



The World Bank

Green and Resilient Development for a Decarbonized Economy in Peru (P181263)

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Program Information Document (PID)

Appraisal Stage | Date Prepared/Updated: 28-Nov-2024 | Report No: PIDDA00117



BASIC INFORMATION

A. Basic Project Data

Project Beneficiary(ies) Peru	Operation ID P181263	Operation Name Green and Resilient Development for a Decarbonized Economy in Peru	
Region LATIN AMERICA AND CARIBBEAN	Estimated Approval Date 30-Jan-2025	Practice Area (Lead) Energy & Extractives	Financing Instrument Development Policy Financing (DPF)
Borrower(s) Ministry of Economy and Finance	Implementing Agency Ministry of Economy and Finance		

Proposed Development Objective(s)

To support the Government of Peru's (GoP) in: (i) strengthening climate change adaptation; and (ii) promoting decarbonized development in selected sectors.

Financing (US\$, Millions)

Maximizing Finance for Development

Is this an MFD-Enabling Project (MFD-EP)? Yes

Is this project Private Capital Enabling (PCE)? Yes

SUMMARY

Total Financing	500.00
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DETAILS

Total World Bank Group Financing	500.00
World Bank Lending	500.00

Decision

The review did authorize the preparation to continue



Explanation

B. Introduction and Context

Country Context

The proposed Green and Resilient Development for a Decarbonized Economy in Peru Development Policy Financing with a Deferred Drawdown Option (DPF-DDO I) for US\$500 million is the first operation in a programmatic series of two. The series seeks to support the Government of Peru (GoP) in: (i) strengthening climate change (CC) adaptation; and (ii) promoting decarbonized development in selected sectors. The proposed DPF builds on long-standing collaboration between the GoP and the World Bank (WB) in advancing the climate development agenda by expanding to new sectors and complementing reforms supported under the earlier DPF series and the Fiscal Policy growth DPF-DDO series recently approved.¹ This operation is particularly relevant for Peru, a country highly exposed to climate-related events, and committed to meeting its mitigation targets defined in its updated Nationally Determined Contributions (NDCs). Moreover, in the context of high uncertainty and financial market volatility, the GoP values the DDO instrument as an important part of its debt management strategy and a hedge against increasing global interest rates, the volatility of international capital markets, and climate shocks. The proposed DPF is also aligned with the GoP's strategic plans and the Organization for Economic Co-operation and Development's (OECD's) Accession Core Principles for Peru,² the Peru Country Partnership Framework (CPF) FY2023–27, as well as the World Bank Group's (WBG) Global Challenge Program (GCP).³

Since 2014, Peru's growth has decelerated, shifting towards a new trajectory marked by stagnation in convergence and poverty reduction. The aftermath of the commodity boom posed challenges for sustained growth, with Gross Domestic Product (GDP) at an annual rate of 3.5 percent between 2013 and 2019—half the pace of the preceding decade. The COVID-19 pandemic led Peru into one of the deepest recessions in Latin America and increased the national poverty rate by 10 percent. While the economy rebounded to pre-pandemic levels in 2021, and poverty declined to 25.9 percent that year, poverty remains above pre-pandemic levels, hampered by the lower quality of employment and a high rate of informality. Following a mild recession in 2023 due to adverse weather events, social unrest, and deteriorating business confidence, the economy is recovering in 2024, and business confidence is at levels not observed since 2021. Over the medium term, GDP growth is expected to converge toward a rate of about 2.5 percent, below pre-pandemic levels.

Despite the current political volatility, the GoP remains committed to transitioning to a decarbonized economy and strengthening its efforts toward CC adaptation given its overall development benefits. Innovation from low-carbon technologies attract private capital investment and green job creation, increasing labor productivity and competitiveness. Similarly, climate resilient planning and investments can mitigate the risks from economic and welfare losses from climate events, and support Peru's overall development and sustainable growth. Peru's Strategic Plan for National Development (PEDN 2050), launched in September 2023, outlines the GoP's vision with a 2050 horizon, which aspires for a more

¹ The Enabling a Green and Resilient Development DPF approved in 2023 (P179214).

