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The New Development Bank and the Ecological Transition: Decoupling Development Finance from Core Currency Hegemony?

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Abstract:

This paper investigates the role of the New Development Bank (NDB) in challenging global financial hierarchies while fostering an ecological transition. The NDB, established by BRICS, has a mechanism of providing development finance in local currency, which could reduce dependency on core currencies like the dollar (USD) and the euro (EUR), offering an alternative for peripheral economies to finance sustainable development. Given the institutionalization of the green economy agenda and the rise of green finance, the paper raises elements to assess the NDB's contribution to the ecological transition through its investment strategy. Our analysis builds on structuralist and dependency theories, identifying three interlinked hierarchies – productive, currency, and environmental – that shape global financial asymmetries. We examine the NDB's project portfolio from 2016 to 2024 and the interplay between the projects' area of operation, currency of funding, and country of implementation. The findings indicate that, while the NDB has made strides in funding sustainable infrastructure, its operations remain largely embedded within dominant currency systems.

Keywords: New Development Bank (NDB); BRICS; Green Finance; Currency Hierarchy; Ecological Transition; Development Finance; Sustainable Infrastructure.

JEL codes: F33, F55, O44, Q56

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1. Introduction

Over the last few years, the climate crisis has become of key interest to the international debate, as its acceleration manifested globally. Most of the global agendas seeking to overcome it identify massive investments (Magalhães, 2021) or "green" growth goals as the solution (Brand et al., 2021; Brand & Lang, 2019), promoting structural transformations in economic systems. On the one hand, the shift towards a "green economy" has been pushing forward the energetic transition (e.g., the expansion of clean energy sources, such as wind and solar) and the development of new technologies (e.g., carbon capture and storage) and infrastructures (e.g., low-carbon mobility). On the other hand, the financial sphere has pushed toward the trade of commodified and financialized forms of nature (e.g., biodiversity offsets, carbon credits, ecosystem services) and the expansion of new financial markets, instruments and metrics (Moreno, 2013; Moreno et al., 2016; Spash, 2015, 2017), under the guise of "green finance" initiatives.

This process unfolds within core-periphery structural asymmetries (c.f. Porcile & Torres, 2024; Althouse et al., 2023; Dorninger et al., 2021; Hickel et al., 2022; Horner et al., 2018; Palludeto & Abouchedid, 2016). Extensive literature[1] examines how Western-dominated Bretton Woods institutions (e.g., International Monetary Fund & World Bank), traditional international development banks (e.g. Inter-American Development Bank) (Acosta, 2013), and international state apparatuses (Brand & Wissen, 2018, 2021) operationalize "structural development" transformations but broadly fail to accommodate peripheral and emerging countries' interests (Carvalho et al., 2015; Qobo & Soko, 2015). Peripheral countries face not only restrictions to autonomous development-marked by structural dependency relations (Porcile & Torres, 2024) – but also significant investment gaps (Qobo & Soko, 2015; Suchodolski & Demeulemeester, 2018), particularly in adaptation and mitigation efforts. Still, the most significant part of international investments implies the use of core currencies (e.g., USD, EUR) and the reinforcement of neoliberal reforms on debtor states as a condition to access markets and prove financial stability (Althouse & Svartzman, 2022; Svartzman & Althouse, 2022).

[1] Babb & Kentikelenis (2018), Botta (2016), Botta (2018), Chorev (2018), Bracking (2009), Carvalho (2016), Libânio (2020), Stockhammer (2016), Thirkell-White (2006).

As a response to this dynamic, the BRICS countries pushed for reforms in the global financial system, advocating for a new financial architecture that could reflect the bloc's prominent economic rise and challenges (Biswas, 2015). This process led to the creation of the New Development Bank (NDB), promoting intra-BRICS financial cooperation, particularly in renewable energy and infrastructure projects (Copper, 2017; De Conti et al., 2019).

The emergence of institutions that offer alternative pathways to potentialize peripheral countries' efforts to promote an ecological transition, while overcoming the productive, monetary and ecological hierarchies, is a key issue, albeit broadly unaddressed. For this reason, the present research investigates the role of the NDB in moving away from the current global currency hierarchy, while fostering an ecological transition.

To this end, the considerable number of projects developed by the NDB (2016-2024) was analysed, with the goal of assessing the extent to which the bank's operations have been conducted outside the dominant currency nexus. Due to the lack of a publicly available database, information detailing the NDB's project portfolio was collected and organized. This enabled an assessment of the bank's financing activities in terms of scale and area of operation, as well as the share and distribution of projects carried out with core and periphery currencies. Additionally, the evaluation examined the extent to which the objectives of local currency borrowing and sustainable development initiatives – outlined in the bank's General Strategy documents (2017-2021 and 2022-2026) – were reflected in project performance.

Beyond this introduction, the paper is structured as follows. Section 2 examines the emergence of the green finance agenda within the broader green economy project, discussing its conceptualizations, policy frameworks, and critiques. Section 3 explores the structural global hierarchies – productive, currency, and ecological – that shape the greening of finance and reinforce global asymmetries. Section 4 focuses on the NDB, exploring its institutional emergence within the BRICS, its innovations and shortcomings within the hierarchical financial system and its sustainable development strategy. Section 5 presents the empirical analysis of the NDB's project portfolio, focusing on its areas of operation and currency use. Section 6 presents the results, while Section 7 discusses them, followed by the conclusion in Section 8.

2. Green finance: emergence, conceptualizations and critics

The institutionalization of "green economy" agendas and climate change mitigation and adaptation imperatives (Klingler et al., 2024), expressed in the "net zero" climate agreements assumed by national states and private actors in international summits, has been shaping economic policies globally – as exemplified by the European Green New Deal, the US Inflation Reduction Act or Japan's Green Growth Strategy. Overall, the green economy agenda is conceptualized as a "new growth strategy", in which the goal is to decouple growth from resource use and GHG emissions, to both tackle the climate crisis and sustain the economic status quo (Brand & Lang, 2019).

On the one hand, the agenda states the need to *mitigate* the causes of climate change and environmental damage by promoting the decarbonization of the economies – for instance, by means of completing an energetic transition (i.e. changing fossil-intensive energy matrices and incorporating energy-efficient technologies). On the other hand, it emphasises the need to adapt to the potential impacts of a changing climate and its tipping points – for example, by adjusting infrastructures to enhance their resilience to extreme climate events or by adapting loss and damage insurance frameworks to address climate-disaster risks.

Within this broad agenda of transformation, "green finance" has been gaining momentum as a core element to promote adaptation and mitigation efforts[2]. Although there is no consensus, "green finance" has been conceptualized as an aggregate of innovative financial markets and instruments that incorporate climate- and nature-related risks and considerations into financial decision-making, regulations and practices, to ultimately increase the resilience of financial systems. Within a mainstream paradigm, it is understood that there is a need to price environmental externalities to steer markets' decision-making, thereby incentivizing the promotion of mechanisms as carbon markets, taxes, biodiversity offsets, and others (Magalhães, 2021; Spash, 2015). In this framing, the role of the state is conceptualized as necessary for the provision of subsidies, de-risking mechanisms and other forms of financial support to attract and foster private

[2] The underlying understanding that sustains this argument is that finance is a means of transformation of the economy, which is currently being oriented towards the reproduction of fossil-intensive activities, but that otherwise would be a crucial mechanism for shifting capital towards sustainable activities and away from environmentally damaging ones.

capital to these relatively risky "green" assets and operations (Santos, 2023). This dynamic is part of what Gabor (2021) terms the "Wall Street Consensus," where public-private partnerships (PPPs) and blended finance mechanisms are elaborated to socialize losses while privatizing profits.

