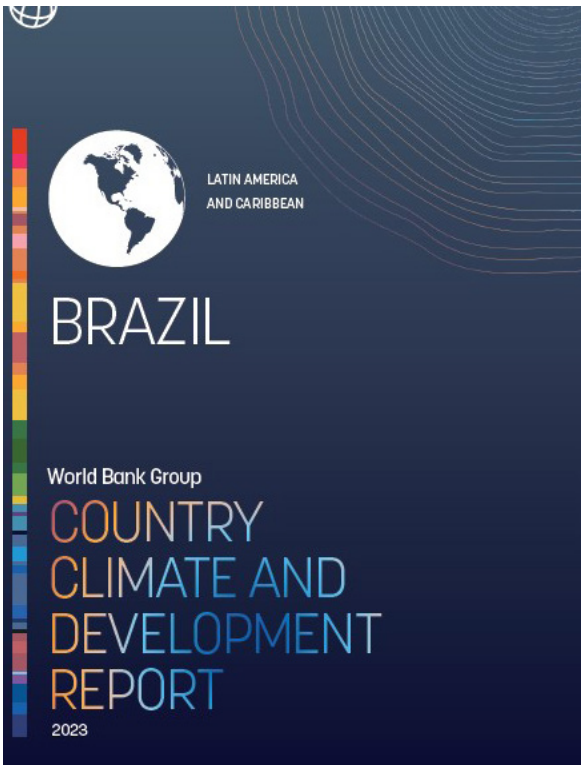
The Brazil CCDR offers paths for climate-conscious development. Will they inform Brazil's (and WBG) investment?

Introduction

In May of 2023, the World Bank Group released its Country Climate and Development Report (CCDR) for Brazil.[1] In regards to the environment and climate, Brazil plays a unique role as home to the largest rainforest in the world and 15-20 percent of the world's biodiversity. Yet, the natural capital and the climate benefits it provides remain at risk. The World Bank Group has significant opportunities to assist Brazil in implementing the actions needed to meet net-zero targets for deforestation and GHG emissions and to support Brazil in building resilience against climate-related risks. As of August 2023, Brazil has 34 active IBRD-financed projects and 75 active IFC-financed projects. With Brazil having the third most active IFC loans after India and China, the IFC plays a significant role in leveraging finance to the Brazilian private sector. Thus, it should use this influence to promote climate action, as discussed in the CCDR, through its lending operations.

1 https://openknowledge.worldbank.org/handle/10986/39782



Summary of the Brazil CCDR

The Brazil CCDR provides recommendations for resilient and climate-informed development through four main pathways: (1) structural reforms and productivity-enhancing measures, (2) economy-wide policies for resilient and low-carbon growth, (3) sectoral policies and investment packages, and (4) financing for resilient low-carbon development. *Section 1: The Climate and Development Opportunity in Brazil* addresses the current challenges faced by Brazil in regards to climate and development. The CCDR identifies agriculture and land use change as the main challenge and source of emissions. Not only does deforestation for agriculture produce carbon emissions, but it also disrupts the water cycle, impacting water availability in certain regions. Additionally, the report identifies the weak governance in Brazil as an obstacle to enforcing climate action–especially forest management–and curtaining illegal activities, such as deforestation. This section also outlines the strategies already in place and the commitments the country has on climate-related issues. The main three commitments addressed by the CCDR are no illegal deforestation by 2030, net-zero deforestation by 2050, and net-zero emissions by 2050. After examining these vulnerabilities and commitments, the report outlines a pathway towards achieving such commitments and overall resilient and low-carbon development through the four mentioned pathways.

Section 2: Productivity-Enhancing Reforms for Faster, More Resilient and Efficient Growth examines different macroeconomic scenarios compared with a baseline of a 0.5 percent increase in annual growth of total factor productivity. All growth scenarios resulted in increases in GDP, and growth in overall total factor productivity increased forested land by 3.62 million hectares and reduced GHG emissions by 141 $MtCO_2e$,[2] compared to the predicted baseline. However, increased productivity of agriculture alone caused increased emissions both in and outside of

2 This equates to about 6.5% of Brazil's gross GHG emissions and 9.4% of net, per IPAM (Amazon Environmental Research Institute) statistics for 2021.