² The OECD's Accession Principles for Peru include ensuring effective protection of the environment and biodiversity, and action on CC to achieve the Paris Agreement. The proposed DPF supports reforms linked to OECD Accession Principles, including (i) combating deforestation; (ii) increasing incentives for the development of nonconventional renewable energy (NCRE); and (iii) strengthening infrastructure for disaster risk mitigation and water quality monitoring.

³ The proposed DPF supports reforms linked to the following GCP: (1) Fast-Track Water Security and Climate Adaptation; (2) Energy Transition, Efficiency and Access; and (6) Forests for Development, Climate, and Biodiversity.



sustainable management of the territory and natural resources, the implementation of measures to tackle CC and formal job creation. Peru reinforced its climate commitments with the updated NDC (2020),⁴ which was followed by the adoption of the Law on Climate Change (Law No. 30754, 2021) and the National Adaptation Plan for Climate Change (2021).⁵ The updated NDC commits to not exceed net greenhouse gas (GHG) emissions of 208.8 million tons of carbon dioxide equivalent (MtCo₂eq) (unconditional) and 179 MtCo₂eq (conditional) by 2030. It also commits to strengthening CC adaptation by prioritizing cross-cutting areas such as strengthening its National System for Disaster Risk Management (SINAGERD, for its acronym in Spanish), water resources, and forest management, all of which can help alleviate the burden from climate driven disaster events.

Peru's high exposure to climate-related disasters calls for enhanced efforts to achieve more resilient development. Nearly half of Peru's national territory is classified as being highly to very highly vulnerable to natural hazards,⁶ whose frequency, severity, and impact are expected to increase due to CC. In the past two decades, economic losses linked to natural events surpassed US\$4 billion dollars, with ENSO-caused damages exceeding US\$3.1 billion, equivalent to 1.6 percent of the country's GDP, in 2017.⁷ Patterns of territorial development and disorderly urbanization in Peru are increasing vulnerability, as unplanned occupation of risk-prone areas rises exposure to natural hazards. Moreover, Peru is highly vulnerable to changing precipitation patterns, with increased risks of extreme flooding and prolonged droughts. Significant reductions in water availability are likely to be expected as early as 2030 and water shortages are likely to become more severe as demand for water increases, challenging food security, particularly for communities reliant on subsistence farming. The country's disaster risk management (DRM) system also needs to be strengthened to incorporate CC adaptation and mainstream DRM across administrative layers. By 2030, without further CC adaptation actions and investments, the income of Peru's poorest 40 percent could decline by 5.2 percent, and another 0.6 percent of the population could be pushed into extreme poverty.⁸ As outlined by the CCDR, earthquakes, landslides, droughts, and floods together cause average annual asset losses of 2 percent of GDP and will cause welfare losses equivalent to 5.2 percent of GDP by 2050 and negatively affect the economy's tax and productive structures. The CCDR emphasizes the urgent need for adaptive measures to mitigate CC impacts and protect the most vulnerable populations while introducing policies to innovate and help increase productivity.

Fulfilling its NDC commitments and improving its resilience for a net zero economy by 2050 is critical for Peru's overall development and will require tackling those critical high emitting sectors like energy, transport, while increasing carbon sinks. Various studies have shown that the energy transition will create significant net additional employment in the energy and associated sectors and a boost to economic growth and overall jobs in the economy through the new energy investment.⁹ In a business as usual (BAU) scenario net emissions from highest emitting sectors as the energy, transport, land use, land-use change, and forestry (LULUCF) sectors expected to increase by 83 percent over the next 30 years.¹⁰ However, to fulfill its NDC commitments Peru needs to mitigate emissions from set baselines in the energy sector (30.1 percent), and LULUCF (47.9 percent),¹¹ including reducing deforestation and increasing carbon sequestration to advance climate mitigation actions. Further, the development of low-carbon technologies in the power and transport sector are

⁴ Gobierno de Perú, *Contribuciones determinadas a nivel nacional del Perú: Reporte de actualización periodo 2021–2030* (Perú: Gobierno de Perú, 2021).