In contrast to this paradigm, a reformist approach to "green finance" is grounded on economic foundations that emphasize the central role of the state in expanding public investment and coordinating policies across fiscal, industrial, and financial spheres. This heterodox approach aligns with the concept of an "environmental state", whose role is to provide patient, long-term and large-scale public investment guided by missions (Duit, 2016; Mazzucato, 2015). A key element of this approach is that the capacity to address environmental problems finds its constraints not necessarily in traditional notions of financial scarcity, but rather in the prevailing economic austerity imperatives. Therefore, this paradigm poses the need to advance beyond marked-based solutions but adheres to the consensus of "bridging gaps" between current investment efforts and the financing required for addressing the climate crisis – a bridge that would be achieved through public investment, mobilization of private capital and adaptation in financial systems (Haas et al., 2022).

The "gap" often mentioned in discussions of sustainability – whether in financing, resource access, or emissions reductions – is considered as a temporary state to be overcome, rather than a functional condition of capitalism. For this reason, there is a clear convergence between mainstream and heterodox economic proposals on the necessity of significant green investments to address the infrastructural gap that hinders decarbonization efforts (Magalhães, 2021). However, there are several shortcomings of a transition through green finance, particularly when it comes to the transformational potentials and the reinforcement of global imbalances associated with it. Magalhães (2021) critically assesses this widespread consensus for significant "green investments", pointing that it often disregards the multi-scale depth of ecological contradictions, for instance by assuming that certain technologies and infrastructures are intrinsically sustainable. By treating "green investments" as virtual cash flows without material impacts on ecosystems, this "green investment paradigm" reinforces the notion that large-scale infrastructure investments are essential for an ecological transition (Magalhães, 2021). This perspective aligns with the emerging global investment consensus, which promotes large-scale infrastructure projects as a means to transform infrastructure into a new asset class (Tricarico & Sol, 2016).

The literature also points out that proposals to restructure the international financial architecture typically approach the ecological crisis and global inequalities as separate phenomena, without addressing issues of subordinated positions in the international monetary and financial system – or the underlying productive and ecological hierarchies that endorse it (Althouse & Svartzman, 2022). Since the architecture of green financing is inserted within monetary, productive and ecological hierarchies (Althouse & Svartzman, 2022), financing "green" forms of growth have the potential to overlook and reinforce fundamental causes of the ecological crisis and increase global core-periphery imbalances (Althouse et al., 2023; Dorninger et al., 2021; Hickel et al., 2022; Horner et al., 2018). Therefore, a transformative approach to green finance entails addressing structural global asymmetries (Oman et al., 2024; Svartzman & Althouse, 2022).

3. Structural global asymmetries shaping the greening of finance: productive, currency, and environmental hierarchies

The theoretical framework which bridges a transformative approach of green finance to this paper's hypothesis comes from Latin American structuralism and dependency theory. This approach understands that underdevelopment is not a stage, but a condition of the development process of capitalist economies (Furtado, 1965). In this context, capitalism needs hierarchies to function, which are embedded in structural differentiations of the capitalist world-system. The core and the periphery thus coexist and reinforce their conditions, while simultaneously generating development at the expense of underdevelopment (Frank, 1966).

3.1 Production hierarchy

The global capitalist economy has an intrinsically bipolar structure that interacts asymmetrically and generates global patterns of specialization (Prebisch, 1949). Accordingly, the colonization process generated a global core specialized in the production and export of manufactured goods, with higher technology and productivity, and, consequently, higher economic growth. These allowed more homogeneous labor productivity across diversified economic structures and organized labor unions, which permitted the growth of real wages *vis-à-vis* productivity gains (Furtado, 1961). In opposition, the periphery specialized in the production and export of low-productivity, low-technology primary goods. This commodity-driven productive structure gave rise to a superstructure with powerful rentiers, who do not invest in

capital formation and innovation, but instead use their economic surplus to mimic consumption patterns of the core (Porcile & Torres, 2024).

According to Porcile and Torres (2024), the hierarchy of production thus relies in the deterioration of the terms of exchange through the differences in the income elasticities of the exports, the differences in wage-bargaining and its consequences to wage stagnation *pari passu* productivity increases, the differences in technological progress, weak institutions (as a consequence of core-periphery and colonization dynamics), and differences in economic cycles. In this context, the periphery has several negative consequences to the functioning of its economies, i.e., balance of payments crisis, domestic inflation, and constraining the importation of capital goods (and technological catching-up). These serve as impediments for the peripheral economic development through industrialization and reiterate core-periphery dynamics.

3.2 Currency hierarchy

Furthermore, using the same theoretical framework, several authors built upon the classic Latic American Structuralism and dependency theory to conceptualize currency hierarchy (Carneiro, 1999; De Conti, 2011; Fritz et al., 2018; Kaltenbrunner, 2015; Oliveira & De Conti, 2022; Ponsot, 2016; Prates, 2002) and international financial subordination (Alami et al., 2022; Bonnizzi et al., 2020; Bonnizzi et al., 2022). This literature analyses the differences in the monetary dimensions of currencies, as well as their qualitative differences in the context of a financialized capitalism. The phenomenon of financialization, in this sense, serves a systemic pattern of capital accumulation, implying an overvaluation of liquid forms of wealth, and thus an exacerbation of the liquidity preference, which systemically shapes the *modus operandi* of financial actors towards a compulsion to short-term returns (Oliveira & De Conti, 2022).

In this context, currency hierarchies are based on the idea that, at the international level, differentiated national currencies do not have the same capacity of carrying the properties of money – that is, being a unit of account, a means of payment and a store of value (Prates, 2005; Palludeto & Abouchedid, 2016). Within the uneven landscape of financialized globalization, the dollar sits at the top of the currency hierarchy, followed by other core-currencies (e.g. Euro, Yen, Swiss Francs), while currencies issued by peripheral countries sit at the bottom of this hierarchy. Accordingly, the fact that different national currencies have asymmetric capacities imposes extra

challenges for their economies and monetary supervisors. Consequently, central banks attempt to reduce exchange-rate volatility by actively managing currencies and setting interest rates at a higher level, which implies higher borrowing costs, reduces productive investments, and ultimately sends revenues abroad. It is important to notice that the average peripheral country spends five times more on debt repayments than on addressing the climate crisis (Woolfenden & Kushal, 2022).

The low degree of liquidity of peripheral currencies means that peripheral countries have substantial difficulties borrowing in their domestic currency. This happens mainly due to limitations in their balance-of-payments, public debt management, and the perception that their assets and investments usually are risk-intensive – due to the lack of trust attributed to their currencies (Althouse & Svartzman, 2022; Svartzman & Althouse, 2022). Therefore, international investors demand a risk-premium that pressures the maintenance of high interest also to succeed in attracting foreign capital. As a result, peripheral countries commit the "original sin" described by Eichengreen and Hausmann (1999): borrowing in foreign currency at higher interest rates, leading to currency mismatches, profit repatriation (Tahir et al., 2022), and capital flight.

