New Development Bank

INDEPENDENT EVALUATION OFFICE

Federative Republic of Brazil

RENEWABLE ENERGY PROJECTS AND ASSOCIATED TRANSMISSION

PROJECT PERFORMANCE EVALUATION

FINAL REPORT | DECEMBER 2023

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PREFACE

This report presents the findings and recommendations of the Independent Evaluation Office (IEO) assessment of the New Development Bank (NDB)-financed Renewable Energy Projects and Associated Transmission in Brazil. This was NDB's inaugural Non-Sovereign Operation in Brazil and also the first evaluation conducted by IEO in the country.

The primary objective of the project was to ensure a reliable and sufficient electricity supply to meet Brazil's future demand while expanding capacity through renewable energy sources. The project cost at approval by the NDB Board was approximately USD 600 million, with NDB financing of USD 300 million. The Brazilian Development Bank (BNDES - *Banco Nacional de Desenvolvimento Econômico e Social*) was the NDB loan borrower and project executing agency. During implementation, it managed to secure USD 845 million in additional financing, taking the total investment to USD 1.145 billion. These funds were strategically allocated to three major sub-projects across four states: Bahia, Minas Gerais, Pernambuco, and Piaui.

Overall, the independent evaluation found the project to be successful, significantly contributing to renewable energy generation and lowering carbon emissions. It was aligned with national and state priorities, surpassing targets by producing 835 megawatts more renewable power annually, a 39% increase achieved by installing 277 wind turbines and 594,750 solar panels. The project contributed to advancing several of the Sustainable Development Goals and generated over 7,500 jobs. The decision by the Bank to partner with BNDES, a solid institution with a long track record and experience in infrastructure financing, was a key driver of the success of the project. Building on the project's success and the experience accumulated will benefit the NDB-BNDES partnership in the future.

However, the project evaluation also identified a few areas for improvement, such as the need for deeper efforts in sharing of knowledge, lessons and good practices, as well as closer monitoring and supervision of the project by NDB during implementation. Issues related to gender, social development, and community engagement were insufficiently addressed in design, though the implementing agencies made efforts to finance some useful social development activities during implementation. Furthermore, NDB could have ensured more regular dialogue with a wider range of public institutions and partners and invested in strengthening its visibility as a key financier of the operation.

I hope this evaluation report serves as a valuable resource for those interested in understanding NDB's assistance to Brazil, highlighting successful aspects and areas requiring improvement, and stimulating discussions for broader social and economic transformation.

Ashwani K. Muthoo
Director General
Independent Evaluation Office

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This evaluation was conducted under the overall responsibility of Mr. Ashwani K. Muthoo, Director General of IEO. He was supported by Mr. Henrique Pissaia de Souza, Principal Professional, IEO, who was the lead evaluator. A team of consultants, Mr. Rakesh Nangia, Mr. Luiz Maurer, Mr. Izidoro Tokarski Jr., and Ms. Jaqueline Rabelo Souza, provided critical inputs. Deep appreciation is devoted to Mr. Jose Graziano da Silva, who served as Senior Independent Adviser to IEO for this evaluation and provided important inputs at several key stages.

IEO is exclusively responsible for the contents and quality of the evaluation report and related outputs.

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CURRENCY EQUIVALENTS AND MEASURES

Currency Equivalents

Currency unit = Brazilian Reals (BRL)
USD 1 = BRL 3.95 (As per the Project Document to the Board on January 1, 2016)
USD 1 = BRL 5.89 (As per the Project Completion on May 13, 2020)

Measures

GW	Gigawatt (1,000 Megawatts)
GWh	Gigawatt-hour (1,000 Megawatt-hours)
kV	Kilovolt (1,000 volts)
KWh	Kilowatt-hour (1,000 watt-hours)
MVA	Megavolt-ampere (1,000,000 volt-amperes)
MW	Megawatt
MWh	Megawatt-hour
MWp	Megawatt peak (DC capacity of the solar array/total rated capacity of all solar modules in the system)

ABBREVIATIONS AND ACRONYMS

ARO	Americas Regional Office (NDB)
BNDES	Brazilian Development Bank *Banco Nacional de Desenvolvimento Econômico e Social*
BoD	Board of Directors
BRDE	Far South Development Bank
CO_2	Carbon dioxide
DSCR	Debt Service Coverage Ratio
E&S	Environmental and Social
ECG	Evaluation Cooperation Group
ESG	Environmental and Social Governance
ESS	Environment and Social Standards
FI-B	Financial Institution B
IEO	Independent Evaluation Office
IRR	Internal Rate of Return
MDB	Multilateral development bank
NDB	New Development Bank
NGO	Non-governmental organization
NPP	National Pluriannual Plans
PCR	Project Completion Report
PDB	Project Document to the Board
PPA	Power Purchasing Agreement
SDG	Sustainable Development Goal
SIA	Senior Independent Adviser
SPV	Special Purpose Vehicle
USD	United States Dollar

EXECUTIVE SUMMARY

Background

The Brazil Renewable Energy Projects and Associated Transmission is the first project in Brazil evaluated by the Independent Evaluation Office (IEO) of the New Development Bank (NDB).

Project Design

The NDB Board of Directors (BoD) approved this first loan for the above-mentioned project to Brazil in April 2016 for a total project cost of USD 600 million, of which NDB financing was USD 300 million.

The project's main objectives were to promote adequate and reliable supply to meet the future demand for electricity in Brazil and achieve the planned additional capacity through alternative forms of renewable energy. The borrower of the NDB funding was the Brazilian Development Bank (BNDES - *Banco Nacional de Desenvolvimento Econômico e Social*), which is also the project's executing agency.

During its implementation, a significant amount of co-financing was mobilised, of around USD 845 million, bringing the investments to around USD 1.145 billion. The funds were strategically directed towards three major sub-projects across four states - Bahia, Minas Gerais, Pernambuco, and Piauí. Executed between February 9, 2018, and April 26, 2020, the project included the construction of two wind power complexes in the northeastern states and a solar complex in Minas Gerais.

Evaluation Methodology and Process

The evaluation followed internationally recognised evaluation criteria of relevance, effectiveness, efficiency, impact, and sustainability. It also assessed NDB and borrower performance, respectively. Mixed methods were used for data collection and analysis. They included reviewing secondary data, site visits, and collecting additional information and data from multiple national, state, and community stakeholders using semi-structured questionnaires. Triangulation techniques were used to derive evaluation findings. Thirty-four meetings were held during the evaluation with federal, state, and municipal level authorities, international organisations, civil society, beneficiaries, and universities. The IEO evaluation team visited all the states and sites covered by the project. The draft evaluation approach paper and evaluation report were shared with NDB management, BNDES, and the Ministry of Finance in Brazil for comments.

Project Performance

Overall Performance: *Successful*.
Overall, the project has been successful, making a valuable contribution to generating renewable energy in Brazil and effectively reducing the country's overall carbon dioxide (CO_2) emissions. This success can be predominantly attributed to the strategic partnership with BNDES, renowned for its expertise in managing such initiatives.

Although NDB's involvement was constrained by it being their inaugural operation in Brazil with limited resources, its contributions to loan financing and project design were noteworthy. NDB did not, however, play an active role during implementation nor in documenting and sharing lessons and good practices.

Relevance: *Moderately Successful*.
Aligned with the National and State Pluriannual Plans for 2012-2015 and 2016-2019 and the NDB General Strategy 2017-2020, the project contributed to the Sustainable Development Goals (SDGs), mainly with a focus on SDG7, SDG9, SDG12, SDG13, and SDG17.

On the other hand, limited attention was given to gender aspects, social development, and impact on end communities, as well as risk analysis and mitigation during project design. The lack of a dedicated

country strategy to guide the project and the broader NDB-Brazil partnership constrained synergies with other NDB activities in the country and wider developmental results on the ground.

Effectiveness: *Successful*.
The project supported three major initiatives in the renewable energy sector, consisting of 29 Special Purpose Vehicles (SPVs), each considered an independent sub-project, surpassing the minimum financing requirement of five renewable sub-projects.

The project also exceeded expectations by creating an additional 835 megawatt (MW) of installed renewable power generation capacity annually, compared to the targeted 600 MW, representing 39% above the expected output. The installation of 277 wind turbines and 594,750 solar panels further underscored the project's substantial scale despite no set target for project design.

The project leveraged USD 845 million in co-financing, additional financing from the private sector, and debentures. However, it missed an opportunity to contribute to broader socio-economic changes and transformations at the local level.

Efficiency: *Moderately Successful*.
The sub-projects were delivered on time and with minimal cost escalations. Due to the nature of the project and its confidentiality arrangements, the sub-borrowers procured goods and services, adhering to BNDES regulations. Therefore, due to private sector non-disclosure agreements, it could not be evaluated.

One significant factor impacting project efficiency was the considerable delay of nearly two years (667 days) between project approval by the NDB Board of Directors and the project's effectiveness. Consequently, this deferred the benefits that the operation would have otherwise generated.

Impact: *Successful*.
The project exceeded the anticipated energy output and significantly reduced CO_2 emissions by approximately 1.58 million tons per year. The three major sub-projects also generated more than 7,500 jobs. Despite the absence of a clear theory of change for the operation and the lack of explicit linkages between project goals, outcomes, and outputs, the project did not exhibit any noticeable negative lasting impact on the environment.

While the project facilitated some social development initiatives – which were not explicitly anticipated in the design - it did not consider how marginalised and resource-poor communities and groups such as women and *quilombolas*[1] could benefit from the additional energy capacities generated.

Sustainability: *Successful*.
The project directly supported the diversification and transitioning of Brazil's energy sector towards renewable energy sources. The sustainability of the project's benefits hinges on the performance of the sub-projects and SPVs, which BNDES selected based on their global presence, strong financial positions, and long-term energy generation contracts. Additionally, the growing energy demand in Brazil is a key determinant of sustainability.

Concerning environmental and social sustainability, NDB relied on the licensing process of state-level authorities as per Brazilian legislation without conducting its own due diligence. During implementation, some negative environmental impacts arose due to construction activities, but appropriate measures were taken to address them.

While the evaluation assesses sustainability prospects to be successful, no explicit exit strategy was prepared to ensure the sustainability of benefits.

NDB Performance: *Moderately Successful*.
During the project design and initial implementation phases, most of the NDB corporate policies still

[1] A *quilombola* is an Afro-Brazilian resident of *quilombo* settlements first established by escaped slaves in Brazil.

needed to be put in place. The NDB Americas Regional Office (ARO) was established only after the project construction and disbursement were completed. Monitoring and supervision activities heavily relied on BNDES expertise and reports throughout the process.

NDB offered attractive financial terms, including low interest rates that were renegotiated to become even more favourable, long tenures, and no premium for prepayment. Apart from such favourable financing, NDB maintained a relatively hands-off role during implementation and did not provide any technical cooperation nor develop knowledge and communication products to document and share lessons and good practices. Unfortunately, at the project level, the visibility of the Bank's involvement was limited. Moreover, limited efforts were made to engage with Federal-level public institutions and other international development partners.

Borrower Performance: *Successful*.
BNDES has a robust financial management system, providing quarterly audits following sound accounting principles. To oversee the operation effectively, BNDES assigned a multidisciplinary team comprising specialists from various fields and also requested annual or bi-annual reports from its clients, including annual financial audits.

As a significant aspect of financial additionality, BNDES successfully scaled up the financial availability for the companies involved in the project. Furthermore, BNDES adhered to the loan agreement requirements by presenting all necessary reports. In general, BNDES performance was key to the project's success.

Conclusions

Overall, the project has been successful and made a useful contribution to generating renewable energy in Brazil. A large part of the credit for the positive outcomes is due to the experience and track record of BNDES in managing such interventions, and to a lesser extent due to the engagement of NDB, which, apart from providing loan financing and finalising the design report, did not proactively engage in the operation during implementation. Nevertheless, it is fair to recognise that this was NDB's first operation in Brazil, and staff capacities and resources were limited.

The project was relevant to the strategic priorities of both the Government of Brazil and state authorities. It contributed to enhancing Brazil's overall renewable energy capacity, which has risen at completion to more than anticipated at design, and also contributed to the reduction in the country's overall CO_2 emissions. Having said that, the evaluation also concludes that the design could have been more explicit on the ultimate socio-economic and developmental impacts and transformations, including at the community level, that the operation had the potential to generate.

Recommendations

Recommendation 1: *Further strengthening the relationship with BNDES and other sub-national development banks*
NDB should further strengthen its collaboration with BNDES and other sub-national development banks, leveraging these partnerships to provide essential funding and financial flexibility. Aligning with these banks and their internationally recognised robust policies, NDB can streamline resource allocation and project supervision, freeing up resources to enhance the final impact of funded projects.

Recommendation 2: *Prepare a Brazil-NDB country strategy and explore the possibility of developing a sector strategy*
NDB should prepare a comprehensive Brazil-NDB country strategy. This strategic framework will guide medium-term partnerships and activities and be rooted in meticulous diagnostics and insights covering proposed lending and non-lending activities. Moreover, given the growing investments in the energy sector, NDB management may also consider preparing a dedicated global policy or strategy on the topic in the near future.

Recommendation 3: *Project designs should focus more robustly on impact achievement and include provisions for social development*
Designs should include more explicit articulation of the ultimate impact beyond the outputs they intend to achieve. They should have an explicit theory of change, deeper risk analysis on achievement of impact and sustainability, clearer development objective statements, and stronger results framework with coherent indicators and targets for social and economic development improvements. To achieve greater impact, NDB should also ensure that it conducts regular project supervision, including undertaking a detailed mid-term review.

Sustainable infrastructure projects should not limit themselves to infrastructure construction and should include specific components and financing for social development in project areas. This is essential to ensure that NDB plays a wider role in poverty reduction at the local level and reduction of inequality, which is a major challenge in many member countries. In this context, specific attention should be given to women's empowerment and improvements in the lives of other marginalised groups and communities. These aspects should be incorporated into project design and monitoring frameworks.

Recommendation 4: *Work closely with the Government at different levels*
A close relationship with all levels of government is critical, helping them to think and conceptualise development projects. This would facilitate project and loan approvals and ease implementation and supervision. Working with Federal ministries and national agencies is also important, helping to enhance national strategies in different sectors through technical cooperation, consultancies, and South-South cooperation. Specifically, in the energy sector, some of the states with the greatest potential for expansion of renewable energy suffer from weak capacity. Hence, projects should also have provision for implementation support and capacity building.

Recommendation 5: *Knowledge management and communication plans*
NDB should proactively implement knowledge management and communication plans for each project funded in Brazil and beyond. NDB should systematically identify, document, and share valuable lessons and good practices using a variety of communication channels such as publications, the internet, workshops, and events. These efforts will allow NDB to scale up its impact and share experiences for greater collective development effectiveness.

Recommendation 6: *Enhance NDB's additionality – social, environmental, gender, and global South cooperation*
NDB, as a Multilateral Development Bank (MDB) with global South member countries, should enhance additionality in its future projects for enhancing impact. By leveraging the vast and diverse knowledge, good practices, and experiences of NDB member countries, especially on social, environmental, and gender aspects, NDB can significantly augment its project outcomes. While doing so, NDB should ensure that project designs and implementation with these additionalities remain efficient, capitalizing on national systems, leveraging knowledge and capability to complement NDB's expertise, and drawing on good practices from the global South.

RESUMO EXECUTIVO

Histórico

"Os Projetos de Energia Renovável e Transmissão Associada no Brasil", nome dado ao conjunto de intervenções implementadas, compreendem o primeiro projeto no Brasil avaliado pelo Escritório de Avaliação Independente (IEO, Independent Evaluation Office) do Novo Banco de Desenvolvimento (NDB, New Development Bank).

Concepção do projeto

A Diretoria Executiva do NDB aprovou este primeiro empréstimo para o projeto mencionado ao Brasil em abril de 2016, com um custo total do projeto de USD 600 milhões, dos quais o financiamento do NDB foi de USD 300 milhões.

Os principais objetivos do projeto foram promover um fornecimento adequado e confiável para atender à demanda futura por eletricidade no Brasil e alcançar a capacidade adicional de geração de energia planejada com formas alternativas de energia renovável. O mutuário do financiamento foi o Banco Nacional de Desenvolvimento Econômico e Social (BNDES), que também é o órgão implementador do projeto.

