



CONCEPT NOTE

ON A PROPOSED GRANT

IN THE AMOUNT OF US\$4.06M

The Dominican Republic

FOR

Dominican Republic: Integrated productive landscapes through land use planning; restoration; and sustainable intensification of rice crops in the Yaque Norte and Yuna watersheds

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BASIC INFORMATION

Country(ies)	Project Name	
Dominican Republic	Integrated productive landscapes through land use planning; restoration; and sustainable intensification of rice in Yaqu	

Project ID	Financing Instrument	Environmental and Social Risk Classification
P170848	Investment Project Financing	Substantial

GEF Focal Area

Multi-focal area

Financing & Implementation Modalities

<input type="checkbox"/> Multiphase Programmatic Approach (MPA)	<input type="checkbox"/> Contingent Emergency Response Component (CERC)
<input type="checkbox"/> Series of Projects (SOP)	<input type="checkbox"/> Fragile State(s)
<input type="checkbox"/> Disbursement-linked Indicators (DLIs)	<input type="checkbox"/> Small State(s)
<input type="checkbox"/> Financial Intermediaries (FI)	<input type="checkbox"/> Fragile within a non-fragile Country
<input type="checkbox"/> Project-Based Guarantee	<input type="checkbox"/> Conflict
<input type="checkbox"/> Deferred Drawdown	<input type="checkbox"/> Responding to Natural or Man-made Disaster
<input type="checkbox"/> Alternate Procurement Arrangements (APA)	

Expected Approval Date	Expected Closing Date
03-Aug-2020	

Bank/IFC Collaboration

No

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Proposed Development Objective(s)

The objective of the proposed GEF project is to strengthen integrated landscape management in targeted watersheds in the Dominican Republic.

Organizations

Borrower: Ministry of Economy, Planning and Development

Implementing Agency: Ministry of Environment and Natural Resources

PROJECT FINANCING DATA (US\$, Millions)

SUMMARY

Total Project Cost	4.06
Total Financing	4.06
of which IBRD/IDA	0.00
Financing Gap	0.00

DETAILS

Non-World Bank Group Financing

Trust Funds	4.06
Global Environment Facility (GEF)	4.06

INSTITUTIONAL DATA

Practice Area (Lead)

Environment & Natural Resources

Contributing Practice Areas

Agriculture

Gender Tag

Does the project plan to undertake any of the following?

a. Analysis to identify Project-relevant gaps between males and females, especially in light of country gaps identified through SCD and CPF	Yes
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b. Specific action(s) to address the gender gaps identified in (a) and/or to improve women or men's empowerment	Yes
c. Include Indicators in results framework to monitor outcomes from actions identified in (b)	Yes

SYSTEMATIC OPERATIONS RISK- RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	● Moderate
2. Macroeconomic	● Moderate
3. Sector Strategies and Policies	● Substantial
4. Technical Design of Project or Program	● Substantial
5. Institutional Capacity for Implementation and Sustainability	● Substantial
6. Fiduciary No Fiduciary Risk rating has been completed to date	● Moderate
7. Environment and Social Environmental Risk rating from Specialist: ● Moderate as of 16-Apr-2019 Social Risk rating from Specialist: ● Substantial as of 16-Apr-2019	● Substantial
8. Stakeholders	● Substantial
9. Other	
10. Overall	● Substantial

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PREPARATION SCHEDULE

Preparation Schedule

Milestone	Original	Revised	Actual
AIS Sign off			Mar 25, 2019
Concept Review	Apr 03, 2019	Apr 03, 2019	
Disclosure of Concept PID	Apr 10, 2019	Apr 10, 2019	
Disclosure of Concept ESRS	Apr 10, 2019	Apr 10, 2019	



Quality Enhancement Review(QER)	Apr 15, 2020	Nov 15, 2019
Decision Review	May 15, 2020	Nov 29, 2019
Disclosure of Appraisal PID	May 20, 2020	Dec 03, 2019
Disclosure of Appraisal ESRS	May 25, 2020	Dec 03, 2019
Begin Appraisal	Jun 01, 2020	Dec 12, 2019
Authorize Negotiations	Jun 15, 2020	Feb 14, 2020
Approval	Aug 03, 2020	Aug 03, 2020
Signing	Aug 03, 2020	Aug 03, 2020
Effectiveness	Oct 15, 2020	Aug 31, 2020
Project Closing/Cancellation Date	Oct 15, 2025	Oct 15, 2025
ICR/NCO	Apr 15, 2026	Apr 15, 2026

Team

Bank Staff

Name	Role	Specialization	Unit
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Extended Team			
Name	Title	Organization	Location

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Accronyms

ER-PROGRAM	Emissions Reduction Program
FCPF	Forest Carbon Partnership Facility
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GHG	Green House Gas
GTI	Interinstitutional Technical Group of MARN (Grupo Tecnico Interinstitucional)
INDRHI	National Institute of Hydraulic Resources (Instituto Nacional de Recursos Hidráulicos)
LDN	Land Degradation Neutrality
MARN	Ministry of Environment and Natural Resources
MEPyD	Ministry of Economy, Planning and Development (Ministerio de Economía, Planificación y Desarrollo)
mtCO2Eq	Metric tons of carbon dioxide equivalent
PAN-LCD	National Action Program to Fight Desertification
REDD+	Reduction in Emissions from deforestation and forest degradation
SCD	Systematic Country Diagnostic
SLM	Sustainable land management
SRI	System of Rice Intensification
UNCCD	United Nations Convention to Combat desertification
UNFCCC	United Nations Framework Convention on Climate Change

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INTRODUCTION AND CONTEXT

A. Country Context

1. The Dominican Republic is an island nation located in the Caribbean that has been one of the fastest growing economies of the region in the past twenty-five years. After a severe economic recession in 1990, the country has experienced a remarkable period of high economic growth over the past 25 years: the country economy expanded at an average growth rate of 5.3 percent per year from 1993 to 2017. This outstanding performance has allowed the country to reduce the gap with respect to the living standards of high-income countries and making it one of the top performers in both Latin America and the Caribbean, and the world.

2. The country has recently made important progress in poverty reduction and access to services, but inequalities persist. Moderate poverty was reduced from 43.2 percent in 2008 to 28.9 percent in 2016, while extreme poverty was reduced from 12.8 percent in 2008 to 6 percent in 2016, and most of the gains in terms of poverty reduction have occurred after 2014. Even though the gap between urban and rural areas is shrinking, rural poverty remains considerably higher. For example, moderate poverty was 38 in rural areas vs. 27 percent in urban areas, and the greatest concentration of poverty are found in the border areas with Haiti. In addition, despite improvements in access to services and most human development indicators have improved for the population, inequalities also persist between rural and urban areas.

3. Dominican Republic's geography endows the country with abundant natural resources on which its economy relies but makes the country highly vulnerable to the effects of climate change. The geographical location of the country and its abundant beaches and productive landscapes have enabled the development of a strong agricultural and tourism sectors. However, the country's location makes it one of the most vulnerable to natural disasters that are expected to become more frequent and intense with climate change. The Dominican Republic is highly exposed to rapid weather-related disasters (tropical storms, hurricanes, cyclones, floods and landslides, and slow climate change processes including sea-level rise and desertification). The country ranks as the 8th most vulnerable country to climate change. The northeastern region is exposed to floods and mudslides from severe storms, while arid regions of the northwest are experiencing increasing temperatures that pose risks of drought, that affect yields and reduce water supplies. Moreover, Hispaniola Island is at the center of a hurricane belt, and intense storms damage coastal infrastructure and beaches, leading to significant loss of tourism revenues. Between 1961 and 2014, natural disaster related losses have costed 0.69 per cent of Gross Domestic Product (GDP) per year. Healthy ecosystems, with healthy forest cover can offset some of the impacts of climate related disasters as they can function as green infrastructure against landslides, flood control and mangroves to minimize storm surge and sea level rise.

B. Sectoral and Institutional Context

4. The Dominican Republic hosts unique biodiversity and a third of its territory is covered by forests. The Hispaniola Island, shared with Haiti, and Cuba, are the largest contributors to Caribbean biodiversity" (CBD, 2018). The Dominican Republic is one of the most biologically diverse countries in the Caribbean, and of great importance for the connectivity of the Caribbean Biological Corridor (Dominican Republic, Cuba, Haiti and Puerto Rico). The Dominican Republic hosts ecosystems that are unique to the Caribbean, such as Lake Enriquillo (the largest lake and lowest elevation in the region) and the region's tallest mountain peak which rises to 2,000 meters above sea level. Mountain ranges account



