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Environmental and Social Data Sheet

Overview

Project Name:	Barbados Global Gateway Nature Guarantee
Project Number:	2023-0689
Country:	Barbados
Project Description:	The operation consists of EIB's first credit enhancement under a Debt for Climate Conversion (DfCC) in which the Bank provides a pro-rata credit guarantee for a new sovereign sustainability linked debt issuance by the Government of Barbados, that will replace more expensive legacy debt. The generated savings from the DfCC will be used for key investments in infrastructure and enabling activities to protect and increase the resilience of natural resources, and critical and fragile ecosystems and the services they provide; thereby contributing to reducing and mitigating the impacts of climate change. The DfCC structure also includes conditions and requirements for improvements in the institutional framework to strengthen Barbados' adaptive, financial and environmental capacity to address and manage climate change impacts, biodiversity loss.
EIA required:	Yes. Some of the investments supported from the savings from DfCC may require an EIA under the relevant legislation.
Project included in Carbon Footprint Exercise ¹ :	No

Environmental and Social Assessment

The Debt for Climate Conversion (DfCC) has the objective to support the Government of Barbados in strategic reforms to promote resilience addressing the triple ecological crisis of climate change, biodiversity loss and pollution. This is achieved through (i) the policy matrix in which changes in the institutional framework need to be approved by the GoB before the issuing of the guarantee and (ii) the investments resulting from the savings of the DfCC.

Due to the urgent need for the critical infrastructure investments of the DfCC, upfront financing for the following investments has been agreed:

- Rehabilitation and upgrade of the existing South Coast Wastewater Treatment Plant with a capacity of about 9 000 m³/d and about 30 000 population equivalent and extension of the wastewater and sludge treatment facilities to create the new South Coast Water Reclamation Facility (WRF) with the same capacity that will produce reclaimed water for use in irrigation and groundwater aquifer recharge.
- The infrastructure to bring the reclaimed water to the aquifer recharge area and to the irrigation area as well as the aquifer recharge facilities.

¹ Only projects that meet the scope of the Carbon Footprint Exercise, as defined in the EIB Carbon Footprint Methodologies, are included, provided estimated emissions exceed the methodology thresholds: 20,000 tonnes CO₂e/year absolute (gross) or 20,000 tonnes CO₂e/year relative (net) – both increases and savings.



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- The protection and increased resilience of the neighbouring mangrove system (Graeme Hall Swamp) that was adversely impacted as a result from the collapse of the sewer main several years ago.
- Solar panels to reduce the carbon footprint of the project. and
- Institutional strengthening of the Stakeholders: The Barbados Water Authority (BWA), the Government Analytical Services, Ministry of Environment, and Barbados Agricultural Development and Marketing Corporation (BADMC).

Any excess savings will be used to finance infrastructure and enabling activities from a list of eligible investments contributing to the protection and increased resilience of natural resources, and critical and fragile ecosystems and the services they provide, such as the reduction non-revenue water, the rehabilitation and extension of the sewer network, and the improvement of the management of the water system. These additional investments would be also included within the area of influence of this operation.

Environmental and Social Assessment of the Guarantee

Barbados is highly vulnerable to climate change and faces severe socio-economic risks related to the increased frequency and intensity of climate-induced natural disasters. The most severe of such impacts include sea level rise and increased intensity and frequency of tropical storms and hurricanes. The impact of these extreme weather events will dampen growth and lead to higher levels of public debt and increased poverty.

The most significant climate challenges affecting Barbados include:

- **Disruption of Fisheries and Agricultural Industries:** Drought, flooding and storm damage, saline intrusion, and pest and invasive species outbreaks disrupt agricultural production and the integrity of coastal fisheries, threatening food security. In addition, increased marine pollution reduces marine species' resilience, such as coral reefs, increasing the vulnerability of coastal ecosystems to climate change.
- **Water Resources and Public Health Challenges:** Limited and declining water resources and increased groundwater contamination from flooding, soil, and pollutant infiltration, as well as saline intrusion, leads to further reduction of water availability and increased health-related water stress as well as increased prevalence of water and vector-borne diseases.
- **Vulnerability of Population to Natural Disasters:** Low-lying areas along the west and south coast, where approximately 25 percent of the population resides, are prone to flooding caused by torrential rainfall, storm surge, and sea level rise. Small-scale landslides have also occurred in the northeast portion of the country.