Durante a implementação, foi mobilizado um montante significativo de cofinanciamento, de aproximadamente USD 845 milhões, elevando os investimentos para aproximadamente USD 1,145 bilhões. Os recursos foram estrategicamente direcionados para três grandes subprojetos em quatro estados: Bahia, Minas Gerais, Pernambuco e Piauí. Implementado entre 09 de fevereiro de 2018 e 26 de abril de 2020, o projeto incluiu a construção de dois parques eólicos nos estados do Nordeste e um complexo solar em Minas Gerais.

Metodologia e processo de avaliação

A avaliação seguiu critérios internacionalmente reconhecidos de relevância, eficácia, eficiência, impacto e sustentabilidade. Também avaliou-se o desempenho do NDB e do mutuário, respectivamente. A coleta e análise de dados foi feita por métodos combinados. Tais métodos incluíram a análise de dados secundários, visitas locais e a coleta de informações e dados adicionais de diversas partes interessadas em âmbito nacional, estadual, municipal e comunitário, por meio de questionários semiestruturados. Os resultados da avaliação foram derivados através de técnicas de triangulação. Durante a avaliação, foram feitas trinta e quatro reuniões com autoridades federais, estaduais e municipais, organizações internacionais, representantes da sociedade civil, beneficiários e universidades. A equipe de avaliação do IEO visitou todos os estados e locais incluídos no projeto. A minuta do documento de abordagem de avaliação e do relatório de avaliação foram compartilhados com a Gestão do NDB, com o BNDES e com o Ministério da Fazenda do Brasil, para comentários.

Desempenho do projeto

Desempenho geral: *Satisfatório.*
No geral, o projeto se mostrou satisfatório, trazendo uma contribuição valiosa para a geração de energias renováveis no Brasil e efetivamente reduzindo as emissões de dióxido de carbono (CO_2). Esse sucesso pode ser atribuído principalmente à parceria estratégica com o BNDES, reconhecido por sua capacidade técnica na gestão de tais iniciativas.

Embora o envolvimento do NDB tenha sido limitado por ser sua operação inaugural no Brasil com recursos limitados, suas contribuições para o financiamento de empréstimos e a concepção do projeto foram dignas de nota. O NDB, entretanto, não desempenhou um papel ativo durante a implementação nem na documentação e no compartilhamento de lições e de boas práticas.

Relevância: *Moderadamente satisfatória.*
Alinhado aos Planos Plurianuais Nacionais e Estaduais para 2012-2015 e 2016-2019 e à Estratégia Geral do NDB para 2017-2020, o projeto contribuiu para os Objetivos de Desenvolvimento Sustentável (ODS), principalmente com foco no ODS7, ODS9, ODS12, ODS13, e ODS17.

Por outro lado, foi dada pouca atenção aos aspectos de gênero, ao desenvolvimento social e ao impacto nas comunidades na ponta final, bem como à análise e mitigação de riscos durante a concepção do projeto. A falta de uma estratégia nacional dedicada para orientar o projeto e de uma parceria NDB-Brasil mais ampla restringiram as sinergias com outras atividades do NDB no país e resultados de desenvolvimento mais amplos em campo.

Eficácia: *Satisfatória.*
O projeto apoiou três grandes iniciativas no setor de energias renováveis, consistindo em 29 sociedades para propósito específico(SPV, Special Purpose Vehicles), cada um considerado um subprojeto independente, superando o objetivo mínimo do financiamento de cinco subprojetos renováveis.

O projeto também superou as expectativas ao criar 835 MW (megawatts) adicionais de capacidade instalada de produção de energia renovável anualmente, em comparação com os 600 MW previstos, 39% acima dos resultados esperados. A instalação de 277 turbinas eólicas e 594.750 painéis solares destacou ainda mais a escala substancial do projeto, apesar de não haver uma meta definida na concepção do projeto.

O projeto alavancou USD 845 milhões em cofinanciamento, financiamento adicional do setor privado e debêntures. No entanto, foi perdida uma oportunidade de contribuir para mudanças e transformações socioeconómicas locais mais amplas.

Eficiência: *Moderadamente satisfatória.*
Os subprojetos foram entregues no prazo e com pouca flutuaçãode custos. Devido à natureza do projeto, os submutuários adquiriram bens e serviços, conforme às regulamentações próprias do BNDES.Devido aos acordos de confidencialidade do setor privado, este quesito não pôde ser avaliado pelo IEO.

Um fator significativo quanto à eficiência do projeto foi o atraso considerável, de quase dois anos (667 dias), entre a aprovação do projeto pelo Diretoria Executiva do NDB e a efetivação do projeto. Consequentemente, isso adiou os benefícios que a operação poderia ter gerado.

Impacto: *Satisfatório.*
O projeto excedeu a produção de energia prevista e reduziu significativamente as emissões de CO2 em aproximadamente 1,58 milhão de toneladas por ano. Os três principais subprojetos também geraram mais de 7.500 empregos. Apesar da ausência de uma "teoria de mudança" clara para a operação, na sua concepção, e da falta de correlações explícitas entre os objetivos, resultados e produtos do projeto, este não exibiu qualquer impacto negativo duradouro perceptível.

Embora o projeto tenha facilitado algumas iniciativas de desenvolvimento social, algo que não estava explicitamente previsto em sua concepção, não houve consideração sobre até que ponto as comunidades e grupos marginalizados e com poucos recursos, como as mulheres e os quilombolas[1], poderiam se beneficiar com o projeto.

Sustentabilidade: *Satisfatória.*
O projeto apoiou diretamente a diversificação e a transição do setor energético do Brasil para fontes de energia renováveis. A sustentabilidade dos benefícios do projeto é depende do desempenho dos subprojetos e dos SPV, que o BNDES selecionou com base em sua presença global, forte posição financeira e contratos de geração de energia de longo prazo. Além disso, a crescente demanda por energia no Brasil é um fator determinante fundamental para a sustentabilidade.

No que diz respeito à sustentabilidade socioambiental, o NDB contou com o processo de licenciamento das autoridades estaduais de acordo com a legislação brasileira, sem conduzir seu próprio processo

1 O quilombola é um afro-brasileiro residente em assentamentos conhecidos como quilombos, estabelecidos por pessoas escravizadas fugitivas no Brasil.

de devida diligência. Durante a implementação, surgiram alguns impactos ambientais negativos oriundos das atividades de construção, mas medidas adequadas foram tomadas para abordá-los.

Embora a avaliação considere satisfatórias as perspectivas de sustentabilidade, nenhuma estratégia de saída explícita foi preparada para garantir a sustentabilidade dos benefícios.

Atuação do NDB: *Moderadamente satisfatória.*
Durante a concepção do projeto e as fases iniciais de implementação, a maioria das políticas corporativas do NDB ainda não haviam sido implementadas. O Escritório Regional do NDB nas Américas (ARO, Americas Regional Office) foi estabelecido somente após a construção e o desmbolso do projeto estarem concluídos. As atividades de monitoramento e supervisão confiaram fortemente na capacidade técnica e nos relatórios do BNDES durante todo o processo.

O NDB ofereceu condições financeiras atraentes, incluindo taxas de juros baixas, que foram renegociadas para se tornarem ainda mais favoráveis, longos prazos para amortização e nenhuma cobrança de prêmio por repagamento antecipado. Apeasr de dar condições financeiras favoráveis, durante a implmentação o NDB manteve um papel relativamente distante e não ofereceu nenhuma cooperação técnica nem desenvolveu produtos de conhecimento e comunicação para documentar e compartilhar lições e boas práticas. De igual maneira, a visibilidade do envolvimento do Banco no projeto foi limitada. Além disso, foram feitos esforços limitados para colaborar com instituições públicas federais e outros parceiros internacionais de desenvolvimento.

Desempenho do mutuário: *Satisfatório.*
O BNDES conta com um sistema robusto de gestão financeira, com auditorias trimestrais baseadas em sólidos princípios contábeis. Para supervisionar a operação com eficácia, o BNDES designou uma equipe multidisciplinar composta por especialistas de diversas áreas, além de ter solicitado relatórios anuais ou semestrais de seus clientes finais, incluindo auditorias financeiras anuais.

Como aspecto significativo da adicionalidade financeira, o BNDES ampliou com sucesso a disponibilidade financeira para as empresas envolvidas no projeto. Além disso, o BNDES cumpriu as exigências contratuais do empréstimo, apresentando todos os relatórios necessários. De modo geral, a atuação do BNDES foi fundamental para o sucesso do projeto.

Conclusões

No geral, o projeto foi satisfatório e deu uma contribuição útil para a geração de energia renovável no Brasil. Grande parte do crédito pelos resultados positivos se deve à experiência e ao histórico do BNDES na gestão desses tipos de intervenções e, em menor medida, ao envolvimento do NDB, que, fora proporcionar o financiamento de empréstimos, não se envolveu de forma proativa na operação durante a implementação. No entanto, é justo reconhecer que esta foi a primeira operação do NDB no Brasil e que os recursos e a capacidade de pessoal eram limitados.

O projeto foi relevante para as prioridades estratégicas do Governo do Brasil e dos governos estaduais.O projeto contribuiu para melhorar a capacidade de energia renovável geral do Brasil, que, na conclusão, proporcionou um aumento além do inicialmente previsto no projeto e contribuiu para uma redução das emissões gerais de CO_2 no país. Dito isto, a avaliação conclui também que a concepção poderia ter sido mais explícita sobre impactos finais socioeconômicos e de desenvolvimento, bem como transformações, inclusive comunitárias, que a operação poderia gerar.

Recomendações

Recomendação 1: *Fortalecer ainda mais o relacionamento com o BNDES e outros bancos subnacionais de desenvolvimento*
O NDB deveria fortalecer ainda mais a sua colaboração com o BNDES e outros bancos de desenvolvimento, aproveitando essas parcerias para oferecer o financiamento essencial e com flexibilidade financeira. Alinhando-se junto a estes bancos e com as políticas robustas destes, reconhecidas internacionalmente, o NDB pode agilizar a alocação de recursos e a supervisão de

projetos, utilizando seus recursos internos para aumentar o impacto final dos projetos financiados.

Recomendação 2: *Preparar uma estratégia nacional Brasil-NDB e explorar a possibilidade de desenvolver uma estratégia setorial*
Recomenda-se que o NDB prepare uma abrangente estratégia Brasil-NDB. Esse marco estratégico orientará parcerias e atividades de médio prazo e estará baseado em diagnósticos e percepções meticulosos cobrindo atividades propostas de empréstimo e não-empréstimo. Adicionalmente, dados os investimentos crescentes no setor de energia, a gestão do NDB também pode considerar a preparação de uma política ou estratégia global dedicada ao tema em um futuro próximo.

Recomendação 3: *A concepção dos projetos deve enfocar de forma mais robusta na obtenção de impactos e incluir componentes para o desenvolvimento social*
A concepção deve incluir uma articulação mais explícita do impacto final, além dos resultados pretendidos. Na concepção deve ser apresentada uma "teoria de mudança" explícita, uma análise de risco mais profunda sobre a concretização do impacto e da sustentabilidade do projeto, declarações de objetivos de desenvolvimento mais claras e um quadro de resultados mais sólido, com indicadores e metas coerentes de melhorias socioeconômicas. Para um maior impacto, o NDB também deve garantir uma supervisão regular do projeto, incluindo a realização de uma revisão intermediária detalhada.

Projetos de infraestruturas sustentáveis não devem ficar limitados à construção de infraestruturas, mas devem incluir componentes e financiamento específicos para o desenvolvimento social nas áreas do projeto. Isso é essencial para garantir que o NDB desempenhe um papel mais amplo na redução local da pobreza e da desigualdade, o que constitui um grande desafio em muitos países membros. Neste contexto, deve-se dar atenção específica ao empoderamento das mulheres e à melhoria das vidas de outros grupos e comunidades marginalizados. Estes aspectos devem ser incorporados na estrutura da concepção e de monitoramento dos projetos.

Recomendação 4: *Trabalhar em estreita colaboração com o Governo em diferentes níveis*
É fundamental uma relação estreita com todos os níveis de governo, ajudando-os a pensar e conceituar projetos de desenvolvimento. Isto facilitaria a aprovação de projetos e empréstimos, além de sua implementação e supervisão. Também é importante trabalhar com Ministérios e Agências Nacionais, ajudando a melhorar as estratégias nacionais em diferentes setores com cooperação técnica, consultorias e cooperação Sul-Sul. Especificamente no setor da energia, alguns dos estados com maior potencial de expansão das energias renováveis padecem de conhecimento técnológico e mão-de-obra especializada. Assim, os projetos também devem prever apoio à implementação e ao fortalecimento de capacidades.

Recomendação 5: *Gestão do conhecimento e planos de comunicação*
O NDB deve ser proativo ao implementar planos de gestão e comunicação do conhecimento para cada projeto financiado no Brasil e em outros lugares. O NDB deve sistematicamente identificar, documentar e compartilhar lições valiosas e boas práticas por diferentes canais de comunicação, como publicações, internet, workshops e eventos. Esses esforços permitirão que o NDB amplie seu impacto e compartilhe experiências para uma maior eficácia do desenvolvimento coletivo.

Recomendação 6: *Aumentar a adicionalidade do NDB: cooperação técnica na área social, ambiental, de gênero e com o Sul Global*
O NDB, sendo um Banco Multilateral de Desenvolvimento (MDB, Multilateral Development Bank) com países membros do Sul Gglobal, deve aumentar a adicionalidade nos seus projetos futuros para aumentar seu impacto. Ao aproveitar o vasto e diversificado repertório de conhecimento, boas práticas e experiências dos países membros do NDB, especialmente nos aspectos sociais, ambientais e de gênero, o NDB pode aumentar os resultados do seu projeto de modo significativo. Ao fazer isso, o NDB deve garantir que a concepção e a implementação dos projetos com essas adicionalidades continuem eficientes, capitalizando os sistemas nacionais, alavancando o conhecimento e a capacidade para complementar a experiência do NDB e tirando proveito das boas práticas do Sul Global.

NDB MANAGEMENT RESPONSE

The NDB management commends the Independent Evaluation Office (IEO) for the in-depth assessment of the project – the first of the Bank in Brazil. The management also acknowledges that several of their comments provided earlier were considered in the final version of the project performance evaluation, particularly regarding a better alignment of ratings and the historical context of the operation.

The NDB management believes that the evaluation would benefit from a differentiated evaluation approach towards a financial intermediary operation versus direct lending, both in terms of preparation and implementation. Requirements for sub-projects screening, assessment, and implementation monitoring are different for these two types of operations.

The Renewable Energy Projects and Associated Transmission Project inaugurated the Bank's support to all member countries in improving their sustainable and greener development through expanding renewable energy generation associated with energy security. The project also inaugurated a key lending modality – on-lending through a major and reputed national financial intermediary such as BNDES. This strategic engagement allowed NDB to commence lending operations in Brazil and to accelerate a learning curve in implementing NDB's mandate.

The most relevant demonstration of the success of the Renewable Energy Projects and Associated Transmission Project resides in the fact that NDB and BNDES agreed to implement two additional on-lending operations, totaling USD 1.7 billion, already approved by the BoD and of wider sustainable and climate scope. Moreover, NDB has been actively cooperating with a number of other Brazilian financial intermediaries, including both commercial banks, the regional development bank, and MDBs. In addition to two new transactions with BNDES, NDB has approved USD 490 million in loans to financial intermediates with Banco do Brasil (USD 200 million), the Far South Development Bank (BRDE) (EUR 136 million), Desenvolve SP (USD 90 million), and Fonplata (USD 50 million).

The project was fully aligned with NDB's mandate and strategic focus of supporting sustainable infrastructure projects in its member countries.

Recommendation 1
NDB should further strengthen its collaboration with BNDES and other sub-national development banks, leveraging these partnerships to provide essential funding and financial flexibility. Aligning with these banks and their internationally recognized robust policies, NDB can streamline resource allocation and project supervision, freeing up resources to enhance the final impact of funded projects.

Management Response
The NDB management works in line with this recommendation. The Bank has already addressed this through its ongoing engagement with national financial intermediaries (NFIs) and adoption of a dedicated policy for operations with NFIs. NDB has approved a large number of loans to NFIs/regional development banks and increased demand for such transactions is observed and evidenced both by the portfolio and the pipeline.

In Brazil, the total amount of approved loans to financial institutions amounts to USD 2.5 billion. This figure includes two further loans to BNDES in the amount of USD 1.7 billion and a further USD 490 million in loans to financial intermediates with BRDE (EUR 136 million), Desenvolve SP (USD 90 million), Fonplata (USD 50 million) and Banco do Brasil (USD 200 million). The Bank also financed loans to financial intermediaries in other member countries, and demand for on-lending operations remains strong.

