.observatoire-comifac.net/docs/edf2008/EN/SOF_07_DR Congo.pdf.
3. Alain Billand, "Biodiversity in Central African Forests: An Overview of Knowledge, Main Challenges and Conservation Measures," in *The Forests of the Congo Basin—State of the Forest 2010*, ed. Carlos de Wasseige et al. (Luxembourg: European Union, 2012), 66, available at http://carpe.umd.edu/Documents/2010/SOF_2010_EN_Chap_3.pdf.
4. Charles Doumenge, *La conservation des écosystèmes forestiers du Zaïre* (Gland: International Union for the Conservation of Nature, 1990), p. 23.
5. Ibid., 20.
6. UN-REDD Programme, http://archive.is/5nxUe - selection-961.0-961.304.
7. "Measuring the Role of Deforestation in Global Warming," Union of Concerned Scientists, http://www.ucsusa.org/global_warming/solutions/stop-deforestation/deforestation-global-warming-carbon-emissions.html.
8. Helmut J. Geist and Eric F. Lambin, "Proximate Causes and Underlying Driving Forces of Tropical Deforestation," *BioScience* 52, no. 2 (2002): 143–50.
9. Carole Megevand with Aline Mosnier et al., *Deforestation Trends in the Congo Basin: Reconciling Economic Growth and Forest Protection* (Washington, DC: World Bank, 2013), 44–45, available at http://documents.worldbank.org/curated/en/175211468257358269/pdf/757270PUB0EPI0001300pubdate01025013.pdf.
10. John R. Poulsen et al., "Poaching Empties Critical Central African Wilderness of Forest Elephants," *Current Biology* 27, no. 4 (2017): 134–35, doi:10.1016/j.cub.2017.01.023.
11. Andrew J. Plumptre et al., "Status of Grauer's Gorilla and Chimpanzees in Eastern Democratic Republic of Congo: Historical and Current Distribution and Abundance," unpublished report to Arcus Foundation, USAID, and U.S. Fish and Wildlife Service, 2015.
12. David S. Wilkie et al., "The Empty Forest Revisited," *The Year in Ecology and Conservation Biology*, vol. 1223 (2011): 120–28.
13. Amy Yee, "The Power Plants That May Save a Park, and Aid a Country," *New York Times*, August 30, 2017, https://www.nytimes.com/2017/08/30/business/congo-power-plants-poaching.html?mcubz=1.
14. Burundi, Cameroon, Chad, Central African Republic, Democratic Republic of the Congo, Equatorial Guinea, Gabon, Republic of the Congo, Rwanda, and São Tomé and Príncipe.
15. OFAC publishes "State of the Forest" reports, which provide comprehensive, multidisciplinary data about the tropical forests of central Africa: see http://pfbc-cbfp.org/Stateoftheforest.html.
16. Green Climate Fund, http://www.greenclimate.fund/home.
17. UN-REDD Programme, http://www.un-redd.org/.
18. KfW Development Bank, https://www.kfw-entwicklungsbank.de/International-financing/KfW-Entwicklungsbank/.
19. Norway has disbursed nearly $3 billion over the past decade to support developing countries in reducing deforestation and forest degradation, and has committed to maintain that level of investment at least until 2030.
20. "The CAFI Declaration," Central African Forest Initiative, http://www.cafi.org/content/cafi/en/home/our-work/the-cafi-declaration.html.
21. Interfaith Rainforest Initiative, http://fore.yale.edu/files/Interfaith_Rainforest_Initiative.pdf.
22. Major donors are the European Commission, USAID, UK Department for International Development, Norwegian Agency for International Development, German Federal Ministry for Economic Cooperation and Development, and French Global Environment Facility.
23. ERAIFT, http://www.eraift-rdc.org/.
24. Global Forest Watch, http://www.globalforestwatch.org/.
25. World Resources Institute, http://www.wri.org/blog/2017/01/save-forests-theres-now-app.
26. Ibid.
27. International Union for Conservation of Nature, https://www.iucn.org/theme/forests/our-work/forest-landscape-restoration/bonn-challenge.