Amazônia and decreased the amount of forested land, specifically when in Amazônia. These same environmentally destructive results stemmed from increased productivity in services, but increases of productivity in mining and manufacturing were modeled to increase forested land and decrease GHG emissions. The manufacturing sector shows the largest increases in forested lands and GHG emissions reductions, adding 1.9 million hectares and 67.8 MtCO2e to the baseline.[3]

From these modeled scenarios, the report advocates for increasing manufacturing productivity to reduce the relative competitiveness of sectors like mining and agriculture, which are more land and natural resource-intensive. Reforms to trade policy that reduce barriers to trade–both tariffs and non-tariff measures–could push the manufacturing sector to be more productive and competitive in global markets. Additionally, the expansion of Brazil's role as a supplier of inputs for green technologies (e.g. minerals for batteries, hydrogen) would allow for the production of the technology needed for decarbonization while also allowing Brazil to reap its economic benefits.

S*ection 3: Economy-wide Policies for Resilient and Low-carbon Growth* addresses the potential for carbon pricing and an emissions trading system in Brazil. The report mentions that the required foundations for carbon markets have already been established in Brazil, including a current bill in Congress (PL 412/2022) to regulate a national emissions trading system, and that the emissions trading system is much more widely supported than a carbon tax. However, the ETS would require the implementation of mandatory measurement, reporting, and verification systems, and excludes agricultural activity from the regulated market. The CCDR identifies the industrial sector as the best candidate for inclusion in an ETS.

The report also models the implementation of a carbon tax, which could be a part of broad fiscal reforms that phase out subsidies on emission-intensive activities, even though it is identified as less politically viable. A carbon tax could allow for a revenue-neutral tax shift, reducing taxes on the wages of low-income earners, which is recognized as the best-performing tax shift, or as an additional source of revenue, which could then be used towards social protection for lower-income people negatively impacted by carbon pricing. Carbon tax revenues[4] and cash transfers[5] are both modeled, with about half of the revenue being distributed as cash transfers.

This section also identifies the need for a people-centric approach beyond redistributing carbon tax revenues as cash transfers. A just transition requires investments in human capital, enhanced social protection, and active labor policies, including creating new job opportunities, early retirement packages in brown sectors, and re-employment support that addresses both re-skilling and relocating. Public works programs involved in reduction of deforestation and the reforestation of ecosystems can also contribute to social protection for a just transition.

Section 4: Three Key Sectoral Policies and Investments to Align Development and Climate Action examines three areas of intervention: (1) curbing deforestation and scaling up climate-informed landscape management, (2) transitioning to greener and resilient energy, infrastructure, and transport for industries and manufacturing, and (3) enabling resilient and low-carbon cities. The subsection on curbing deforestation recognizes Brazil's unique position: it has the largest mitigation potential through protecting forests. However, most deforestation occurs in undesignated lands, and a recent law essentially encourages acquisition of land rights through clearing native forests. Additionally, current incentives for deforestation through subsidies–including Plano Safra, rural credits, and rural land tax (ITR) structure–pose obstacles to forest protection.

This subsection advocates for effective forest law enforcement for a net-zero deforestation (NZD) scenario along with the development of diverse land-based economic activity (DEA) in what it refers to as the combined NZD + DEA scenario.[6] The NZD scenario involves a mix of forest protection policies, including adequate resourcing of forest law enforcement agencies (use of satellite monitoring), mapping untitled public lands to generate data used for designating protected areas and Indigenous territories, updates to land taxes to reward good practices and efficient land use, and trading forest

3 World Bank Group. 2023 Brazil Country Climate and Development Report ["Brazil CCDR"], CCDR Series. Washington, DC.: World Bank, p. 24, Table 1. Macroeconomic scenarios (cumulative percentage change compared with baseline after 12 years)

4 Brazil CCDR, p. 30, Figure 7. Increased public revenues from carbon tax

5 Brazil CCDR, p. 33, Figure 9. Cash transfers make the policy pro-poor and pro-equity: relative (left) and absolute (right) loss in consumption by direct and indirect price increases on income deciles in 2022

6 Brazil CCDR, p. 40, Table 2. Economic impact of curbing deforestation, with and without complementary measures to mitigate tradeoffs (internalizing impact of ecosystem services on the economy)

The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Data sources: Base layers: United Nations Geospatial, 2020. **Biomes:** Brazilian Institute of Geography and Statistics (IBGE), 2006 Biomes of Brazil. **State boundaries:** IBGE, 2018.

certificates (CRAs).[7] The DEA component of the scenario involves increased agricultural productivity through scaling up irrigated agriculture and the use of climate-sensitive insurance instruments for forestry and livestock. It also promotes forest-based economic activities, such as agriculture in the understory of legal reserves, harvesting of non-timber forest products, trading forest certificates, and nature-based tourism. These reforms also support policies implementing a just transition for agricultural workers through social protection programs and the formalization of rural jobs.