Furthermore, the interest rate differentials between core and periphery are particularly attractive for agents seeking financial profits from the exchange between these two rates (Musthaq, 2021), which makes peripheral economies particularly vulnerable to market volatility, speculative attacks, and financial instability. These dynamic positions the periphery as "business cycle takers" in contrast to the "business cycle makers" in the core (Ocampo, 2017). Monetary and financial subordination in a context of high capital mobility leaves peripheral countries with no room to set key prices in the economy or to elaborate independent monetary policy. As those demand high foreign exchange reserves accumulation and resources for sterilisation operations (Musthaq, 2021), peripheral economies constantly react to external pressures from the Core (e.g. US domestic monetary policy).

3.3 Environmental hierarchy

The last hierarchy discussed in this paper is the hierarchy of environmental transformation conceptualized by Althouse and Svartzman (2022). It aligns with the previously discussed production and monetary hierarchies, building upon their framework and contributing to the

understanding of the contemporary ecological dimension of the global capitalist system. The process of industrial specialization led the periphery to depend on low value-added industries, which usually rely on pollution- and resource-intensive extractivist activities. In this context, the periphery serves as a "pool" for cheap resources and a "sink" for pollution (Moore, 2016). Capitalism, thus, relies on the constant search for cheap resources, energy, and labor (Moore, 2016; Patnaik & Patnaik, 2016). As high-priced commodities undermine the profitability and competitiveness of the core's firms, the exhaustion of the access to cheap resources in the periphery poses an existential threat to the core's stability and mode of living (Brand & Wissen, 2021).

This dynamic implies in what has been discussed by the literature as an ecologically unequal exchange, defined as the asymmetric transfer of resources and labor from the periphery to the core (Althouse et al., 2023; Dorninger et al., 2021; Hickel et al., 2022; Hornborg, 1998). Hickel et al. (2024) show that peripheral workers contribute to 90% of the labour in the world economy but receive only 21% of the global income, while Dorniger et al. (2021) show that value added per ton of exports is now eleven times higher in high-income countries. Non-financial firms in the core increase profits through the process of offshoring and outsourcing to the periphery in the context of global value chains, increasing the peripheral pressure to extract resources (Althouse et al., 2023). These multinational enterprises outsource pollution evermore through the creation of "pollution chains" (Duan & Jiang, 2021). Core products continuously exchange for increasing amounts of peripheral resources, leading to social-economic polarization within the world system (Hickel et al., 2024) and reiterating the other structural hierarchies.

4. The New Development Bank: emergence, challenges and strategy

The emergence of financial institutions rooted within the Global South is relevant for offering alternative financing sources that can address some of the challenges derived from the structural hierarchies' constraints. The existence of South-South financing, potentially outside the dollar hegemony nexus, might help core economies reduce their reliance on funding that pressures their balance of payments and foreign exchange reserves. It could also alleviate pressure on their development models, provided these financial institutions develop operations that go beyond the limitations of the "de-risking" framework proposed by the Wall Street Consensus (Larsen, 2024).

This section will explore why the NDB can be regarded as one of these emergent institutions. The discussion will approach both the relevance of the political and historical context of its emergence from the BRICS bloc (4.1) and the bank's strategy to sustainability and green finance (4.2), as seen in by its General Strategy documents and their project portfolio (portfolio analysis in section 6).

4.1 Institutional emergence within the BRICS bloc

The concept of the BRIC (i.e. Brazil, Russia, India and China) was introduced by Jim O'Neill, then chief economist at Goldman Sachs, in the *Dreaming with the BRICs: The Path to 2050* (2003) report. The main aspects outlined in the report were the BRIC's rapid economic growth, the dynamicity of their development trajectories, and their demographic trends. In 2010, South Africa joined the BRIC, evolving the acronym to the commonly known BRICS. The concept was thus incorporated by the leaders of the countries, and a platform for cooperation was founded, alongside forums for collective action and cooperation, which gave voice to their increasing economic weight on the global stage (Qobo & Soko, 2015). Especially during the beginning of the 2000s, the BRICS attracted global attention. This attention was due to their vivid economic growth trends when compared to the recessions and stagnation observed in developed countries. Some projections suggested that the BRICS combined economic growth would surpass that of the G7 (Mehra & Azharuddin, 2023; Carvalho et al., 2015).

In this context, the BRICS started advocating for a significant reform of the global financial architecture, so that it could reflect their increasing economic growth and create opportunities for developing countries. This advocacy also stems from the dissatisfaction towards Western-led Bretton Woods financial institutions, as the process of the sharing of power and voting rights is inherently sluggish and/or denied (Qobo & Soko, 2015; Biswas, 2015). The BRICS are dissatisfied with the International Monetary Fund (IMF) and the World Bank (WB) due to the disproportionate space and relevance given to their accelerated economic growth. Accordingly, the agenda defended by these institutions is based strictly on the developed countries' interests, which marginalises the needs of developing countries (Carvalho et al., 2015).

Therefore, the NDB was created in response to the frustration of the slow pace of reforms in the Bretton Woods institutions, particularly after the 2008 global financial crisis. After being

conceptualized and elaborated through several BRICS summits, the bank became officially operational in 2016, aiming to serve as a platform for financing infrastructure and sustainable development projects (Molinari & Ceballos, 2024). For this reason, the emergence of the NDB symbolizes both an economic and political shift (Biswas, 2015; Copper, 2017; Suchodolski & Demeulemeester, 2018). Therefore, the NDB is an institution whose agency can represent an important opportunity for enhancing intra-BRICS financial cooperation and addressing global monetary financial system's asymmetries (De Conti et al., 2019). The NDB's portfolio is primarily focused on infrastructure projects, renewable energy, and sustainable development. It specifically addresses the challenges and needs of developing countries in the Global South, particularly in the context of an ecological transition (Copper, 2017; Mehra and Azharuddin, 2023).

4.2 The bank's innovations and shortcomings

The NDB has a strong potential to benefit its members and represents the willingness of the BRICS to project their economic preponderance and geopolitical influence. The prioritization of sustainable development infrastructure investments addresses important challenges common to several developing countries, especially when it comes to the general infrastructure investment bottleneck, often overlooked by Western-led multilateral financial institutions (De Conti et al., 2019).

In a similar vein, the NDB not only seeks to increase the power representativeness of the BRICS, but also to tackle the "investment gap" faced by developing countries, which is not fully addressed by the current multilateral development banks (Copper, 2017; Qobo & Soko, 2015; Suchodolski & Demeulemeester, 2018). In this context, the NDB enlarges the global financial architecture whilst boosting BRICS coordination and defending low- and medium-income countries against the backdrop of the instabilities derived from the Bretton Woods system (Carvalho et al., 2015).

Another fundamental aspect of the NDB is the absence of conditionalities on their project funding. In this sense, the tailored assistance respects national sovereignty and the territorial integrity of any state (NDB, 2022) by avoiding interference in political affairs or imposing conditions on economic policies or social standards. This approach reflects a rejection of the traditional borrowing mechanisms used by current international financial institutions (Suchodolski

& Demeulemeester, 2018; De Conti et al., 2019; Duggan et al., 2022). In opposition, the IMF and WB still link their financial support to conditionalities, which aligns with a neoliberal economic policy agenda of austerity that has harmful consequences for peripheral countries[3].