⁵ MINAM (Ministerio del Ambiente), *Plan Nacional de Adaptación al Cambio Climático del Perú (NAP)* (Lima, Perú: MINAM, 2021).

⁶ MINAM, *El Perú y el Cambio Climático: Tercera Comunicación Nacional del Perú a la Convención Marco de las Naciones Unidas sobre Cambio Climático*

⁷ RPP Noticias, "El Niño costero: Daños ya suman \$3,124 millones según Macroconsult," March 24, 2017.

⁸ World Bank, *Peru Country Climate and Development Report*, CCDR Series (Washington, DC: World Bank, 2022).

⁹ IRENA. 2020. *Measuring the Socio-Economics of Transition: Focus on Jobs*. Technical paper 2/2020, international Renewable Energy Agency, Abu Dhabi. IEA. 2020 *World Energy Outlook Special Report on Sustainable Recovery*. Paris: International Energy Agency. World Bank, Energy Sector Management Assistance Program (ESMAP). 2023. *Jobs for a Livable Planet: Job Creation Potential of the Clean Energy Transition*. Washington D.C.

¹⁰ World Bank staff calculations using the World Bank Macro-Fiscal Model (MFMoD) with a climate change module.

¹¹ MINAM, "Peru: Distribution of GHG Emissions by Sector and Source (2019)," <https://infocarbono.minam.gob.pe/inventarios-nacionales-gei/>.



opportunities for green value chain creation that can enhance increased productivity and competitiveness, especially in a context of Clean Border Adjustment Mechanisms (CBAM),¹² while at the same time creation of green skilled jobs.

The proposed DPF-DDO series aims to strengthen and further advance reforms for a more resilient and low-carbon development in Peru to foster a greener economy. The operation will support reforms in priority areas, as identified by the GoP's PEDN 2050 and climate commitments. Pillar 1 aims to strengthen CC adaptation by: (i) strengthening the DRM system; (ii) enabling risk-informed territorial planning; (iii) incentivizing circular economy approaches in the water supply and sanitation (WSS) sector; and (iv) facilitating the execution of disaster risk reduction infrastructure and post-disaster reconstruction efforts by the National Infrastructure Authority (ANIN). Pillar 2 supports climate mitigation efforts in selected sectors by promoting: (i) expansion of renewable energy (RE) investments by the private sector; (ii) enabling a low-carbon transport through electromobility; (iii) a more inclusive and compact urban development that will foster private investments in housing; and (iv) strengthened forest control and monitoring in the Amazon. The program also supports reforms enhancing female labor force participation in companies providing WSS services. In addition, policies for renewable energy and compact urban development aim to attract, respectively, private investment in renewable energy and affordable real estate investments in consolidated urban areas.

Relationship to CPF

The proposed operation is aligned with the CPF for Peru (2023-2027). It significantly contributes to the CPF pillar on improving access to services. It does so by promoting investments in WSS (PA3, trigger 3), enhancing resilient land use planning (PA2, trigger 2), building capacity for large-scale resilience infrastructure execution (PA4), promoting clean energy infrastructure (PA5, and Trigger 4) and low-carbon transport (PA6 and Trigger 5).

C. Proposed Development Objective(s)

The Program Development Objective is to support the Government of Peru's (GoP) to: (i) strengthen climate change adaptation, and (ii) promote decarbonized development in selected sectors.

Key Results

The expected results of this operation include stronger disaster risk management (DRM) prevention and emergency response at regional government level, a more sustainable management of the territory and reducing vulnerability to disasters, and increased efficiency of water use due to incorporating circular economy principles and increasing the share of women in decision making position in water and sanitation service. From a mitigation perspective, the Program prioritizes transitioning to a low-carbon development by promoting clean energy and electromobility, developing affordable housing through densification of consolidated urban areas, and reducing deforestation through stricter control and enforcement.