for around 27% of the national territory, produce a diverse bio-climatic zones Mosaic, ranging from arid forest, pine forests, to mangroves, and create over 30 major watersheds of which 16 are the most important. Forest coverage with the recent National Forest Inventory is set at around 38%, and consists of open and dense coniferous forest, broadleaf cloud forest, humid and semi-humid, dry forest, the forest of freshwater wetlands (dragon trees) and brackish wetlands (mangrove). Most of the forested areas are currently within the National System of Protected Areas, which covers 16% of the National Territory. Broadleaf and coniferous forests make up the bulk of forest areas and are the most significant in terms of forest degradation. These areas are located in the upper basins. In the Yaque del Norte mountainous areas the orographic, climatic and edaphic conditions allow for the development of different biomes with a high biological diversity. The forest cover represents 47%, where the coniferous forest occupies 13.95%; 21.67% covers the cloudy, humid and semi-humid broad-leaved forests, present in the upper and middle basin, and in the lower part the dry forest is represented with 11.81%, finally towards the river mouth of the basin there is a small portion of mangroves. The Dominican Republic's avifauna has exceptionally high levels with 34 species endemic, of which 23 are classified as Globally Threatened by IUCN. Dominican Republic has 21 "Important Areas for Bird Conservation" (AICAS) equivalent to 13% (7212km²) of the country area. Of the 306 species of birds reported for Hispaniola Island (Dominican Republic and Haiti), approximately 140 are native of the Dominican Republic. The island is also important for at least 136 migratory species that cross the hemisphere in the North American winter time. Fifty-three species of mammals in Dominican Republic with four being endemic, and 166 species of reptiles, of which 147 are endemic are reported. The country also has 7,030 species of invertebrates, mainly arthropods with both from terrestrial and marine ecosystems, of which 37% are endemic. High level of endemism, particularly with respect to reptile species (there are 5 species per 2,000 km²), vascular plants and bird species, makes the country an endemism hotspot. The proposed project aligns with the NBSAP of the country 2011-2020 in general terms in how the Action Plan promotes an ecosystem approach for planning processes which is precisely what this project aims to do. Specifically, the proposed project is aligned to National Goal 19, no. 97 of NBSAP to *"Promote the exchange and transfer of knowledge and ecologically sustainable technologies among member countries on the Biological Corridor in the Caribbean (Cuba, Haiti, Dominican Republic, others) for the effective implementation of the CBD work programs"*, considering migratory birds that use rice fields as habitat in Dominican Republic. It is also aligned to National Goal 15 No. 84 to *"Identify national actions for the sustainable management of land and promote its dissemination and replication in priority watersheds (Sabana Yegua, Artibonito, others), as a way to contribute to the fight against desertification"*.

5. The development of the agri-food sector is one of the engines of growth in the Dominican Republic. The sector of agriculture, livestock, forestry, fisheries, and agroindustry contributes 16 percent to GDP. Primary agricultural production has been contributing a relatively constant 6 to 7 percent to the GDP over the past 10 years. Agri-food exports (animal, vegetable, and foodstuffs) accounted for 20 percent of the total value of official exports in 2012. Three-quarters of the agricultural production is transformed downstream in the value chain by the agroindustry sector, adding value and creating jobs in the country. Rice is the main contributor to agricultural production value added in the country and represents 14 percent of agriculture GDP. It constitutes an important source of jobs and is considered a strategic crop in terms of food security, as it represents the main staple of Dominican diet. The country produces on average 1.2 million tons per year, mainly for domestic consumption, in an area of about 93.000 thousand hectares (with a total harvested



area of 161.000 hectares, considering repeated cycles) concentrated in the Northeast and Northwest of the country¹. Approximately 30.000 farmers are dedicated to rice production, of which about 50 percent are small producers with less than 3 hectares, and in total about 300.000 people are directly employed by the sector.

6. However, inadequate land use planning and inadequate natural resource management drive important tensions between agriculture and the environment and degrade land. Most of deforestation (60 percent) and land degradation continues to be caused by the expansion of slash-and-burn agriculture and poor livestock and agriculture production practices. Lack of land use zoning and weak capacities from environmental authorities to manage land use changes considering impacts at the landscape level are contributing to the degradation of natural resources. Environmental authorities MARN often approve land use changes without taking into consideration cumulative impacts in the landscape or even without considering what the Law dictates². As a result, around 48 percent of the Dominican territory is estimated to be critically sensitive to desertification mainly caused by intense and inadequate land use practice, and nearly 40 percent of soils are considered degraded³. Land degradation is especially severe in steep slopes in upper watersheds. Resulting soil erosion has important economic impacts in the agriculture sector due to productivity losses, but also in the hydropower industry, as it reduces dam capacity, increases costs related to maintenance of irrigation and water supply infrastructure, and worsens coastal water quality. In the long run, soil degradation can drive desertification processes, especially under climate change scenarios.

7. Although the country has been successful at pairing its outstanding economic growth performance with increasing its forest cover since the 1970s, in recent years forests are facing growing threats and an important of its standing forests are degraded. FAO estimated in 1973 the forest cover at 22 percent coming up to 38 percent by 2012. Although the Dominican Republic is considered to have been successful at controlling deforestation, recent estimates from the MARN reveal that between 2010 and 2015, the country lost 3 percent of its forest cover and preliminary maps show large sections of forests are degraded (See Figure 1). Furthermore, forest degradation analyses performed in under the REDD+ preparation framework indicate that a large portion of standing forests is degraded.

Figure 1. Forest cover change map

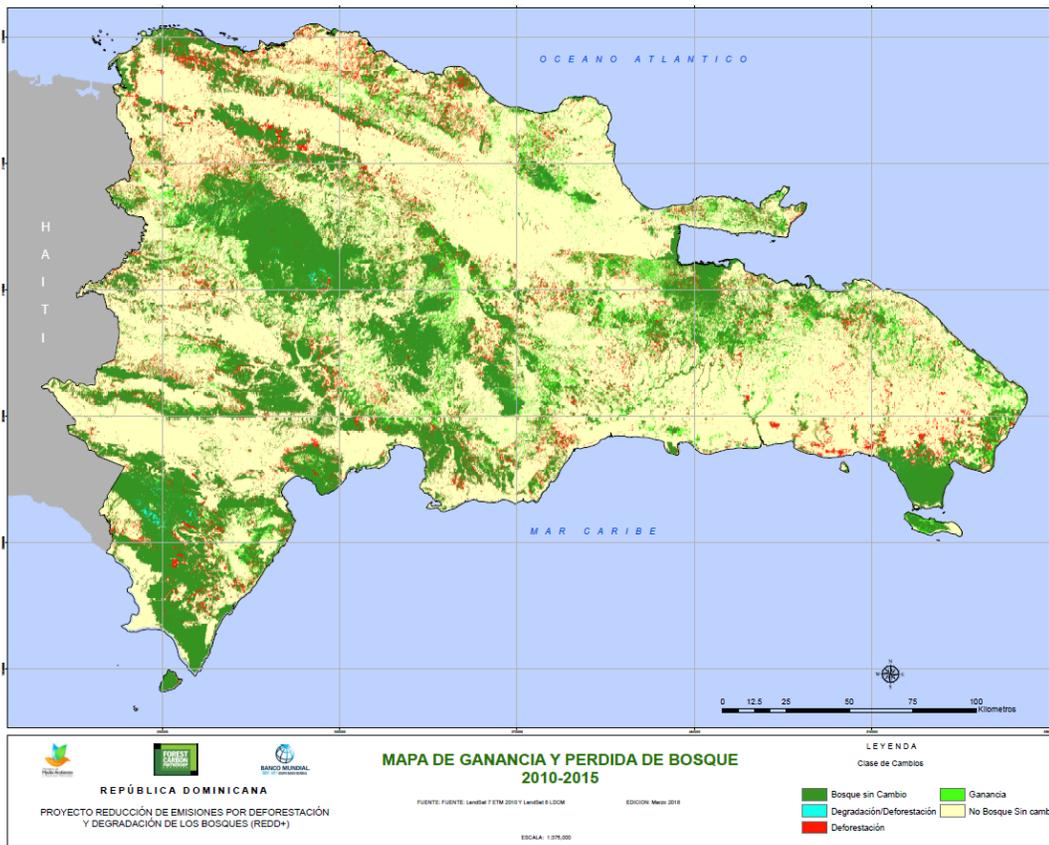
¹ IDB. (2018). Políticas Agropecuarias, el DR-CAFTA y Cambio Climático en la República Dominicana. Banco Interamericano de Desarrollo.

² MARN (2017). Neutralidad en la Degradación de las Tierras: Informe final línea de base.

³ Izzo, M., Araujo, N., Aucelli, P., Maratea, A., and A. Sánchez. 2013. "Land Sensitivity to Desertification in the Dominican Republic: An Adaptation of the ESA Methodology." Land Degradation & Development 24: 486-498.



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8. Inadequate institutional coordination and lack of application of existing legal frameworks, combined with limited mainstreaming of environmental sustainability criteria in territorial planning constitute a major challenge to achieve sustainable natural resource management. There is a lack of articulation between the institutions in charge of land use planning and decision making. MEPyD is the governing body of the National system of territorial planning and zoning and is responsible for territorial planning and the formulation of public policies for sustainable development in the territory, taking into consideration the economic, social, environmental and cultural policy. General Law 64-00 on Environment and Natural Resources stipulates that planning of the Dominican Territory must have as main objectives natural resource protection, vulnerability reduction and harmonizing the environment with economic activity. However, at the local level, unarticulated decision making between key stakeholders at the local level, including local governments, Provincial Councils for Strategic Development, civil society organizations, and national government entities with local presence, constitute a significant barrier for integrated territorial planning. Complex coordination processes of multiple entities, agencies and local governments; the need of participatory processes with civil society; and the need of detailed information about land suitability and vulnerability, pose a major challenge for the implementation of actual sustainable territorial planning. In addition, lack of technical capacities to develop, apply and monitor land use plans at the local level constitutes an additional barrier. As a result, there is very limited mainstreaming of environmental sustainability criteria, including biodiversity and land degradation, in land use planning. In fact, land use decision making rarely considers biodiversity values, ecosystem services flows (including water), or climate change considerations, and their spatial interrelation in the landscape.



