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South-South relations and global environmental governance: Brazilian international development cooperation

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Abstract

South-South relations have become increasingly relevant for understanding global environmental governance in the 21st century. This article explores the socio-environmental contributions and impacts of Brazilian South-South cooperation for international development. Case studies of its international technical cooperation and the international project finance of BNDES show a mixed picture, with environmental benefits countered by environmental harms.

Keywords: South-South relations; emerging powers; global environmental governance; international development cooperation; environmental aid.

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Introduction

The rise of the emerging powers is one of the dominant themes of the international relations of the 21st century. An enormous literature has probed their status and what it means for both established powers and other parts of the developing world, as well as for the global system and its institutions as a whole. It has never been easy to precisely define the qualities of an emerging power. Their ability and willingness to challenge existing power structures has also fluctuated across different issue areas and over time.

This paper focuses on Brazil and its role in global environmental governance as a lens into the question of what it means to be an emerging power. We understand global environmental governance as others have described the similar term earth systems governance: comprised of multilayered processes and encompassing forms of steering which are often decentralized, open to self-organization and less hierarchical than traditional

governmental policy-making (Biermann et al. 2009). As such, it is important to examine more than participation in multilateral environmental negotiations.

Brazil is one of just a few countries in the world that are both economic powerhouses *and* mega-diverse, housing a large share of the world's species, natural resources, and fresh water within its borders. In the terms used by many scholars of global environmental governance, this means it is inherently an environmental power: it has a substantial "exploitable power to destroy" (Downie 1999, 104; see also DeSombre 2000). Yet there is a second possible definition of an environmental power, which is that a country might be a leader in contributing to global environmental solutions (Viola and Franchini 2018). This turns attention away from domestic environmental outcomes to international relations of various kinds and, more broadly, earth system governance.

Here, we briefly establish Brazil's status as the first kind of power and then investigate the second question of possible Brazilian constructive leadership in global environmental governance. To do so, we look beyond Brazilian participation in international environmental negotiations (Edwards and Roberts 2016; Hochstetler and Viola 2012; Viola and Franchini 2018) to examine the environmental impacts of Brazil's larger international agenda. We are particularly interested in the south-south initiatives that began with former President Lula da Silva's presidency in 2003. The initiatives were formulated primarily in economic terms, but we show that they also had significant environmental dimensions that scholars have usually overlooked. While the rhetoric of south-south cooperation was highest under Lula, we also document ongoing initiatives under his successor Dilma Rousseff (2011-2016) and a surprising amount of – largely unheralded – activity under Michel Temer's short and controversial administration (2016-2018). We conclude the article's coverage before the inauguration of current President Jair Bolsonaro, who has broken decisively with prior environmental and foreign policies.

What contributions have Brazil's south-south initiatives made to global environmental governance? Can Brazilian initiatives in other developing countries be seen as contributing to global environmental solutions – or are they exacerbating environmental problems? We answer these questions with reference to two prominent categories of Brazil's south-south initiatives. The first examines the trajectory and characteristics of Brazilian development assistance (which it never calls foreign aid). In this, Brazil has prioritized technical cooperation in a number of areas including agricultural and institutional development. The second surveys the internationally-linked lending of the Brazilian National Development Bank (BNDES), which provides support for the export of goods and services from companies based in Brazil. After 2003, this included finance that helped build many infrastructure projects in the developing world.

In focusing on these topics, we are particularly interested in what they show about the actual implementation practices of Brazilian bureaucracies that support development in other countries. These include the many bureaucracies that worked with the Agency for Brazilian Cooperation, associated with the Ministry of Foreign Affairs, and those of the Brazilian National

Development Bank. Presidential rhetoric gives an important window into the ambitions and nature of international relations, but there can be a large gap between these statements and actual practices. Therefore, our primary focus is on the concrete environmental manifestations of Brazil as a rising power.

Brazil as an environmental power

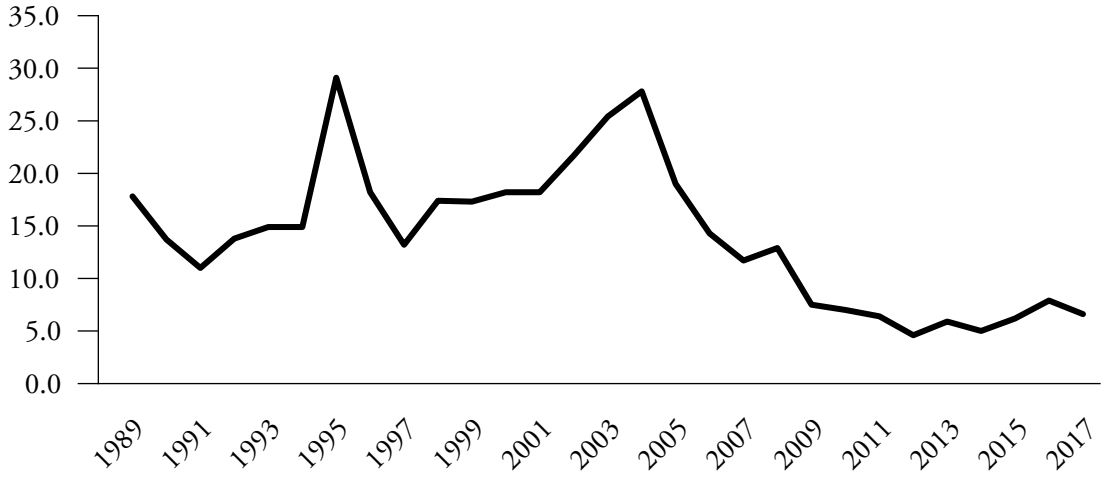
What does it mean to say that a country is an "emerging power," in the environmental domain or any other? The field of international relations has spent considerable effort since 2000 trying to understand exactly that question. Just a few of the unsettled questions include identifying which countries are rising powers, what characteristics make them that, what they are aiming for in their international relations, and the impact those ambitions will have on global order (Chin 2010; Hurrell 2006; Narlikar 2010; Vieira and Alden 2011). Much of the attention has gone to the relationship between emerging and traditional powers, but the dynamic relationship between these emerging powers and other developing countries may prove even more important for global outcomes including global environmental governance.