D. Project Description

Pillar I of the first of two DPF operation supports critical reforms to strengthening climate change adaptation and resilience. It does so by prioritizing reforms in territorial planning and disaster risk management to help improve prevention and emergency responsiveness, while also strengthening territorial planning instruments to reduce vulnerability of population. The Program also supports a more resilient and efficient water supply by requiring the

¹² EC. 2024. The Future of European Competitiveness. https://commission.europa.eu/document/download/97e481fd-2dc3-412d-be4c-f152a8232961_en?filename=The%20future%20of%20European%20competitiveness%20_%20A%20competitiveness%20strategy%20for%20Europe.pdf; IEA. 2024. https://commission.europa.eu/document/download/97e481fd-2dc3-412d-be4c-f152a8232961_en?filename=The%20future%20of%20European%20competitiveness%20_%20A%20competitiveness%20strategy%20for%20Europe.pdf



introduction of circular economy principles to water and sanitation service (WSS) provision, which also expects to increase women in decision-making positions within WSS companies.

Actions under Pillar II support the GoP's efforts to transition to a greener and low-carbon development targeting priority GHG emitting sectors, namely energy, transport, housing, and forestry. It does so by promoting private sector investment in renewable energy and in distributed generation (trigger); developing the standards and protocols for charging infrastructure for electromobility and sustainable mobility policy (trigger); providing incentives for affordable housing in consolidated urban centers, and improving control and surveillance of forests to protect carbon sinks by operationalizing Forestry and Wildlife Information Management Units at a regional level to provide better coordination and actionable response to address illegal forestry activities.

The policy program supports Peru's economic development through CC adaptation and mitigation reforms that are aligned with the goals established in Peru's PEDN 2050, NDC 2020, and National Climate Change Adaptation Plan. The operation is also aligned with objective 2 and 3 of the PEDN 2050, which aim to achieve a more sustainable management of the territory and support the sustainable use of natural resources. The program support strengthening DRM and resilient territorial planning (PA1 and PA2), access to affordable housing (PA7), protecting the natural environment through forestry (PA8), and facilitating a transition to a low-carbon economy (PA5 through PA8). In addition, the operation is aligned to the GoP's program "Con Punche Peru 2," as it promotes climate resilience (PA1 and PA2) and enhances the climate sustainability of the transport sector (PA6). The program also contributes to the OECD's Accession Core Principles for Peru. specifically, PA1 and PA3 support policies required to follow the accession principle on investing in CC adaptation, including the principles related to increasing DRM and sustainable water management. PAs 5 through 7 supports mitigation actions in the energy and transport sectors, while PA8 contributes to meeting the accession principle on ensuring effective enforcement and reducing deforestation. The reform program also contributes to the OECD's Accession Core Principles for Peru, including those covered by the OECD's Environmental Policy Committee. Policies required to follow the accession principle on investing in climate resilience and adaptation include the principles related to increasing DRM and sustainable water management. PAs 5 through 7 supports mitigation actions in the energy and transport sectors, while PA8 contributes to meeting the accession principle on ensuring effective enforcement of biodiversity protection and reducing deforestation.

E. Implementation

Institutional and Implementation Arrangements

As the implementing entity, the MEF is responsible for monitoring the implementation of the program and progress toward achieving results. The MEF will coordinate actions among the agencies involved in the reform program, including MEF, PCM MVCS, MTC, MINEM, INDECI (National Institute of Civil Defense), CENEPRED, SERFOR, ATU, and ANIN. The WB has worked closely with the MEF and relevant sectoral entities to establish clear and measurable results indicators. Monitoring and evaluation of the operation will occur through ongoing policy dialogue during the preparation of any subsequent operations and the accompanying TA projects.

F. Poverty and Social Impacts, and Environmental, Forests, and Other Natural Resource Aspects

Poverty and Social Impacts

Prior actions under Pillar I, are anticipated to yield both direct and indirect benefits for household welfare and poverty reduction by minimizing disaster losses and improving public services. The strengthening of the National DRM System is expected to contribute to poverty reduction by lowering potential losses and improving recovery capabilities of poor



households affected by disasters (PA1).¹³ Additionally, strengthening territorial planning and promoting a resilient occupation of the territory is likely to decrease the number of people living in hazard-prone areas, thereby mitigating the adverse effects of climate disasters on incomes and further reducing poverty (PA2).¹⁴ Improving resilience in the provision of WSS services is projected to positively influence household welfare and contribute to poverty reduction by improving the quality of these services at home and through access to better production procedures.¹⁵ Assuming health improvements result from this program, it could lead to a reduction in the health budget and consequently to poverty alleviation (PA3).¹⁶ Furthermore, enabling the implementation of resilient infrastructure investments is expected to enhance household welfare and indirectly promote poverty reduction by improving the quality of production and assets.¹⁷ Flood risk investments supported ANIN can also create job opportunities, leading to an increase in household incomes (PA4).¹⁸