9. Lack of land use zoning and planning create tensions related to water in the agri-food sector and exacerbate its vulnerability to weather events such as floods and especially droughts, whose severity and frequency is likely to increase with climate change, and whose impacts are exacerbated by land degradation. The agricultural sector is the largest user of water consuming 83 percent of the available water volume. Although the available amount in the country is considered enough for the country to enhance its production; water is unevenly distributed across the country, high water demanding crops are produced in areas where water availability is limited, and the inefficient management of irrigation systems (25 percent of water efficiency) as well as inefficient use on site, questions this possibility. The main agricultural producers' regions of the country, the North and Northwest, face important water pressures and water balance is projected to be in deficit by 2025. According to the National Strategy for Adaptation to Climate Change in Agriculture 2014–20, total annual rainfall may decrease to 1,137 millimeters (mm) in 2030 (an 11 percent decrease from 2010). Climate scenarios project an increase of temperature from 0.5 to 1 degree Celsius (°C) by 2030 and from 1 to 2.5°C by 2050. Areas currently subject to drought could become permanently arid with climate change. Improving hydrological ecosystem services as well as improving water use efficiency is necessary to increase resilience of water supply.

10. Loss of forest, forest degradation, and landscape fragmentation is affecting Dominican Republic's biodiversity assets and degrading land, threatening agricultural productivity and exacerbating the country's vulnerability to climate and disaster risks. Without measures to reduce habitat loss from deforestation and forest degradation, and land degradation, the Dominican Republic will continue losing its biodiversity, degrading essential hydrological ecosystem services, including water provision and regulation, and will become more vulnerable than ever to the impacts of extreme weather events. Loss of biodiversity represents a loss of ecosystem goods and services that enable the country's economy societies to thrive. Loss of water related ecosystem services directly affects the capacity of the country to produce agricultural products and increases vulnerability to climate related disasters. Disasters from extreme events can hamper poverty reduction efforts and threaten advances in shared prosperity both through the triggered economic losses and through direct impacts. Shocks created by adverse natural events have regressive distributional effects as vulnerability to climate shocks is higher for the poorest households⁴.

11. Irrigated crops, especially rice crops, demand important water resources, generate greenhouse gas (GHG) emissions, and contribute to soil and water contamination through the intensive use of agrochemicals. Pressure from rice crops degrades land, affects water resources, generates GHG emissions, and contributes to soil and water contamination through the intensive use of agrochemicals. Rice crops in Dominican Republic rely on inefficient irrigation systems⁵ and represent one of the main demands, and irrigated soils present drainage and salinity problems. In addition, rice production (as well as other irrigated crops) benefits from highly subsidized water tariffs (IDB, 2018). Furthermore, traditional rice production uses large amounts of agrochemicals, including herbicides, pesticides and fertilizers, that contribute to water pollution and loss of biodiversity. Finally, rice crops are the second source of GHG emissions from the agriculture and livestock sector, only after livestock production, as anaerobic decomposition in flooded lands generates significant methane emissions.

12. The above exposed environmental challenges and tensions with the agriculture sector are particularly present in the Yaque Norte and Yuna watersheds, which constitute the Cibao Valley, the major agricultural production region

⁴ Báez, Fuchs, and Rodríguez-Castelán (2017).

⁵ 25 percent efficiency.



and a key biodiversity habitat and source of ecosystems services for the country. Both basins are critical for delivering water to residents, to the economy, and in terms of the biodiversity they host. Given the wide altitudinal range that goes from 0 to 2800 meters above sea level, multiple ecosystems are present in the landscape hosting very important biodiversity in the Caribbean region. In the territory of the Yaque del Norte basin, 34% of National System of Protected Area (6 categories) is represented. The Yuna Basin is composed of different types of ecosystems such as subtropical humid forest, very humid subtropical forest, dry forests, coastal wetlands and coral reefs. Los Haitises National Park is located within the Yuna basin area and is the most important protected area in the Dominican Republic due to its extension and as habitat for native and endemic species of flora and fauna. Moreover, the Yuna river flows into the Samana Bay, the largest semi-enclosed bay in the Caribbean, that holds a great number of species of birds, amphibians, reptiles, and cetaceans of great value including purple gallinules, roseate spoonbills, dolphins and hump whales. The bay is also one of the largest estuaries in the Caribbean and is home to a wide range of fish and crustaceans of important environmental and commercial value. It contains the most extensive mangrove and shrimp fisheries in the country, and the most important sanctuary for humpback whales in the North Atlantic.

13. Rice fields, despite not being considered wetlands, are also important habitats for migratory and native birds. Some of the bird species that use wetlands are also found in rice fields. In the lagoons of the country around 40 species are found, of which two (2) are endemic to the island; nine (9) are migratory; two (2) are introduced and twenty-four (24) are native, and five (5) are in threatened status (Ministry of the Environment, 2010).

14. Unfortunately, both the Yaque Norte and Yuna basins, face severe land degradation and soil erosion, overexploitation of water resources and overuse of fertilizers and pesticides. In addition, they are extremely vulnerable to weather events (floods and droughts) whose severity is likely to increase in the near future due to climate change. Water balance in the Yaque Norte is projected to be in deficit by 2025. The decline in water availability is practically driven by deforestation and soil degradation, from the expansion of unsustainable agricultural practices, and reduced precipitations. On the other hand, Yuna faces recurrent flooding in the lower section of the watershed. In the lower sections of both basins, inefficient rice production system demand increasing water resources, generating GHG emissions, and contributing to soil and water contamination through fertilizer and pesticide runoff.

15. The Dominican Republic is committed to improving sustainability in its agricultural production, reducing deforestation, achieving neutrality in land degradation, and increasing its landscape resilience to the impacts of climate change. The country has developed several strategies and has engaged in multiple multilateral agreements to improve land use sustainability, including: the REDD+ Strategy under the United Nations Framework Convention on Climate Change (UNFCCC) and preparation of an Emissions Reduction Program (ER-Program) aiming at reducing 5M mtCO₂Eq from avoided deforestation and forest degradation between 2020-2025; achieving Land Degradation Neutrality (LDN) under the United Nations Convention to Combat Desertification (UNCCD); restoring 0.8 million hectares under the Bonn Challenge; and, (iv) under the UN Convention on Biological Diversity, the country has committed to identify sustainability criteria for agriculture, aquaculture and forestry. Finally, through its National Determined Contributions the country has committed to reduce GHG emissions by 25 percent by 2030 with respect to 2010, and generate climate adaptation objectives, in line with the National Development Strategy 2030. The proposed project is fully aligned with the above-mentioned commitments and will help the country to achieve results.



16. To address land degradation, the country committed to implement a National Action Program to Fight Desertification (PAN-LCD) that will restore lands under degradation processes and avoid degradation of non-degraded lands. Through the PAN-LCD, which is a key priority for the National Government, the Dominican Republic has defined a set of voluntary targets, including: Increasing forest cover by 8.5 percent by 2025; improve 30,000 hectares of dry forest with early signs of degradation and decreasing land productivity, by 2025; improve net primary productivity in 20,000 hectares by 2025; address 20 percent of crops in hillsides with high erosion risk; and support territorial zoning in 30 municipalities within areas considered at critical risk of land degradation, among others, which the proposed project will support. The PAN-LCD aims at being implemented in strong coordination with programs and projects to support biodiversity and climate change commitments and with regional and local projects implemented by different institutions and by local governments.

17. The country is making progress in creating enabling conditions for sustainable natural resource management and integrating environmental sustainability criteria into land use planning. Environmental sustainability and adaptation to climate change are national priorities in the Dominican Republic. The country has made significant progress in strengthening institutions and inter-institutional coordination for sustainable management of natural resources, notably with the preparation of a National REDD+ Strategy. During this process, institutions have been strengthened and key activities have been identified to further strengthen natural resources management and land zoning and planning. A National Law of Territorial Ordinance was proposed but has yet to be approved in Congress. It is key to count with successful land zoning and planning that models to demonstrate how to put this into practice in productive and resilient landscapes, by mainstreaming environmental sustainability aspects into land use planning once this law is approved. In terms of water management, there is recognition of misalignments between land use planning and water availability, which generate severe pressure on water systems and causes losses to producers due to water shortages in irrigated areas, and the government is committed to improve water management at the basin level, as a measure to adapt to climate change, and address water scarcity and water quality related challenges. This commitment has materialized in the Quadrennium of Water Presidential Initiative, and watershed zoning and management plans have been identified as key government priorities.

18. Rice production practices that improve productivity and resilience to climate change through efficient use of resources have been proved in the country, but not yet taken to scale. The System of Rice Intensification, known as SRI, is a set of farming practices developed to increase the productivity of land and water, as well as other resources such as seeds and fertilizers, by making changes in plant, water, and nutrient management. SRI contributes to face climate variations and to resources limitations, such as water and agricultural land, increasing the value added per hectare and per water used. It allows to reduce the use of agrochemicals that affects biodiversity, particularly freshwater biodiversity and birds. In addition, the SRI systems contribute to GHG emission reduction by reducing crop flooding periods. The system has been proved in over 50 countries in Asia and Africa, and most recently in Latin America. The Dominican Republic has developed small pilots and has adapted the system to local conditions through the Dominican Institute of Agricultural and Forest Research (IDIAF) and most recently BioArroz (both entities under the Ministry of Agriculture), and the system has proven to be effective in reducing inputs and increasing productivity. Both IDIAF and BioArroz continue working on improving and adapting the system (e.g. introducing mechanization), as well as promoting its adoption, but the system has not yet been taken to scale.