The NDB also has a role in stimulating intra-BRICS commercial and financial transactions, fostering intra-group trade in their national currencies (De Conti et al., 2019). In the medium- and long-run, this has the potential to increase the usage of BRICS's currencies, having beneficial impacts on their liquidity and stability. Therefore, the BRICS have an enhanced possibility of increasing debt in their sovereign currencies, which results in increased global power and influence (De Conti et al., 2019). This process facilitates financial de-dollarization through the promotion of the use of local currencies, thereby potentially reducing the U.S. dollar dependency and enhancing the member's financial sovereignty (De Conti et al., 2019)

Lastly, another essential innovation present in the NDB is the lending in local currency mechanism, which allows beneficiaries to further shift away from the dollar and increase their debt in local currency. This innovation is extremely important for developing countries as they have "weaker" currencies with lower liquidity premiums that face severe foreign exchange risks (Carvalho et al., 2015; Suchodolski & Demeulemeester, 2018). Furthermore, promoting indebtedness in local currencies fosters the development of local currency bond markets, addressing the challenge of mitigating currency mismatches from external borrowing while simultaneously meeting the substantial long-term financing needs often observed in developing countries (Dafe et al., 2018).

However, despite the already discussed increasing economic performance of the BRICS countries and the creation of the NDB as an institution that advocates for their interests, there is little evidence that this process can completely overhaul the contemporary Western-dominated global financial architecture and rebuild it with a different governance arrangement (Qobo & Soko, 2015). On one hand, the creation of the NDB serves the purpose of increasing the members' voices and influence. On the other hand, the BRICS are not completely supplanting the existing institutions, in the sense that they still take part in them and dialogue with the process of

[3] Babb & Kentikelenis (2018), Botta (2016), Botta (2018), Chorev (2018), Bracking (2009), Carvalho (2016), Libânio (2020), Stockhammer (2016), Thirkell-White (2006).

globalization, realize market reforms to facilitate openness, and take part on international trade (Qobo & Soko, 2015).

One of the most significant limitations faced by the NDB is the several exchange reserve constraints faced by developing countries. For this reason, the NDB falls short of a decisive role in the prevention and resolution of crises, as its members are often impacted by severe volatility in international capital flows and its challenges to the countries' stability (Biswas, 2015). Similarly, the NDB exhibits some degree of fragility in its credit score rating, particularly when compared to its counterparts. For instance, the Asian Infrastructure Investment Bank (AIIB), created by China in a similar period, has a better rating mainly because of the difference in the risk associated with other BRICS members. In this sense, it is important to note that China, outside the context of the BRICS, has a smaller associated risk, which results in a comparatively better credit score of the AIIB in comparison to the NDB (Carvalho et al., 2015).

4.3 The NDB's sustainability strategy

The NDB articulated its approach to sustainability through specific foundational documents: (i) the General Strategy (2017–2021) (NDB, 2017a) and General Strategy (2022-2026) (NDB, 2022), (ii) the Environment and Social Framework, and (iii) the Sustainable Financing Policy Framework. The bank defines sustainable infrastructure as "infrastructure that incorporates economic, environmental, and social criteria in its design, building, and operation" (NDB, 2017a).

The General Strategy documents determine sustainable infrastructure as the core operational focus. The 2017-2022 strategy established the goal of dedicating at least *two-thirds* of financing commitments to this area (NDB, 2017a). For its 2022-2026 strategy, the NDB expanded the framework of its commitment, incorporating climate-related goals into its sustainability guidelines. This is evident in the goal of dedicating 40% of its total volume of approvals to projects contributing to climate change mitigation and adaptation (NDB, 2022). Additionally, the documents propose innovative issuing mechanisms in BRICS national currencies (Cooper, 2017). Particularly in the second strategy cycle, the bank aims to provide 30% of its total financing commitments in the national currencies of member countries (NDB, 2022). Together, these initiatives highlight the NDB's dual commitment to sustainability and Global South inclusivity.

The Environmental and Social Framework (NDB, 2017b) is structured into two parts, outlining both the bank's Environmental and Social Policy guidelines for project operations and the requirements for stakeholders engaged in the bank's activities, through the Environmental and Social Standards. A key feature of this framework is its reliance on country-specific safeguard systems to implement projects, categorizing them into three risk levels A, B, and C, based on their environmental and socioeconomic impacts. This framework ensures a balanced approach to risk management and sustainability.

The third document, the Sustainable Financing Policy Framework (NDB, 2020), outlines the bank's guidelines for governing the issuance of green financial instruments for sustainable infrastructure projects. It is divided into two sections: (i) the objectives of the NDB's green strategy and (ii) an overview of eligible sectors for green and social bonds, along with impact indicators to assess specific projects. This framework represents a significant improvement by establishing more precise mechanisms to measure impact. However, its reliance on a de-risking paradigm limits its ability to address the broader risks associated with green finance, such as its potential to reinforce currency and ecological hierarchies.

As identified in the mentioned documents, the NDB broadly claims to support mitigation and adaptation to climate change and the transition to low-carbon economies, both by means of adjusting its governance, orienting its investments and cross-cutting its operations with climate risk-related considerations and sustainability criteria. However, the assessment of the extent to which the portfolio of projects can be ecologically transformative is beyond the scope of the analysis of this paper, as that would demand an in-depth qualitative analysis of the project's goals and impacts. What can be briefly mentioned, however, is that a relevant number of the projects still operate within the traditional framing of resource-intensive and fossil-led development sectors[4], as well as in line with what was contested in regard to the green investment paradigm supporting the financialization of mega-infrastructure projects.

[4] The transport and infrastructure area of operation, as an example, has projects that focus on the financing for low-emitting and energy efficient commercial vehicles, but that still operate within the fossil-fuel nexus (e.g. Shriram Finance Sustainable Transport Project, or the compressed natural gas versus liquid natural gas projects eligibility criteria's).

5. Project portfolio empirical analysis

Since 2016, the NDB has been increasing its project portfolio. According to the latest General Strategy (NDB, 2022), within the wide spectrum of what entails operations of "infrastructure and sustainable development", the projects are classified into six areas[5], namely (i) Clean energy and energy efficiency; (ii) Transport infrastructure; (iii) Water and sanitation; (iv) Environmental Protection; (v) Social infrastructure and (iv) Digital infrastructure. The NDB portfolio also classifies projects in a seventh area of (vii) Multiple Areas, although it is not specified in their general strategy what is the scope of this multiplicity.

(i) **Clean energy and energy efficiency** projects entail the deployment of clean and renewable energy at scales or the enhancing of efficiency in conventional energy systems (e.g. power transmission, distribution, and storage) through technological innovation, specifically mentioning not financing operations involving new coalfired capacity for power generation (NDB, 2022).

(ii) **Transport and infrastructure** projects aim for the expansion of inter-city and intra-city transport networks and infrastructure for regional connectivity and mobility (NDB, 2022).

(iii) **Water sanitation** projects entail infrastructure and resource management for the end of the expansion of access to clean drinking water and adequate sanitation (NDB, 2022).

(iv) **Environmental protection** projects broadly support conservation and restoration of ecosystems through the promotion nature-based solutions and better management of natural resources. It aims to "reverse or reduce the negative environmental impact of socioeconomic activities" (NDB, 2022, p. 21), with the end goal of contributing to decouple economic growth from environmental degradation and pollution. In the scope of environmental protection projects, the NDB also claims to consider financing "new and emerging technologies that can mitigate the impact of already accumulated or current emissions" (NDB, 2022, p. 21), in line with what ins

[5] In the context of the COVID-19 crisis, the bank also opened a new area of operation dedicated to emergency assistance. The operations in this area were expressive in terms of the number of resources implied, but nonetheless remains a contextual area of operation, and therefore will not be fully assessed in the context of this paper.

broadly conceptualized within the green economy agenda as carbon capture and storage (CCS) technologies (NDB, 2022).