The next subsection on low-carbon energy and transport systems acknowledges the large role that renewables currently play in Brazil's power sector, especially for electricity generation. However, it identifies Brazil's current plan to increase fossil fuel plants and their capacities and Congress' recent

7 Per PLoS One (2016), Brazil's market for trading forest certificates (CRAs) allows landowners to offset forest restoration obligations by paying for maintaining native vegetation elsewhere. This market could provide not only monetary incentives to conserve native vegetation, but also environmental co-benefits by fostering PES programs to promote biodiversity, water conservation, and climate regulation.

extension of fossil fuel subsidies and tax waivers to 2040 as a threat to a low-carbon energy system. The report models a zero-emissions power system (ZPS) scenario–which consists of 99 percent renewables and 1 percent nuclear power, a resilient ZPS scenario–which accounts for climate vulnerabilities to energy infrastructure and low water availability, and a deep decarbonization of the energy system (DDES) scenario–which accounts for greater electrification in end-use sectors like transport and industries.[8] Actions for these pathways include the end of government support of fossil fuels (including decommissioning of coal and gas power plants), rehabilitation of existing hydropower assets in a manner that is resilient to changes in water availability, development and use of new regulatory instruments (demand response contracts, revenue cap schemes, etc.), and metering infrastructure.

In addressing transportation, this subsection expresses the need for a more balanced modal split. The report recommends interurban transport to be 42 percent road, 48 percent railway, and 14 percent waterway. However, even with such modal shifts, road transport is essential for shorter trips to multimodal terminals. In a deep decarbonization scenario, this would require a fuel shift in road transport to either electricity (buses, cars, and smaller vehicles) or hydrogen (trucks and trains). The report also mentions the potential for the expansion of biofuels for transport, which, under Brazil's NDC, is supposed to represent 18% of their energy mix by 2030. Yet, it recognizes the need for forest protection so that no deforestation results from the expansion of biofuels. This subsection also incorporates the need for resilient road infrastructure and additional road infrastructure to achieve sufficient rural access, which will require at least an additional US$434 billion in investment by 2030.[9]

The last subsection on urban resilience focuses on the need for capacity building regarding planning and regulatory frameworks considering climate change and city-specific climate vulnerabilities. These capabilities include land use regulations, building standards (potential use of green building certification through IFC's EDGE[10] or another national certification standard) and improvement of disaster preparedness (through early warning systems, improved data collection, and understanding of the impacts of floods, drought, and other hazards). Investments are also required in resilient infrastructure and services, such as upgrades in informal settlements from gray to green infrastructure, implementation of nature-based solutions (e.g., urban linear parks), and solid waste management. The report also promotes compact urban form and transport-oriented development to reduce dependence on private vehicles and traffic congestion through a modal shift to walking and biking. It further encourages sustainable mobility through supporting the electrification of transportation (public electric buses and tax exemptions on electric vehicles).

Additionally, this subsection examines good practices in São Paulo, Belo Horizonte, and Porto Alegre, noting how land value capture is often used to finance investments in local resilience. One mentioned good practice was Quota Ambiental in São Paulo, which assigns scores to buildings based on the use of natural solutions to promote resilience, drainage, and biodiversity, with a minimum required score based on location.

Section 5: Economic Costs, Investment Needs, and Financing Options examines options for financing the recommended policies and reforms in previous sections. The report identifies transport infrastructure as having the largest financing gap, but also shows gaps in investment for water and sanitation, telecommunications, and electricity infrastructure.[11] However, one notable advantage is that the significant role of land use in emissions will make low-carbon transition less capital-intensive. The report mentions that there is currently a low level of public spending on environmental management, but suggests that carbon-intensive subsidies (agriculture/agribusiness/forestry and energy) can be repurposed to finance climate action. The report also identifies the private sector as key to obtaining the required finance, especially in the power sector, where the private sector already plays a large role. Lastly, the report looks at opportunities for climate finance through instruments such as the Amazon Fund,[12] the Climate Investment Funds, REDD+, and green bonds.