On the organisational side, a specialised division focusing on operations with financial institutions has been established in the Bank's headquarter.

Recommendation 2
Prepare a Brazil-NDB country strategy and explore the possibility of developing a sector strategy. NDB should prepare a comprehensive Brazil-NDB country strategy. This strategic framework will guide medium-term partnerships and activities and be rooted in meticulous diagnostics and insights covering proposed lending and non-lending activities. Moreover, given the growing investments in the energy sector, NDB management may also consider preparing a dedicated global policy or strategy on the topic in the near future.

Management Response
The NDB management agrees with developing a country partnership plan and exploring the need and possibility to develop sector strategy, on a demand-driven basis. In fact, NDB management has already started working in the direction of developing a Country Partnership Plan for Brazil. Following approval of the updated financial model of NDB, in particular of the annual lending volume and key financing terms, the management will initiate a consultation process with member country governments and other key stakeholders once the initial preparation of the Country Partnership Plan is concluded.

As NDB grows its experience in the operating environment and in different sectors of our member countries, the management has been putting an increasing emphasis on lessons learned from the ground experience and the evidences collected from our portfolio. With that, NDB management will organise its teams to explore the need and possibility of developing a sector strategy.

Recommendation 3
Project designs should focus more robustly on impact achievement and include provisions for social development. Designs should include more explicit articulation of the ultimate impact beyond the outputs they intend to achieve. They should have an explicit theory of change, deeper risk analysis on achievement of impact and sustainability, clearer development objective statements, and stronger results framework with coherent indicators and targets for social and economic development improvements. To achieve greater impact, NDB should also ensure that it conducts regular project supervision, including undertaking a detailed mid-term review. Sustainable infrastructure projects should not limit themselves to infrastructure construction and should include specific components and financing for social development in project areas. This is essential to ensure that NDB plays a wider role in poverty reduction at the local level and reduction of inequality, which is a major challenge in many member countries. In this context, specific attention should be given to women's empowerment and improvements in the lives of other marginalised groups and communities. These aspects should be incorporated into project Design and Monitoring Frameworks.

Management Response
The NDB management considers social development as one of the key elements of NDB operations. In NDB's second General Strategy for (2022-2026) social infrastructure has been incorporated as one of the main focus areas, in addition to transport infrastructure, clean energy and energy efficiency, water and sanitation, environmental protection as well as digital infrastructure. The Bank also includes inclusiveness, in terms of gender, age, race, income, and geography, as one of three major cross-cutting considerations for all areas of NDB's financing. This is in close alignment with IEO recommendation three.

NDB management shares the view that a strong result framework is an important element of the design of projects that NDB finances and pays utmost attention to it. It is, however, important not to overload the design and monitoring framework, especially in case of non-sovereign operations, and keep only relevant indicators that allow reliably measuring the impact of the intervention.

Recommendation 4
Work closely with the Government at different levels. A close relationship with all levels of government is critical, helping them to think and conceptualise development projects. This would facilitate project and loan approvals and ease implementation and supervision. Working with Federal ministries and national agencies is also important, helping to enhance national strategies in different sectors through technical

cooperation, consultancies, and South-South cooperation. Specifically, in the energy sector, some of the states with the greatest potential for expansion of renewable energy suffer from weak capacity. Hence, projects should also have provisions for implementation support and capacity building.

Management Response

NDB management maintains a comprehensive and detailed dialogue with the central and regional governments of its member countries with regard to project preparation and implementation. Operationalisation of regional offices in all BRICS countries allowed the Bank to have on-the-ground presence as well as direct and effective communication with various government entities. The Bank also engages actively with various technical working groups under the G20, BRICS, and MDB-led cooperation mechanisms, providing inputs to discussions and documents that are relevant to NDB's work.

In addition, to assist member countries in preparing new projects and to overcome capacity constraints, NDB has undertaken a comprehensive revision of Project Preparation Fund and Technical Assistance Policy to expand the eligibility criteria for the Project Preparation Fund and technical assistance to include sub-nationals which allows the Bank to support sub-national governments for project preparation. This effort is consistent with the direction of the management in strengthening the collaboration and close cooperation with all levels of government to support their national development strategy as well as their project preparation and implementation, particularly for the regions where capacity is weak.

Recommendation 5

Knowledge management and communication plans. NDB should proactively implement knowledge management and communication plans for each project funded in Brazil and beyond. NDB should systematically identify, document, and share valuable lessons and good practices using a variety of communication channels such as publications, the internet, workshops, and events. These efforts will allow NDB to scale-up its impact and share experiences for greater collective development effectiveness.

Management Response

While the Bank has been accumulating knowledge from its operations and taking the knowledge and lessons into project design, preparation, and implementation, the Bank has established a systematic knowledge management mechanism through preparation and bank-wide circulation of project progress and project completion reports. The management supports the utilisation of various platforms for sharing knowledge, lessons, and good practice in collaboration with the project partners. The communication strategy should be cognizant of the terms stipulated in the loan agreements, including the non-disclosure agreement, especially with regard to non-sovereign operations.

The management has been attaching great importance to providing project-related information to various stakeholders in accordance with the Bank's Information Disclosure Policy. The management will continue to work towards enhancing the project-related information disclosure and the accessibility of such information published by the Bank.

The management has been working to strengthen the Bank's visibility through diversified forms of communication materials that could be effectively presented through various communication channels, such as the Bank's website and official social media accounts, as wells as on-line and off-line events.

The management also notes the potential for more active disclosure of Environmental and Social Governance related information. The Bank is committed to enhancing its disclosure practices in this realm, providing stakeholders with a more comprehensive understanding of the project's environmental and social implications, fostering greater transparency, and enhancing the Bank's visibility in this regard.

Recommendation 6
Enhance NDB's additionality – social, environmental, gender, and global south cooperation. NDB, as an MDB with global South member countries, should enhance additionality in its future projects for enhancing impact. By leveraging the vast and diverse knowledge, good practices, and experiences of NDB member countries, especially on social, environmental, and gender aspects, NDB can significantly augment its project's outcomes. While doing so, NDB should ensure that project designs and implementation with these additionalities remain efficient, capitalising on national systems, leveraging knowledge and capability to complement NDB's expertise, and drawing on good practices from the global South.

Management Response
Management acknowledges the importance of the allocation of funds in projects that result in tangible benefits and positive outcomes that would not have been achievable through traditional financing sources alone. In line with the 2022-2026 strategy, projects that support innovative approaches or technologies that bring about novel solutions to development challenges, furthering additionality by promoting progress and sustainability, are prioritised. Additionality on social and environmental benefits is achieved by ensuring that the projects funded by the NDB prioritise social development, environmental sustainability, and other development objectives beyond mere financial returns. Several projects financed by the NDB stimulated additional investments from other sources, both public and private, which amplifies the impact of the Bank's contributions. The Bank's environmental and social value addition has been well captured in the Environmental and Social Portfolio Report, which is updated every half year.

To capture other non-financial value addition by NDB at the project level (such as project design, procurement, economic evaluation, implementation, capacity building, etc.), the management has directed staff to conduct in-depth analysis for our value addition throughout the project phases and to reflect this in a separate section of each project document to the Board which is now being consistently done. In addition, the management encourages staff to start analysis on potential value addition from the very beginning of the project cycle and to aim, to the extent practicable, to include value addition section in project concept notes.


@Chan Sun

I. BACKGROUND

A. Project Context

1. In April 2016, the New Development Bank (NDB)[1] Board of Directors (BoD) approved the Brazil Renewable Energy Projects and Associated Transmission. The total foreseen project costs were USD 600 million, including USD 300 million of NDB financing, with the remaining USD 300 million (or more) to be provided as co-financing by the Brazilian Development Bank (BNDES - *Banco Nacional de Desenvolvimento Econômico e Social*),[2] Brazil's national bank for economic and social development, wholly owned by the Government of Brazil. The latter was the borrower and overall executing agency of the project. NDB classified this project as a "Loan without Sovereign Guarantee to National Financial Intermediary" as part of its clean energy sector. It was the first Non-Sovereign Operation financed by NDB and the first operation in Brazil to be evaluated by the Independent Evaluation Office (IEO).[3]

2. The project was to provide financial support ("sub-loans") for the renewable energy sector and associated transmission projects in Brazil. In particular, the project would facilitate infrastructure development through investments in renewable energy projects, and the design envisioned that up to 20% of the NDB loan would also be available to BNDES for subscribing to debentures of the projects at BNDES' discretion.

3. The original project design did not define the geographic areas to be covered as long as its activities were implemented in Brazil. As per BNDES' bylaws, the two-step loan contributed to three major sub-projects in four states: namely Bahia, Minas Gerais, Pernambuco, and Piauí. It envisaged the financing and construction of renewable energy projects, including two wind power complexes in the Northeast (in Pernambuco and Piauí states and in Bahia state) and the Solar Complex in Minas Gerais state.

4. Following BoD's approval in 2016, the NDB loan agreement (16BR01) was signed with BNDES in April 2017. The loan was declared effective in February 2018 after a loan amendment in October 2017. The project was implemented over two years, and the loan closing date was April 2020.

B. Country Context

5. Brazil is the fifth largest country in the world in terms of geographic size. With a population of around 215 million, it is the sixth most populous country in the world and the most populous in Latin America. It is also the tenth-largest economy in the world, with a GDP of USD 1.6 trillion in 2021 and a per-capita GDP of USD 7,560. According to the World Bank,[4] growth in Brazil tends to have measurable or statistically significant spillovers (with a lag) to its neighbors. Brazil is home to about a third of the global tropical rain forests and 12% of the world's freshwater - making it important to the world's natural assets. Brazil's development matters not just locally but globally.

6. Despite its many advantages, the economy has averaged a growth rate of 0.3% over the last decade. The Brazilian growth forecast predicts growth of 1% in 2023, 1.9% in 2024, and 2% in 2025.

1 See New Development Bank (https://www.ndb.int/)
2 See BNDES (https://www.bndes.gov.br/SiteBNDES/bndes/bndes_en)
3 See Independent Evaluation - New Development Bank (https://www.ndb.int/governance/independent-evaluation/)
4 Global Economic Prospects, World Bank Group.

C. BNDES Context

7. BNDES is the main financing agent for development in Brazil. Since its foundation in 1952, BNDES has played a fundamental role in stimulating the expansion of industry and infrastructure in the country. Throughout the Bank's history, its operations have evolved according to the Brazilian socio-economic challenges. Now they include support for exports, technological innovation, sustainable socio-environmental development, and the modernisation of public administration.

8. BNDES was a key player in supporting the renewable expansion plan and became one of the top world providers of capital to help diversify and decarbonise the power sector in Brazil. Since 2000, BNDES funded 70% of the capacity addition in Brazil, financing 78.8 Gigawatt (GW) and 73% of wind, 35% of solar, and 50% of hydro generation. BNDES financed USD 33.1 billion in renewables from 2004 to 2020.

9. BNDES has a solid financial structure, rated as Ba2 by Moody's and BB- by Standard & Poor's (S&P), in local and foreign currencies. On the national scale, it is rated as AAA.br by Moody's and br AAA by S&P.

10. BNDES was also implementing its strategies and policies regarding Environmental and Social Governance (ESG). BNDES' guidelines and principles for socially and environmentally responsible performance are expressed in its Corporate Social Responsibility Policy, approved in 2010 and updated in 2014. To promote continuous progress in implementing the Policy, the Board of Directors and Advisory Board of BNDES approved a multi-year plan of action in early 2015. This plan aimed to improve BNDES´ governance, social and environmental risk management system, dialogue processes, and accountability to stakeholders. The plan established a first work agenda for 2015-2017, consolidating some initiatives, fostering the mobilisation of efforts, and promoting advances in structuring the governance and management of the social and environmental issues at BNDES.

11. Also, in the environmental, social, and governance aspects, BNDES has a Moody's ESG rating of A1+, which puts the Bank among the top 2% of its industry.

D. Sectoral Context

12. Brazil has the largest electricity sector in Latin America, with an annual consumption of about 580 TWh. The power sector in Brazil serves more than 70 million customers, corresponding to about 99% of the country's households, who have access to reliable electricity. At the end of 2022, the installed capacity was 191.6 GW, of which around 85% was from renewable sources. The country has the second-largest installed hydroelectric power in the world, with about 109 GW. Hydropower meets around 60% of electricity requirements, down from 80% in 2001.

13. Over the last two decades, about 47.7 GW of new renewable capacity, including 25 GW of wind and 15 GW of biomass (mainly sugar cane co-generation), has been installed. Solar energy had a late start but is now the second largest source, contributing 7.7 GW at the utility-scale and about 16.3 GW of distributed generation. Due to their lower generation factor, the contribution of wind and solar is much smaller, on a relative basis, in terms of GWh produced. In 2022, non-hydro renewable energy generation represented 20% of the total energy consumed in the country (not accounting for distributed generation). The equivalent figure was 17.7% in 2021. Currently, wind and solar represent the second most important source of installed capacity after hydropower. Brazil still offers a huge potential for on-shore wind (hundreds of GW, particularly in the Northeast) and solar energy, which are already very cost-competitive.

14. Brazil has also pioneered energy procurement via reverse auctions, which have pushed renewable prices down and benefitted the consumer. Since the 2001-2002 energy crisis, Brazil has been procuring (mostly) renewable resources to diversify its energy mix and reduce its dependence on

hydro generation, mitigating the impact of variable rainfall patterns. Wind and biomass production negatively correlate with rainfall patterns, creating a virtuous circle of complementarity.

15. Brazil has one of the world's largest and most sophisticated transmission systems, designed and operated to optimise the multiple generation sources and transmit the energy to consumer centers (sometimes very distant) at the lowest possible cost. The business model used to expand transmission assets, introduced in the late 90s, has also been very successful. Brazil has granted competitive concessions, and the private sector's interest and the volume of investment received so far have been positive.

16. Centralised auctions for the captive market were recently driving contracting and investment decisions. Transmission planning and construction were planned and executed in a seven-year cycle. Now, the planner has to deal with the new capacity to be built, how much capacity and technologies will be installed in each location, and the real level of commitment from those who apply for the initial licensing process. Transmission is always catching up with a backlog of new connection applications.

17. Annex 2 - Overview of the Renewable Energy Sector in Brazil brings an assessment of the Brazilian renewable energy sector, covering offer, demand, generation, transmission, gender, and sustainability issues for the country and the project. Annex 3 - The Role of Renewable Energy in BRICS countries brings an assessment of the situation of renewables in BRICS countries.

II. THE PROJECT

A. Project Objectives

18. As approved by the Board, the project[5] was designed to support the overall goal of adequate and reliable power supply to meet domestic demand.

19. The project had the following higher-level objectives:[6]

    • Adequate and reliable supply to meet the future demand for electricity in Brazil; and

    • Achieve the planned additional capacity by way of alternative forms of renewable energy.

20. The agreed purpose of the project was to "facilitate investment in renewable energy [and] assist BNDES in its effort to promote alternative financing options for renewable energy projects through debentures."

21. For this evaluation, IEO considered the aforementioned to be the project's main objectives. However, regarding the second objective above, the Project Completion Report (PCR) underscores that the project will "Contribute to a diversified renewable energy portfolio for Brazil's energy sector, to reduce reliance on hydroelectric and increase the country's resilience in energy supply." This was, therefore, also considered an important part of the project's overall objectives.

B. Project Design and Components

22. The project was to facilitate infrastructure development through investments in renewable energy projects. The project design envisioned that the NDB loan would also be available to BNDES for subscribing to debentures of the projects. This would assist BNDES in its efforts to develop an alternative financing source for renewable energy projects and facilitate the development of the secondary market for infrastructure debentures and bonds.

23. The project was expected to finance the cost of equipment, consulting services, and civil works for the sub-projects through the sub-loans offered by BNDES. BNDES was also responsible for financing, from its own sources, at least the same amount as NDB's contribution to the sub-projects. BNDES would utilise the NDB loan in the following manner:

    a. BNDES would finance at least five projects under the proposed loan;

    b. The aggregate exposure for projects in any one individual area, such as wind, solar, or biomass, should not exceed 60% of the total loan amount;

    c. Sub-loans for any single project would be limited to 25% of the total loan amount;

    d. BNDES could use up to 20% of the loan amount for the financing of debentures/bonds of renewable energy projects; and

    e. Sub-loans/debentures would be for maturity in excess of seven years and would not be used for intermediate/bridge financing.

5 See Financing of Renewable Energy Projects and Associated Transmission - New Development Bank (https://www.ndb.int/)
6 As captured in the Design and Monitoring Framework in the Project Document to the Board.