(v) **Social infrastructure** projects are destined to the building of infrastructure that facilitates social services (e.g. schools, hospitals, affordable housing, cultural heritage sites, etc.) (NDB, 2022).

(vi) **Digital infrastructure** projects focus on the expansion and modernisation of national and international backbone digital infrastructure (e.g., overland and subsea cables, landing stations, telecom towers, base stations, and associated facilities) (NDB, 2022).

In light of the considerable number of projects developed and the lack of a complete NDB database for the portfolio, publicly available information from the bank's platforms was collected and organized to understand the nuances between the projects' areas of operation, financing currency, and country of implementation. The database was constructed through web scraping techniques, gathering for each development project (i) the country of implementation (e.g. China), (ii) the project status (i.e. approved, completed, cancelled, proposed), (iii) the area of operation (e.g. Clean Energy, Energy Efficiency), (iv) the type of operation (i.e. sovereign or non-sovereign), the (v) the financing approval date, (vi) the current limit of NDB financing – that is, the amount funded by the NDB – and (vii) the currency used for the operation[6].

The full portfolio of projects contains 137 projects, operating in China, Brazil, India, Russia, South Africa, Bangladesh and Egypt. For the analysis, it was opted to exclude projects classified under the scope of "COVID-19 Emergence Assistance" (N=9), as well as projects that were cancelled (N=13), consequently maintaining all projects completed, approved and proposed between 2016 and 2024. With this specific selection, the final database contains 115 projects, split between different currencies – USD (67.8%), CHF (0.9%), EUR (7%), RMB (19.1%)[7] and ZAR (5.2%) – and areas of operation.

[6] US Dollar (USD), Euro (EUR), Renminbi (RMB), South African Rand (ZAR), Swiss Franc (CHF).
[7] Two projects identified with CNY were substituted with RMB, as they can be used interchangeably, and it would provide a clearer vision of the projects related to Chinese currency.

In order to compare the projects more equitably, all projects were brought to the latest projects present values in their respective currencies (Dollar, Renminbi, Rand, Euros, and Swiss Franc; December 2024), using each country's specific Current Price Index[8] (CPI), and then converted to dollars, using the December 2024 exchange rate. This process relied upon several databases including:

1. For the CPI: National Bureau of Statistics of China (RMB), Federal Reserve Bank of St. Louis (Euro and Dollar), Department of Statistics of the Republic of South Africa (ZAR), and the Swiss Federal Statistical Office (CHF).

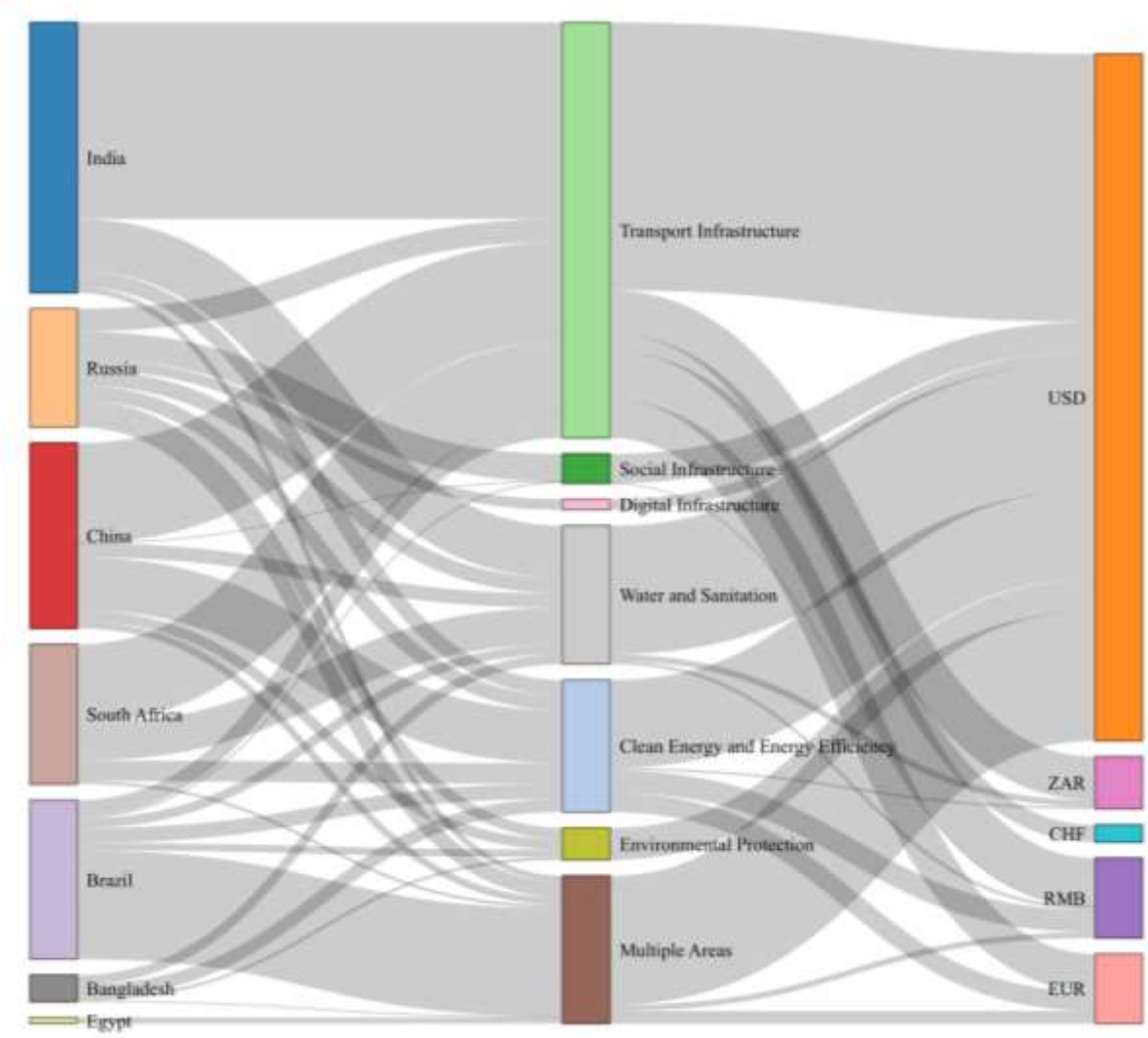
2. For the conversion: Federal Reserve Bank of St. Louis (RMB), the online foreign exchange rate database of Xenon Laboratories (ZAR and CHF), the European Central Bank (Euro).

6. Results

The left side of the diagram in Figure 1 gives an overview of interrelations between the project's host country and the area of implementation. The original BRICS countries are more represented in the portfolio than other countries, and broadly, the most significant volume of investments is concentrated in transport infrastructure (45.85%). Although no country has implemented projects in less than one area of operation (apart from Egypt, which has only one proposed project), there are some patterns. While Russia has the most diverse structure of areas of operation, all other countries have areas of operation that overpower other areas within their portfolio. While China and Brazil are both diversified, China stands out for the prominence of the volume destined to transport infrastructure (54.04%) and energy (28.59%). In comparison, Brazil is focused on the multiple areas category (68.27%). The most significant part of the volume of money invested in India is within transport infrastructure (72.67%) and, to a lesser extent, water and sanitation (19.36%), while in South Africa the relevance of transport infrastructure (56.59%) is followed by both water and sanitation (26.52%) and clean energy operations (14.66%).