8 Brazil CCDR, p. 46, Figure 15. Installed capacity (upper panel, GW) and generation (bottom panel, TWh) in 2020 and 2050 in selected scenarios

9 Brazil CCDR, p. 53

10 EDGE (Excellence in Design for Greater Efficiencies) includes 1) free software (an app) to determine the best resource-efficient measures to incorporate and estimate the incremental cost for building green, 2) a green building standard covering energy, water, and embodied energy in materials, and 3) an international green building certification system with three levels.

11 Brazil CCDR, p. 60

12 Although suspended by the Ministry of Environment under President Bolsonaro, President Lula da Silva signed a decree reactivating the Amazon Fund on the first day of his new term in office, Jan. 2, 2023.

Strong Recommendations, but there is Potential for Improvement

1. Repurposing Subsidies. While there are some areas for improvement, the CCDR for Brazil offers significant and well-informed recommendations for a low-carbon and resilient development pathway. One extremely important one is that subsidies and tax breaks for carbon-intensive and environmentally harmful activities must not continue. These subsidies and tax breaks include Brazil's rural credit, ITR breaks promoting cattle ranching, and subsidies on fossil fuels–which Brazil's Congress extended in 2022 to 2040. Instead, the CCDR suggests that the Brazilian government redirect these to support climate-smart practices in agriculture and the green energy transition. This repurposing of subsidies would not only disincentivize harmful practices, but would also mobilize finance for the other recommended climate action and reforms. While the CCDR itself does not address the specifics of these reforms, a different WBG report, *A Balancing Act for Brazil's Amazonian States* (May 2023), does. The CCDR would benefit from the inclusion of such analysis, even if brief, to better explain the specific changes needed. Even with additional explanation of the reforms needed, the Bank needs to do more. The Bank has the tools to influence and facilitate these reforms through its lending, especially development policy finance, and should work with Brazil's authorities to do so.

2. Nature-Based Solutions. The CCDR mentions using nature-based solutions (NBS) in developing urban resilience within Brazil through improved drainage and flood mitigation. The report offers an example of urban linear parks, but the potential for implementing NBS in Brazil extends far beyond this. The WBG should expand upon the potential use of NBS throughout the country and across sectors, given the value of NBS in resilient development, especially in Brazil. Among the 34 active Bank projects in Brazil, only one implements NBS, according to the Global Program for Nature-Based Solutions for Climate Resilience.[13] The WBG can do much more to implement the NBS solutions it advocates for in the CCDR. The WBG should take advantage of the opportunities it has to implement NBS in projects and assist Brazil in achieving resilient development through a portfolio aligned with the CCDR's priority of nature-based solutions.

3. Inclusion. The CCDR also does well to underline the importance of a just transition in addressing both the energy transition and in transitioning to climate-smart and resilient agriculture. The report includes the need for social protection, formalization of rural jobs, and assistance in reskilling and relocating for alternative green jobs. This is extremely important in promoting equitable, resilient development and should be prioritized in WBG lending. The report also articulates the importance of designating and protecting Indigenous territories as a form of monitoring and protecting forests. Yet, the

13 https://naturebasedsolutions.org/projects

report only addresses the Indigenous lands rather than Indigenous Peoples themselves. However, A Balancing Act for Brazil's Amazonian States furthers this inclusion by acknowledging the livelihoods of Indigenous Peoples, specifically referring to the ribeirinhos and quilombolas and their strong cultural ties to the land in Amazônia. This other report also acknowledges Afro-descendants and other traditional groups and their overrepresentation among the poor and underserved. This same respect and consideration for marginalized groups, specifically Indigenous Peoples, and their important role in forest conservation should be present in the CCDR.

Areas for CCDR Improvement

1. Promote Standardized Carbon Pricing Across Sectors… The CCDR recommends implementing an emissions trading system grounded in the foundations the Brazilian government has already laid for such a carbon pricing scheme. However, the report states that agriculture, forestry, and other land use (AFOLU) sectors are "not good contenders" for inclusion in an ETS, yet there could be potential for forest-based offsets to be included to "provide opportunities for low-cost emissions reductions."[14] The exclusion of sectors tied to immense GHG emissions from an ETS would be detrimental to any progress in capturing the externalities of GHG emissions. Given that GHG emissions are much lower for the industrial sector, even if the industrial sector aims to grow, pricing GHG emissions in agriculture and land use change must be identified as a priority. Despite challenges in measurement, the WBG should encourage ambitious action in AFOLU carbon pricing. Forest carbon is often underpriced compared to carbon emissions from industry, and this report advocates for agriculture intensification without delving into the impacts of such intensification on emissions. Therefore, the WBG must be proactive in supporting a low-carbon development pathway that accounts for, prices, and aims to reduce emissions in the sectors emitting the most: agriculture and land use change, not just industry.