C. Project Implementation Arrangements

24. BNDES was the overall executing agency for the project, as noted in the project design document to the NDB Board and the loan agreement, being responsible for appraisal, implementation, monitoring, and supervision of environmental, social, and procurement aspects. BNDES would determine the on-lending rate in accordance with its pricing framework.

25. All projects where the sub-loan amount exceeds USD 35 million or all projects assessed by BNDES as Category A with respect to environment and social assessment were to require prior approval of NDB. In addition, NDB was given the possibility to join BNDES in joint appraisals whenever the sub-loan amount was in excess of USD 70 million.

26. Project supervision for all sub-projects was to be carried out by BNDES. The procurement of goods and services would be conducted in accordance with the procurement systems prevailing in Brazil. BNDES would also ensure compliance by the sub-projects with Brazil's environment and social framework requirements and the core principles in NDB's Environment and Social Framework.[7] BNDES is also committed to monitoring and evaluating the sub-project benefits after completion. BNDES, however, enabled NDB or its authorised representative to inspect and evaluate – together with representatives of the Borrower – any sub-project and any relevant records and documents maintained by BNDES, subject to banking secrecy law. NDB was also allowed to conduct or review the management, financial, and operational performance of BNDES and sub-projects after five years or immediately after the entire NDB loan amount had been drawn down. Such reviews would be conducted at bi-annual intervals. NDB would conduct a final review after repayment of the loan.

7 See NDB Environmental and Social Framework. (https://www.ndb.int/wp-content/uploads/2017/02/ndb-environment-social-framework-20160330.pdf)

III. THE EVALUATION

A. Evaluation Objectives

27. The overarching objectives of the evaluation are to promote accountability and learning. More specifically, the evaluation assessed the results and impact of the operation and generated findings and recommendations for improving the quality of ongoing and future NDB operations in Brazil and beyond. In addition, a secondary purpose of the evaluation is to draw lessons and insights for future evaluations of Non-Sovereign Operations, which would also serve as useful inputs for developing IEO's evaluation methods and processes.

B. Evaluation Methodology, Questions and Rating Scale

28. The evaluation was conducted within the overall framework of the NDB Evaluation Policy,[8] approved by the BoD in August 2022. In particular, the evaluation was guided by internationally recognised evaluation methodologies, criteria, and processes adopted by the Evaluation Cooperation Group (ECG) of the Multilateral Development Banks (MDBs).

29. In line with the main provisions of the latest Good Practice Standards for Evaluation of Public and Private Sector Operations, agreed and issued by the ECG,[9] IEO evaluated the project based on the following evaluation criteria: A - Relevance; B - Effectiveness; C - Efficiency; D - Impact; and E - Sustainability.

30. Based on the assessment and ratings of these criteria, the evaluation formed a performance judgement of "overall project achievement."

31. Apart from determining overall project achievement, the evaluation assessed NDB's performance as well as the performance of BNDES and the sub-borrowers. As part of NDB's performance, the evaluation also assessed NDB's additionality. This was important to make a holistic assessment of the operation and key partners involved in the project life cycle.

32. The evaluation is summative and relies on mixed quantitative and qualitative analysis methods. Based on the evidence collected and using techniques of triangulation, the evaluation team assigned a performance rating to each evaluation criterion. The six-point rating scale used to assess each evaluation criterion may be seen in Table 1.

8 IEO_Final-Evaluation-Policy.pdf (https://www.ndb.int/)
9 GPS4 - ECG FINAL - 08Nov11 (https://www.ecgnet.org/document/good-practice-standards-evaluation-public-sector-operations-2012-revised-edition)

TABLE 1

Rating scale

Rating scale		
6	Highly Successful	The project demonstrates overwhelming positive results and no shortcomings.
5	Successful	The project demonstrates strong results, with minor shortcomings.
4	Moderately Successful	The project demonstrates positive results with some shortcomings in several areas.
3	Moderately Unsatisfactory	The project has several shortcomings that outweigh some positive results.
2	Unsatisfactory	The project has largely negative results, with very few positive results.
1	Highly Unsatisfactory	The project demonstrates significant negative results, with hardly any positive results.

33. More specifically, some of the key questions addressed by the evaluation are listed below. The complete list of questions used by the evaluation may be seen in Annex 4.

    - How does this project fit into NDB's strategy and country strategy as well as other applicable NDB and Government policies and strategies?
    - To what extent were the project designs, construction processes, operations, and administration effective and efficient?
    - To what extent did the project achieve its outputs, outcomes, and impacts?
    - Did the project effectively and efficiently reach its business outcomes in a timely physical completion?
    - How was the project's environmental and social performance?
    - To what extent did the sub-projects contribute to strengthening BNDES' financial position?
    - Did the sub-projects avoid duplication with other development institutions? In the event of similar projects, were they complementary?
    - To what extent did the appraisal and monitoring capabilities of BNDES help attract high-quality sub-project investors?
    - To what extent were ESG dimensions incorporated in the design and implementation of the project?
    - What was the additionality NDB provided to BNDES during the entire project cycle, including project preparation and implementation stages?

34. To launch the evaluation process, IEO conducted a preparatory mission to Brazil in September 2022. The mission revealed that – in addition to the above – other areas for the evaluation to cover included the following: (i) gender dimensions and impact as a result of increased production of energy; (ii) the sustainability of infrastructure put in place by the project; (iii) how this operation fits into the overall energy planning of the country, which is done at the Federal level by the

Ministry of Mines and Energy; (iv) the technical assistance requirements for the project and how they were mobilised; (v) the monitoring and financial management activities of the project; and (vi) the approach to procurement, and oversight of environmental and social safeguards.

C. Limitations

35. It is fair to outline some key limitations that may have constrained project design, implementation, and supervision/monitoring. This was the first project approved by NDB in Brazil in 2016. At that time, understandably, most NDB policies were still not in place, resulting in a lack of definitive evaluation criteria and project design policies. The NDB Americas Regional Office (ARO) in Brazil was established in November 2019, after the project's construction phase had already been completed. NDB also had limited staff, with 19 team members and 34 consultants and secondees at the time. In addition, the COVID-19 pandemic that started in 2020 affected the timeliness of the final mission by NDB to prepare the PCR.

36. The reports produced mainly focused on financial rates of return, with limited coverage of economic rates of return, employment generated during and after construction, and social impact in the local area. As the financial appraisal and terms of the negotiations between BNDES and the companies are considered private and protected by privacy law on disclosure, IEO is not in a position to assess the robustness of the reported financial and economic rates of return of the project and sub-projects. Finally, there was hardly any data collected on the impact of the sub-projects on local communities.

D. Evaluation Team and Process

37. Mr. Ashwani K. Muthoo, Director General, IEO, oversaw the evaluation. It was managed by Mr. Henrique Pissaia de Souza, Principal Professional, IEO, and lead evaluator for this evaluation. A team of consultants, Mr. Rakesh Nangia, Mr. Luiz Maurer, Mr. Izidoro Tokarski Jr., and Ms. Jaqueline Rabelo Souza, provided critical inputs. IEO is solely responsible for the contents and quality of the evaluation report and related outputs.

38. IEO quality enhancement processes, including internal and external reviews, benefitted the evaluation. With regard to the latter, Dr. Jose Graziano da Silva, former Director General of the Food and Agriculture Organization of the United Nations, served as Senior Independent Adviser (SIA) to IEO. In particular, he provided inputs towards the evaluation design and reviewed the draft final report. The SIA has prepared a final short report capturing his assessment of the quality of the evaluation and the recommendations contained therein. The SIA's report may be seen in Annex 1 of this evaluation report.

39. The evaluation comprised the following phases:

    a) **IEO preparatory mission:** At the outset of the evaluation, IEO conducted a preparatory mission to Brazil for one week at the end of September 2022 to brief partners about the planned evaluation and capture their feedback and priorities. It also allowed IEO to brief partners about the evaluation methodology and process, identify data and information sources, and hold preliminary discussions about the field visits for the evaluation.

    b) **Desk review:** IEO conducted an initial literature review. The reviewed documents included inter-alia, the project design report, the loan agreement, subsequent amendments, the project progress reports, and the PCR prepared by NDB. IEO also examined a separate final report prepared by BNDES and other relevant documentation and data. This phase was in preparation for the fieldwork and culminated in preparing an approach paper,[10] which outlined the overall evaluation methodology, process, and timelines.

10 See Brazil Project Evaluation Approach Paper (https://www.ndb.int/wp-content/uploads/2023/05/Brazil-Approach-Paper-16BR01-.pdf)

c) **Field work.** IEO organised a field mission to Brazil to conduct data collection, visit project sites, and hold interactions with key partners. The mission was in the country from April 14-28, 2023, and interviewed key informants, collected additional evidence, and visited two project sites. Briefly, the mission covered:

i. 7,460 km in total (within Brazil) - 6,225 km by air and 1,235 km by road;
ii. nine cities;
iii. 29 meetings;
iv. six federal government meetings;
v. six state-level meetings;
vi. five MDB and agency meetings;
vii. three association meetings;
viii. three company meetings;
ix. two municipal level meetings;
x. two project site visits;
xi. one university meeting;
xii. one non-governmenal organization (NGO) meeting.

40. The qualitative analysis relies on semi-structured interview questionnaires with key informants, field observations, and a review of relevant project documents. The quantitative analysis relies mainly on secondary data, including from the project's internal monitoring and evaluation system, financial data, as well as country and sector data from public sources. At the end of the fieldwork, IEO prepared a presentation, capturing its preliminary evaluation findings. The presentation was used for the virtual wrap-up meeting with key stakeholders on May 18, 2023. Thereafter, IEO conducted five additional meetings between May 30 to June 2 and a final field mission to the third project site in A, thus ensuring the evaluation visited and covered all project sites. The field visit was conducted by IEO, following consultation and agreement with BNDES.

a) **Drafting the evaluation report:** Building on the desk and field work, IEO drafted the main evaluation report and shared it with BNDES, the Ministry of Finance, and NDB management for comments. The evaluation report was finalised after carefully considering all comments received. An audit trail was produced illustrating how IEO incorporated the comments received in the final report. Based on this final report, the NDB management prepared a written Management Response.

b) **BoD discussion:** The evaluation report along with the Management Response was considered by the NDB Board on November 28, 2023. The Board took note of the evaluation's findings and recommendations and expressed appreciation to IEO for its first evaluation in Brazil.

41. The main outputs of the evaluation include the evaluation approach paper, final report, and NDB management Response. Moreover, a summary of the findings and recommendations is captured in a two-page Evaluation Lens. All these outputs are available through the IEO web pages.[11]

11 www.ndb.int/governance/independent-evaluation/

IV. PROJECT PERFORMANCE

42. Overall, the deep experience of BNDES ensured the project performed well, largely achieving its stated goals and objectives. Founded in 1952, BNDES is one of the largest state-owned development institutions in the world. It has a depth of experience in development, including financing infrastructure projects, with a large exposure to energy. Over the years, it has fine-tuned its policies, procedures and investment criteria and attracts a wide range of investors. Similarly, it is familiar with and has experience in implementing environment and social impact policies and procedures. The sub-projects were implemented by three SPVs, all of whom were known to BNDES.

A. Relevance

43. In line with internationally agreed definitions, relevance assesses the extent to which the intervention objectives and design respond to beneficiaries, global, country, and partner/institution needs, policies, and priorities and continue to do so if circumstances change. The evaluation assessed the relevance of project objectives as well as the design relevance to make a comprehensive assessment. The latter is equally important to ensure the design is appropriate to further the project's goals and objectives.

Project Objectives

44. The project was aligned with the Government's National Pluriannual Plans (NPP) for 2012-2015 and 2016-2019. In both NPPs, there is an explicit mention of the expansion of wind generation. Similarly, in the four states that benefited from the investments, there are explicit references to the diversification of power generation using renewable sources (Annex 8 highlights the NPP and the four State Level Pluriannual Plans).

45. NDB has two global five-year general strategies[12] in which the focus on "sustainable infrastructure development" is considered a priority. This evaluation assesses alignment primarily with the first NDB General Strategy (2017-2022) and notes that the project objectives are well aligned with the objective of promoting "clean energy" and using partnerships. The project also aligns with NDB's focus on the "rapidly growing demand for basic infrastructure." Nevertheless, the project cannot be assessed against NDB's specific strategic objectives in Brazil, as NDB still does not have a documented "Country Strategy" for Brazil. IEO considers this a limitation, as it is not possible to determine whether NDB, BNDES, and the Government of Brazil had explicitly explored alternative options for NDB financing and why this particular project was considered a priority at that point in time. Similarly, the project cannot be assessed against a sector strategy as NDB has not yet prepared one. Given that around USD 4 billion (14% of total NDB financing till the end of 2021)[13] have been devoted to clean energy, and future investments are likely to increase further in this thematic area, the lack of a sector strategy is another limitation to guide project design, especially in the context of the absence of a dedicated country strategy.

46. While the project design preceded the preparation of the first NDB General Strategy (2017-2021), the project was implemented from 2017 to 2020, thus overlapping with the implementation period of the General Strategy. Even though the project was conceptualised before the introduction of the General Strategy, it fits appropriately with some of its key areas of operation, specifically in "Clean energy: [...] i) structural transformation of the energy sector, in particular by promoting emerging renewable technologies and partnerships National Development Banks for its projects". The same applies to the strategic alignment with the "[u]se of borrowing country legislation, regulations and oversight procedures, whenever possible," including the application of their environmental, social, fiduciary, and procurement systems.

12 See NDB-Strategy.pdf (2017-2021) and NDB General Strategy (2022-2026) (https://www.ndb.int/wp-content/uploads/2022/07/NDB_StrategyDocument_Eversion-1.pdf)
13 See NDB Annual Report 2021.

47. The evaluation also assessed the project with selected features of NDB's Articles of Agreement.[14] It fits well with NDB's purpose and functions expressed in Article 1: "The Bank shall mobilise resources for infrastructure and sustainable development projects in BRICS and other emerging economies and developing countries, complementing the existing efforts of multilateral and regional financial institutions for global growth and development. To fulfill its purpose, the Bank shall support public or private projects through loans, guarantees, equity participation, and other financial instruments. It shall also cooperate with international organisations and other financial entities and provide technical assistance for projects to be supported by the Bank". While the project allowed financing for consultant services for design and implementation, none were utilised by BNDES or the SPVs.

48. The project goal and objectives align with SDG7 Affordable and Clean Energy - as it supports Brazil to increase its capacity to generate clean energy. IEO believes that the project also helps advance other SDGs, such as SDG9 (Industry, Innovation, and Infrastructure), SDG12 (Responsible Consumption and Production), SDG13 (Climate Action), and SDG17 (Partnerships for the Goals). However, the design does not explicitly refer to how the project would accelerate the SDGs in the Brazilian context.

49. Despite alignment with the strategic objectives at various levels (NPP, NDB General Strategy, and the SDGs),[15] there is no reference to these in the project design report. It is likely that the NDB General Strategy (2017-2021) was still under preparation, and thus expecting the design to reference explicitly the strategy is unreasonable. However, the NPP and SDGs had been adopted by the time of project design and, therefore, could have been referenced. Moreover, the various progress reports prepared during implementation and the PCR and BNDES final report could also have documented progress and results against the main provisions in the NPP, SDGs, and NDB General Strategy. Nevertheless, it is fair to note that BNDES uses the SDGs as an overarching framework for its investments and activities.

Project Design

50. **Project Design Report for the Board (PDB):** Despite the limitations mentioned above, the quality of the PDB was lacking in many respects. While the PDB provides a good analysis of BNDES as an intermediary, it could have been stronger in other respects, including: (i) a deeper analysis of the sector and sub-sector, especially the demand and growth potential; (ii) having a separate section on development objectives with clear rationale of the development problem it is addressing; (iii) a more thorough financial and economic analysis; and (iv) better indicators in the Design and Monitoring Framework (i.e. the results framework), including on job creation and social benefits. In addition, it would have been useful to include more details on the activities of the Federal Government and other development partners in the sector.[16]

51. **Loan Classification:** NDB classified this loan to BNDES as a "Loan without Sovereign Guarantee to National Financial Intermediary," which is consistent with Brazilian legislation. As a State-owned financial institution, BNDES is not subject to the Financial Institutions Liquidation Law, which empowers the Central Bank to intervene extra-judicially and liquidate private sector and non-federal financial institutions. Furthermore, as a wholly-owned government company, BNDES is not subject to judicial and extrajudicial reorganisation and bankruptcy. As a result, BNDES creditors cannot use the enforcement actions provided by the Brazilian Bankruptcy and Restructuring Law, including petitioning for winding up, liquidation, or dissolution.