Writing about regional hegemony, Peter Katzenstein divided the concept between what he called "strategic action and sheer weight" (Katzenstein 2005, 21). In other words, there are concrete material indicators of what it means to be an emerging power and possibly also a regional hegemon, a "sheer weight" of influence that most countries simply do not have because of their smaller size. But hegemony and leadership are also wielded as strategies, so that prospective emerging powers can magnify their global footprint. Some of the tools emerging powers may choose include development assistance for other southern countries, including the technical cooperation and project finance we consider here.

Beyond these general observations about power, the issue matters, with different issue areas showing different political structures, observations that go back to the classic work of Keohane and Nye (1989). Many environmental issues including biodiversity conservation and climate change are rivalrous in their structure, meaning that "use of the resource by one actor diminishes that resource's value to another actor" (DeSombre 2000, 24). Countries that are heavy resource users through, say, deforestation that reduces biodiversity or greenhouse gas emissions that reduce the total carbon space, have substantial power to destroy or prevent environmental protection (Downie 1999). Biodiversity is also excludable, meaning that access to biodiversity's benefits and losses is associated with (national) control over the territory where biodiversity is physically located (DeSombre 2000, 31). These issue characteristics give Brazil what Katzenstein calls sheer weight, or what the environmental literature calls substantial "power to destroy," in some of the most important issues on the agenda of global environmental governance.

For example, the country hosts 20% of the planet's biodiversity.[1] Important biomes exist within its borders. The Brazilian Amazon alone covers an area of 4,196,943 square km, where 2500 species of trees and 30,000 species of plants grow[2]. The Amazon is the largest tropical forest and river basin on the planet[3]. The *cerrado* ecosystem is considered the most diverse savanna in the world, hosting 5% of all existing species. The *Pantanal Matogrossense* is part of one of the largest permanent freshwater wetlands in the Western hemisphere[4]. The marine coast spreads through 3.5 million square km. Historically high rates of deforestation in Brazil (see Figure 1) have threatened biodiversity in all these ecosystems except for the marine coast, presenting a global threat to biodiversity outside the direct control of non-Brazilian states.

Figure 1. Deforestation in the Brazilian Amazon, 1989-2017, in km^2



Source: Instituto Nacional de Pesquisas Espaciais 1988.

Brazil's territorial riches are closely related to global processes of climate change, and thus at the core of current international politics (Viola et al. 2012). Viola and his collaborators (2012, 15; 2018) use a notion of climate power that encompasses diverse dimensions: military, economic and climatic. Concretely, these reflect the volume and trajectory of GHG emissions, the human and technological capital to generate a considerable impact on the transition to a low-carbon economy; and the relation between resources and energy culture (energy behavior). In Downie's terms, these are all further specifications of the power to destroy. In the classification of Viola and Franchini (2018), Brazil is considered a great climate power, together with South

[1] See Brazil 2017. All the data in this paragraph is from the Brazilian Ministry of Environment

[2] See Brazil 2017.

[3] It drains around 6 million sq. km and has 1100 tributaries. The Amazonas River discharges around 175 million liters of water per second, more than the sum of the largest rivers in the world.

[4] See Convention of Ransar 2017

Korea, India, Japan and Russia. They emit 20% of total GHG emissions and hold a little less than 20% of the world GDP.

Brazil's environmental importance means that it is inevitably central in global environmental outcomes, and other countries have recognized that repeatedly. Our question is what Brazil itself has made of its power resources in the area over time. Two important elements in issue structuralism are the state's willingness to exert power and the direction it wants to give to the rules in that area. Until the late 1980s, the country was very reactive in taking up the environmental agenda and played an obstructionist role in multilateral negotiations, exerting its veto power. Domestic and international political changes after that led Brazil to become more proactive and constructive in the international environmental arena, although it may be backsliding since 2010 (Viola and Franchini 2018).

Brazil launched its new role in 1989 by offering to host the United Nations Conference on Environment and Development (A/RES/44/228, 22 Dec 1989). The Rio 1992 Conference is considered a landmark for global environmental governance, when major international environmental instruments were signed. Since then, Brazil has continued to become more active in the global environmental arena, moving from veto to proposition in sensitive issues like forest management (Carvalho 2012); playing a leadership role in other areas, such as biodiversity (Lovejoy and Inoue 2013); and being actively involved in climate negotiations through coalitions like the BASIC coalition (Hochstetler and Viola 2012). In this way, Brazil has been active in the construction of the global environmental governance architecture, through participation in the negotiation of multilateral environmental agreements (MEAs), although its roles have varied.

Turning to what Brazilian presidents have concretely offered other developing countries, Lula suggested in the climate negotiations in Copenhagen that Brazil could begin to finance other countries' climate action. His successor, Dilma Rousseff, made this promise concrete with a $10 million pledge at the Rio+20 conference in 2012, saying, "Brazil, as an emerging power, will do its part" (Hochstetler and Milkoreit 2015, 218-219). In its Nationally Determined Contribution to the Paris Agreement on climate, Brazil also proposed south-south cooperation, but through technical cooperation rather than finance. Areas proposed for cooperation were "forest monitoring systems; biofuels capacity-building and technology transfer; low carbon and resilient agriculture; restoration and reforestation activities; management of protected areas; increased resilience through social inclusion and protection programmes; capacity building for national communications and other obligations under the Convention, in particular to Portuguese speaking countries." These are quite concrete pledges, and we try to trace their implementation in the evidence we offer below.