[8] In the case of the Euro, a harmonized index of consumer prices for 19 countries in the Euro area was used.

Figure 1 – Sankey Diagram of volume and distribution of the project portfolio (adjusted in current USD), by country of implementation, operation area, and currency (2016-2024)

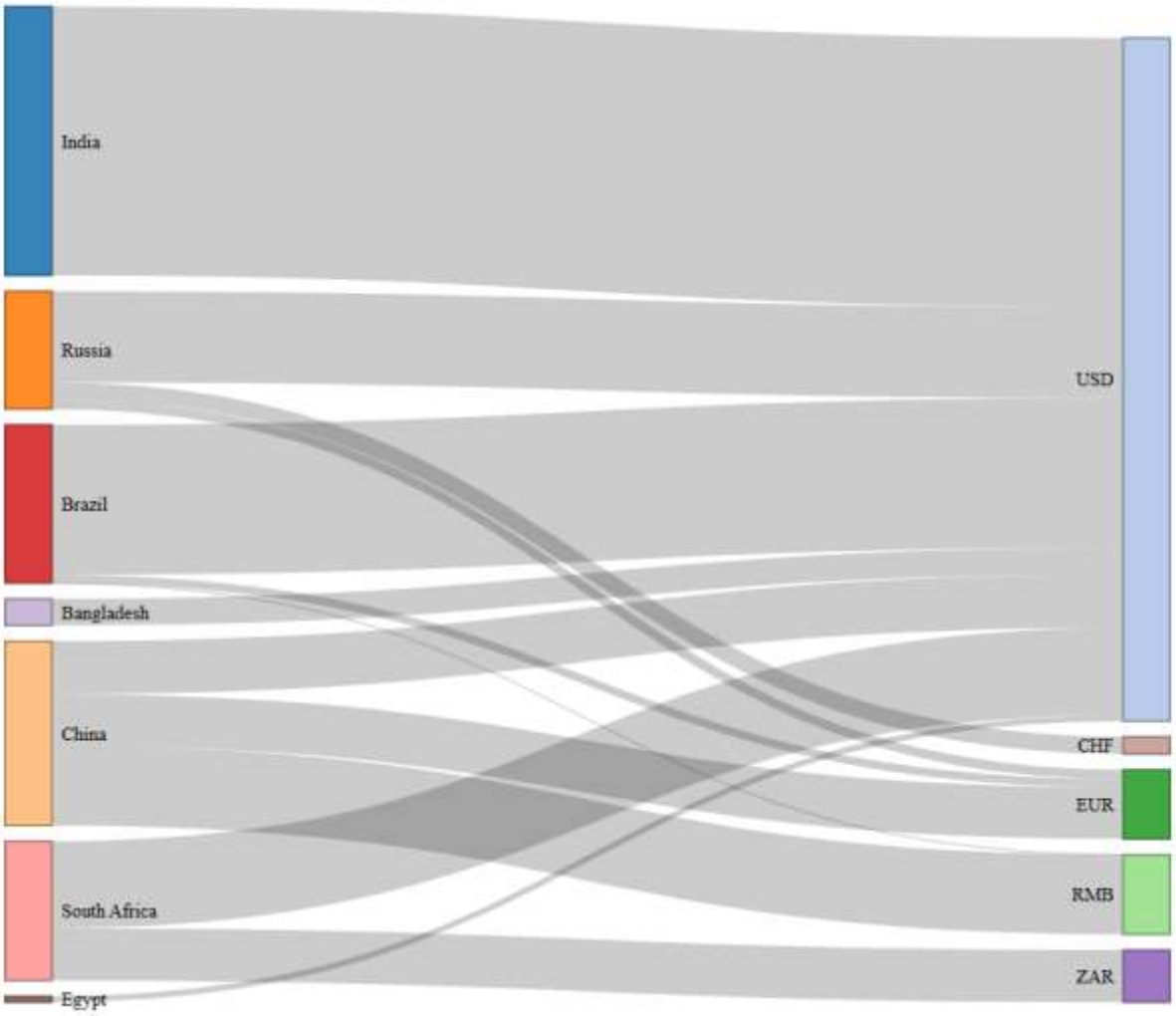


Authors' elaboration

The right side of the diagram gives us a different picture, in which we can assess the interplay between the volume directed to each area of operation and the currency used. The dollar overwhelmingly dominates the portfolio, both in terms of total share (75.77%) and by being the only currency used across all areas of operation, with an equally relevant share in each. Notably, all resources for digital infrastructure and environmental protection projects were in dollars. The areas of transport infrastructure and clean energy are the only areas in which the other currencies

gain a certain level of relevance: in the former, there is a relatively balanced presence of the ZAR, CHF, RMB and EUR, while in the latter only the presence of the RMB and the EUR are pronounced.

Figure 2 – Sankey diagram of project's portfolio volume and distribution (adjusted in current USD), by country of implementation and currency (2016-2024)

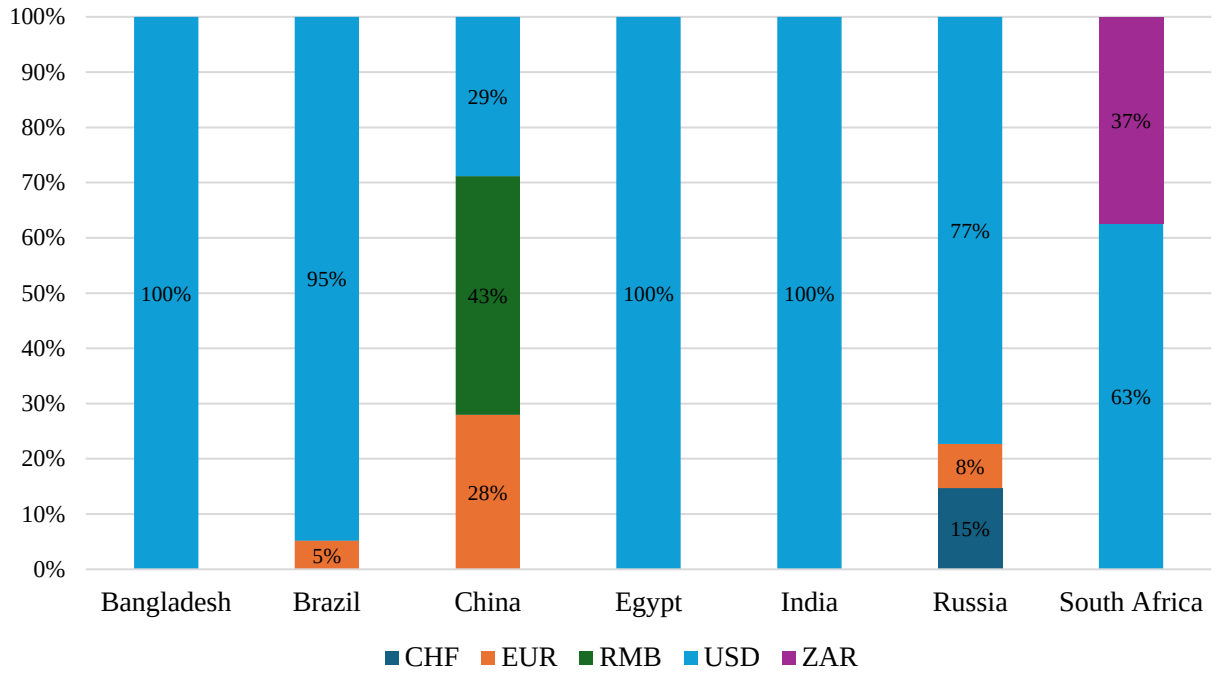


Authors' elaboration

The second diagram (**Figure 2**) closes the gap. Apart from China, all the other countries were mainly financed in USD. In particular, the total amount of investments directed to India, Egypt and Bangladesh were in USD. In addition, both ZAR and RMB are employed in the context of their national sovereignty, apart from two projects involving the RMB in Brazil. The volume of

investments in EUR were majorly destined to projects in China (75.50%), with minor allocations to Brazil (11.88%) and Russia (13.62%).