Prior actions under Pillar II, are expected to have indirect positive effects on household welfare and poverty reduction. Initiatives to decarbonize the power sector and stimulate private investment in clean energy (PA5) are expected to create job opportunities (assuming an increase in investment)¹⁹ and enhance public health by reducing GHG emissions.²⁰ Furthermore, lowering household energy costs can contribute to alleviating poverty.²¹ Promoting low-carbon transportation and electromobility is also expected to contribute to lowering air pollution and indirectly to poverty reduction through improving health and minimizing risks associated with zero-carbon modes, thereby reducing the likelihood of incurring health expenses and losing income due to accidents (PA6).²² Additionally, promoting affordable housing provision in central areas, is expected to contribute to poverty reduction reducing housing costs, saving time through improving access to services, and improving accessibility of jobs for the poor (PA7).²³ Strengthening forest monitoring and control **to support reducing deforestation** in the Amazon is expected to indirectly contribute to poverty reduction by facilitating the efficient development of other productive activities such as agriculture, and the reduction of future health concerns (PA8).²⁴ However, the transition to a carbon-neutral economy may temporarily increase poverty due to decreased activity and job losses in high-emitting sectors.²⁵

Environmental, Forests, and Other Natural Resource Aspects

The policy program was screened and PAs 2, and 8 are expected to have a significantly positive effects on Peru's environment, forests, and other natural resources. Based on a screening and assessment of the PAs under the proposed operation and their short- and long-term effects in Peru as well as other contexts, significant positive impacts are expected for PA2 and PA8. PA2 is expected to promote climate resilient and sustainable environmental management through territorial planning. The integration of environmental authorities into the planning governance system has proven significantly effective in conservation efforts.²⁶ PA8 is expected to result in significantly positive long-term effects through

¹³ World Bank 2021. Overlooked: Examining the impact of disasters and climate shocks on poverty in the Europe and Central Asia region. Washington, DC.

¹⁴ World Bank Group 2023. The Impact of Infrastructure on Development Outcomes: A Qualitative Review of Four Decades of Literature.

¹⁵ Access to water is relevant for local farmers and entrepreneurs who process raw goods for food, improving their quality and price.

¹⁶ World Health Organization and the United Nations Children's Fund (UNICEF) 2023. Water, sanitation, hygiene, waste and electricity services in health care facilities: progress on the fundamentals. 2023 global report.

¹⁷ Medeiros et al. 2021. Infrastructure and household poverty in Brazil: A regional approach using multilevel models. *World Development*, 131, 1-14.

¹⁸ Hansen et al. 2019. Climate risk management and rural poverty reduction. *Agricultural Systems*, 172, 28-46.

¹⁹ Wirawan and Gultom 2021. The effects of renewable energy-based village grid electrification on poverty reduction in remote areas: The case of Indonesia. *Energy for Sustainable Development*, 62, 186-194.

²⁰ Mneimneh et al. 2023. Roadmap to Achieving Sustainable Development via Green Hydrogen. *Energies*, 16(3), 1-25.

²¹ Yadoo and Cruickshank 2012. The role for low carbon electrification technologies in poverty reduction and climate change strategies: A focus on renewable energy mini-grids with case studies in Nepal, Peru and Kenya. *Energy Policy*, 42, 591-602.

²² Liu, Zheng, and Wang 2020. Does air pollution aggravate income inequality in China? An empirical analysis based on the view of health. *Journal of Cleaner Production*, 271. and Huang 2016. Identifying risk factors for household burdens of road traffic fatalities. *BMC Public Health*, 16, 1-11.