…And Apply PES as a Complement: The report, however, also mentions the use of a payment for environmental services (PES) scheme, which can be used to incentivize those who own forested land to maintain and protect the forest. The Bolsa Floresta program is an ongoing example within the state of Amazonas of a PES program that offers payments for forest conservation. Such a program is necessary on the national level so that standard pricing and conservation efforts apply to all forested areas in Brazil. Through a PES mechanism, landowners could receive payments for conservation of natural resources, with different components of the total pertaining to different services such as storage of atmospheric carbon, protection of biodiversity, and water conservation. However, in the PES, the prices of each component must be equivalent to their market prices, specifically carbon prices. Globally, forest carbon tends to be undervalued compared to captured carbon or reductions in industry. Brazil needs a nationally standardized price that fully captures the externalities of carbon emissions no matter what sector they are sourced from, especially considering the large role of agriculture and land use in emissions. Equal areas of old and new growth should not be priced equally, given their different carbon and other values. Nor should net-zero deforestation be achieved through replacing or restoring primary forests with plantation forests. Thus, these different forms of carbon sinks, each with different impacts on atmospheric carbon, must be priced differently and according to their carbon impacts. In promoting PES and carbon pricing mechanisms, it is critical that the WBG explicitly promote harmonized pricing across sectors in its guidance for countries.

Within a PES system, the Bank could also facilitate putting a price on biodiversity and carbon, incentivizing the protection of critical biomes and other ecosystem services and value contributed by biodiversity beyond carbon sequestration.

2. Encourage Ambitious GHG Emissions Reductions in Agriculture and Land Use… Within the path to net-zero GHG emissions as outlined in the report, despite reductions in emissions from land use change and forestry, emissions are projected to remain high from agriculture–nearly 500 MtCO2e still by 2050.[15] It would be the highest emitting sector, producing nearly half of the projected emissions by 2050. Though most emissions are currently attributed to land use and land use change, agricultural emissions themselves must also be seen as a priority with potential for reductions. It is important to consider the interconnectedness of the agriculture and land use sectors in achieving emissions reductions.

…Including Land Restoration: One of the main recommendations in the report is agricultural intensification to boost productivity. However,

14 Brazil CCDR, p. 29

15 Brazil CCDR, p. 37, Figure 10. Brazil GHG emissions and removals by sector, 2020-2050

boosting agricultural productivity should not increase agricultural emissions. To achieve both objectives, the report suggests an integrated landscape approach that combines forestry, livestock, and crop production. The report also mentions restoration of degraded pastures. The restoration of degraded land, including pastures, for use in agroforestry and silvopastoral systems, is critical to avoid increased productivity incentivizing agricultural encroachment into intact forests and other biomes. Instead, the report falls short, saying nothing more than that "the World Bank Group is conducting studies to assess the financial viability of supporting restoration of degraded pastures with agroforestry systems."[16] The Bank should be aware that restoration can be accomplished through multiple pathways, including natural regeneration, assisted or not. Additionally, the financial viability of restoration will depend critically on how taxes (or subsidies) are applied. The report's failure to acknowledge these factors undermines the likelihood of restoration being applied as a significant pathway to climate mitigation and resilience. It should not be a question of whether, but how, restoration will be achieved.

….And Enteric Fermentation: Additionally, the report includes a graph illustrating the potential for emissions reductions in land use sectors from different sources. One critical source with significant reduction potential in Brazil is enteric fermentation associated with livestock.[17] Yet, the CCDR does not include any recommendations for addressing agricultural emissions unrelated to deforestation. With significant credits that incentivize cattle ranching, and thus emissions from enteric fermentation, action should also focus on addressing the issue of such emissions directly rather than solely relying on disincentivizing deforestation.

3. Explore Best Practices in Depth… In the subsection of the CCDR covering urban resilience, Box 3 examines best practice case studies from Sao Paulo, Belo Horizonte, and Porto Alegre. One best practice mentioned is the use of regulatory instruments that incentivize climate-informed private development. However, concerning the Quota Ambiental in the state of Sao Paulo, the CCDR merely notes that it promotes water infiltration, vegetation, and the use of renewable energy. Quota Ambiental is a strong initiative in which buildings receive a score based on their use of natural solutions to promote resilience, drainage, and biodiversity. Some of these solutions involve green walls and roofs, permeable pavement, and planting trees and shrubs around buildings. Each action corresponds to a value that contributes to the score a building receives, and each building has an enforceable minimum required score based on its location. Yet, the CCDR fails to explore how Quota Ambiental works, or how it could be expanded nationally or adopted by other states. It thus misses an opportunity to guide Brazil's investment in achieving urban climate resilience and mitigation.