52. As the Brazilian Government is the sole shareholder, it is liable for the debt of BNDES in case of default. Thus, for all practical purposes, the Federal Government of Brazil indirectly guarantees the loan, even though the design report states it is without a sovereign guarantee. From the

14 Agreement-on-the-New-Development-Bank.pdf (https://www.ndb.int/wp-content/uploads/2022/11/Agreement-on-the-New-Development-Bank.pdf)

15 The data is available from 2015 and can be found online at https://www.bndes.gov.br/wps/portal/site/home/transparencia/estatisticas-desempenho/sdg. This publication has been made since 2019, hence after NDB – BNDES Project.

16 The assessment is based on NDB policies: New Development Bank: Policy on Loans without Sovereign Guarantee to National Financial Intermediaries (2016 V1), January 21, 2016; New Development Bank: Procurement Policy, (2020 V1), March 28, 2016; New Development Bank: Environment and Social Framework (2016 V4), [11] March 2016.

interviews conducted by IEO, BNDES, and NDB appeared to have agreed to this loan as a Non-Sovereign Operation largely to expedite the processing of NDB financing, as approval of sovereign operations in Brazil is cumbersome and takes around two years or more for approval. Therefore, further discussions would be useful on whether such operations in the future should be considered as Sovereign-Guaranteed, even if they do not have an explicit national guarantee.

53. Project Appraisal: A review of the project document to the Board reveals that the design team comprised four individuals (a team leader, one project finance and operations adviser, and two Counsels), all four Indian nationals. Moreover, the team leader only undertook the project appraisal mission without the support of any technical experts. It lasted nine days (from January 25 to February 3, 2016), and there is no evidence that NDB engaged in a dialogue with the Federal, state, or municipal governments, technical agencies, or other stakeholders.

54. The project design report (main text) to the Board comprised 34 pages. Interestingly, the majority of the report is devoted to country and sector context and analysis of the main borrower (BNDES). The core of the project design - captured in the chapter on "Proposed NDB Facility" - is only one and a half pages long and has a very passing treatment of social and environmental aspects, procurement, and monitoring and evaluation.

55. Energy Demand: The PDB provides good information on the overall state of infrastructure in Brazil, including infrastructure spending. It also provides a good snapshot of Brazil's electricity sector, including the institutional and regulatory environment, the status of the generation (installed capacity), transmission and distribution, and market structure. While the PDB highlights the potential for wind energy and the objective of diversifying sources of generation (i.e. increasing renewable sources), it does this purely from a supply side. There is no analysis of the demand, gaps, or forecast for future demand.

56. Transmission Challenges: The information on transmission in the PDB could be more extensive. It provides no information on how the power generated in the various project sites will be connected to the grid. While it does refer to the aging transmission sector, it provides no information on plans or investment needs to connect distant and intermittent renewables to the main load centers. Wind and solar energy growth in the Northeast region have been exponential, mainly in Bahia, Pernambuco, and Piauí. Transporting large energy blocks to the main consumption centers in the South/Southeast/Center-west region is making the system more congested, and sometimes, the National System Operator instructs plants to reduce production by the system operator. This also brings a need for additional investment in the transmission lines. The Federal Government forecasts spending about USD 20 billion during the next years to address the country's transmission needs (more details in Annex 2).

57. Implementation Arrangements: Given its history and excellent experience in the sector, BNDES was NDB's partner of choice for the loan. However, the PDB does not discuss the alternatives or any consultation with the Federal Government regarding the implementation strategy and the decision to channel funds through BNDES. Nevertheless, the PDB analysed BNDES's governance, operational and financial performance, organisational structure, and risk management well.

58. Special Purpose Vehicle (SPV) Selection: BNDES selected SPVs to undertake sub-projects by paying attention to SPV's shareholders, experience, and financial strength. The SPVs were selected based on previous BNDES relationships; there was no process of soliciting Requests for Proposals for the project. The company that wins the energy auction and owns the project applies for BNDES funding. A specific sub-project analysis is conducted, starting with a consultation letter sent by the proponent to BNDES and followed by information collected through BNDES' Customers Portal.[17] A broad due diligence is performed, including environmental, land, and regulatory aspects. Legal and collateral modeling are also done. The risk analysis conducted is not only financial but also includes qualitative and quantitative analysis. Debt Service Coverage Ratio (DSCR) is used to help define the amount of debt the project can assume. The analysis

17 https://portal.bndes.gov.br/prc/#/login?returnUrl=%2Fdashboard

is not only perspective but also prospective, and the contract covenants will be followed up until the contract expiration date (e.g., the borrower cannot change the suppliers or perform changes in the energy contract without the prior consent of BNDES).[18] While NDB agreed to rely on BNDES policies and procedures, there was no reporting on the results of the due diligence conducted by BNDES, and due to private confidentiality, IEO could not assess the financial due diligence performed.

59. To demonstrate the robustness of BNDES' renewable energy portfolio, BloombergNEF, Bloomberg's research service for the renewable energy sector, published that, in 2019, BNDES remained the world's largest clean energy financier, with USD 31 billion earmarked for projects in the sector in Brazil between 2004 and 2019. The sound analysis procedures conducted by BNDES make it possible to operate with default levels (non-performing loans) of 0.2%,[19] much lower when compared to the national average and when compared to other development banks.

60. **Limited Attention to Gender Aspects, Social Development, Impact, and Weak Risk Analysis and Mitigation.** The design provided hardly any attention to gender aspects[20] in particular, how women specifically could benefit from the operation, such as in terms of employment opportunities, nor did it pay attention to the social development of the Northeast. Moreover, the goals and objectives of the project focused more on increasing the electricity generation capacity (outputs). Still, the design did not have a "theory of change" for linking increased capacity to improved impact on livelihoods in the project areas. Finally, the section on risk analysis and mitigation largely focuses on financial and enterprise risks, with hardly any assessment of the programme and development risks that the project could face.

61. In conclusion, the evaluation assesses ***Relevance*** overall as ***Moderately Successful*** (4), even though the relevance of design is assessed as Moderately Unsatisfactory (3). While the project goal and objectives broadly align with the country's and NDB strategies, the beneficiaries' perspectives are not sufficiently captured. Moreover, several significant design weaknesses have been outlined above in terms of process and content. Further design weaknesses – such as the lack of a knowledge management and communication plan and other topics –will be discussed later in the report.

Criterion	Rating
Relevance	**Moderately Successful (4)**
Relevance of Objectives	*Moderately Successful (4)*
Relevance of Design	*Moderately Unsatisfactory (3)*

B. Effectiveness

62. Effectiveness is the extent to which the intervention achieved or is expected to achieve its objectives and results, including any differential results across groups. In assessing effectiveness, the evaluation first summarises the main outputs achieved and then assesses the achievement of project goals and objectives.

18 The selection was a result of the risk management strategy adopted by BNDES, which conducted the SPV due diligence and has minimum benchmarks for the DSCR at the SPV level and the owner company as a whole; by BNDES policies, it requests as minimum documental for analysis Consolidated and combined Financial Statements for the last three fiscal years, and the 1st half of the current year, or more recent period, if the financing request is made after June 30, including Balance Sheet, Income Statement, Cash Flow, DMPL, Explanatory Note, and Audit Opinion. Must be reported to the company interested in the financing request; holding of the Economic Group, if the interested party is part of one; potential Guarantor of the operation; additional information for assessing Credit Risk.

19 On December 31, 2021. Available at: https://ri.bndes.gov.br/en/financial-information/investor-presentations/

20 Social and gender aspects are a core principle of NDB present in New Development Bank: Environment and Social Framework (2016 V4), [11] March 2016 and in the loan agreement, Appendix IV.

Project Outputs Achieved

63. According to the PDB, the NDB loan was to provide "enhanced availability of long-term financing to support renewable energy projects." Furthermore, at least five renewable energy sub-projects would be approved and funded by BNDES. Three major sub-projects in the renewable energy sector in Brazil were supported through the NDB loan: Project A, Project B, and Project C (Table 2). Each power plant complex comprised several wind and solar farms, each with an individual legal entity, and received a separate sub-loan from BNDES, totaling 29. This far exceeded the minimum requirement of five renewable energy sub-projects.

TABLE 2

Sub-projects supported by the NDB loan

Sub-projetcs	Sector	No. of plants	No. of sub-loans	Total installed capacity (MW)	NDB loan amount (USD millions)	% of NDB loan
Project A	Wind	14	14	357.9	143	48%
Project B	Solar	5	4	150.0	61	20%
Project C	Wind	11	11	326.7	95	32%
Total		**30**	**29**	**834.6**	**299***	**100%**

*Excludes front-end fee

64. The project created an additional 835 megawatt (MW) of installed renewable power generation capacity, compared to a target of 600 MW, representing 39% over and above expected outputs. A total of 277 wind turbines were installed under the Project A and Project C, and 594,750 solar panels were installed in Project B. However, in the PDB, there was no provision for the number of turbines or panels to be installed nor carbon dioxide (CO_2) reduction targets, making it difficult for the evaluation to assess the desired impacts and contribution to advancing the SDG targets. Nevertheless, an assessment of the CO_2 reduction achieved is presented in section D below and Annex 2.

Business Outcomes Achieved

65. **Physical Completion:** Despite initial delays in project signing and effectiveness, all sub-projects were completed in a timely manner. This is largely because BNDES, the companies and SPVs had already agreed upon the sub-project pipeline. All had their construction licenses in place, and most of the procurement for equipment had been completed. All sub-projects have been operating for around five to six years, and according to companies' reports, the output is inside their generational expectations.

TABLE 3

Sub-projects total installed capacity

Sub-projetcs	Sector	Total installed capacity (MW)	Fully operational
Project A	Wind	357.9	October 2017
Project B	Solar	150.0	October 2017
Project C	Wind	326.7	December 2018

Source: NDB and BNDES

66. Leveraging: In addition to NDB's loan, investments in the three sub-projects included over USD 339 million from BNDES, USD 399 million from shareholders' equity, and USD 107 million in bonds issuances, totaling over USD 1.14 billion (Table 4). This surpassed the initial expectation in the PDB (USD 300 million from BNDES and USD 200 million from shareholders' resources).

TABLE 4

Sub-projects funding (USD thousands)

Source	Project A	Project B	Project C	Total
NDB	143,112	94,991	61,147	299,250*
BNDES	175,024	94,991	69,383	339,398
Shareholders' Equity	188,979	162,860	47,655	399,494
Bonds	52,839	0	54,489	107,328
Total	559,955	352,841	232,674	1,145,471

* Does not include the Front-end fee of USD 750,000 capitalised on April 13, 2018.

Source: NDB and BNDES

67. Financial Performance: As mentioned above, the sub-projects were completed with minimal cost deviations. In addition, the leveraging impact of NDB's loan was also excellent. However, it is difficult to determine the project's overall economic or financial impact without examining the financial and economic rates of return for each of the 29 sub-projects. In structuring the financing, the financial projection calculates the rate of return of the project and the shareholder. However, this information is not a decision-making factor, as the DSCR defines the sub-project leverage. Since BNDES is on-lending to financially sound SPVs, it is satisfied with ensuring that the DSCR is above its minimum threshold. In all likelihood, the SPVs compute the financial rates of return, including a sensitivity analysis, but the SPVs did not confirm this. The DSCR determines the maximum amount of debt a sub-project supports and, consequently, the sub-projects ability to repay BNDES. The DSCR is monitored annually by BNDES for the entire contract term (until the last repayment). The Internal Rate of Return (IRR) is no longer relevant at this stage since it had already decided to invest when the company won the energy auction and approached BNDES for funding.

68. **Investment Returns:** Table 5 shows the cashflows to NDB since the start of the project, including the final prepayment on September 30, 2022. Based on this, the returns for NDB are 3.13%.

TABLE 5

NDB return on investment (in USD)

Date	Description	Income
April 16, 2018	**Disbursement**	(67,318,831)
April 13, 2018	Front-end Fee Capitalisation	750,000
June 27, 2018	**Disbursement**	(75,793,552)
September 30, 2018	Payment	2,142,714
October 10, 2018	**Disbursement**	(156,137,617)
March 31, 2019	Payment	6,324,005
September 30, 2019	Payment	6,604,741
March 31, 2020	Payment	5,729,536
September 30, 2020	Payment	4,233,000
March 31, 2021	Payment	2,848,784
September 30, 2021	Payment	2,610,974
March 31, 2022	Payment	2,378,316
September 30, 2022	Payment	3,801,716
September 30, 2022	Payment	66,666,667
September 30, 2022	Final Balloon Payment	233,333,333
Total		**337,423,786**

Source: NDB

Project Goals and Objectives Achieved

69. Goals. According to PBD's Design and Monitoring Framework, the two goals and respective targets were:

a) Goal: Adequate and reliable supply to meet the future demand for electricity in Brazil. Target: Aggregate power generation capacity to increase to 207 GW by 2024 from 141 GW in 2016.

b) Goal: Achieve the planned additional capacity by way of alternative forms of renewable energy. Target: Wind generation capacity to increase to 24 GW in 2024 from 8 GW in 2016, and solar generation capacity to increase to 8 GW in 2024.

70. These goals have already been reached. Brazil's power capacity has already surpassed the power generation expected by 2024. As of April 2023, the national aggregate power generation capacity was 211.99 GW, above the 207 GW targeted at design by 2024. As part of this, the wind generation capacity was 25.39 GW compared to 24 GW planned for 2024, and solar generation was 28.96 GW compared to 8 GW in 2024.

71. However, it is important to note that IEO can't attribute in any way the increased capacities to the NDB-financed project for a variety of reasons, including the fact that the additional electricity generated by the project was transmitted through established national electric grids that were also drawn on energy from other sources, rather than through dedicated transmission lines. Moreover, the NDB loan amount is considered rather small to trigger an expansion of the anticipated 66 GW in the energy sector. Similarly, for wind, with an expected increase of 16 GW in wind and 8 GW from solar energy (the baseline for solar was not reported in the design report). The NDB design report noted, "About 600 MW of additional renewable energy capacity added through BNDES's provision for a long-term loan", around an additional 1 GW. Having said that and given the outputs that have been put in place, the evaluation believes the project has made a contribution to ensuring an "Adequate and reliable supply to meet the future demand for electricity in Brazil" and also helped "Achieve the planned additional capacity by way of alternative forms of renewable energy" (i.e. solar and wind sources).

72. Purpose. According to the design report, the project has two main purposes and three targets:

a) Purposes: (i) facilitate investment in renewable energy; and (ii) assist BNDES in promoting alternative financing options for renewable energy projects through debentures.

b) Targets: (i) By 2024, USD 300 million of additional finance will be available to BNDES; (ii) About 600 MW of additional renewable energy capacity will be added through BNDES's provision for a long-term loan; and (iii) Up to 20% of the loan earmarked for debentures.

73. The project reached its purpose of providing USD 300 million to BNDES and overpassed the additional 600W of renewable energy capacity, providing 834.6MW. Regarding the debentures, the loan was not used to issue or support debentures issuance.

74. Output. The PDB design and monitoring framework is focused on a single output and target:

a) Output: Enhanced availability of long-term financing to support renewable energy projects

b) Target: At least five renewable energy projects approved and funded by BNDES.

75. The target was reached by providing finance to 29 renewable energy sub-projects. With regard to outputs and outcomes, IEO identifies as additional outputs achieved and not present in the project design: i) creation of more than 7,500 jobs; and ii) reduction in CO_2 emissions of 1.58 million tons/year. The project, therefore, helped: i) indirectly to reach the NPP and the Pluriannual Development Plan of the four states involved in the project (Annex 8); ii) improve

the reliability of the national grid in Brazil by adding 600 MW and diversifying the energy production matrix that relies on hydro and is vulnerable during drought years; iii) reduce carbon emissions by replacing polluting and expensive thermal generation; and iv) create jobs and improve economic development in the cities nearby the project. However, most employment generation was only during construction and did not benefit local communities. There was no particular focus on employment generation for women or other marginalised communities.

76. The project design did not have clear indicators for outputs, outcomes, and impact and lacked an explicit "theory of change." Some indicators that could have been considered include: a) MWh produced; b) MWh curtailed and constrained-off operation (financially compensated or not); c) Direct and indirect employment levels; d) Gender aspects (job generation, employment during construction and after); e) Percentage and nature of productive use of land (multiple uses); and f) Incremental impact on CO_2 emission reduction.