In sum, Brazil has been an emerging environmental power since the end of the 1980s, either through its power to destroy or through leadership in certain issues. This is a combination of the country's environmental resources (issue structure) and its decisions to participate. Brazil has become "greener" at home since the 1980s as well, and advances at home often preceded

new international commitments (*e.g.*, on climate, see Hochstetler and Viola 2012). Domestic environmental institutions and a relatively strong civil society have evolved since the 1970s (Hochstetler and Keck 2007). The country has created a considerable body of legislation and governmental organizations that have carried out environmental policies with different degrees of success. Already in the 1980s, policies in the state of São Paulo brought alarming rates of industrial pollution under control (Hochstetler and Keck, Chapter 5), decades before China and India made similar efforts. Most notably, while Figure 1 shows very high rates of historical deforestation in Brazil, it also shows a remarkable 80% drop in annual deforestation rates from 2005 to 2011 before progress stopped. The sustainability agenda was also incorporated into sectors that deal with family agriculture.

Brazilian development assistance is a potential multiplier of its domestic environmental experiences, as practices that could be both harmful and helpful to environmental protection are extended to other countries. A rapidly growing literature is concerned that the expansion of economic relations directly between southern countries will undermine socio-environmental norms and safeguards that were painstakingly created over the last decades in campaigns at the United Nations, World Bank, and other global governance institutions (e.g., Braütigam 2009; Kopinsky and Sun 2014; Sierra and Hochstetler 2017; Woods 2008). One major reason is that south-south assistance is typically offered without the policy conditions of traditional northern donors and funders. Yet, the Brazilian government and others are confident that Brazil is sharing useful models and resources with its developing country counterparts, with greater environmental and social protections as a result (Instituto de Pesquisa Econômica Aplicada 2010; White 2013). This is a debate that would benefit from sustained empirical investigation, and we offer it here.

Our methodology is to use official documents and data to present a quantitative and qualitative overview of Brazil's south-south initiatives from 2003-2018. In the case of Brazilian development cooperation, much of the data comes from the Institute for Applied Economics Research (IPEA), a governmental research agency, and the Brazilian Cooperation Agency (ABC) of the Foreign Ministry. For Brazil's international project finance, we used online data from the Brazilian National Development Bank (BNDES). Author interviews in these agencies triangulate the other data sources and contribute to our interpretation of the quantitative data.

Environmental dimensions of Brazilian development cooperation

Brazil does not consider itself an "emerging donor," but a dualistic country that provides development assistance while also still being a recipient of Official Development Assistance (ODA).[5] What Brazil calls its cooperation for international development (never using the word

[5] Author interview with Marco Farani, then-head of Brazilian Cooperation Agency, Brasília, May, 2011.

aid) is not a new phenomenon. Brazil's first technical cooperation initiatives with developing countries date back to 1969 (Inoue and Vaz 2012), but they grew in prominence and visibility during Lula da Silva's administrations. This section first presents an overview of Brazil's development cooperation with more detailed information about post-2003 developments. It then examines its environmental dimensions.

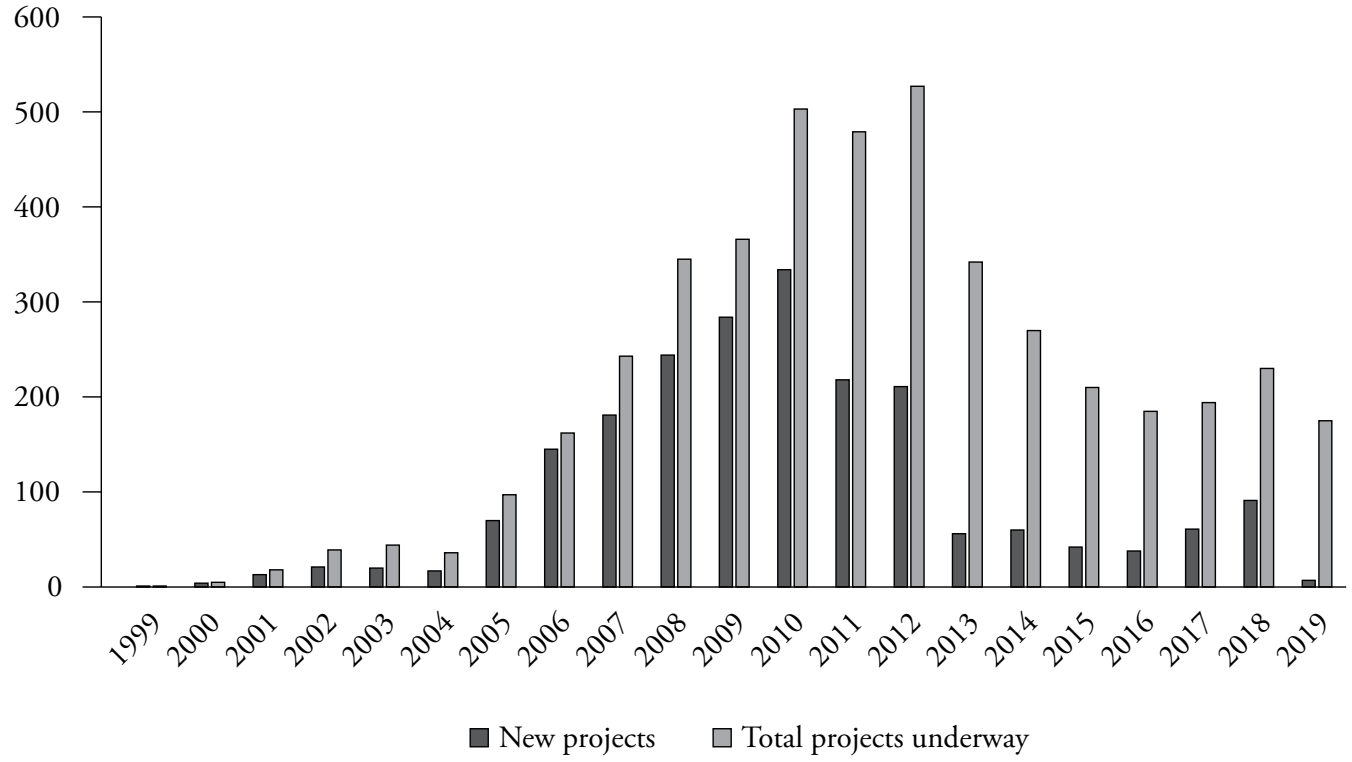
The official definition of Brazilian cooperation for international development (COBRADI) includes technical cooperation, humanitarian assistance, scholarships, and contributions to international organizations[6]. Following this definition, the Brazilian federal government spent around U$ 4.1 billion (or R$ 7.9 billion) in cooperation for international development from 2005 to 2013, 56% of which represented contributions to international organizations (Instituto de Pesquisa Econômica Aplicada 2016, 15-16). While international cooperation is mostly associated with the Lula administrations (2003-2010), the available data shows that it also continued through the first years of Dilma Rousseff's first presidency before declining, especially in the development of new projects (see Figures 2 and 3 below) (Instituto de Pesquisa Econômica Aplicada 2016). There is a huge and atypical jump in the spending on international cooperation in 2016, when Brazil paid off its unpaid scheduled contributions to multilateral organizations (Instituto de Pesquisa Econômica Aplicada 2018, 265). No official data is available for the 2016-2018 period.