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19. Meanwhile, coffee, cocoa and other agroforestry systems have great potential to maintain biodiversity and hydrological ecosystem services in upper watersheds. Through the adoption of best production practices in agroforestry systems, including improvements in soil management and increases in soil organic matter content, increases in the vegetation and tree coverage, coffee and cocoa agroforestry crops can generate multiple environmental and socio-economic benefits. By increasing forest cover, these crops can contribute to maintaining/increasing connectivity between protected areas and key ecosystems, soil stability, water production and water quality. These activities have been identified as key activities under the National REDD+ Strategy and a national agroforestry program has recently been created by the government. Furthermore, the private sector of the cocoa and coffee sector is currently engaged in adopting agroforestry systems and sustainability standards to access specialized markets, which has been reinforced by the ER-Program. In addition, through the GEF-6 Project “Mainstreaming Conservation of Biodiversity and Ecosystem Services in Productive Landscapes in Threatened Forested Mountainous Areas” recently approved, the Dominican Republic will promote a landscape approach to the conservation of threatened ecosystems in the country mountain ranges and field interventions in, which the proposed project will complement in other areas of the country (e.i. Yaque Norte and Yuna Watersheds), taking advantage of lessons learned and generate synergies.

C. Relationship to CPF

20. The proposed project, by contributing to increase resilience through better natural resource management, is fully aligned with the third pillar of the World Bank Group’s Country Partnership Strategy (CPS) for The Dominican Republic (FY15-18). The proposed project is aligned with the Pillar 3 (Building resilience) of the revised FY15–FY18 Country Partnership Strategy, the Performance and Learning Review (PLR) of the CPS for the period FY15–FY18, and with government priorities. The World Bank Group (WBG) will support the Government’s National Development Strategy to increase resilience and improve disaster risk management, through an integrated approach to natural resource management. The proposed project will address one of the five key challenges that the 2018 Systematic Country Diagnostic (SCD) has identified for the country: the degradation of the country’s natural capital, largely caused by a lack of territorial planning and lack of planning in the management of natural resources, which exacerbates the effects of the country exposure to natural disasters, and contributes to improving the management and conservation of natural resources, one of the six priority areas identified by the SCD. It is also aligned with one of the four areas of focus of the 2016 Policy Notes mentioned in the section dedicated to the country context: (ii) environmental sustainability and resilience to climate change. Similarly, the Project is strongly aligned with the World Bank’s corporate commitments on Forests and Climate Change; with the implementation of the National REDD+ Strategy prepared with the World Bank support and with the Resilient Agriculture and Integrated Water Resource Management Project (P163260).

21. Through an integrated landscape management approach, the proposed project contributes to the country’s sustainable development efforts, and directly to GEF-7 Land Degradation and Biodiversity Focal Areas. It contributes to Land Degradation focal area objective 2 “Creating an enabling environment to support voluntary LDN target implementation” by strengthening governance for land use planning, involving local governments, organizations and land users; by providing technical assistance for integrated land use planning and for the use of monitoring and information systems; and by strengthening extension programs to build capacities to maintain and restore functional landscape. The proposed project will particularly support Dominican Republic’s voluntary established LDN targets. Furthermore, it will contribute to incentivize sustainable land uses to restore degraded landscapes and adopt sustainable agricultural practices. It also contributes to Biodiversity focal area objective 1 “Mainstream biodiversity across sectors”, by embedding

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biodiversity considerations into land use planning in key public and private actors in the agriculture sector, to ensure that land and resource use is established where it can maximize production without degrading biodiversity. In addition, by supporting the adoption of SRI and agroforestry systems, it will improve production practices to reduce negative biodiversity impacts on production sites.

22. The project also aligns with several international sustainability goals. It reflects the Convention of Biological Diversity's (CBD) Aichi Biodiversity Targets, in particular, under Strategic Areas B (Reduce the direct pressures on biodiversity and promote sustainable use) and E (Enhance implementation through participatory planning, knowledge management and capacity building). It contributes to the fulfillment of the United Nations Sustainable Development Goals, particularly goal 15 (Promoting sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation and halt biodiversity). It also supports achieving Land Degradation Neutrality (LDN) under the United Nations Convention to Combat Desertification (UNCCD) by supporting the implementation of the National Action Program to Fight Desertification (PAN-LCD) and is aligned with Nationally Determined Contributions (NDCs) goals under the UNFCCC, by contributing both to climate and adaptation.

PROPOSED PDO/RESULTS

A. Proposed Project Development Objective(s)

The objective of the proposed GEF project is to strengthen integrated landscape management in targeted watersheds in the Dominican Republic.

B. Key Results

The following outcome indicators are proposed for measuring achievement of PDO:

- (i) Area under sustainable landscape management practices (hectares) [This is a World Bank Corporate Results Indicator and aligns well with GEF CORE Indicator 4 (Area of landscapes under improved practices (hectares))].
- (ii) Area with increased Normalized Difference Vegetation Index (NDVI). [This indicator will allow to monitor the positive impact of the adoption of integrated landscape management practices in reducing land degradation].

Brief theory of change:

Expansion of agricultural production coupled with unsustainable agricultural practices, and with governance and technical capacities for land use zoning and planning that mainstreams ecological considerations, are driving land degradation, deforestation, and water and land contamination in critical watersheds in the Dominican Republic, affecting biodiversity and threatening the sustainability of the agriculture systems because of water scarcity and vulnerability to the impacts of climate change.

To address this issue, the project will focus on promoting sustainable production landscapes, where trade-offs between production and conservation of biodiversity and hydrological ecosystem services are taken into consideration. This would be enabled through combined actions to: (i) develop capacities for land use planning with measures to (ii) support sustainable intensification of rice crops to promote efficient resource use in irrigated lands and (iii) to promote habitat restoration of degraded lands in water recharge zones.



Results and GEF Focal Areas:

The proposed project, through an integrated landscape management approach, contributes to GEF-7 Biodiversity and Land Degradation Focal Areas. In line with the goal of the GEF-7 Biodiversity Focal Area strategy, the project will contribute to the Focal Areas Objective 1 “Mainstream biodiversity across sectors as well as landscapes and seascapes”, mainly by improving and changing production practices to be more biodiversity-positive as well as through land-use planning to ensure that land and resource use is appropriately situated to maximize productivity and enhance biodiversity. The project is also designed to support the goal of the GEF-7 Land Degradation Focal Areas Objective 2 “Creating an enabling environment to support voluntary LDN target implementation”, by strengthening governance for land use planning and by implementing pilots of improved practices that contribute to achieve national LDN targets.

The contribution of each GEF focal area towards the achievement of the PDO will be measured through intermediate indicators, with a suggested list included in the GEF Data Sheet and presented below.

1. **Outcome for Biodiversity Focal Area (BD1-1):** Mainstream biodiversity across sectors as well as landscapes and seascapes through biodiversity mainstreaming in priority sectors (Component 1).

Indicators to be considered in this project

- # of technicians trained in land use planning and monitoring of biodiversity (Component 1)
- Area (in hectares) with land zoning developed that mainstream biodiversity conservation (Component 1)

2. **Outcome for Land Degradation Focal Area (LD-1-1):** Maintain or improve flow of agro-ecosystem services to sustain food production and livelihoods through Sustainable Land Management (SLM) (Components 2 and 3).

Indicators to be considered in this project.

- # of people trained to apply sustainable land use practices in production systems. Includes technicians and extension officers and will be reported separated (Components 2 and 3).
- Area (in hectares) of productive land that adopts practices that maintain or improve the flow of agroecosystem services (Component 2 and 3)

3. **Outcome for Land Degradation Focal Area (LD-1-3):** Maintain or improve flows of ecosystem services, including sustaining livelihoods of forest-dependent people through Forest Landscape Restoration (FLR) (Component 3).

Indicators to be considered in this project

- Area (in hectares) of restored forests (Component 3)

4. **Outcome for Land Degradation Focal Area (LD-2-5):** Create enabling environments to support scaling up and mainstreaming of SLM and LDN.

Indicators to be considered in this project

- Area (in hectares) with information about biodiversity; land use suitability in the landscape; land degradation (soil erosion and salinization) available, as a result of activities developed by the project (Component 1).
- Area (in hectares) in which land degradation (soil erosion and salinization), and GHG emissions are actively monitored by designated environmental authorities as a result of activities developed by the project (Component 1).
- # of local governance land use bodies strengthened (Component 1).

A complete results framework with SMART indicators will be developed during project preparation.