Policy Reform Agenda: Barbados has made important progress in its environmental commitments, submitting its updated National Development Contribution (NDC) in 2021, updating the National Biodiversity Strategy and Action Plan (NBSAP) in 2020 and approving its Blue Economy Roadmap. The Government's priority areas and policies to strengthen climate change adaptation, involve the following:

- The 2021 Physical Development Plan (PDP) sets out policies and strategies to guide land use, settlement patterns, infrastructure and environmental management that seek to enhance resilience under changing climate conditions.
- The 2021 Roofs to Reefs Programme (R2RP) operationalises the PDP and directs public investment, including by making low- and middle-income homes more resilient to extreme weather events; increasing freshwater storage capacity and water use efficiency; making critical utility, water and sanitation and road infrastructure climate resilient; and restoring vulnerable coral reef ecosystems.
- In addition, Barbados has adopted or is in the process of adopting several sector policies and regulations that involve climate change adaptation considerations, including the Water Reuse Policy, Integrated Coastal Zone Management Plan, Comprehensive Disaster Risk Management Policy and Climate Change and Agriculture Policy, among others, several of



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which have been curated for inclusion in this operation. Barbados is also operating a Catastrophe Fund designed to provide financial aid to eligible stakeholders in need as a result of climate-induced natural disasters.

- The GoB is making important strides toward a sustainable and low carbon transformation of its economic and social systems. In its updated NDC, Barbados has committed becoming a carbon neutral island by 2030 moving away from its heavy dependence on imported fuel oil. Formal endorsement of the Barbados National Energy Policy (BNEP) in 2019 has been a concrete step in this direction, as the plan contains a bold strategy and even more ambitious targets. To realise the vision outlined in BNEP and implement a strategy that is well aligned with the country's 2021 NDC Update, the GoB is preparing a set of targeted policies that support the transition to use of cleaner energy and contribute to the country's green and resilient economic recovery. More recently, the GoB has further strengthened the country's resilience by investing heavily in climate adaptation measures and addressing its main marine pollution challenges (e.g., the proliferation of sargassum). It is also ensuring that climate change mitigation and adaptation policies are aligned, as illustrated in the R2RP and stipulated in the NDC Update.

Capacity: The achievement of sustainability and biodiversity conservation goals are significantly related to the levels of institutional capacity to design, implement and monitor policies. The GoB has the appropriate structures to ensure effective environmental governance based on the key principles of effectiveness, accountability and inclusiveness. The DfCC will be contributing to a strengthening of these set of structures and processes related to making and implementing decisions related to climate and environment. This includes mechanisms that ensure compliance with and enforcement of environmental laws, as well as organisations and practices aimed at improving specific environmental and climate outcomes. Since environment and climate-related policies are a cross-cutting issue that involve the cooperation and coordination among many organisations and individuals, a sufficient level of relevant capacity is needed to undertake these strategies. This requires, among other aspects, sufficient personnel dedicated to environmental and climate issues in key government institutions, recognition of the issues and the structure of organisations and institutional arrangements to develop climate and environment (specifically natural capital) -related strategies.

Public Consultation: The proposed policy interventions support the GoB's comprehensive resilience agenda which was developed with a wide range of stakeholders. As with all legislative measures and reforms in Barbados, the policy-related interventions were and are subject to a thorough consultative process involving, relevant government stakeholders, private sector, civil society and any other key groups likely to be impacted by the proposed policy changes. The consultative process is an important institutional feature of GoB. The Prime Minister chairs regular meetings of the Social Partnership, which includes the private sector, labour unions, entrepreneurs, government officials, churches, and nongovernmental organisations. The Social Partnership discusses issues affecting the economy and assesses possible solutions. When viable, these suggestions are incorporated in policies, laws, and strategies. Other consultative methods include public hearings, ad-hoc meetings on specific topics, citizen panels, surveys, internet forums, and media outlets. Specifically, regarding the policies supported by the proposed operation, the design and implementation of the indicated policy reforms have involved and continue to involve ongoing consultations with key stakeholders, and various committees at the sector and programme level have been established with a broad range of stakeholders to oversee implementation going forward.

Environmental and Social Assessment of the investments from the savings

South Coast Water Reclamation Facility (WRF) and associated facilities

One of the critical resilient infrastructure components identified in this operation and appraised upfront is the South Coast Water Reclamation Facility (the Scheme). The Scheme consists of (i) the upgrading of the existing South Coast Sewage Treatment Plant from its current advanced



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preliminary wastewater treatment to a water reclamation facility that produces effluent that can be used in irrigation for agriculture and in recharge of a non-potable aquifer.

The South Coast WRF is in Graeme Hall, adjacent to Graeme Hall Nature Reserve/Swamp to the south, the Department of Agriculture Research Station to the north, and Harmony Hall to the East. Among them, the Graeme Hall Nature Reserve/Swamp is a RAMSAR protected site.