Figure 2. Total cooperation for international development, 2005-2016 (millions of R$)

Sources: IPEA and ABC 2016, 2018. 2016 values in BRL (1 USD = R$ 3.2551 on 31 December 2016).

[6] The IPEA (Institute for Applied Economics Research), a governmental research institute, published the first study about 'Brazilian international cooperation for development' (COBRADI) in 2010. This study uses a broad definition of international cooperation: all the non-refundable resources invested by the federal government in other countries' governments, in citizens from other countries in the Brazilian territory, or in international organizations to contribute to international development understood as strengthening the capacities of international organizations and groups or populations from other countries to improve their socioeconomic conditions (Instituto de Pesquisa Econômica Aplicada 2010, 17)

Figure 3. Annual tallies of new projects and total projects underway, 1999-2018



Source: http://www.abc.gov.br/Projetos/pesquisa, searched for all completed and in-progress south-south cooperation projects. Total projects under way includes a tally of projects initiated in the year, ongoing projects between the year of initiation and completion, and ongoing projects completed in the year.

Historical overview

Brazil has provided development assistance (technical cooperation) since the late 1960s. As Brazilian foreign policy and public policies were consolidated around the promotion of national development, a national system for international cooperation was established in 1969. The government also set up a technical assistance program for foreign countries. Promoting development has retained its status as an important function of Brazil's government since then, and been a foundation of the country's international cooperation policy (Vaz and Inoue 2007).

International technical cooperation is the most enduring component of Brazil's development cooperation. It has been a foreign policy instrument and a way to "export" Brazilian public policies and projects that are considered successful. This modality is carried out mainly by public employees who provide capacity building and know-how abroad or offer courses and workshops for their counterparts in Brazil. Since the late 1970s, Brazil used the concept of technical cooperation among developing countries (TCDC) that it adopted from the Buenos Aires Action Plan (September 1978). This Action Plan signaled a commitment from developing countries to find solutions to their own problems and according to their own socio-economic conditions (Cervo 1994, 43-44). TCDC aims at promoting social and economic development

through the exchange of experiences, or the generation of knowledge through consultancy, training, research, and institutional development[7].

Since that period, Brazilian TCDC programs have expanded considerably. Before the conference, the country had sponsored only 28 projects. In the 1980s, the number grew to more than 600 (Cervo 1994, 49). Brazilian development assistance then took a new leap during Lula da Silva's governments, which has drawn the attention of scholars and the public[8]. This growth coincided with the move back to a foreign policy focus on the South, which Brazilian diplomacy and foreign policy accentuated during Lula's era. TCDC is the most visible component of Brazil's initiatives in South-South cooperation.

Brazilian diplomacy highlighted south-south cooperation as an important foreign policy instrument during Lula's governments, unlike those of Rousseff or Temer:

> *"Brazil offers to other developing countries the experiences and knowledge from specialized national organizations without conditionalities, [Brazilian cooperation] is non-profit, and untied by commercial interests. It is given in areas that are considered more relevant by the receiving countries. Besides, Brazil pays special attention to respect for the principles of sovereignty and non-intervention in domestic affairs [….] It [South-South cooperation] represents an important instrument to show Brazil's image and its potential outside. In South-South cooperation, Brazil transfers not only its best competences and skills, but also reveals the country's attitude as an active actor in the international scene in favor of development and solidarity putting into practice one traditional principle of Brazilian foreign policy."* [9]

The Brazilian Cooperation Agency (ABC, Agência Brasileira de Cooperação), which is in charge of international technical cooperation, also defines South-South Cooperation (SSC) as a horizontal process, not associated with commercial goals. According to the Agency, the goal is to exchange knowledge and successful experiences in order to develop the recipient country's autonomy[10]. Figure 3 shows that this rhetoric was matched by many new projects.

From 2003 to 2009, the Brazilian Cooperation Agency (ABC) coordinated the negotiation, approval, signing, and implementation of over 400 South-South technical cooperation agreements for Brazil, including "triangular initiatives" with a developed country partner. The number of beneficiary countries more than doubled from 21 to 56 countries (Instituto de Pesquisa Econômica Aplicada 2010), and the number of projects and activities increased from 23 to 489 in that period.