77. In conclusion, the evaluation assesses ***Effectiveness*** as ***Successful*** (5). Strictly speaking, the project did well against its originally stated goals and purposes but missed an opportunity to contribute to wider socio-economic changes and transformations at the local level.

Criterion	Rating
Effectiveness	***Successful (5)***
Project Outputs	*Moderately Successful (4)*
Business Outcomes	*Successful (5)*

C. Efficiency

78. Efficiency measures the outputs - qualitative and quantitative - in relation to the inputs. It is an economic term that signifies that the aid uses the least costly resources possible to achieve the desired results. This evaluation uses numerous proxy indicators to assess project efficiency, including but not limited to the following: disbursement performance in relation to commitments at design, costs for construction in relation to design estimates, implementation timelines, and others. The analysis is divided into administrative and operational efficiency.

Administrative Efficiency

79. There were significant delays between approval, signing of the loan agreement, and project effectiveness. NDB Board approved the loan on April 13, 2016. It was signed a year later, on April 26, 2017, and became effective on February 9, 2018. The operation took 667 days between approval and effectiveness. Based on interviews, these delays were attributed to protracted negotiations between BNDES and NDB regarding several aspects of the loan agreement, including opening the BNDES designated account (in foreign currency outside Brazil) and the loan terms. These delays could have impacted project implementation; nevertheless, due to the experience of BNDES and the operational design of the project, it did not delay implementation.

80. Moreover, the sub-projects presented as tentative in the project design were not the ones finally selected to receive the funds. The three sub-projects that were ultimately prioritised were identified between 2016 and 2018. This implies that, as foreseen in the loan agreement, the sub-projects were identified, developed, and contracted in parallel with BNDES – NDB loan negotiations. Afterward, as they were consistent with the conditions in the loan agreement, they were submitted to NDB for no objection and reimbursement.

81. The loan agreement was amended on June 18, 2017, to reflect a decrease in the interest rate spread to 1.75% p.a. from 1.90% p.a. The decrease resulted from NDB's broader revised loan

pricing approach and lending rates for approved projects, representing a USD 450,000 in savings for BNDES after full disbursement. The lower borrowing cost margin charged by NDB on this project benefited the borrower in achieving a higher fundraising efficiency ratio. It helped BNDES to complement the use of its existing resources.

Operational Efficiency

82. Despite initial delays, implementation was smooth and quick once the project was declared effective. Three large NDB disbursements were made within one year (Table 6). This is largely due to the available sub-project pipeline to BNDES ready for implementation. In most sub-projects, the SPVs had already completed the first two licensing requirements, and equipment procurement was already complete. Moreover, since the SPVs are private institutions, they are not subject to public procurement rules, even though they are subject to domestic content requirements established by BNDES, varying by sector and technology maturity stage. All disbursements were in line with the loan agreement. Unlike in the design by other MDBs, there was no disbursement forecast in the project design document; thus, a comparison with actual disbursement performance during implementation is not possible.

TABLE 6

NDB disbursements (Amounts in USD)

Disbursements	Date	Amount	Cumulative disbursement
Front-end Fee Capitalisation	Apr 13, 2018	750,000	0.25%
Disbursement #1	Apr 17, 2018	67,318,831	23%
Disbursement #2	Jun 28, 2018	75,793,552	48%
Disbursement #3	Oct 11, 2018	156,137,617	100%
Total		**300,000,000**	**100%**

83. Costs: The sub-projects were completed with no or minimal cost overruns except in the case of Project A, which was 1.2% over the original budget. In the case of both other sub-projects, Project B and Project C, savings were around 1.3% and 7%, respectively. Part of the explanation for minimal cost deviations is that the machinery and equipment that constitute the bulk of the expenditures had already been procured. The cost deviations in the construction and general administration categories were minor. IEO cannot assess in much more detail the costs and had to rely on BNDES final report and statements by the companies during interviews since non-disclosure agreements protect information on costs and cost analysis.

84. In conclusion, the evaluation assesses ***Efficiency*** as ***Moderately Successful (4)***, considering the significant delays to loan negotiations and delayed project effectiveness, thereby delaying the eventual impact of the operation. On the other hand, the project was developed and disbursed smoothly with no major overrun costs.

Criterion	Rating
Efficiency	**Moderately Successful (4)**
Administrative Efficiency	*Moderately Unsatisfactory (3)*
Operational Efficiency	*Successful (5)*

D. Impact

85. Impact is defined as the positive and negative changes produced by a development intervention, directly or indirectly, intended or unintended. This involves the main impacts and effects of the activity on the local social, economic, environmental, and other development indicators.

86. Improve Energy Reliability: The project's impact on diversifying Brazil's energy mix and providing clean energy is clear. Brazil has been moving to diversify its energy mix since its energy crisis of 2001 when a severe drought hit it, and 80% of its energy was hydrogeneration. Since then, Brazil has significantly increased its non-hydro renewable capacity by about 71 GW, including 25.4 GW of wind and 16.7 GW of biomass (mainly sugar cane co-generation). Solar energy had a late start, but in 2023, it exceeds wind generation as Brazil's second largest installed capacity, with 29 GW, second only to hydro generation. As a result, Brazil is much better prepared today, as evidenced by the 2021 energy crisis, as its dependence on hydro has now dropped to about 51%.

87. Results shown in Table 7 represent the contribution of each major sub-project by the year of commissioning. Project B represented 8.2% of the solar capacity installed in 2018. Project C represented 16.8% of wind capacity installed in 2018 and Project A represented 17.7% in 2017. However, NDB's contribution towards these achievements needs to factor in the relatively limited amount of financing provided, which was not large and was not the only factor leading to the generation of the overall additional electricity capacity of 834.6 MW.

TABLE 7

Project's total energy contribution (Percentage of capacity built in the year of commissioning)

Project	Date of full commissioning	Total project capacity	NDB share (%)	NDB capacity share (MW)	Total project contribution/ capacity built in the year of commissioning	NDB contribution/ capacity built in the year of commissioning
Project B (Solar)	2018	150.0	20%	30.0	8.2%	1.6%
Project C (Wind)	2018	326.7	32%	104.5	16.8%	5.4%
Project A (Wind)	2017	357.9	48%	171.8	17.7%	8.5%

Source: Energy Research Office and NDB

88. Emission Reductions: Wind and solar are zero-emission sources of energy. There are two basic ways of calculating the emission reduction benefits when new renewable generation is integrated into the national grid. The first, for simplicity, is to assume that every MWh of energy produced displaces one MWh of energy in the national grid, which has an average emission factor of about 0.1 kg of CO_2e/kWh in Brazil. This assumption would result in a very low impact since the power grid in Brazil is already one of the cleanest in the world.

89. A more realistic calculation, described later, must consider the incremental impact of the growth in renewables displacing the mix of thermal generation. This is a sensible assumption, considering that thermal generation in Brazil has been a "swing producer," compensating for the variations in hydro production. The average emission factor of the thermal generation mix over the last five years is approximately 0.58 kg CO_2e/kWh, and it will be used as the incremental emission factor resulting from the introduction of renewable energy. Considering the above assumptions and using the incremental criterion, the reduction in CO_2 emissions from the project is about 1.58 million tons/year for the three projects co-financed by BNDES and NDB (for more information, see Annex 2).

TABLE 8

Climate impact of the sub-projects co-financed by NDB and BNDES

Renewable source	Total capacity (MW)	Est. capacity factor (%)	Est. annual production (MWh)	Average grid emission factor (kg/kWh)	Incremental emission factor (kg/kWh)	Average criterion est. tons/year	Incremental criterion est. tons/year
Project B (Solar)	150.0	25	328,500	0.086	0.579	28,259	190,116
Project C (Wind)	326.7	40	1,144,757	0.086	0.579	98,477	662,517
Project A (Wind)	357.9	40	1,254,082	0.086	0.579	107,882	725,788
Total	**834.6**					**234,618**	**1,578,421**

Sources: Ten-Year Energy Expansion Plan from 2027 to 2032. Empresa de Pesquisas Energéticas and Ministry of Energy and Mines. Author's analysis.

90. Adverse Impacts: Interviews with various stakeholders indicated some adverse environmental impacts during implementation. These included: (i) alteration and loss of natural habitats; (ii) soil erosion due to removal of vegetation; (iii) dust emission, noise pollution, and civil construction and waste generation; (iv) visual and landscape impacts; (v) potential loss of wildlife species, particularly birdlife. Social adverse impacts include: (i) occupational health and safety; (ii) land acquisition; (iii) disturbance to traffic and road safety; and (vi) physical displacement. As reported in the PCR, these impacts were temporary and largely adequately mitigated or compensated based on country systems.

91. Social Benefits: Estimating the social benefits is challenging for several reasons. Neither BNDES nor the SPVs could disclose the economic rates of return for the sub-projects (due to confidentiality agreements). NDB neither requested nor estimated the Economic Rate of Return at the time of appraisal nor completion in the PCR. Given the various project sites that would have varied socio-economic conditions and the challenges in obtaining reliable data, IEO is also unable to estimate ERR as part of this evaluation.

92. Nevertheless, based on interviews, BNDES indicated that around 7,000 jobs were created during construction, and around 500 permanent jobs were created during the operation of the sites. However, there is no evidence of these numbers through records of the SPVs. There is no estimate of indirect jobs created or sustained. During the interviews with municipal authorities and in the random interviews conducted with the population, there is a general perception that most jobs created are for outsiders rather than local communities (Annex 7). Regarding job creation, there is no clear breakdown of jobs created for women. In the project design, there were no targets or

gender-specific goals for the project (one good example of a renewable project with gender policies is highlighted in Annex 2, Box 1.

93. The companies implemented some social projects on their own initiative. In some cases, they benefitted from supplemental financing from BNDES to implement such projects. The companies undertook capacity-building programmes, such as technical training and environmental awareness courses, construction and reform of schools and sports centers, and water cisterns, and some provided COVID-19 relief assistance through donations. Some of these programmes were recognised as best practices by the United Nations. These activities were not part of the NDB project design and loan funding scope. Nevertheless, the evaluation considers these to be good initiatives for promoting wider economic and social development in the country (Annex 5 provides an overview of the list of all social activities promoted by the companies).

94. Even though NDB did not have a clear theory of change for the operation and linkages between project goals, outcomes, and outputs were not explicit, it did not have any noticeable negative impact on the environment. It contributed towards some useful social development initiatives (though these were not part of the original design). Furthermore, it added more energy than anticipated at design and helped reduce the country's Co_2 emissions. Therefore, the evaluation assesses project ***Impact*** as ***Successful*** (5).

Criterion	Rating
Impact	Successful (5)

E. Sustainability

95. Sustainability is concerned with measuring whether the benefits of an activity are likely to continue after donor funding has been withdrawn. Among key dimensions, projects need to be environmentally as well as financially sustainable.

96. The project directly helped Brazil's energy sector diversify its energy sources and move towards renewables. The sustainability of benefits depends upon: (i) sound performance by the sub-projects and SPVs; and (ii) growing demand for energy in Brazil. In its choice of SPVs, BNDES did well as it is unlikely that the SPVs, who have a global presence and sound financial positions, will default on their commitments. Each of them has the technical and operational capacity to continue operations. While there is minimal risk on the supply side, it also means that the demand for energy in Brazil continues to grow. This would ensure that no energy produced is curtailed. Finally, the transmission systems are aging, and the challenges of transporting energy across long distances continue to grow. However, given its history, where the Federal Government has successfully involved the private sector through build, own, operate, transfer contracts, this risk may not materialise. In sum, the project is likely to be financially and technically sustainable.

97. Wind and solar renewable generation are some of the most climate-friendly forms of energy. However, there are still some unresolved issues pertaining to the end-of-life cycle of those power plants. If properly maintained, those plants may last 25 years or longer. After this period, equipment will likely be disposed of. Most pieces of equipment can be recycled, like metals, towers, electronics, etc. However, recycling of solar panels and wind energy blades has not been mainstreamed so far. They are being largely disposed of in dumpsites. Studies are being carried out on how to recycle solar panels and what materials to use in blades to make them more recyclable (for a full assessment of the renewable sector's sustainability, refer to Annex 2, 8).

98. Environment and Social Matters: Brazil's Environmental Impact Assessment is based on the nature of the project and state-level requirements. Given that the sub-projects are located in four

different states (Bahia, Minas Gerais, Pernambuco, and Piauí), different Environment and Social (E&S) regulations apply. Three different licenses (preliminary, installation, and operation licenses) are required for each SPV. The main instruments regulating environmental licensing are the National Environmental Council resolutions that define the scope of environmental assessment instruments, the responsibilities in the licensing process (environmental authority and project sponsor), the documentation and environmental studies needed to initiate the licensing process, the general procedures for environmental licensing, and the need of public hearing, among other topics. BNDES has an E&S Policy, establishing social and environmental criteria for analysing sub-projects. At the time of project appraisal and most of the implementation period, NDB's E&S guidelines were not in place. There was only a general E&S Framework. Therefore, in the absence of guidelines, the project design could have been aligned with the framework.

99. The NDB E&S team defined the project as Financial Institutions B (FI-B). As an FI-B project, NDB conducted due diligence to assess the potential environmental and social risks associated with FI's existing and likely future project portfolio and its environmental and social management capacity. All FIs must have an appropriate environmental and social management system in place to achieve the objectives of NDB's Environmental and Social Framework. From the PCR and NDB's environmental specialist, all the Environment and Social Standards (ESS) 1 aspects were covered during the three mandatory licensing processes of Brazilian Legislation. ESS 2 was not triggered since there were no involuntary resettlements in the project, and all relationships between the companies and the landowners were private. ESS 3 was not triggered since there were no indigenous or native populations on site. The exclusion list of NDB's framework was properly followed.

100. IEO reviewed all the operational licenses and didn't find relevant concerns in the implementation. The operations license in Piauí was renewed in 2022, and no problems were identified. During the mission, IEO met with the licensing authorities of Minas Gerais and virtually with authorities in Bahia, confirming the inexistence of problems in the sub-projects. IEO tried to contact relevant environmental authorities in Pernambuco and Piauí without success.

101. During IEO's preparatory work for the evaluation, some documents, media reports, and videos regarding Project A underlined that the project may have disrupted the livelihoods of the *quilombolas*' communities and generated other social problems. IEO held meetings with NGO Conectas and the company currently responsible for the operation and undertook a site visit to the project area to meet with *quilombolas*' leaders and other members of the local population. IEO was able to ascertain that the activities financed by the programme were not within the lands where the *quilombolas*' resided and that the negative reports on their livelihoods were not attributable to the NDB-financed project. IEO also contacted legal authorities, and no legal procedures are or were required in relation to the sub-projects and *quilombolas*' properties.

102. In the sub-project of Project B, municipal authorities reported creating a law where the municipality would not collect municipal taxes during any solar power plant's construction phase. The developer was required to spend 0.5% of the construction investment on social projects in return for the tax exemption. However, the municipal authorities had no information on the investments in any social projects.

103. In sum, the project relied on national, local, and BNDES E&S policies and systems. All the sub-projects were categorised as FI-B projects, according to the PCR. All of them complied with the multi-stage licensing process. IEO confirmed that in all four states, all the licenses had been issued appropriately, and there were no inconsistencies. While Brazil's national and sub-national E&S policies and systems seem robust, there was (understandably) no assessment conducted at the time of project appraisal.

Operation and Maintenance

104. The beneficiaries of NDB financing were well-established companies. The construction only happened after the authorisation of the governmental agency, possessing a long-term Power Purchasing Agreement (PPA) (resulting from the auctions) with a predictable cash flow for the next years. A solar and wind-power plant's lifespan is 20 to 25 years. After that, however, there has yet to be a clear exit strategy for these projects in Brazil. During the interviews, IEO asked the companies, government authorities, and solar and wind associations what would happen with spare parts and farms after 20 to 25 years of production. This was a theme that had received little attention in design and during implementation. In some independent research, IEO found that international recycling of photovoltaic panels and blades is still in the early stages of development (Annex 2, item 8).

105. During the operation of the power plants, the energy produced is sold under competitive central auctions carried out by the Federal Government and, in the case of the free market, in private contracts. In the Brazilian electricity market, the Federal state authorities, such as the Electricity Regulator and the Ministry of Mines and Energy, organise auctions to contract electricity. For each auction, it is common to have more than 20 distribution companies seeking new long-term PPAs. All the sub-projects financed by NDB participated in these auctions for PPAs (Annex 2).