The reclaimed water will be transported in an underground pipeline running along the ABC highway to River Plantation and to recharge the Christ Church aquifer. The reclaimed water will be allocated to agricultural users for use on edible food crops and for other agricultural irrigation purposes to support the expansion of agricultural activities and food security in Barbados. The water quality of the reclaimed water will use the most stringent quality standards as per Aquifer recharge according to National Water Reuse Policy, where the Environmental Protection Department (EPD) set the standards adopted in the designs. This quality is also compatible with recent 2020 EU Regulation on Wastewater reuse (Regulation (EU) 2020/741). This may need to be further optimised when more experience is obtained in the use of the reclaimed water.

Any excess effluent that cannot be treated in the tertiary treatment but did receive secondary treatment as well as the brine from the reverse osmosis process will be discharged through the marine outfall to sea.

There is no sludge management strategy for any of the wastewater treatment plants (WWTPs) in Barbados. One of the requirements under the project is that this strategy will be prepared before the project is completed.

The investments will meet, where applicable, EIB's Standards as well as the Standards of the respective Lenders, which for this type of investments are substantially aligned with those of the EIB.

Barbados Water Authority, the implementing agency for this Project is committed to achieving sustainable outcomes and striving to ensure that the Project is constructed and operated to international good practice and Lenders' Environmental and Social Standards and requirements.

An Environmental and Social Impact Assessment was carried out for the WRF, the pipelines to the irrigation and groundwater recharge area, for the groundwater recharge well facilities, and for the investments in the Graeme Hall Swamp.

The environmental and social due diligence involved the review of the existing ESIA report including local feasibility study, a scoping visit and the preparation of a comprehensive Lenders' Environmental and Social Impact Assessment package (ESIA) by an independent consultant, ensuring alignment with Lenders' requirements in particular with respect to the inclusion in the enabling policy environment for gender and marginalised population which were identified as a significant gap. The updated ESIA report will also undergo the national ESIA process for permitting purposes.

The ESIA report included the socio-economic impact assessment in the Project area and region, analysis of alternatives, noise assessment, air dispersion modelling, sludge management options, biodiversity, gender assessment climate change impact assessment, as well as assessment of the cumulative impacts.

Following the assessment, the potential negative impacts and/or risks identified as a result of the project are (i) disruption to mobility, movement and traffic; (ii) temporary socio-economic dislocation and possible displacement; (iii) disrupted access to services; (iv) noise, dust and vibration; (v) environmental health issues with social impacts; and (vi) potential exploitation and harassment. The most anticipated impact from the project activities is the disruption to road use and traffic flows brought on by the extent of the route along which the pipelines will be installed as well as the proposed location of the reclamation facility. Special considerations will need to be made for the management of construction waste to prevent direct disposal into the environment. These impacts generated during the construction phase can be adequately



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managed through the implementation of the Environmental and Social Management Plan (ESMP).

Biodiversity and the Graeme Hall Swamp: The Graeme Hall Swamp is a wetland located downstream from the South Coast Sewage Treatment Plant and adjacent to the shore. It is surrounded by agricultural land and urban areas, making it a vital natural area in Barbados. Graeme Hall is particularly significant as it houses the last significant mangrove ecosystem in the country. A notable feature is a 5 ha artificially created lake, which is the largest body of inland water on the island and attracts various species of aquatic birds. Historically, the Swamp interacted with marine seagrass beds and shallow nearshore hard coral reef ecosystems, forming a cohesive ecosystem. However, the connection to the marine area is currently controlled by a narrow sluice gate which has been permanently closed since 2006 due to deterioration. Given its natural importance, Graeme Hall Swamp plays a crucial role in mitigating the effects of climate change, providing resilience against extreme weather events such as droughts and heavy rainfall.

Due to the construction activities, disturbances to faunal species and their nesting or breeding grounds within the Swamp area could result in relocation of fauna from the Swamp area in search of less disturbed areas which may create tension/conflict with nearby businesses and residents. The salinity levels in the Graeme Hall Swamp have evolved from a brackish pond to a near freshwater pond and has increasing levels of nutrient, microbial and other parameters associated with water clarity. The ecology and water quality in the area may be adversely impacted by the works. The impact of the current ecology will need to be further assessed given the proposed works and its influence on surface drainage and changes in ecological behaviour. This may affect the ecology of the area as the water may shift from fresh to brackish, especially if the sluice gate is reopened. With the project recognising the ecological importance of the Graeme Hall Swamp, it will be imperative that appropriate management controls consider the possible impacts on the conservation of the swamp. A biodiversity management plan will be developed detailing the mitigation measures that the contractor will have to undertake to address and manage the likely impacts on the Swamp area.