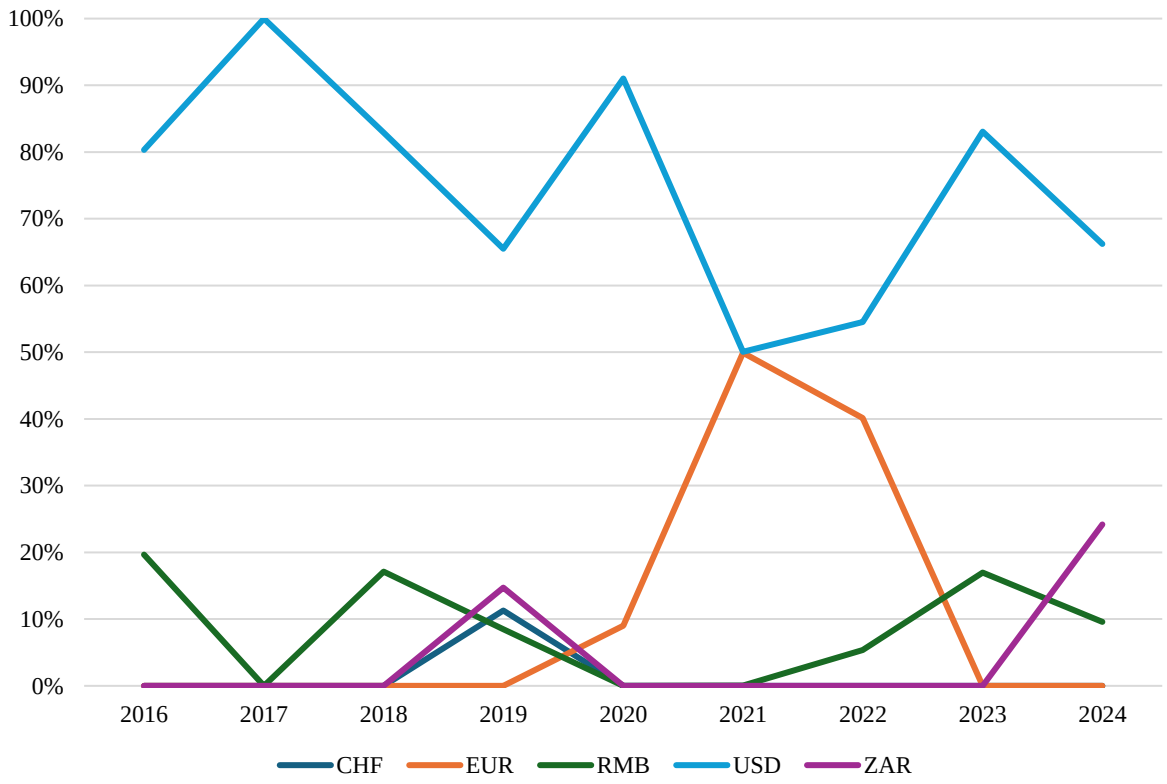
Figure 3 – Share of currencies in total funding of projects, per country (full period)



Authors' elaboration.

On **Figure 3**, it is possible to observe the differences in the utilization of specific currencies per country. Most countries do not significantly conduct projects in peripheral currencies, being almost strictly dominated by the dollar (Bangladesh, Egypt, and India), or a basket of core currencies like the dollar, euro, and francs (Brazil and Russia). However, China and South Africa deserve closer attention. In the case of China, 43% of the projects are being financed in RMB, while in the case of South Africa, 37% of the projects are being financed in ZAR. That displays a relevant utilization of their domestic currency.

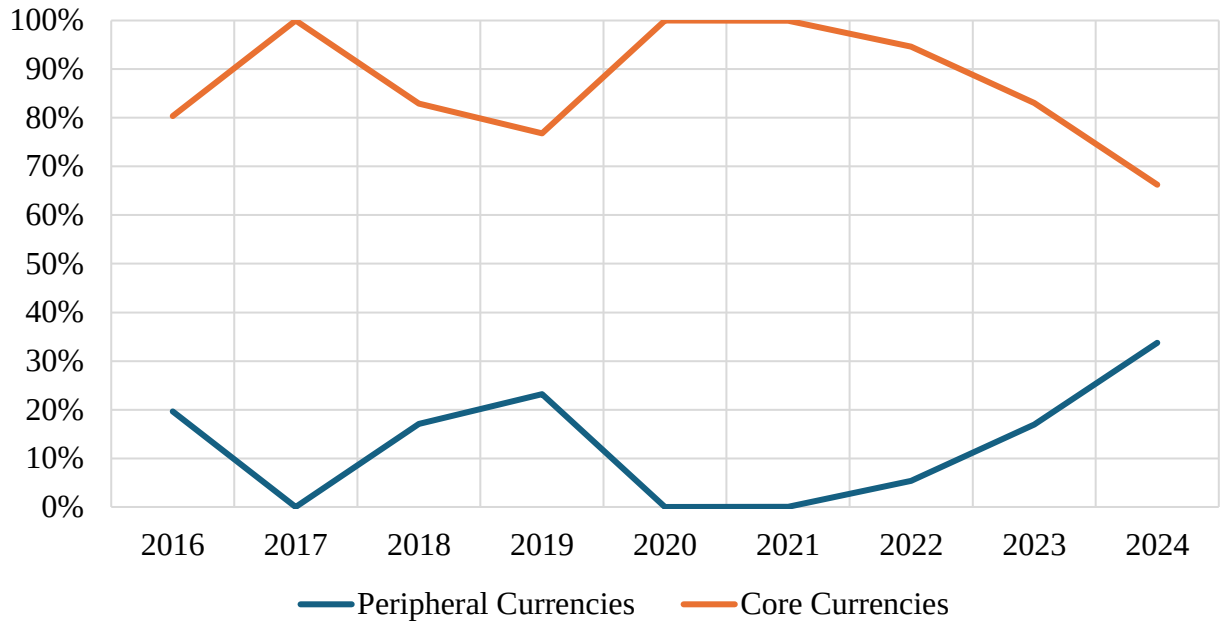
Figure 4 - Share of currencies in total funding of projects, time series (2016-2024)



Authors' elaboration

On **Figure 4** introduces a temporal dimension in the use of currencies. Although the dollar was and still is the most utilized currency, some interesting trends can be observed. For instance, the Covid-19 crisis led to an increase in the use of euros in projects and a decrease in the use of dollars, a trend that reversed by 2023 onwards. Furthermore, the Covid-19 crisis (and its instabilities) clearly impacted on the utilization of peripheral currencies in the NDB's projects, even in the context of the renminbi.