The proposed Project will also help achieve the following Aichi Targets⁶:

- Strategic Goal A: Target 1 and Target 4
- Strategic Goal B: Target 5; Target 7; Target 8
- Strategic Goal D: Target 14; Target 15

PROJECT CONTEXT

A. Concept

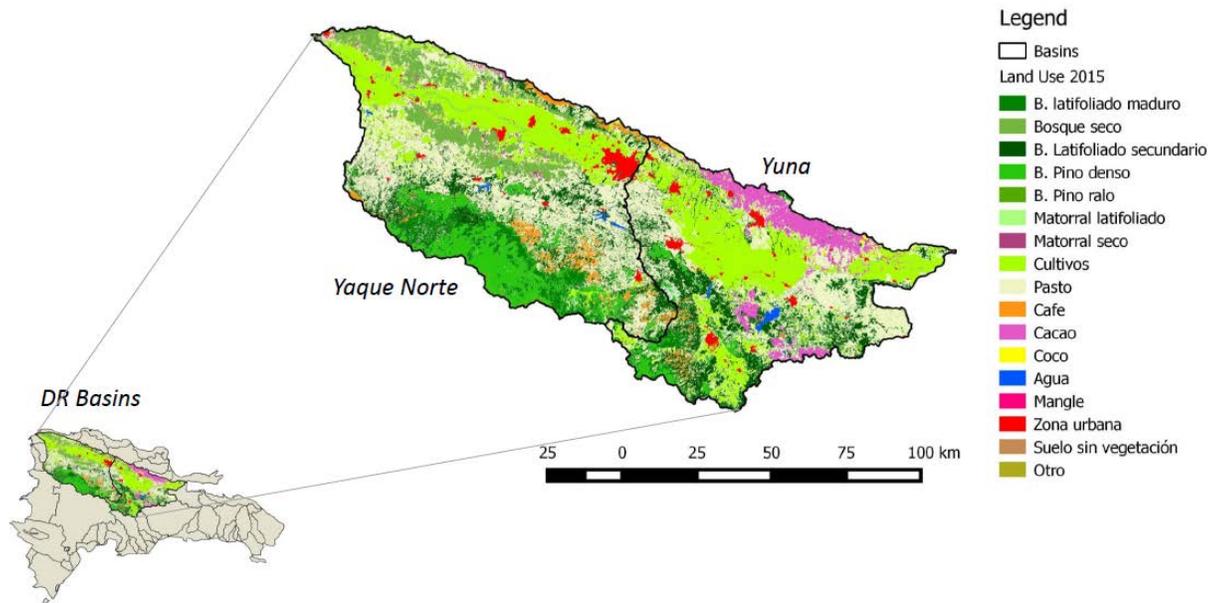
1. Description

23. The objective of the proposed GEF project is to strengthen integrated landscape management and expand the area under improved land use practices in targeted watersheds of the Dominican Republic. The proposed project will be based on a multisector and integrated spatial approach to the sustainable management of natural resources, considering upstream/downstream impacts in the Yaque del Norte and the Yuna Basins. It combines actions to develop governance and technical capacities for land use planning, with measures to generate enabling conditions and investments for the adoption of sustainable production agricultural practices in upper and lower sections of targeted watersheds. Specifically, the project objective will be achieved through three main interventions strategies: (i) Strengthening land use zoning and planning capacities at the national and local levels; (ii) Promoting the adoption of sustainable rice production at the farm level in the lower section of selected watersheds; and (iii) Conserving and restoring key ecosystems in terms of water recharge in upper watersheds through biodiversity friendly crops (agroforestry systems for coffee and cocoa). These combined measures will target vulnerable populations in rural areas and will contribute to address land degradation and preserve biodiversity in target areas. MARN will implement the project, and project preparation and implementation will require high coordination between MARN and the Ministry of agriculture, and the involvement of multiple stakeholders (See in annex 1 a list of expected stakeholder participation).

24. The proposed project will be implemented across priority regions within the Yuna and Yaque Norte Watersheds (See Figure 2). In the case of upper watershed regions, intervention areas are being identified within prioritized areas of the National Action Program to Fight Desertification (See Figure 3), on the basis of their contribution to hydrological services, biodiversity connectivity, and agricultural production potential (agroforestry systems for coffee and cocoa). In the lower sections of the watersheds, priority regions will be identified based on the concentration of small rice producers and the importance of biodiversity and hydrological ecosystems services.

Figure 2. Yaque del Norte and Yuna basins 2015 land use map

⁶ <https://www.cbd.int/sp/targets/>



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25. The project will have an estimated financing of US\$4.06 million from GEF Biodiversity (\$1.62M) and Land Degradation (\$2.44M) GEF focal areas. It will complement the country’s ER-Program supported by the Forest Carbon Partnership Facility (FCPF) as well as the Resilient Agriculture and Integrated Water Resource Management Project (P163260). The Project will be structured in four components, as explained below.

Project Components

Component 1. Enabling environment for Integrated Landscapes Management (GEF US\$ 1,174,023; Co-financing US\$ 1,378,354). This component will support the generation of capacities for land use planning and monitoring, to ensure the sustainability of ecosystems and improve biodiversity conservation in productive landscapes, while improving agricultural productivity. First, this includes strengthening the governance structures for land use management at the landscape level, promoting inter-institutional coordination and multi-stakeholder engagement. In particular, it will strengthen the National Water Board (Mesa de Agua) and the Interinstitutional Technical Group of MARN (GTI), as well local water committees (*comités locales de agua*). As different land uses in the landscape rely on the same resource base, recognition of the diverse array of stakeholder needs (farmers, communities, and the private sector) and coordination among sectors will be key. The project will strengthen processes that improves the governance of the landscape by establishing conflict resolution protocols, accountability regimes, negotiation platforms, and foresight decision making guided workshops for planning and policy design. Governing entities by the end of Project will also have a better understanding of the laws, rules and norms and overall enforcement environment that administers different land uses and corresponding environmental and social impacts. Second, to increase technical capacities of key institutions in charge of land use planning.

This component will improve capacities of environmental authorities to use information to formulate land zoning and land use; as well as for the monitoring of biodiversity, land degradation and GHG from land use, through trainings and provision of equipment. It will finance technical studies to assess biodiversity and ecosystem services flows in the landscape and potential trade-offs with production systems. For example, it will include the provision of hardware, software and trainings to use remote sensing technologies that allow for mapping of ecosystems services, and to identify trade-offs in the landscape, considering the economic implications of different land use decisions. Finally, during project preparation,



special consideration will be given to ensure ownership and maintenance of the data and the information generated, as well as its monitoring over time and dissemination.

The activities that this component will fund will contribute to promote and support land use zoning in pilot municipalities within critical areas in terms of land degradation, one of the eight voluntary targets of LDN the country has adopted.

Outcomes and outputs under this component include:

- (i) Governance for Integrated Landscape Management strengthened
 - (a) Public sector structures for land use planning strengthened. This will include the strengthening the Interinstitutional Technical Group of MARN (GTI) capacities to enable interinstitutional coordination at the local and at the national level for land use planning, to align objectives and incentives around land use planning and mainstream biodiversity and land degradation considerations. It will also support land use planning capacities of local water committees (*comités locales de agua*). These platforms are composed by government entities, including the MARN, the Ministry of Agriculture, Ministry of Economy, Planning and Development (MEPyD), National Institute of Hydraulic Resources (INDRHI), municipal governments, and producers. Activities will include sensibilization workshops and capacity building trainings to key stakeholders and will be coordinated by GTI.
 - (b) Development of land use plans for selected sub-watersheds.
- (ii) Technical capacities for land use planning and monitoring of biodiversity, land degradation and GHG emissions strengthened.
 - (a) Generation of information about biodiversity; land suitability; land degradation (soil erosion and salinization); water balances; GHG emissions for targeted landscapes, oriented to inform land use planning and monitoring.
 - (b) Trainings to use geospatial modeling tools for land use scenario modeling.
 - (c) Strengthened capacities of MARN national and local offices to monitor implementation of land use plans and monitor landscape sustainability
 - i. Improved capacities to use tools, including tools developed under the REDD+ Readiness project (Early warning systems, etc.), through trainings and provision of equipment (e.g. hardware, software).
 - ii. Development of a landscape sustainability index as metric to monitor landscape sustainability and to understand/monitor the correlation between interventions and the impact in the entire area.
 - iii. Monitoring of Biodiversity, Land Degradation, and GHG emissions in targeted landscapes.

Component 2. Scaling up sustainable rice intensification systems (SRI) by small and medium size producers to improve productivity, water use efficiency and biodiversity conservation through reduced use of agrochemicals (GEF US\$ 1,367,544; Co-financing US\$ 7,406,653). This component will promote the adoption of sustainable intensification of rice production practices by medium and small farmers. Currently, unsustainable rice practices have severe negative impacts in water, biodiversity, GHG emissions. SRI is a new technology in DR, that has proved to be effective at increasing yields, while at the same time reducing the use of irrigation water, fertilizer, and pesticide; and reducing soil erosion. As a result, it is expected to have positive impact on biodiversity values, including freshwater biodiversity and birds, including migratory birds. It also has the potential to generate climate co-benefits including improved tolerance to extreme weather events, pest and diseases; and mitigate GHG emissions by reducing methane emissions. The system has been adapted by



IDIAF to the Dominican Republic conditions and the GEF funds will allow to scale its adoption. It will do so by: (i) Strengthening the advanced development of SRI adapted to the Dominican Republic conditions led by IDIAF and by consolidating and disseminating the impacts of this technology in terms of increased productivity and environmental benefits to create awareness about this technology and promote further investment opportunities and farmer adoption, as well as to inform policies from the Ministry of Agriculture oriented to support the rice sector; (ii) Strengthening extension capacities from the Ministry of Agriculture related to SRI through targeted trainings; (iii) Establishing SRI demonstration sites; (iv) Visits to demonstration sites by small and medium size rice producers; and (v) Provision of technical assistance from extensionists to small and medium size producers. Activities under this component will not involve the creation of new or rehabilitated irrigation infrastructure.