[7] See Agência Brasileira de Cooperação 2012.

[8] "Speak Softly and Carry a Blank Cheque: Brazil's Foreign-Aid Programme" 2010

[9] Minister Marco Farani, Director of the Brazilian Cooperation Agency (ABC/MRE), 2009, (publication by Ministério da Previdência Social 2009 found at http://www.mpas.gov.br/arquivos/office/3_100202-164639-597.pdf, accessed August 28, 2010).

[10] Ambassador Celso Amorim, Ministry External Relations 2009 (Publication by the Brazilian Cooperation Agency – ABC 2009 Brazilian Cooperation Agency 2009 Brazilian Technical Cooperation in Africa found at http://www.abc.gov.br/download/CatalogoABCAfrica2009_I.pdf, accessed September 1, 2010.

The main areas have been agriculture, health and public security. The number of new projects in one year peaked in 2010 (Inoue and Vaz 2012).

Figure 3 shows that the number of new projects dropped off substantially under Dilma Rousseff, beginning in 2011. However, the total number of projects continued to be high, as bureaucracies continued to implement ongoing projects. A survey of the projects in progress in May, 2019 found that there are still 143 ongoing south-south cooperation projects, with 76 expected to end in 2019, 55 in 2020, and a few every year until 2023.[11] Surprisingly, 156 new cooperation projects were initiated under the Temer presidency (31 August 2016 to 31 December 2018), far more than usually acknowledged. If the Lula government sometimes had rhetoric beyond the substantive achievement of cooperation (Hochstetler 2014), the Temer government seems to have achieved the opposite. With little governmental rhetoric about the importance of cooperation projects, bureaucrats appear to have continued with their international outreach, sometimes extending existing projects like the human milk banks to new recipients and sometimes creating new initiatives altogether. The first six months of the Bolsonaro government show a more decisive break, with just six new projects versus the average of 162 new projects for every six-month period of Lula's presidencies, 56.5 for Rousseff, and 31 for Temer.

Agriculture, health, education and public security can be highlighted as major areas of action throughout the years since 2003, but Brazil has offered technical cooperation in many sectors. This reflects the demand from other developing countries, as well as a kind of "recognition" of expertise in several sectors related to its developing country status. It also reflects the greater interest of some Brazilian organizations in "going international" and exporting their policies and projects. Africa and Latin America and the Caribbean were the regions that received the greatest shares of Brazilian cooperation throughout.

South-South environmental cooperation?

Even though it is no longer as prominent since Lula left office, technical cooperation remained a soft power resource for Brazil through 2018, as just documented. To return to our central theme, what contributions have Brazil's south-south development cooperation made to earth systems governance? Have they reinforced or undermined Brazil's commitments in international environmental negotiations?

The Ministry of Environment carried out some of the most important technical cooperation projects in the environment area. Former Minister of Environment Izabella Teixeira identified a portfolio of projects negotiated from 2010-2016 that will be executed through 2020[12]. Among these, the Ministry of Environment signed cooperation instruments with all other

[11] http://www.abc.gov.br/Projetos/pesquisa, "Projetos em execução", accessed 16 May 2019.

[12] The continuity of these projects is not guaranteed in Bolsonaro's administration, as the Ministry of Environment was almost dismantled.

South American countries. She highlighted the Deforestation and Land Use Change Monitoring project in the Pan Amazonia Forest with resources from the Amazonia Fund, through which the BNDES distributes voluntary donations received from international and national actors including Norway, Germany, and Petrobras (Teixeira 2017, 190-191). The aim of the Monitoring Project was to share information and Brazilian monitoring technology. Teixeira also mentioned three trilateral initiatives: Trilateral Cooperation Agreement Amazon without Fire Brazil-Bolivia and Italy; Trilateral Cooperation Agreement Amazon without Fire Brazil-Ecuador and Italy and Knowledge Management in Research, Technology Transfer and Innovation in Biodiversity Brazil-Ecuador and Germany (Teixeira 2017, 189).

Each organization that is responsible for a project keeps its own records, so data for a comparative analysis is limited. We can only provide a rough overview about the kind of projects that were being implemented or already finished in 2016[13], without much precision about the exact starting/ending dates, value, and organizations that participated. For example, there were 102 bilateral environmental items listed as "finished" by ABC in 2016[14].The list ranged from consolidated projects to isolated activities like support for the participation of a representative from Nepal in the "Meeting of International Observers to the III Child and Youth Conference for the Environment"[15] and several preparatory missions that could become a project in the future. "Water resources"[16] was the most common project, appearing 16 times in the list. Solid waste and forest fires each appeared six times. Several courses were offered in different areas. In 2016, 16 bilateral environmental projects and activities were still being implemented; 13 of these were water resource management as almost all of the new environmental projects during Rousseff's presidency addressed water resources. Of sixteen new projects initiated during Temer's presidency, just four were water management.

In 2016[17], there were fewer trilateral environmental projects and activities that were concluded (23), but they seemed to exhibit the same pattern of emphasis on forest fires and water resources. There were only four ongoing trilateral projects. Two were related to forest fires, one in Persistent Organic Pollutant (POP) management and another in renewable energy and food security. Below, we present a few examples of the kinds of projects Brazil supported.

Projects that have been carried out in the Amazon regions of other countries can have a directly beneficial impact on climate, as most of the emissions of GHG in South America come from deforestation. One example was a Brazil-Colombia project to exchange experiences, technical transference and knowledge about forest-fire management in the Amazon. In the Ecuadorian Amazon, there is a sustainable development (poverty alleviation) project being carried out, and

[13] http://www.abc.gov.br/Projetos/pesquisa, accessed Oct 24, 2016.

[14] http://www.abc.gov.br/Projetos/pesquisa, accessed Oct 24, 2016.