²³ Nazli and Malik 2003. Housing: Opportunity, Security, and Empowerment for the Poor. *The Pakistan Development Review*, 42(4), 893–908.

²⁴ Wajim 2020. Impacts of Deforestation on Socio-Economic Development and Environment in Nigeria. *The International Journal of Social Sciences*.

²⁵ Mneimneh et al. 2023. Roadmap to Achieving Sustainable Development via Green Hydrogen. *Energies*, 16(3), 1-25.

²⁶ See World Bank. 2007. Liveable cities: the benefits of urban environmental planning - a cities alliance study on good practices and useful tools.



strengthening GoP's capacity to monitor, control and combat deforestation. Addressing institutional weakness, which was considered enablers of deforestation, is anticipated to lead to conservation outcomes with positive effects similar to those outlined in the analysis of PA2.²⁷

To mitigate any potential adverse environmental impact, Peru's has a robust system in place for effective management. The country's Environmental Impact Assessment (EIA) framework is particularly robust,²⁸ ensuring that investments with potential adverse impacts are managed primarily through the National Environmental Impact Assessment System (SEIA), established under Law No. 27446 and Decree No. 019-2009-MINAM. The legislation mandates the development of an EIA for projects that may prompt negative environmental impacts. In terms of capacity, Peru scored average among its Latin America & Caribbean peers according to the Environmental Performance Index.²⁹ Similar to other Latin American countries, the SEIA has faced challenges such as inefficiencies and delays, which can affect project approvals and increase costs.³⁰ However, Peru has invested in developing institutional capacity to enhance efficiency, monitor and enforce compliance with national environmental legislation through MINAM and the Environmental Assessment Control Agency, supported by previous and ongoing WB support

G. Risks and Mitigation

The overall risk rating for the proposed operation is assessed as Moderate. The key risk ratings are included in the table below. The major risks identified include: (i) political and governance; and (ii) institutional capacity for implementation and sustainability.

Political and governance risks are considered Substantial. Peru is experiencing significant political volatility, characterized by frequent turnover of high-level government officials at the ministerial level. This trend is likely to continue during the implementation period of the proposed DPF program, which poses a risk of slower reform implementation, and/or a lack of continuity of GoP programs due to shifting priorities. To mitigate these risks, the operation includes measures such as : (i) ensuring strong commitment from the administration to the proposed reforms through ongoing policy dialogue; (ii) maintaining continuous engagement with key government bodies to ensure that new officials are informed of the Program's objectives and intended outcomes; and (iii) closely monitoring potential political and governance risks throughout implementation and the use of adequate mitigation strategies, when necessary. Given that political turnover cannot be fully anticipated or mitigated, its impact on achieving the operation's development outcomes is considered Substantial (residual risk).

Institutional capacity for implementation and sustainability risk is rated Substantial due to the involvement of multiple agencies under the DPF operation. The success of the proposed reforms will require a high level of coordination among line ministries, specialized agencies, and regional and local governments. Coordination among agencies in Peru is often weak, and building consensus can be time consuming, potentially leading to delays in implementation. To address these risks, the operation prioritizes reforms that benefit from long-standing policy dialogue and TA from the WB and other donors. Additionally, certain reforms, such as those supported by the new SINAGERD Law, the draft Territorial Planning Law, and forestry reforms are expected to enhance coordination mechanisms by clarifying responsibilities and introducing new measures to enforce accountability for policy implementation. Effective mitigation will require heightened coordination among line ministries, specialized agencies, and regional and local governments. However, the impact on achieving the operation's development outcomes remains Substantial (residual risk).

²⁷ World Bank Group.2022. Peru - Country Climate and Development Report. Washington, D.C.: World Bank Group. See

²⁸ According to the EPI index, Peru scored among the highest in the Latin America and Caribbean region

²⁹ Peru showed scored average among LAC peers (46.5) . <https://epi.yale.edu/>

³⁰ World Bank. 2022. Peru - Enabling a Green and Resilient Development Development Policy Financing. Washington, D.C. : World Bank

Group.<https://documentsinternal.worldbank.org/search/33758936>

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APPROVAL

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