To ensure sustainability, outcomes of the demonstrative sites will be shared with Banco Agrario (Agrarian Bank), currently supporting the rice sector, the project will engage early on with Banco Agrario to ensure a stream of funds that support SRI and agroforestry systems adoption.

The activities under this component will contribute to improving habitat for biodiversity, including for freshwater fauna and migratory birds from the Caribbean islands, and will contribute to national LDN target 4 of improving 20,000 hectares of agricultural crops with increased net primary productivity.

The main outcomes for this Component include:

- (i) Evidence about the quantitative impacts of sustainable rice production systems in terms of water consumption; agrochemical use (amount and management); GHG emissions; farmer income (improved livelihood); and biodiversity in the Dominican Republic consolidated and disseminated. This will include the development of a baseline of the biodiversity currently supported by rice crops.
- (ii) Capacities of extension services for sustainable rice production systems (training to trainers) strengthened. These trainings would be offered to technicians from the Extension and Capacity Building Service from the Ministry of Agriculture.
- (iii) Improved producer's knowledge about sustainable rice production practices through establishment and visits to demonstration sites, and provision of technical assistance.
- (iv) Increased area of rice crops under SRI production system.

Component 3. Restoration of biodiversity and hydrological ecosystem services in upper watersheds (GEF US\$ 1,328,840; Co-financing US\$ 7,380,993).

This component will promote the implementation of land use practices that contribute to forest restoration and conservation, and increased ecosystem services from agricultural lands in upper watersheds. Investments in forest restoration, and agroforestry systems for coffee and cocoa will be targeted in ecologically sensitive mountain areas currently degraded or used for agriculture and cattle ranching, with potential biodiversity connectivity or water recharge, as well as areas with severe land degradation and border zones where pressure on forests is particularly high. Site prioritization will take into account prioritized areas under the FCPF ER-Program and under the National Action Program to Fight Desertification (PAN-LCD).

The project will engage with private land owners through producer organizations, local governance structures and also through other existing government programs (e.g. National Agroforestry Program from the Presidency). In addition, the Project will work with INDRHI and the *Junta de Regantes* (Water users associations) to contact and select farmers interested on voluntary basis. The specific way in which resources from the project will flow towards land owners will be defined during project preparation. Activities under this component will be closely implemented with the World Bank's



P163260 lending Project component's 1 "Sustainable Productive Management of Agroecosystems", which will finance Sustainable Landscape Management for demand-driven subprojects of investments and technical assistance. Investments will benefit agricultural producers' organizations, according to the conditions of each agroecosystem, by promoting SLM practices. The project will be a catalyzer of restoration activities for other projects and programs, such as the ones proposed by the country's REDD+ strategy, providing a framework and operationalizing of forest restoration in the targeted areas, and also in other landscapes in the country. In addition, it is expected that changes in land use will be sustainable, as once that upfront costs have been covered, the restoration systems proposed by the project will be profitable and more resilient to climate change; and the country has long term commitments to keep supporting land use transformation towards sustainable systems.

The activities that this component will fund will contribute to the following LDN national targets: increase forest cover by 8.5 percent by 2030; and intervene 20 percent of crops in hillsides with high erosion potential.

The main outcomes for this Component include:

- (i) Increased capacity of high mountain ecosystems to provide hydrological ecosystem services and decreased erosion rates; and improved biodiversity conservation through targeted investments. Main outputs include:
 - (i) hectares of degraded forest restored;
 - (ii) hectares of agricultural land that adopted biodiversity friendly and climate smart agriculture practices (mainly coffee shade and agroforestry cocoa).

Component 4. Project monitoring and management (GEF US\$ 193,520). This component will facilitate project management and coordination among the various institutions and partners involved in the implementation of the above components, across national and local levels. It will also include implementation of project monitoring and evaluation, building on the National Forest Monitoring System designed under the FCPF Readiness and Carbon Fund Projects. The main outcomes for this component include:

- (i) Effective project management and communication;
- (ii) Monitoring and evaluation.

Beneficiaries

Rural population will benefit the most from reduced erosion and improved productivity through the adoption of more efficient production practices. Approximately 900 small and medium size rice producers will benefit with direct technical assistance and incentives; while at least 600 agricultural producers will receive support to adopt agroforestry practices and key ecosystem conservation in upper watersheds. In addition, the population in the entire watersheds will benefit from improved ecosystem services (mainly hydrological), reduced erosion, and reduced contamination.

Gender Strategy

The proposed project recognizes that gender roles have impacts on both farming and land use decision, but the contribution of women is often un-recognized. Available information on relevant gender gaps recognizes that females in the Dominican Republic have lower labor force participation than men, higher unemployment, and high employment segregation across sector and lower wages. Females also face limited participation in rural organization and in access to land. There are important gaps related to gender equality in the agro-industrial sector, though data are scant.



During project preparation a full diagnosis of gender relevant issues to the Project intervention will be carried out. This diagnosis will build on the analysis generated during REDD+ preparation to better identify practical gender needs, including conditions of women in terms of access to resources, services and opportunities, and strategic gender interests in terms of decision making.

The project aims to contribute to close gender gaps that are being identified during the REDD+ Strategy preparation supported by the World Bank. To that end, the project will encourage participation of women and will provide targeted capacity building for women both at governance and production levels. It will also support and monitor women's participation in all its activities.

Knowledge management

Knowledge management for the project will be key, as the project will use knowledge generated by previous experiences and will also generate knowledge for integrated landscape management. The proposed project will incorporate valuable information and learning from previous experiences, such as IDIAF SRI pilots and information produced under REDD+ preparation project.

The project will generate information about the environmental conditions of the landscape, as well as valuable lessons from the practical implementation of sustainable landscape management, including land use planning and monitoring that are shared by previous GEF projects. In addition, with the support of the project, the adoption of SRI at scale in the Dominican Republic is expected to constitute a practical example for other countries in the region to learned from that will be implemented through country to country information exchange activities.

During project development stage, a strategy will be developed to ensure ownership and continuity in the data maintenance and use, and to systematize and disseminate lessons learned from the project implementation.

2. Overall Risk and Explanation

The overall risk rating for the project is **Substantial**. Key risks include:

- a. **Political and Governance (Substantial)**. The potential risk of a change in government administration considering upcoming elections during the extended Project Implementation period may cause project delays and staff turnover. This project will provide resources for mitigation measures through the strengthening of the governance and management mechanisms integrated by key ministries, which will be instrumental for any future government to honor its international sustainable development commitments.
- b. **Macroeconomic Risk (Moderate)**. Although the Dominican Republic has enjoyed one of the strongest growth rates in Latin America and the Caribbean over the past 25 years on average 5.3%, the country's low capacity to generate fiscal revenues, combined with growing public expenditure have put public debt in an increasing trajectory. This is not expected to impact the project directly, but low fiscal revenues could affect the expansion of the interventions proposed by the project to other landscapes.
- c. **Sector Strategies and Policies (Substantial)**. The environmental sector, led by MARN, has low capacity to influence other sectors. However, environmental sustainability and land use zoning are considered government priorities. To mitigate this risk, the project will build on the REDD+ readiness phase to continue strengthening the capacity



of MARN to interact with other sectors and will contribute to the alignment of environmental policies with other sectoral policies.

- d. **Technical Design of Project or Program (Moderate).** The design of specific interventions to achieve integrated land use planning and adoption of improved production practices will necessarily involve a broad array of government and non-governmental actors across multiple sectors. Rice producers could be reluctant to behavioral change adopting SRI technologies given their familiarity with business as usual production practices. To mitigate risks related to the design, the project aims at strengthening interinstitutional coordination and local water governance structures and will build on lessons learned from the design of other GEF projects recently designed and approved that also involve a wide array of stakeholders. Behavioral change barriers will be mitigated by establishing demonstrative sites with farmers, with clear leadership in their communities and supported by dissemination of information about the benefits of SRI.
- e. **Institutional Capacity for Implementation and Sustainability (Substantial).** Although the MARN has a successful track record of designing and implementing NRM policies and programs, including over 40 GEF projects, MARN's institutional presence at the technical and political levels remains relatively weak, despite recent strengthening, for example through the REDD+ preparation phase. To address this issue, inter-institutional coordination will build on existing interinstitutional governance bodies that the project will strengthen. During the establishment of the project, the project implementation unit carefully designed to facilitate coordination across institutions and governance structures.
- f. **Fiduciary risk (Moderate).** Overall, the MARN has the capacity necessary to administer fiduciary aspects of the proposed project complying with minimum Bank's requirements. It has experienced fiduciary staff; and project size and nature of the expenditures to be financed do not require complex fiduciary arrangements. Despite this experience, working with a large number of small producers with low capacities, can be challenging, especially when coordination among them is low. MARN should assign qualified staff to support project implementation; and fiduciary training will be provided to the project coordinating unit.
- g. **Environment and Social (Substantial).** The project is expected to generate environmental benefits, and minimal and manageable adverse environmental impacts. There are no direct impacts expected on physical, cultural, and/or archaeological sites; economic displacement, land acquisition or resettlement. Additionally, land use planning proposals could imply activities relocation in the future, which could affect vulnerable groups.
- h. **Stakeholders (Substantial).** This project requires multi-stakeholder participation and governance structures, which constitute a main challenge (see annex 1). During the project design, the Project Implementation Unit will be structured ensuring that experienced technicians in multi-stakeholder engagement are part of the Unit.