106. In conclusion, while sustainability appears to be reassured, the NDB project design did not pay sufficient attention to analyzing the topic, and it did not have an explicit exit strategy that would guide stakeholders after the completion of the project. All in all, however, the evaluation assesses ***Sustainability*** as ***Successful*** (5).

Criterion	Rating
Sustainability	Successful (5)

V. OVERALL PROJECT RATINGS

107. Table 9 below provides a summary assessment of project performance. The final rating for the composite evaluation criterion of "overall project achievement" is not an arithmetic average of the various ratings assigned by IEO but draws on the individual assessments and ratings for relevance, effectiveness, efficiency, impact, and sustainability.

108. In making its final determination, the evaluation has factored in the agreed project goals and purposes as well as challenges faced by NDB at the time of project design and during implementation. The ***Overall Project Achievement*** is considered ***Successful (5)*** with areas for improvement, especially with regard to the quality of project design and efficiency.

TABLE 9

Summary of evaluation ratings

Criterion	IEO Rating
Relevance	Moderately Successful (4)
Effectiveness	Successful (5)
Efficiency	Moderately Successful (4)
Impact	Successful (5)
Sustainability	Successful (5)
Overall Project Achievement	Successful (5)

VI. NDB PERFORMANCE

109. The assessment of NDB's performance covers numerous aspects, including the project design process, its involvement in project supervision, implementation support and monitoring, knowledge management, additionality, quality of the project completion report, and others.

Strategic Performance

110. At the time of project preparation, NDB did not have a country strategy for Brazil or a sector/sub-sector strategy or diagnostic report. This is considered a limitation for guiding NDB engagement and its financing to Brazil. Also, ARO was not in place at the time of design, and NDB staff was limited. As mentioned, there is no evidence that the project preparation team consulted key stakeholders, including potential beneficiaries, regulatory authorities, energy associations, state authorities, other development partners, etc. Neither is there any evidence that the preparation team examined the national strategy, energy development plans, potential sites for wind or solar, transmission linkages, etc. The relevance of the project and its alignment to national and sub-national plans appears to have been largely a coincidence and not a deliberate choice.

Operational Performance

111. This project was the first in many respects. It was the first: (i) NDB project approved in Brazil; (ii) loan that was fully disbursed and executed in Brazil; and (iii) Non-Sovereign Operation of NDB. It was one of the first projects to be fully completed in the NDB portfolio. Moreover, at the time of project design, many operational policies and procedures were likely either under preparation or new. While the project team may have received support and guidance from senior management, they probably had limited guidance in the form of documented operational policies and procedures.

112. Project Appraisal: During the project appraisal in January and February 2016, NDB had fewer than 19 staff and 34 consultants, while ARO was only established in November 2019. The project appraisal period reported was nine days, from January 25 to February 3, 2016. During this period, there was no dialogue or involvement of the Federal, State, or Municipal Government, including with specialised agencies and key stakeholders. According to the PDB, only two specialists were designated for project preparation and two counsel team members, none of whom are currently in the Bank. Moreover, NDB does not have an institutionalised *ex ante* "quality assurance function" responsible for reviewing the project design process and contents.

113. Supervision: The loan agreement indicates that BNDES needed to provide its monitoring and supervision reports to NDB during project implementation. NDB itself did not conduct any monitoring and supervision missions and relied completely on BNDES, even if the loan agreement did not preclude NDB from conducting monitoring and supervision missions. The fact that NDB did not conduct any supervision missions nor provided implementation support is a lost opportunity for NDB's learning, data collection, and analytics, and the possibility it had to support the project during implementation to ensure better impact and sustainability.

114. Documentation: NDB does not have an integrated IT system to store documents and data and generate reports in an automated manner. All documents had to be requested from different departments and divisions by e-mail, and it was not easy to be reassured that the version of the documents being analysed was accurate or the final one.

115. PCR: The Project Completion Report was produced by NDB on time, less than six months after project completion. The PCR is a clear, comprehensive, and fair document covering four aspects - relevance, effectiveness, efficiency, and sustainability, with a specific section on environmental and social aspects. It presents the challenges encountered and covers the PDB's design goals, purpose, outputs, activities, and inputs. It also covers the Covenants and Conditions of the loan agreement and considers all of them to have been complied with.

116. On the other hand, the document does not present sufficient details on the sub-projects and debentures usage or an explanation of the sub-project selection process. As in the PDB, the PCR does not present the economic analysis made (IRR, Economic Internal Rates of Return, Net Present Value etc.) or alternative scenarios used and results. The PCR needs to include impact-related information, while the sustainability section has the potential to be expanded and cover the operational and maintenance aspects of the sub-projects. The PCR also does not rate the project's different aspects or underline any lessons learned. Considering there were no guidelines for the production of PCRs by NDB, which is the first one produced, it can be viewed as a fair document.

117. Knowledge Management and Visibility: The General Strategy implemented from 2017 to 2021 lacked explicit objectives related to knowledge management. Nevertheless, it explicitly emphasises that "NDB will engage in partnerships to strengthen its capacity in research, knowledge-dissemination, and technical assistance." IEO found that during project implementation, on its part, NDB did not develop specific documents, brochures, videos, or other promotional activities, nor organised events to showcase the project and the Bank's role. However, boards and other communication materials identify the sub-projects in the sub-project sites, noting that various sponsors and development banks had supported the activities. All the sub-projects produced several documents and videos to raise awareness and share lessons learned. While ARO acknowledged the importance of knowledge management, they also reported that they lacked the necessary support and resources to carry out knowledge management and communication activities effectively (see Annex 5 for more details). All in all, NDB's visibility in the states and the project areas was minimal, and the Bank has not made efforts to document and share lessons and good practices from the operation within and beyond Brazil.[21]

118. Additionality: The project provided some financial additionality but no knowledge additionality. While NDB provided USD 300 million towards renewable energy, it is evident that BNDES already had a pipeline of projects that could have been funded. The SPVs had already procured the necessary licenses (preliminary Environmental License and Installation License), and most of the procurement of goods had been completed. Given the financial strength of BNDES and the remaining loan amount of more than USD 230 million was completed in September 2022, there is a great chance that these projects would have been implemented even without NDB support.

119. However, NDB's terms were attractive, including cost, tenure, and ease of availability. NDB funding did not help catalyse additional funding as BNDES already had other funding sources available. On the non-financial aspects, the NDB team was new and relatively unfamiliar with the Brazilian context. Interviews indicate that the NDB team was learning through the process of loan preparation rather than contributing new knowledge or ideas.

120. As mentioned, NDB supported the project with attractively low interest rates, long-term tenure, and allocation period. The interest rate was lowered from 190 basis points (bps) to 175 bps, reflecting the current financial situation. It created a flexible commitment charge that allowed BNDES to programme the disbursements to avoid or save on the payment of commitment fees. NDB does not charge a premium if the client prepaid the loan, which provides flexibility and helps them to manage their risk. In fact, BNDES took advantage of this provision and repaid the loan much in advance.

121. With regard to disbursements, NDB funding was based on a reimbursement modality, asking for a Statement of Expenditure that speeded up the disbursement process. The time taken from request to effective disbursements was as follows: seven working days for the first disbursement, 12 for the second disbursement, and ten for the third disbursement. Finally, the loan agreement is largely in line with the PDB, with small deviations and nothing that needs special attention.

21 The Knowledge Management, Visibility, and Cooperation practices are included in the New Development Bank: Environment and Social Framework (2016 V4), [11] March, 2016.

122. All of NDB's relationships in this project were only with BNDES. There were no partnerships or participation of other key stakeholders. During the evaluation mission, the companies stated that they only became aware of the participation of NDB in the project during the PCR mission. Most of the stakeholders interviewed reported that they had no interaction with NDB during and after the project, and most of them reported that they didn't even know that NDB had offices in Brazil. NDB does not appear to engage in an active dialogue with other international development partners in Brazil, such as the Latin-American Development Bank, Inter-American Development Bank, World Bank, and others, on lessons learned or exchange experiences in energy and related themes. Moreover, NDB did not put in place gender and social strategies as part of the project, and neither did it implement any South-South cooperation activities.

123. In conclusion, it's important to note that most NDB corporate policies were yet to be established throughout the project appraisal phase. The ARO was established after the project's full disbursement, and NDB's resources, including its staff capacity, were constrained. Regrettably, NDB did not provide additionality in social and environmental aspects, nor did it put strategies for knowledge management and visibility in place. It heavily leaned on monitoring and supervision by BNDES and had no integrated IT system to store documents, produce data, and conduct analytics. Moreover, major delays were experienced during loan negotiation.

124. In today's context and after more than eight years of operations, the above limitations attributable to NDB are quite concerning, and IEO would normally have rated NDB's performance in this project as moderately unsatisfactory (3). Nevertheless, considering the fact that this was the first project funded in Brazil and one of the first projects financed by NDB in general and that the ARO was only established after the completion of the project's construction activities, as well as the limited NDB capacities and policy framework at the time, the evaluation assesses ***NDB performance*** as ***Moderately Successful*** (4).

Criterion	Rating
NDB Performance	**Moderately Successful (4)**
Strategic Performance	*Moderately Successful (4)*
Operational Performance	*Moderately Successful (4)*
Additionality	*Moderately Unsatisfactory (3)*

VII. BORROWER PERFORMANCE

125. Since its establishment more than seven decades ago, BNDES has gained a wealth of experience in development projects, especially infrastructure financing. The Brazilian Federal Government wholly owns it, and its financial performance is excellent, as reflected in its financial statements. The strategy to manage risk is sound, as shown by its historically low Non-Performing Loans indexes. BNDES has continued to support development projects while balancing its risks and rewards. While the BNDES policy framework, including its due diligence processes, appears sound, the IEO is unable to determine compliance. A part of this may be proprietary as BNDES or other development financial institutions dealing with private sector investments would be bound by non-disclosure agreements and thus unable to share the results of its due diligence process. Even though not able to disclose information protected by banking secrecy laws, the robust analysis procedures conducted by BNDES make it possible to operate with default levels (non-performing loans) of 0.2%,[22] much lower when compared to other development banks.

126. Nevertheless, the choice of the SPVs appears prudent and has minimal financial risk to BNDES. Despite being unable to receive the due diligence reports, NDB was informed that broad due diligence is performed, including environmental, social, land, and regulatory aspects, ensuring that the SPV complies with all the mandatory local, state, and national regulations. Considering this, BNDES ensured compliance with E&S regulations of the national and individual state governments. Again, since they are not required to share these reports with NDB, IEO is unable to evaluate this aspect. However, the activities appear to comply with all national requirements based on interviews with the selected state authorities, SPVs, and beneficiaries.

127. BNDES has a robust financial management system, providing quarterly audits following International Financial Reporting Standards and International Accounting Standards Board accounting principles. The companies selected by BNDES have a robust financial management system in place. It provides quarterly audits opened by SPV and following IFRS and audited by KPMG from 2016 to 2021.

128. For all its projects, BNDES assigns a multidisciplinary team composed of specialists from different fields and requires from its clients annual or bi-annual reports, depending on the case, and also an annual financial audit. However, BNDES did not conduct specific monitoring or supervision missions for this project.

129. As for financial additionality, BNDES managed to scale up the financial availability for the companies. As per the PDB, BNDES should have financed around USD 300 million, yet it effectively disbursed USD 339.40 million.

130. BNDES provided one annual report and a final report on the project. The content of these reports is somewhat superficial and presents much of BNDES's financial structure while being concise regarding the sub-project information. Moreover, the final report is not clear on the financial structure of the projects, particularly with respect to shareholders' equity and bond participation. Moreover, the report does not include any lessons learned.

131. As per the loan agreement, BNDES was responsible for supervising the procurement following the NDB procurement policy based on the six core principles: economy, efficiency, value for money, fit for purpose, competition, and transparency. Since developers were private institutions, they directly procured goods and services and were not subject to public procurement rules, such as Law 8,666/1993 or Law 14,133/2021. To be eligible for BNDES loans, developers were subject to domestic content requirements set by BNDES.[23] However, IEO was not in a position to review the goods procured due to private sector disclosure agreements.

22 On December 31, 2021. Available at: https://ri.bndes.gov.br/en/financial-information/investor-presentations/

23 The domestic content requirement is available at BNDES' website at: https://www.bndes.gov.br/wps/portal/site/home/financiamento/servicos-online/credenciamento-de-equipamentos/regulamentos-geral-metodologias-especificas

132. Overall, the evaluation assesses ***BNDES performance*** as ***Successful*** (5).

Criterion	Rating
BNDES Performance	Successful (5)

VIII. CONCLUSIONS

133. Overview: Overall, the project has been successful and made a useful contribution to generating renewable energy in Brazil. A large part of the credit for the positive outcomes is due to the experience and track record of BNDES in managing such interventions, but to a lesser extent due to the engagement of NDB, which, apart from providing loan financing and finalizing the design report, did not proactively engage in the operation during implementation. Nevertheless, it is fair to recognise that this was NDB's first operation in Brazil, and its staff capacities, resources, and policy framework at the time were limited.

134. The project was relevant to the strategic priorities of the Government of Brazil and state authorities. It enhanced Brazil's renewable energy capacity overall, which has risen at completion to more than anticipated at design. Also, it contributed to a reduction in the overall CO_2 emissions of the country. Having said that, the evaluation also concludes that the design could have been more explicit on the ultimate socio-economic and developmental impacts and transformations, including at the community level, that the operation had the potential to generate.

135. The project has achieved its overall stated goals and purposes: It contributed to the diversification of the energy mix by supporting additional clean energy generation capacity. In particular, the project created an additional 835 MW of installed renewable power generation capacity compared to a target of 600 MW, representing 39% over and above expected outputs. As a result, CO_2 emissions are estimated to have been reduced by 1.58 million tons/year.

136. Sustainability prospects are encouraging: The project results are likely to be sustainable largely due to the financial, technical, and operational capacities of the sub-contractors responsible for the construction and management of the renewable energy infrastructure put in place, illustrating the important role the private sector can play in such operations. Having said that, while a solar and wind-power plant's lifespan is 20 to 25 years, there is no clear approach for the disposal of their spare parts and farms after that period. Finally, despite good sustainability prospects for generating electricity from the installed infrastructure, the design and supervision did not devote much attention to sustainability issues and did not include an explicit exit strategy post-completion of the project.

137. Any adverse impacts were temporary, and there were some social benefits, though they were not conceived as part of the scope and quality of the project, and they are hard to quantify: While the evaluation notes some adverse impacts during implementation, such as soil erosion, possible loss of wildlife species, land acquisition, and displacement of people, these were temporary and have been mitigated appropriately using country systems. The private sector companies responsible for infrastructure development of their own initiative financed some social interventions, such as training programmes, constructing water cisterns, rehabilitating schools and sports centers, and providing relief to combat the COVID-19 pandemic. However, these were not part of the project's design. Some jobs have been created permanently; nevertheless, they have not benefitted the communities in the project areas. Finally, little attention was devoted to the design and project implementation to women's needs or the needs of poor groups such as the *quilombolas*.

138. The project helped NDB to consolidate its relationship with BNDES, a very important player in financing and development in Brazil. Still, a major limitation is the lack of an NDB country strategy for Brazil: Given that this was NDB's first operation in Brazil, it advanced NDB's partnership with BNDES and learned from its extensive activities and experiences in the country. The engagement also opened the doors for two further NDB-financed operations with BNDES of USD 1.2 billion and USD 500 million, respectively.

139. On the other hand, NDB does not have a Country Strategy for Brazil, which hampered the evaluation's capacity to understand why this operation and sector was prioritised at the time

over other possible ones, whether the operation is aligned with NDB's objectives in Brazil, and what level of financial resources should NDB commit to the development of different sectors in the country. Overall, IEO believes the lack, especially of a country strategy and sector strategy, after eight years since the Bank started its operations is a significant weakness in guiding NDB's current and future engagement in Brazil.

140. **The project design content and process were inadequate:** The project design focused disproportionately on the financing side of operation with very little treatment of risks and the ultimate development impact that the project could have aspired towards. The stated goals and purpose of the project were closer to the outputs level in the results chain, and there was hardly any discussion on gender, social development, and related aspects. Moreover, it is important to discuss why the project was classified as a non-sovereign operation when the NDB loan was provided to a fully government-owned entity (BNDES). The design process was weak, with very little evidence of consultation with the main stakeholders and authorities, apart from BNDES, and hardly any technical inputs were mobilised to inform design.