[15] *Participação do Nepal* no "*Encontro de Observadores Internacionais da III Conferência Infanto Juvenil pelo Meio Ambie*nte

[16] In Bolsonaro's Administration, the National Water Agency was transferred from the Ministry of Environment to the Ministry of Regional Development.

[17] http://www.abc.gov.br/Projetos/pesquisa, accessed Oct 24, 2016.

a project was negotiated in the area of biofuels. These kinds of projects were a prominent part of the Temer-era project list.

PANAMAZON II was a regional triangular initiative among the International Tropical Timber Organization-ITTO, Brazil, and the Amazon Cooperation Treaty Organization-ACTO. Its immediate objective was monitoring deforestation, logging, and land use change in the whole Amazon Region. But the purpose was to increase governance in the region, as well as interaction and integrated action in border zones (PANAMAZON II Project Proposal). This initiative is a result of the Amazonian Common Agenda Project, which was coordinated by ACTO with the technical and financing support of the ABC in 2005 and 2006. The Amazonian Common Agenda Project consisted of a cost-benefit analysis about the existing technologies for forest cover monitoring. The conclusion of the study indicated that the software and methodology developed by the INPE was the most appropriate for the region. Through this project 18 technicians were trained and information was exchanged among another 120 people representing all ACTO Country members. The training sections were coordinated by INPE and covered all aspects of satellite forest cover monitoring.

Brazil's Second National Communication to the United Nations Framework Convention on Climate Change (UNFCCC), published in 2010, includes a section dedicated to "South-South cooperation on issues related to climate change" (2010, 504-505). According to this report, Brazil cooperated with Non-Annex I Parties to the Convention to build national capacity, without imposing its own rules or concepts. The aim was to enable developing countries to carry out their national communications and to create their Designated National Authority, helping them to implement the Clean Development Mechanism. Geographically, Brazilian priorities were in Latin America and Africa, especially in Portuguese-speaking countries. This explains the Brazilian participation in two institutions concerned with mitigating climate change: the Iberoamerican Network of Climate Change Offices (RIOCC) and the Portuguese-Speaking Countries Climate Change Network (RELAC).

Other initiatives can be linked to the United Nations Biodiversity treaties. Perhaps the most notable was an expansive project begun in 2018 to help Uruguay implement the Nagoya Protocol's norms for access and benefit sharing to genetic resources. Another addressed Bolivian plans to protect endangered species. The Amazonian projects are related to both biodiversity and climate-related aims and treaties.

The projects that ABC labels environmental are just a small share of Brazil's total technical South-South cooperation (see Table 1). Understanding the environmental implications thus requires looking at these other areas as the environmental impacts of non-environmental projects can be significant. We focus on agricultural cooperation, which represents the largest share of projects (18%). The sectors that come immediately after agriculture, like defense, health, public security, education and public administration do not seem to impact the local environment, nor can they be related to any Brazilian MEA commitment. However, the relation between Brazil's agricultural cooperation and the environment may be important.

Table 1. Technical South-South cooperation by sectors, 2000-2018

Sectors[1]	Percentage
Agriculture	18%
Defense	16%
Health	15%
Education	10%
Public administration	7%
Environment	6%
Social development	6%
Mining and energy	3%
Cities	2%
Industry and trade	2%
Work and employment; Justice; Cattle raising; Culture; Science and technology	1-2% each sector

Source: http://www.abc.gov.br/Projetos/pesquisa.

[1] We omitted Fishing, Legislature, Sport, and International relations, all below 1% of the finished projects.

The agricultural agency Embrapa's share in TCDC expenditure was the greatest in the 2010-2013 period, about 5% of the total (Instituto de Pesquisa Econômica Aplicada 2013; Instituto de Pesquisa Econômica Aplicada 2016). In 2016[18], it was implementing 18 projects involving very diverse themes. Cotton is the only one that appears five times and manioc twice. Perhaps because agriculture stands out among other sectors or because of its importance in Brazil's economic power nowadays, there are many studies about Brazil's agricultural SSC, mainly in Africa. The main narrative about Brazil's agricultural cooperation in Africa is of two agricultural models, the first based on an agribusiness package of technology transfer, large-scale, export crops, and business orientation and another package based on family agriculture, small-scale, food-security, and less business oriented (Zanella and Milhorance 2016; Scoones et al. 2016).

ProSavanna, a trilateral program that involves Brazil, Japan and Mozambique, is an example of the first model. The program has been subject to attacks from civil society organizations concerned with land grabbing, lack of transparency and marginalization of peasants and other civil society actors[19]. However, Scoones and collaborators argue that the program has not advanced much (Scoones et al. 2016). More Food International and Purchase from Africans for Africa are considered more family-farming oriented, although the first does anticipate the acquisition of agricultural machinery from Brazil. More Food International – Mozambique, is a bilateral program aimed at providing preferential credit for the import of Brazilian agricultural machinery and technical assistance in policies for family farming. Purchase from Africans for Africa is a multilateral program that joins Brazil, Mozambique,

[18] See http://www.abc.gov.br/Projetos/pesquisa, accessed Oct 24, 2016.

[19] See "Joint Statement and open questions on ProSAVANA by the civil society of Mozambique, Brazil and Japan." 2016.

the World Food Programme (WFP) and the UN Food and Agriculture Organization (FAO) to promote local food purchase from small holders for school feeding and other institutional markets (Zanella and Milhorance 2016).

A qualitative assessment of Brazil's environmental technical cooperation provided to developing countries in Africa and South America is not possible without a comprehensive collection of case studies in the field, something that is not available for now. In quantitative terms, Brazil's SSC in the environmental area does not reflect the importance of the country's own environmental resources, nor its accumulated expertise in several areas like biodiversity, forest coverage monitoring, climate modeling, water management, protected areas. There are only a few initiatives in these directions. Thus, Brazil's SSC in the environment does not reflect its international activism in the MEA arena nor its role as an environmental power.