B. Economic Analysis

1. Briefly describe the development impact in terms of expected benefits and costs

The calculation of return on investment of this project will be done following the methodology of social return on investment which allows to measure extra-financial value relative to the resources invested, i.e., social and environmental value that currently is not reflected in conventional financial accounts. It relies on cost-benefit analysis and social accounting to capture in monetary form the value of a wide range of results, irrespective if they have a market value or not.



For the project, the calculation of return on investment will be made in two ways. First, it will account for the commercial value derived from increased productivity, reduced costs from inputs, and market conditions that value sustainable production and subsequent increased income of small producers. Second, it will estimate the increase in the value of ecosystem services generated as a result of integrated landscape management and sustainable production practices in rice and in agroforestry systems.

Total value generated by the project = (Value of commercial products in markets + increased income of small producers) + (value of ecosystem services).

Value-Added of GEF Involvement in the Project Demonstrated through Incremental Reasoning

The proposed GEF project represents a key opportunity to generate enabling conditions and catalyze actions to improve sustainable landscape management in the country through the improvement of technical capacities, local governance, and inter-agency coordination. Watershed zoning and land management plans for the Yaque del Norte and Yuna basins have been identified as key government priorities in the context of LDN targets and integrated water management strategies, but these efforts have not yet been developed. The process of planning and zoning in the basins has been slow with little private sector participation, and pressures on land and ecosystem degradation persist. GEF funds will contribute strengthen governance and technical capacities to mainstream ecological considerations in land use decisions and address critical trade-offs based on scientific information about land uses compatible with biodiversity, LDN and hydrological ecosystems services in two key watersheds. This will complement and strengthen other efforts the country is making to develop models of good practice that demonstrate how to mainstream environmental sustainability in productive landscapes, so that can be replicated in order to be replicated in other areas once the National Law of Territorial Ordinance is approved.

GEF incremental funding will contribute to biodiversity conservation, to combat land degradation and to mitigate climate change, by taking advantage of the early steps the country has made to improve sustainability in the production of rice, which is the main agricultural product in the country and the one that exerts the most severe pressures to the environment, and catalyzing the adoption of SRI. Currently, SRI technology has been adapted to local conditions demonstrating clear environmental benefits and around eight small SRI pilots have developed but have not been taken up to scale for various reasons. First, the pilots are not large enough and are not strategically located to serve to engage a critical mass of farmers to adopt the technology. Second, there is lack of good quality technical assistance, which the project aims to provide by strengthening extensionist services and then use those services to provide technical assistance to small famers. Third, a dissemination strategy of the potential benefits to convey to farmers the need of adopting SRI at scale is and to inform policies that support the rice sector missing. GEF resources will fill these gaps and will allow to take advantage of early progress the country has made to adopt SRI techniques and take the system to scale, contributing to biodiversity conservation, reducing land degradation and reducing GHG emissions. In addition, the project will allow the Dominican Republic to set an example for the Caribbean region by providing a sizeable scale and replicable model on developing sustainable agricultural production of rice.

This project intends to lay out innovative conceptual, technical and critical environmental governance foundations in Yaque del Norte and Yuna basins for integrated landscape management, a concept with little use in the country. In fact, landscape approaches that consider the economic, environmental and social impacts in the upper and lower watershed of different land uses are lacking in Dominican Republic. By looking at how to maximize the delivery of ecosystem services and biodiversity of a traditional monocrop such as rice with agroforestry arrangements in the upper watershed, the project

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intends offer scientific evidence for landscape decision making that can maximize the delivery of ecosystem services and enhance biodiversity. It aims to document best practices and lessons learned of adopting landscape management tools where ecosystems and productive sectors intertwine. This will be done by providing innovative tools not yet used in the country to analyze the tradeoffs among land uses and by establishing a Landscape Index to value sustainability outcomes of decisions made by stakeholders at the roundtables.

The results obtained from the project are expected to be sustainable and scalable beyond the project intervention area. First, by creating enabling conditions through improving interinstitutional coordination and technical capacities, it is expected that authorities in charge of land use planning will improve their coordination and technical capacities to mainstream ecological considerations into land use planning. The development and adoption of innovative monitoring of sustainability at the landscape level by local authorities, such as the proposed landscape sustainability index, are expected to be key tools to be able to monitor landscape sustainability beyond the life of the project. Second, production systems to be adopted by farmers (i.e. rice in lower sections of watersheds and agroforestry systems in upper watersheds) are expected to be maintained after the lifetime of the project and replicated beyond the project direct intervention areas, as they will prove to increase yields as well as resilience to weather events, generating greater farmer income. The project will document this experience and disseminate information about a full range of economic and environmental benefits are not yet widely known in the country. The project will generate lessons on how to operationalize and disseminate information for sustainable land use practices adoption, that will inform national strategies that aim to promote land restoration through agroforestry systems (e.g. REDD+ Strategy) and agricultural policies for the rice sector.

The proposed project will count with co-financing from IBRD, that based on the enabling conditions generated by the proposed project, will support further scaling up of SRI and restoration of upper watersheds with agroforestry systems to achieve larger environmental benefits. Government co-financing partners will provide extension services and material for agroforestry from nurseries and conveying power, among others, and GEF resources will make these services more effective by providing targeted training. GEF support will speed up the process of decision making of the National Water Board, the GTI, and local water committees based on strong governance structure and on tools for analysis of tradeoffs of land and water uses. As a result, the project will contribute to global environmental benefits, improving biodiversity conservation, contributing to achieve land degradation neutrality, reducing GHG emissions and increasing resilience of productive landscapes.

2. Rationale for public sector provisioning/financing, if applicable

The project aims at strengthening the capacities of public institutions and governance bodies and improve coordination among multiple stakeholders. For this, the use of public funds is essential. In addition, the Project actions outcomes will have important local, regional, national and global benefits as they focus on the mainstreaming of biodiversity and other ecological services into productive landscapes, hence increasing the scale of sustainable production and hence its impacts. While focusing on regional and global public goods, the project will also address market failures related to the lack of internalizing the environmental value of ecosystem services into production decisions.

3. Value added of the Bank's support

The World Bank Group has the country and global knowledge, as well as valuable operational experience to support the Government of the Dominican Republic with the design and implementation of this complex multi-focal project. The World Bank has been a key partner in supporting Dominican Republic in its REDD+ Readiness Preparation process and the development of National a ER-Program to respond to Deforestation and Forest Degradation threats, to which the proposed project will contribute. In addition, the World Bank Lending \$US 80M Project "Resilient Agriculture and



Integrated Water Resources Management” will start implementation in 2019, is aligned to the objectives of the Project and funds from this Loan are expected to be invested to scale up the proposed project Interventions.

4. Brief description of methodology/scope and next steps

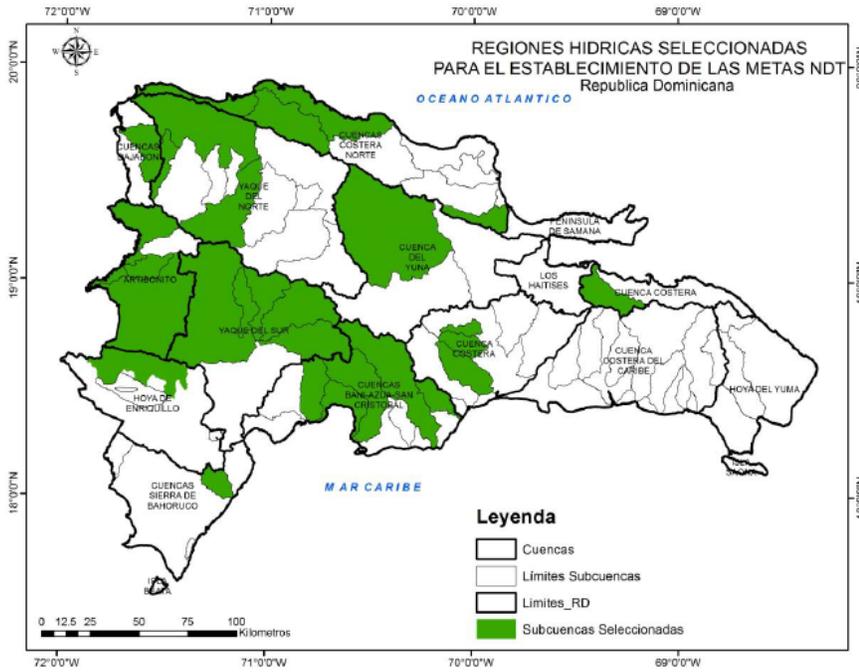
The project will be implemented in the Yaque Norte and Yuna Watersheds, which constitute the Cibao Valley, the major agricultural production region in the Dominican Republic. Both basins are critical for delivering water to residents, to the economy, and in terms of the biodiversity they host. Given the wide altitudinal range (from 2800 to 0 meters), multiple ecosystems are present in the landscape hosting very important biodiversity in the Caribbean region. Moreover, the Yuna river flows into the Samana Bay, the largest semi-enclosed bay in the Caribbean, which contains the most extensive mangrove and shrimp fisheries in the country, and the most important sanctuary for humpback whales in the North Atlantic.