Figure 5 – Percentage (%) of utilization of core- and peripheral-currencies (2016-2024)



Authors' elaboration

In ***Figure 5*** core (USD, EUR and CHF) and peripheral (RMB and ZAR) currencies were clustered. The chart displays a trend essential to this paper's hypothesis. Until 2020, there was a decreasing use of core currencies *vis-à-vis* peripheral currencies, especially between 2017 and 2019. However, the context of the sanitary, political, social, and economic shock observed during the Covid-19 crisis triggered most financial actors to escape from peripheral currencies and move towards core currencies to guarantee value preservation. In this context, the NDB completely shifted its portfolio towards the use of core currencies between 2020 and 2021. After the crisis, the trend returned to a similar pattern – that is, an increased use of peripheral currencies *vis-à-vis* core currencies from 2022-2024. In 2024, the highest percentage of peripheral currencies in the NDB's projects was achieved (33%). It is clear that the portfolio still has not completely shifted, but it shows an interesting trend and progress.

7. Discussion

Through the years of its existence, the NDB has not yet still not expressive in moving away from the dominant currency nexus, as most of the projects still operate under the USD – and to a

minor extent the EUR and CHF. Although NDB's strategy indicates the goal of increasing financing commitments in local currencies – with the end of mitigating foreign exchange hedging-related risks faced by borrowers – the bank also still regularly resorts to instruments denominated in USD, as well as other core currencies, to help meet its funding needs (NDB, 2022).

Whenever periphery currencies were used in the projects – RMB and ZAR – it was mostly in a local currency context: that is, projects in China with RMB and projects in South Africa with ZAR. The exceptions are two non-sovereign projects in Brazil operating with the RMB: the recently approved CPFL's[9] Electricity Distribution Infrastructure Modernization Project and the proposed Serra da Palmeira Wind Power Project of China Three Gorges Brasil Energia S.A.

However, after 2022, local currency lending and the use of peripheral currency have increased**Figure *3***. The observed tendency overall aligns with NDB's General Strategy for the years of 2022-2026, in which the bank aims to provide 30% of its total financing commitments in the national currencies of member countries (NDB, 2022). It is noteworthy that, in terms of intra-member analysis, only China and South Africa have so far met the percentage goal for financing in their own national currencies, with 43% and 37% of the total funding volume being made in their respective currencies.

In this sense, the NDB should focus on countries that have the potential to follow a similar path. This is the case of Brazil and India, which have almost all their portfolio funding in dollars. The case of Russia is particularly complicated, since the country is currently facing sanctions due to the Russia-Ukraine conflict, which has put most of the projects on hold. The other countries that have projects in the NDB, (i.e., Bangladesh and Egypt), have all their portfolio funding in dollar, meaning that there is still an important front to reduce core currencies use and increase funding in local or intra-BRICS currencies.

8. Conclusion

This paper investigated the role of the NDB in moving away from the current global currency hierarchy, while fostering an ecological transition. To do so, it investigated the institutionalization of "green economy" agendas and climate change political imperatives, as they

[9] CPFL is a Brazilian energy company that sold its shareholding control (54.64%) to the Chinese energy giant State Grid in 2017.

have been shaping global economic policies. This agenda, conceptualized as a green growth strategy, seeks to decouple growth from resource use and emissions (Brand & Lang, 2019), by promoting decarbonization and climate adaptation and mitigation efforts, with a particular highlight to the development of resilient and "sustainable" infrastructure. In this context, despite a lack of consensus on its precise definition, "green finance" has emerged as a key tool for steering this transition, as it incorporates climate risks into financial decision-making to enhance financial systems' resilience.

The paper discussed the contemporary alternatives to "green finance". Overall, it is highlighted that a market-based approach – reliant on the internalization of environmental costs through the pricing of nature and de-risking strategies – is insufficient to fully tackle the multidimensional, exponential, and cumulative challenges of the ecological crisis (Magalhães, 2021; Santos, 2023; Spash, 2015). Furthermore, reformist views to green finance highlight the importance of the state, coordination, and missions (Duit, 2016; Mazzucato, 2015), but also fails to tackle the structural problems in the capitalist globalized world (Magalhães, 2021). In this sense, only a transformative approach that tackles global imbalances and ecological contradictions can fully promote an equitable and sustainable solution to the ecological crisis (Althouse & Svartzman, 2022).

Accordingly, the Section 3 discussed three hierarchies in the capitalist globalized structures: production, currency, and ecological. These hierarchies are embedded in capitalism, which generates and sustains core and periphery dynamics that reproduce underdevelopment through the process of exploitation (Frank, 1966; Furtado, 1965; Prebisch, 1949). The production hierarchy is based on colonization and specialization, bringing consequences to the periphery's productivity, technology, and diversification, which promote stagnation and volatility (Porcile & Torres, 2024). Currency hierarchy creates subordination due to the differences attributed to the "store of value" capability of peripheral money, which results in lower liquidity, higher borrowing costs, higher perception of risk, which promote instability and dependency (Oliveira & De Conti, 2022; Palludeto & Abouchedid, 2016; Prates, 2005). The environmental hierarchy is created by and reinforced upon the first two hierarchies. It creates pressures for cheap resource extraction, generating asymmetries in the context of outsourcing and offshoring (Althouse et al., 2023; Duan & Jiang, 2021).

In section 4, the emergence of the NDB as a financial institution rooted within the cooperation of peripheral economies was discussed. It highlights its centrality for the development of alternative financing pathways that can address the challenges derived from structural hierarchies' constraints. Its innovations, such as local currency lending and tailored assistance, aim to mitigate dollar dependency and foster financial resilience (De Conti et al., 2019; Dafe et al., 2018; NDB, 2022; Suchodolski & Demeulemeester, 2018). Yet, the NDB's transformative potential remains limited due to the high volatility of the members' capital flows, and its lower credit ratings compared to other multilateral development banks (Carvalho et al., 2015; Biswas, 2015).

Although the NDB broadly claims to support mitigation and adaptation to climate change and the transition to low-carbon economies – for instance by cross-cutting its operations with climate risk-related considerations and sustainability criteria, prioritizing efficiency technologies to reduce GHG emissions, or aligning with NDC goals – a relevant number of the projects still operate within the traditional framing of resource-intensive and fossil-led development sectors. The transport and infrastructure area of operation, as an example, has projects that focus on the financing for low-emitting and energy-efficient commercial vehicles, but that still operate within the fossil-fuel nexus.

The project portfolio empirical analysis revealed that while the NDB has made advances in supporting sustainable infrastructure, its operations remain embedded mainly within the dominant currency nexus, with most financing still conducted in USD. Despite its strategic goal of increasing local currency lending, only China and South Africa have significantly utilized their national currencies, while other BRICS members and partner countries remain heavily reliant on core currencies. However, the observed increase in the use of peripheral currencies, particularly after 2022, signals a potential shift towards greater financial autonomy. This trend, if sustained and expanded to other member countries, could strengthen the NDB's role in reshaping global financial hierarchies. While challenges remain, the NDB has laid important groundwork for an alternative development finance model that, with further institutional and political commitment, could steer capital flows towards a just ecological transition.

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