Environmental dimensions of BNDES's international project finance

Brazil has spent about $5.1 billion (R$16 billion) on its international development assistance programs, as just described. While a substantial sum, the number is less than a third of the $14.5 billion that the Brazilian National Development Bank (BNDES) loaned to finance infrastructure projects in developing countries between 2003 and 2018, with the last new projects in 2016.[20] This finance represents another important branch of Brazil's SSC and reflects a similar logic. This section describes the finance and its rationales before examining its environmental footprint.

In its inspiration, BNDES' international project finance is clearly associated with Brazil's desire to have a larger international role. It was a core part of the country's economic statecraft after 2003 (Sierra 2015). Then-President Lula made this clear in his frequent public addresses, suggesting that BNDES finance could promote regional integration and development while also opening the door for Brazilian firms to do business abroad.[21] As Lula traveled the world more than any other Brazilian president, he commonly announced new joint initiatives for development assistance along with new lines of credit from BNDES for economic projects of various kinds (Hochstetler 2014, 363). The announcements gave the impression that a great deal of money was available, including for Brazil's foreign policy initiatives like the Initiative for the Integration of the Regional Infrastructure of South America (IIRSA) (Burges 2009). While the actual finance trailed that of the promises and that of other emerging powers like

[20] Compiled from http://www.bndes.gov.br/wps/portal/site/home/transparencia/, (Banco Nacional de Desenvolvimento 2017). Regular checks show no new projects since 2016. All references to BNDES data are calculated by the authors from this source unless otherwise indicated.

[21] Palácio Itamaraty – Brasília, DF, 01/09/2005 Discurso do Presidente Luiz Inácio Lula da Silva na cerimônia de formação da Turma 'Celso Furtado' (2002) do Instituto Rio Branco; Pequim – China, 20/05/2009 Entrevista Coletiva Concedida pelo Presidente da República, Luiz Inácio Lula da Silva, após cerimônia de assinatura de atos na Academia Chinesa de Tecnologia Espacial. All presidential speeches cited are online, in reverse chronological order, at http://www.itamaraty.gov.br/sala-de-imprensa/discursos-artigos-entrevistas-e-outras-comunicacoes/presidente-da-republica-federativa-do-brasil.

China, it did help to finance 76 infrastructure projects in Latin America and Africa (Sierra and Hochstetler 2017, 764).

As a group, the projects shared certain characteristics that affect their environmental footprint. The first is that Brazil's international project finance was given without policy conditions. This feature, shared with the international project finance of the other emerging powers, was a deliberate policy choice to differentiate their loans from those of traditional lenders. The multilateral development banks and bilateral finance controlled by traditional powers in the north had come to place increasingly onerous requirements – for structural adjustment, for governance improvements, for consultation, and for environmental stringency – on recipients as conditions for granting finance (Babb and Carruthers 2008). The emerging powers, recent loan recipients themselves, openly rejected the sovereignty-limiting characteristics of these conditions (Kaplan 2016; White 2013).

The implications for environmental outcomes are clear. BNDES policy is to use whatever national provisions for environmental assessment exist rather than imposing the bank's own standards and safeguards. If those national provisions were high, environmental protection could be too. If national environmental protections were weak, the bank would work with those as well. The bank did engage in some internal discussions about whether it could offer incentives, e.g., in the form of lower interest rates, for projects that had better environmental protections.[22] But it strongly resisted a multinational NGO campaign that would have made strict environmental safeguards a condition of BNDES finance (Sierra and Hochstetler 2017). Beyond the general opposition to placing conditions on loans, bank staff also considered environmental assessment to be outside the bank's expertise and better done by experts.[23]

The second shared characteristic of the finance is that it was available only if a Brazilian firm was involved and only for that the portion of the project.[24] Brazilian diplomacy under Lula carved out a nuanced stance: while Brazilian finance for development projects was offered in "solidarity" with other developing countries, Brazil also needed gains for its own development with this finance. Linking finance to the participation of national firms made south-south finance a "win-win" solution for creditors and borrowers (Brautigam 2009; Sierra and Hochstetler 2017).

The environmental implications of this choice are less direct, but it means that the environmental impacts of Brazilian international project finance are directly linked to the environmental performance of Brazilian firms. With the project finance given primarily for construction goods and services, this spotlights the Norberto Odebrecht construction firm (50 projects), Andrade Gutierrez (12 projects), Camargo Corrêa (7 projects), and Queiroz Galvão (7 projects). (Multiple firms were involved in several of the projects.) These multinational firms are modern firms with environment departments. There are no detailed studies of their

[22] Author telephone interview with Sergio Weguelin, then-Superintendent of BNDES Environment Area, July 2011.

[23] Author interview with BNDES' Energy and Infrastructure Division bureaucrats, Rio de Janeiro, May 2012.

[24] Author interview with BNDES International Division bureaucrats, Rio de Janeiro, May, 2012.

actual environmental performance, however. This same group of firms is also at the center of the ongoing massive corruption schemes in Brazil and beyond known as *Lava Jato*. The US Department of Justice documented that Odebrecht alone paid bribes to win contracts for more than 100 projects in 12 countries (US Department of Justice 2016, 7). While details are still emerging, this suggests a willingness to operate outside of established rules, including perhaps environmental rules.

Turning to the projects themselves, many environmental impacts are inherent to the kind of project. The discussion characterizes the loans by the environmental impact of the types of projects, considering both climate and local effects of the types of infrastructure. Table 2 summarizes the international projects financed by BNDES.