Yaque Norte and Yuna basins face severe land degradation and soil erosion, overexploitation of water resources and overuse of fertilizers and pesticides. In addition, they are vulnerable to weather events (floods and droughts) whose severity is likely to increase in the near future due to climate change. Water balance in the Yaque Norte Basin is projected to be in deficit by 2025. The decline in water availability is practically driven by deforestation and soil degradation, from the expansion of unsustainable agricultural practices, and reduced precipitations. On the other hand, Yuna faces recurrent flooding the lower section of the watershed. In the lower sections of both basins, inefficient rice production system demand increasing water resources, contributing to soil and water contamination through fertilizer and pesticide runoff, and generating GHG emissions.

Climate change risks: The Dominican Republic is exposed to climate-induced extreme weather events that have the potential to exacerbate natural disasters. Both, the Yaque Norte Basin (YNB) and Yuna basins are exposed to droughts, earthquakes, flooding, hurricanes, landslides, temperature extremes (heat waves), tropical storms, and tsunamis. Climate change is likely to increase the frequency and intensity of climate-related storms and disrupt normal climate patterns, while increases in average temperature can result in heat stress, droughts, and water scarcity. Sustainable management of natural resources through an integrated landscape approach- which includes rice, coffee and cocoa plantations among others- secures the survival of a variety of ecosystems and helps ecosystem-dependent people to increase their resilience to new weather and physical conditions caused by climate change, while at the same time contributing to climate change mitigation through the conservation and enhancement of forest carbon stocks.

Scope: The project will be implemented across priority regions within the Yuna and Yaque Norte Watersheds. In the case of upper watershed regions, they are being identified within prioritized areas of the National Action Program to Fight Desertification (See Figure 3), on the basis their contribution to hydrological services, biodiversity, connectivity and as well as agricultural production potential (agroforestry systems for coffee and cocoa). In the lower sections of the watersheds, priority regions will also be identified within prioritized areas of the National Action Program to Fight Desertification based on the concentration of small rice producers and the importance of ecosystems services (hydrological and biodiversity).

Figure 3. Hydrological regions for LDN targets



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To build on previous implemented GEF projects and those under implementation, during preparation the MARN will ensure coordination among the activities of those projects and the proposed project. Lessons learned from outcomes of previous projects and those under preparation during the early stages of implementation will be incorporated in the design of this proposed project and activities will be articulated to promote synergies between projects. For instance in the GEF 6 Dominican Republic project on *Mainstreaming Conservation of Biodiversity and Ecosystem Services in Productive Landscapes in Threatened Forested Mountainous Areas*, coffee and cocoa are targeted and a similar approach to landscapes is conveyed, albeit in the northern part of the country. The proposed project is expected to tighten collaboration and share lesson and tools early in the process. For instance, the outputs envisioned as: a) *Decision making tools for planning and enforcement, and b) institutional capacities for ensuring compliance with environmental regulations provisions and land use plans*, make use of remote sensing and Geographic Information Systems which are also tools used under the proposed project. The GEF-6 approved project also looks after the creation of *platforms for collaboration in monitoring and enforcement and increased technical capacity to promote sustainable production models*, activities that are shared with the proposed project. A harmonized approach on some of these concepts and activities will be put in place.

Of particular importance the *GEF-5 Conserving Biodiversity in Coastal Areas Threatened by Rapid Tourism and Physical Infrastructure Development* executed activities, processes and results where the proposed project can build upon. For instance, in relation to the Component 1 about *policy, legal and planning framework in the tourism sector to address threats to biodiversity from tourism development*. Special attention will be focused on the bottlenecks of the activities performed to achieve *Capacities to plan, budget and enforce landscape management across institutions to sustain conservation outcomes in priority watersheds*. On Component 2 the activities undertaken for *improving the capacity of sectorial ministries, private sector, municipalities and community level organizations to generate, use and share geographic, socio economic and bio-physical information needed for landscape level planning* will be essential to learn from for the proposed project. Lastly the results for the *adoption by local communities in key biodiversity areas about*



climate resilient landscape management tools that were implemented in 7000 ha will be looked at with the implementing organizations, provided that behavioral change that SRI will require with traditional rice producers, which has been identified as a challenge for scaling up.

The GEF-6 project *Strengthening the capacity of the Dominican Republic to generate climate information and knowledge in the framework of the Paris Agreement* will also be looked at for lessons learned in particular with regards to the output *establishing institutional long-term agreements with academia* which will aid in the sustainability of data collection.

Budget: Proposed resource allocation across focal areas and sources is presented in the GEF Data Sheet. The budget combines GEF grant funds with fiscal counterpart funds, plus complementary sources of international cooperation projects. Funds will be articulated together under the incremental logic in support of GEF resources.

C. Implementing Agency Assessment

The project will be implemented by the Ministry of Environment and Natural Resources (MARN), which has led the project preparation process. The MARN has successfully executed a total of 40 GEF projects to name key ones connected to the propose one: Biodiversity Conservation and Management in the Coastal Zone of the Dominican Republic (GEF Grant: 3,000,000.00 USD); Re-engineering the National Protected Area System in Order to Achieve Financial Sustainability (Total Cost 11,981,000.00 USD, GEF Grant 3,200,000 USD) ; Demonstrating Sustainable Land Management in the Upper Sabana Yegua Watershed System (Total Cost 30,059,608.00 USD, GEF Grant 4,434,695 USD) and other smaller projects. Likewise, MARN has worked on other projects financed by the World Bank, such as in the preparation of the P163260 "Resilient Agriculture and Integral Management of Natural Resources in the River Basins of Yaque del Norte and Ozama-Isabela" and, since 2012, in the preparation of the "National Strategy for Reducing Emissions for Deforestation and Degradation(P151752) ", and the " FCPF Carbon Fund Dominican Republic Emissions Reduction Program (P161182)". The latter has allowed the development of capacities both within the ministry and in the community of relevant stakeholders through a broad participatory all around the country.

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ANNEX 1. Expected stakeholder participation

The Ministry of Environment and Natural Resources (MARN) will be in charge project preparation and implementation, and the process will involve multiple stakeholders. Integrated landscape management will be based on the recognition of the diverse array of stakeholder needs (farmers, communities, and the private sector) and will need coordination among key sectors and government institutions.

Participation of the following stakeholders is expected during project design and implementation:

Stakeholders	Role and expected participation
The Ministry of Environment and Natural Resources (MARN)	MARN is the public agency responsible for the formulation of national policy related to the environment and natural resources and for ensuring sustainable use and management of renewable natural resources. MARN is also the GEF focal point. The Ministry of Environment and Natural Resources (MARN) will be in charge project preparation and implementation.
Ministry of Economy, Planning and Development (MEPyD)	Responsible for land use planning and plays a key role in determining financial flows, national budgets and so on. The participation of MEPyD is expected particularly in the design and implementation of component 1 as an adviser
Ministry of Agriculture	Public agency responsible of the formulation and implementation of agricultural policies in the Dominican Republic. It supports producers to improve their competitiveness and access to markets. The active involvement of this Ministry will be key for the effective design and implementation of the three components of the project.
Interinstitutional Technical Group of MARN (GTI)	GTI is a coordination entity of the United Nations Convention to Combat Desertification. It is in charge of mitigating and addressing land degradation and desertification in the country. The active participation of this body is expected during project preparation to design activities under component 1. In addition, its governance is expected to be strengthened by the project.
Dominican Institute of Forestry and Agriculture Research (IDIAF)	National research institution in charge of agriculture research development and validation in the country. It is expected that this institute will be involved in the design of the technical assistance package for sustainable rice intensification under component 2.
Municipal governments	Responsible for overseeing land-use management at local level, within their areas of jurisdiction. The involvement of these local governments will be very important for the design and implementation of the project, particularly for activities under component 1.
Dominican Agrarian Institute (IAD, Instituto Agrario Dominicano)	Attached to the Ministry of Agriculture, it is responsible of agrarian reform in the country, and its functions include land holding, settlements and land titling.
National Water Board (Mesa de Coordinación del Recurso Agua)	Multisector national body in charge of coordinating entities and action to ensure water security in the country, and in charge of designing a National Strategy for Integral Water Management. This body will have an advisory role during project preparation and the and the project is expected to strengthen it as a way to improve governance for land use planning.
Local water committees	Local multi-stakeholder committees created to coordinate integral water management at the local level.

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	The project is expected to strengthen them where they exist and to support their creation when they are absent in the territory as a way to improve governance for land use planning.
National Cocoa Commission	Public – private organization responsible of designing the national cocoa policy, supporting increase and rehabilitation of cocoa farms, and improving cocoa quality. Its participation is expected for the preparation and implementation of component 3.
Dominican Coffee Council	Public – private organization responsible of guiding coffee policies and supporting the development of the sector and producers. Its participation as advisor is expected for the preparation and implementation of component 3.
Rice producers	Their participation during project design will be key to further understand their needs and prepare component 2. They will be beneficiaries of activities under component 2.
Land owners in upper watersheds	They will be consulted during project preparation to further understand their needs and prepare component 3.
Agriculture Bank (Banco Agrícola)	
Local communities	Local communities and rural users of natural resources are expected to be direct beneficiaries of the project in terms of enhancing capacities for governance systems, land use planning issues, and technical assistance. They will be consulted during project preparation to ensure that the project design reflects their needs in the best way possible and to mitigate potential impacts from project interventions.
Civil society	Civil society organizations promote and implement agricultural and environmental initiatives; and have a role in generating territorial organizational structures. They are expected to be consulted during the project design and to participate in governance structures the project aims to strengthen under component 1.

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