141. **NDB paid limited attention to project implementation and monitoring and supervision after loan effectiveness:** This may have been due to the nature of the instrument (two-step-loan), the lack of clarity of the loan agreement related to the structure and content of the reports to be provided by BNDES; and/or by the fact that NDB staff were too stretched and focused on preparing projects and growing the pipeline during the initial years of its operations. As a result, NDB did not conduct supervision missions or a mid-term review and depended completely on BNDES' experience. The only mission scheduled was to prepare the PCR during the project's closing phases, which had to be cancelled due to COVID-19. This is a significant missed opportunity as NDB may have learned a great deal about the implementation challenges but have also been able to influence the SPVs to provide even more social benefits to the local communities. Finally, the design and monitoring framework in the project design report was significantly weak, not reflecting good practices used when the project was designed in 2015-2016.

142. **Hardly any attention has been given to knowledge management and communication, or South-South cooperation, and there was limited attention to partnerships:** In addition to preparing the project completion report by NDB and a few sporadic initiatives, the project needed a knowledge management and communication strategy or plan. As such, very few activities have been carried out to document and share lessons, which is a missed opportunity to showcase the successful operation and share the learning with others in Brazil and beyond using south-south cooperation. NDB's visibility of having funded the project, especially at the State and local levels, is negligible.

143. **Partnerships are important for understanding the local need, leveraging funds, and applying current best practices:** Hardly any effort was made to engage key partners, particularly the government at the Federal level (e.g., Ministry of Energy and Mines) and the State levels, who were unaware of the operation and how it fitted within the overall energy frameworks of the country. The evaluation could also not find evidence of partnerships with other international development actors. Setting up the NDB ARO in Brazil in 2019 is a good initiative, which should help address some of the above concerns outlined by the evaluation.

IX. RECOMMENDATIONS

Recommendation 1: *Further strengthening the relationship with BNDES and other sub-national development banks*

144. The partnership with BNDES proved beneficial to NDB and BNDES by providing funding and financial flexibility. The policies and guidelines of BNDES and sub-national development banks are robust and in line with international best practices, which makes resource allocation and project supervision and monitoring less demanding for NDB. This leaves space for NDB to work with these institutions to improve the final impact of the projects it funds, bringing additionality to environmental, social, and gender-related topics for the ultimate benefit of local communities.

Recommendation 2: *Prepare a Brazil-NDB country strategy and explore the possibility of developing a sector strategy*

145. IEO recommends that the Brazil-NDB prepare a country strategy for Brazil and present the same for the Board's consideration in 2024. The final strategy should be shared with IEO for comments, which will also be shared with the Board along with the strategy. Such a strategy would serve as a guiding framework for the medium-term NDB activities in Brazil. The country strategy preparation should be grounded in diagnostics at a macro and sector level, internalise lessons learned, and cover proposed lending and non-lending priorities and activities. The strategy preparation is recommended to follow a thoroughly consultative process to provide all partners predictability and direction. Moreover, given the growing investments in the energy sector, NDB management may also consider preparing a dedicated global policy or strategy on the topic in the near future.

Recommendation 3: *Project designs should focus more robustly on impact achievement and include provisions for social development*

146. Beyond the usual analysis of project financing, designs should include a more explicit articulation of the ultimate impact beyond the outputs they intend to achieve. Designs should have an explicit theory of change, deeper risk analysis on achievement of impact and sustainability, clearer development objective statements, and stronger results framework with coherent indicators and targets for improvements in social and economic development, such as changes in incomes and employment generation. To achieve greater impact, NDB should also ensure that it conducts regular project supervision (at least once a year), including undertaking a detailed mid-term review once during the project life cycle.

147. Sustainable infrastructure projects, like this evaluated one, should extend beyond constructing infrastructure for the intended purposes (in this case, renewable energy production). Such projects should include specific components and financing for social development in project areas to improve the well-being of local communities. This is essential to ensure that NDB plays a wider role in poverty reduction at the local level and reduction of inequality, which is a major challenge in many member countries. In this context, specific attention should be given to women's empowerment and improvements in the lives of other marginalised groups and communities. These aspects should be incorporated in the Design and Monitoring Framework and reflected in its output, outcome, impact-related indicators and targets, providing the NDB's unique signature to the projects.

Recommendation 4: *Work closely with the Government at different levels*

148. Brazil has a unique Federal governance system that provides autonomy to the sub-national governmental entities to develop projects. However, the central Government (União) needs to guarantee the loans with multilaterals like NDB, with a limited fiscal space every year. NDB competes for the yearly fiscal space and the available projects with at least ten other multilateral development and development agencies in Brazil. Therefore, a close relationship with all levels of government is critical, helping them to think and conceptualise development projects. This would facilitate project and loan approvals and ease implementation and supervision. Working with Federal ministries and national agencies is important, helping to enhance national strategies

in different sectors through technical cooperation, consultancies, and South-South cooperation. Specifically, in the energy sector, some states with the greatest potential for expansion of renewable energy suffer from weak capacity. This includes the lack of skilled personnel to enforce their regulations, especially in E&S, and work with private sector investors to arrive at a mutually beneficial understanding on supporting local communities. Hence, projects should also have provision for implementation support and capacity building.

Recommendation 5: *Knowledge Management and communication plans*

149. NDB has a privileged position to scale up and share knowledge and good practices. To better identify, document, and share lessons and good practices, it is recommended that each project funded by NDB in Brazil and beyond should have an in-built knowledge management and communication plan in design, with key activities to be conducted throughout implementation such as the preparation of publications, brochures, use of social media and the internet, organisation of workshops and other events. Such a plan should, however, be properly resourced with adequate financing embedded in project budgets and funding also made available to NDB staff to conduct some such activities. Having such a plan is critical also to strengthening NDB visibility more generally.

Recommendation 6: *Enhance NDB's additionality – social, environmental, gender, and global south cooperation*

150. NDB, as an MDB with global South member countries, can generate significant additionality in its projects for greater impact. The projects funded by NDB can benefit from the vast knowledge, good practices, and experiences in NDB member countries, particularly on social, environmental, and gender aspects. At the same time, NDB should ensure that project designs and implementation with these additionalities do not make the project cycle lengthy, slow, or bureaucratic. One key aspect is relying on national systems, leveraging knowledge and capability to complement NDB's expertise, and drawing on good practices from the global South.

ANNEXES*

Annex 1: Report of the IEO Senior Independent Advisor on the quality of the evaluation and reflections for the future

1. I am pleased to provide my independent report on the evaluation by the New Development Bank's Independent Evaluation Office (IEO) and reflections for the way forward to further strengthen the NDB-Brazil partnership and results. This report is structured as follows: (i) introduction; (ii) quality of the evaluation methodology, analysis, and findings; (iii) quality of evaluation recommendations, and (iv) reflections for the way forward.

A. Introduction

2. I was involved in the evaluation as an external peer reviewer at key process stages. At the outset, I was requested to review the draft evaluation approach paper and provide my comments, especially to determine the key questions for the evaluation to address. I was then requested to review the powerpoint presentation prepared by the evaluation team at the end of their field mission, which captured IEO's preliminary evaluation findings. Thereafter, I reviewed the draft final report and provided my comments to IEO. This report is based on the final evaluation report prepared by IEO, which has taken into account my comments on the draft evaluation report and comments made by the Brazilian Ministry of Finance, the Brazilian Development Bank (BNDES), and the NDB management.

3. Considering that this was the first NDB-financed project in Brazil, the short time allocated to its implementation, and the large amount of additional funds mobilised, all together, the evaluation considered the overall project achievement as Successful, "making a valuable contribution to generating renewable energy in Brazil and effectively reducing the country's overall carbon dioxide emissions." In addition, the evaluation explicitly mentions in paragraph six that "this success can be predominantly attributed to the strategic partnership [of NDB] with BNDES, renowned for its expertise in managing such initiatives." This is a commendable conclusion by a truly independent evaluation, which the NDB and other partners should be proud of. At the same time, in line with the nature of evaluation as a discipline, the report also brings out some important and, at times, critical messages for the future, which I hope will be taken seriously by NDB and concerned partners.

B. Quality of Evaluation Methodology, Analysis, and Findings

4. At the outset, I would like to underline that, in my opinion, IEO has done a credible and useful evaluation. The evaluation used a robust methodology, customised to the NDB context, and followed triangulation methods to generate its findings. I am pleased that the evaluation team consulted widely with numerous key stakeholders in NDB and in the country and visited all project sites in a relatively short time.

5. IEO efforts to listen to local people, especially those at the municipal level and beneficiary representatives, were fundamental to bringing in a new approach to evaluation since the project reports previously received from BNDES largely only had an "economic view" of performance. Unfortunately, the final stakeholders' workshop planned to be held in August 2023 in Brasília to discuss the evaluation outcomes needed to be postponed for the moment. I hope it can be done as soon as possible as it will be a good opportunity to listen to the opinions of the most important

* The annexes 2-11 are available upon request from the Independent Evaluation Office of NDB (ieo@ndb.int).

partners and representatives of the beneficiaries. In sum, the evaluation process appears to have been sufficiently participatory while retaining the independence of analysis required by IEO. As Senior Independent Adviser for this evaluation, my suggestions at different process phases were appreciated and largely followed. For example, I encouraged the evaluation team to visit all project sites for consultations with local communities and to focus the evaluation on a finite set of key questions, which IEO responded to promptly and positively.

6. The IEO report has concluded that the Overall project Achievement was Successful (rated 5 on a 6-point scale) with areas for improvement, especially with regard to the quality of project design and efficiency (as mentioned in paragraph 107). In clarifying its final judgement, the evaluation team "has factored in the agreed project goals and purposes as well as challenges faced by NDB at the time of project design and during implementation." The main reasons listed are: "At the time of project preparation, the NDB did not have a country strategy for Brazil or a sector/sub-sector strategy or diagnostic report. (...) Also, NDB American Regional Office (ARO) was not in place at the time of design, and NDB staff was [very] limited". I concur with IEO's overarching conclusion, and they have also noted the Bank's limitations during design and implementation, which is good evaluation practice.

7. At the same time, the evaluation underscored other important reasons to believe that there was an "original skin" in the project formulation process: "There is no evidence that the project preparation team consulted key stakeholders, including potential beneficiaries, regulatory authorities, energy associations, state authorities, other development partners, etc. Neither is there any evidence that the preparation team examined the national strategy, energy development plans, potential sites for wind or solar, transmission linkages, etc. The relevance of the project and its alignment to national and sub-national plans appears to have been largely a coincidence and not a deliberate choice". (Paragraph 109). I believe these are important findings that merit careful attention in future NDB operations.

8. The criteria of Relevance was rated as Moderately Successful, as it was considered that "limited attention was given to gender aspects, social development, and impact on end communities, as well as risk analysis and mitigation during project design." The criteria of Effectiveness was considered Successful as it exceeded expectations by creating an additional +39% of installed renewable power generation capacity annually, compared to the targeted 600 MW, and leveraged USD 845 million in co-financing from additional financing from the private sector, nearly three times the funding provided by the NDB. However, according to the IEO team, "it missed an opportunity to contribute to broader socio-economic changes and transformations at the local level." This appears to be the most important criticism of the design, implementation, and performance of the project.

9. Regarding the Efficiency criteria, the project was considered only Moderately Successful. "One significant factor impacting project efficiency was the considerable delay of nearly two years (667 days) between project approval by the NDB Board of Directors and the project's effectiveness. Consequently, this deferred the benefits the operation would have otherwise generated".

10. Regarding the Impact criteria, it was considered Successful: "While the project facilitated some social development initiatives – which were not explicitly anticipated in the design - it did not consider how marginalised and resource-poor communities and groups such as women and *quilombolas* could benefit from the additional energy capacities generated." Finally, while the IEO evaluation assesses Sustainability aspects to be Successful, it highlighted that no explicit exit strategy was prepared to ensure the sustainability of benefits. This reinforces my personal perception that BNDES considered its responsibility to monitor the implementation process finished when the sub-projects were considered fully implemented in April 2020, not considering as necessary any additional assistance to the local level after that. And NDB accepted this without any question!

11. I fully agree with the ratings assigned by IEO, although I would have considered upgrading to successful - instead of moderately successful - the efficiency rating. The reason for that is to

consider as fundamental NDB's lack of previous experience given this was the Bank's first project in Brazil and that the Bank was, in fact, "building up" the strategies and setting the team and the decentralised offices and other structures of support; also the Bank did not have in place the necessary approved policy guidance to follow as noted in the IEO report.

12. For me, the most important point highlighted by IEO was that inadequate attention was given to the project at the local level. This is the weakest point of the project design and implementation. It is true that the beneficiaries are not only the people living near where the projects were implemented. But it is also true that the results of the projects cannot be considered only at regional and national levels (or even global, considering the reduction of CO_2 for example). Neglecting the importance of those who own the land where the activities were implemented, or even more importantly, ignoring the municipal authorities that represent the local people and are responsible for the problems that result from project activities, is a major lacuna.

13. IEO evaluated NDB and BNDES performance. NDB's Performance was considered Moderately Successful, which I believe is well supported by the evidence in the report. On the other hand, BNDES's Performance was considered Successful given that the borrower assigned a multidisciplinary team comprising specialists from various fields and requested annual or bi-annual reports from its clients, including annual financial audits, to oversee the operation effectively. As a significant aspect of financial additionally, BNDES successfully scaled-up the financial availability for the companies involved in the project. Furthermore, BNDES adhered to the loan agreement requirements by presenting all necessary reports. In general, BNDES performance was key to the project's success".

C. Quality of Evaluation Recommendations

14. The IEO evaluation report makes six very pertinent and precise recommendations for future actions based on the robust analysis and evidence in the project's final evaluation report. I fully agree with all the recommendations and would like to underscore the need for the Bank to rapidly prepare a dedicated NDB-Brazil country strategy and ensure future NDB-financed operations in Brazil include clear components, activities, and funding for social development activities.

15. Beyond the recommendations in the IEO report, I would like to add one more key point, which could be considered a recommendation. Now that NDB has decentralised offices, including a regional office in Brazil – the ARO - the latter must be involved from the very beginning in the preparation of NDB-financed projects and also remain closely engaged during implementation till project completion and evaluation. This will also be fundamental to accumulating experience and lessons for future actions by the NDB in Brazil and beyond. Decentralised offices should be responsible for directly engaging with local partners and governmental and non-governmental agencies. Undertaking knowledge management activities at the project level should be a regular feature, and efforts should be made to disseminate project information and results by publishing articles in the local media. Field visits should be conducted by operational staff at regular intervals to support implementation and provide updates to local communities. Ensuring NDB's presence in media, project communication, and on the project site are some of the most important knowledge management activities the decentralised offices should implement.

D. Reflections for the Way Forward

16. The project's main objectives were to promote adequate and reliable supply to meet the future demand for electricity in Brazil and achieve the planned additional capacity through alternative forms of renewable energy. There is no doubt that these achievements were accomplished. Having said that, all public-funded interventions are expected to also generate important social benefits. According to the IEO evaluation, due to confidentiality agreements with the private sector, BNDES could not disclose the necessary information to estimate them, and NDB neither requested nor estimated possible social benefits during the project life. While the evaluation noted that the companies contracted undertook some social projects, unfortunately, they were

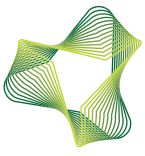
more kind of a compensatory approach rather than a clear strategy to benefit local populations. In the end, NDB and BNDES lost a great opportunity to make a difference in the regions where the projects were implemented.

17. To conclude, I would say that one of the most important lessons learned from this pioneering NDB experience in Brazil is that implementing sustainable infrastructure projects should not limit themselves to infrastructure construction. They must include specific objectives for social development in project areas and incorporate them into project Design and Monitoring Frameworks right from the start. This is essential if NDB wants to play an important role in poverty reduction at the local level and reduction of inequality, which is a major challenge in many member countries.

18. Let me take the opportunity to compliment IEO for the excellent evaluation done. And particularly for not basing their assessments only on official reports and documents. As mentioned above, the decision to travel around Brazil to directly meet the different actors was fundamental, and I hope this approach will be kept as a norm for future independent evaluations of NDB projects in all member states, no matter where they are implemented!

Dr. José Graziano da Silva
Former Director General of the Food and Agriculture Organization of the United Nations and Director General Zero Hunger Institute

São Paulo, 17 August, 2023



New Development Bank

INDEPENDENT EVALUATION OFFICE
New Development Bank
1600, Guozhan Road, Pudong New District,
Shanghai – 200126 China

Tel: +86-21-8021-9512
E-mail: ieo@ndb.int
Website: https://www.ndb.int/governance/independent-evaluation/