Table 2. International projects financed in whole or part by BNDES, 2003-2018

	Number of projects (hosts)	Environmental effects
Electricity plants and transmission lines	13 (Angola, Costa Rica, Dominican Republic, Ecuador, Peru, Uruguay)	Fossil fuel plants are negative for GHG emission; Hydropower plants and transmission lines have strong local socioenvironmental impacts
Roads	20 (Angola, Dominican Republic, Guatemala, Honduras)	Vectors for deforestation in rural areas; may encourage vehicles and related air pollution and climate emissions
Non-road transport	8 (Angola, Cuba, Mozambique, Venezuela)	Environmentally beneficial when fund public transport systems
Water infrastructure	18 (Angola, Argentina, Dominican Republic, Ecuador, Mozambique, Venezuela)	Effects depend on kind of project; may improve water pollution, but may disrupt natural water flows and aquatic life
Buildings	10 (Angola, Cuba, Ghana, Mexico, Peru, Venezuela)	Generally minimal except for very local effects, especially in construction period
Gas pipelines and distribution	6 (Argentina, Uruguay)	Facilitates extraction and use of a fossil fuel
Other	1, 4 (Angola, Dominican Republic)	The Dominican project is an ecological corridor, so environmentally friendly

Only one of these projects, the Pontezuela ecological corridor in the Dominican Republic, is a project with strictly environmental aims. Others might be thought of as broadly positive from an environmental point of view, such as three metro lines financed in Venezuela or sanitation systems in Angola, Argentina, and Venezuela. These kinds of projects reduce urban air and water pollution. Water supply systems in the same set of countries plus the Dominican Republic and Mozambique promise broadened public provision of a critical resource and may also improve water quality.

At the other extreme, a number of the projects directly and indirectly facilitated fossil fuel production and use. Extensive gas pipelines and trunklines in Argentina and Uruguay are a notable example. BNDES financed the construction of a thermoelectric plant in Uruguay and a petrochemical complex in Mexico. The 20 roads built, mostly in Angola, will facilitate car and truck traffic and are vectors of deforestation when they intersect forests. BNDES also financed the building of nine hydroelectric plants in Angola, Costa Rica, the Dominican Republic (4 of them), Ecuador, and Peru. These are projects that the Brazilian government would include as a positive entry in BNDES' environmental balance sheet. Hydroelectric power is the centerpiece of Brazil's electricity matrix and the Brazilian government consistently frames it as a clean, renewable choice (e.g., Tolmasquim 2016). Studies suggest that at least some of Brazil's hydroelectric dams emit considerable levels of methane, a greenhouse gas, but most have lower lifetime emissions than coal and other fossil fuel plants (Faria et al. 2015). Even so, the World Bank quit funding large hydroelectric dams for a decade from the end of the 1990s to 2009, on the grounds that other social and environmental costs of these projects were unavoidably high (World Bank Group 2009).

In summary, BNDES finance has mixed environmental effects. They are largely congruent with a number of Brazil's international stances, in environmental governance and beyond. Brazil's international negotiators have always insisted on national sovereignty over natural resources, even as Brazil became more willing to make its own commitments in international environmental agreements. That stance is central to Brazil's development finance through BNDES as well. On specific issues, like the virtues of hydroelectric power, Brazil has promoted in diplomacy what it also promotes with finance. Thus, while it would be difficult to say that BNDES' choices of projects to finance promotes global environmental governance, the projects are not inconsistent with its diplomacy.

Conclusion

Environmental power has many dimensions. Brazil has a great deal of inherent weight in global environmental governance due to its "power to destroy" as well as potentially contribute to positive global environmental outcomes in central agenda areas like biodiversity conservation and reducing the greenhouse gas emissions that cause climate change. Brazil has chosen to exercise that environmental power inconsistently in international negotiations, as others have documented. In this paper, we have examined the environmental implications of another of Brazil's strategic choices, to promote development in its southern partners through technical cooperation and by providing finance for development projects. We find a similarly mixed picture of the direct effects of these south-south initiatives from 2003-2018.

On the one hand, Brazil has provided modest technical cooperation for environmental purposes. Among other initiatives, Brazil has offered assistance in the design of water projects

to a range of countries and shared technology and strategies for monitoring deforestation and stopping forest fires with its Amazonian neighbors. The specifically environmental assistance is dwarfed by technical cooperation in the agricultural area, however, where an agribusiness model has come to displace a more environmentally and socially friendly family agriculture model. Brazil's development assistance flourished most clearly during the Lula administrations, plunging under Rousseff and reappearing under-the-radar under Temer, in the context of limited foreign policy ambition after Lula.

The monetary value of all of those kinds of assistance is further dwarfed by the BNDES's support of Brazilian firms that offered their construction and engineering services to other developing countries after 2005. Among 76 projects, very few offered direct environmental benefits, while the majority of the projects were large infrastructure projects with substantial social and environmental costs and/or promoted the extraction and use of fossil fuels. Brazilian principles for south-south cooperation meant that such funds were provided without policy conditions or safeguards, so the national standards and enforcement of host countries provided the only buffer against impacts. However, the last new finance of this kind was offered in 2016. It remains formally available, but no governments since Lula's have stressed a large international role for BNDES and corruption scandals have challenged the firms involved.

In short, Brazilian development assistance has done little to counter-balance what has been a retreat in the country's contribution to multilateral environmental negotiations. If this trend consolidates, it would mean that inability to play a constructive role in the negotiation of norms and rules and the overall construction of the earth systems governance architecture could result in a return to the obstructionist role of the past. Internally, if the economic and political crisis is not solved and/or the balance of domestic forces tips too much towards the more conservative/developmentalist sectors, there could be less governance of forests, biodiversity, water, emissions and so on with negative effect for the Earth systems. Brazil would be more dependent on environmental development assistance from its traditional donors to carry on domestic environmental policies – if it is even willing to accept that, which President Bolsonaro may not be – and would move away from providing development assistance. In regional terms, this would be negative as Brazil shares important river basins and biomes with its neighbors (Amazon, Pantanal and Prata).

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