…Tax Policies Included: The CCDR could also benefit from greater examination of best practices generally–in sectors apart from urban planning and management. The section on carbon pricing mentions certain tax shifts as best-performing, but then goes into depth on the effects of a universal cash transfer rather than analyzing impacts of a tax shift. These best practices are opportunities for the Bank to highlight instruments that are proven to work, but without sufficient attention, guidance remains vague. By expanding upon best practices, the Bank could use these examples to inform tax policies and investments to achieve both poverty reduction and climate goals.

4. Clarify the Role of the World Bank Group… The Bank's stated intent for the CCDR series is to inform products such as Systematic Country Diagnostics (SCDs) and Country Partnership Frameworks (CPFs) with the ultimate goal of shaping the World Bank Group's lending to countries. However, not once within this CCDR is the role of the WBG included. The sole reference to any aspect of the WBG in assisting to achieve this pathway is in green certification of buildings through the IFC's EDGE. Yet, the WBG, and especially the IFC, play an important role in providing finance to shape development in Brazil. The report explicitly mentions the important role of the private sector in catalyzing climate action, but excludes the influence the IFC can have in enabling greater private sector investment in low carbon and resilient development.

…Including Support for SMEs…: The report identifies the challenge that green loans in Brazil are largely earmarked for large and mid-sized firms within the energy sector. However, it is important for green, long-term financing to be made available to small and medium-sized enterprises (SMEs) across sectors.[18] The IFC has an immense opportunity to contribute to enabling this sort of funding for SMEs, but the CCDR fails to note this. The CCDR should make clear that it is essential for the IFC to direct funding to the areas identified in the report instead of larger firms with greater access to finance.

16 Brazil CCDR, p. 65

17 Brazil CCDR, p. 38, Figure 11. Potential to reduce emissions: a comparative sample

18 Brazil CCDR, p. 64

....And Stopping Support for Unsustainable Supply Chains: It is also important for the WBG to internalize the role it must play through its lending in assisting Brazil and Brazilian companies to achieve this resilient pathway towards net-zero emissions and net zero deforestation. All WBG investments in Brazil must be not only aligned with the Paris Agreement, but also with Brazil's pathway to meeting its zero illegal deforestation and net-zero deforestation targets. This includes thoroughly examining the supply chains which loan recipients rely on, especially in regards to IFC funding of industrial livestock operations,[19] so that there is no funding of unsustainable supply chains. Since there are current and pending loans within the WBG's portfolio that undermine the pathway in the CCDR, the Bank must address this if the CCDR is to be considered credible.

Conclusion: Engagement and Implementation Are Key

Ultimately, the Brazil CCDR is a helpful guide in establishing policy and reform priorities necessary for low carbon and resilient development in Brazil. If used as intended by the Brazilian Government–as a document to inform and guide investment in the country–the CCDR can make a significant impact in enabling Brazil to achieve its climate goals and engage in resilient development on a national level. However, the follow-through on implementation of transformational policies on climate resilience and decarbonization is essential. The CCDR identifies barriers to financing low-carbon and resilient development as well as the policy reform necessary to facilitate such development. As the globally leading multilateral development bank, the World Bank Group has a responsibility to engage with countries in implementing these solutions. In the face of the climate crisis, shared prosperity cannot be achieved without significant investment in mitigation and adaptation. Where investments are needed, the WBG has a role to play, not only in financing, but in sharing expertise and know-how. Though there are some recommendations to be improved and expanded upon, the next step is engaging Brazilian authorities to support them in the implementation of best practices in decarbonization and resilient development, where action must be taken swiftly.

19 This includes large dairy processing companies dependent on inputs from cow herds and soy farming, such as Alvoar Lacteos.

FOR FURTHER INFORMATION ON THE ISSUES RAISED IN THIS REPORT, PLEASE CONTACT BANK INFORMATION CENTER AT:

1023 15th St. NW, 10th Floor
Washington, DC 20005

Email: info@bankinformationcenter.org