Emergency Preparedness and Response: A project specific Emergency Preparedness and Response plan will be developed as part of the project's ESMP. It will outline at minimum: i) a list and analysis of the most relevant emergency situations; ii) the list of stakeholders that may be impacted; iii) response procedures; iv) details of the equipment and resources needed and their maintenance requirements; v) the responsibilities of each Project employee; vi) communication schemes to be followed (including collaboration with appropriate local government agencies) before and during an emergency situation; and vii) a training schedule.

Environmental Health, Safety and Security (EHSS): The nature of the activities to be undertaken during implementation of the project typically presents occupational health and safety hazards, especially to those primarily involved in the construction activities. BWA has documented procedures and instructions for site safe working practices, personal protective equipment (PPE) usage, working with chemicals, manual handling, and operational procedures for wastewater treatment plant operations. As part of the ESMP, BWA will develop occupational health and safety risk analysis for both construction and operational phases and related mitigation plans and will cascade those requirements down to the contractor. The contractor will be required to ensure that the health and safety management policy is clearly understood by all workers and that all the mitigation measures are carried out. A change management process will be required to be put in place.

Onboarding and orientation programmes for new employees and workers and periodical refreshment training includes EHSS topics such as job specific risks and measure, safe working practices, emergency procedures, waste management, chemical safety, and first aid.

Involuntary Resettlement: Various community infrastructure property or services (such as community centres) and economic activities currently exist on the ABC highway in the areas of where the Project will take place. In particular, the roadside and proximity to other places of business including key junctures for other services as well as the transit point role of the ABC



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highway makes this an important hub for access to a mobile and consistent market for vendors. While other businesses are likely to adapt and cope with any temporary disruptions, the vending activities will face the most significant physical and economic disruption. Given their location, these economic activities will need to be relocated while the physical works are ongoing which will disrupt those activities and be a source of concern for the persons directly involved in those activities and their families/households. A livelihood restoration plan will be developed outlining the measures required to implement management and mitigation commitments made in relation to the economic impacts identified in the ESMP. Other effects to business can be mitigated against with robust stakeholder engagement, advance notice and a minimisation of physical effects on the operating environment.

Public Consultation and Stakeholder Engagement: The ESIA package was disclosed for 120 days for public review and comment (package disclosed on 16 April 2024). The ESIA disclosure package includes the ESIA report and the associated ESMP. The documents have been disclosed in English on BWA's website.

Stakeholder engagement activities are currently ongoing during the ESIA disclosure period. The Project is also being subject to a national EIA process. Public consultation meetings took place on the 9th and 11th of May 2024.

The Social assessment conducted targeted communities within 1km of the Project area to determine how the different components of the Project could prove impactful to nearby communities, even those not directly part of the served area. There was wide acceptance of the intended outcomes of the Project, particularly from the farming community and those who acknowledge the issues of water scarcity and food insecurity, as well as inflated consumer costs. The concerns raised regarded the potential disruptions to traffic, particularly as it related to accessing communities, businesses, and places of religious significance. The installation of the pipeline proved to be the most potentially problematic due to the spatial extent of the planned works and the likelihood of the works disrupting not only traffic, but business operations and agricultural activity. Furthermore, as the proposed route of the pipeline runs along the historic railway, the Future Centre Trust who serves as the organisation who assumes the responsibility of the conservation, restoration, and development of the railway and its assets, highlighted the need for appropriate measures to be taken to not undo or decelerate the progress of the works that the Trust has undertaken.

Throughout the stakeholder engagement process, the issue of clear and timely communication was raised. Therefore, an appropriate stakeholder engagement plan (SEP) will need to be put in place for continuous stakeholder engagement that ensures the right channel dissemination for appropriate audiences, paying keen attention to the diversity of the population (retired, women, school-age, and business) within the impact zone. The SEP which will include a communication plan will allow for all impacted and the project implementation to collectively address impacts and mitigation efforts and agreeing. The project will develop a website dedicated to the dissemination of all information related to the project, including project updates, traffic information and any other public service announcements.

Gender Equality: 83.3% of legal frameworks in Barbados focus on gender equality, with emphasis on violence against women (UN Women, 2022). Nevertheless, women in Barbados earn 15% less than men. The BWA is committed to diversity and inclusion and has a gender balanced board and management team with room to improve gender diversity in its operational and technical teams. To this end, BWA, has prepared a gender action plan (GAP) aiming to promote inclusive workplace practices and promote participation of women and diverse populations at all levels in preparation for the Guarantee agreement.

The investments that the DfCC will be financing will increase water supply by more strategic use of reclaimed water by households and farmers which women stand to particularly benefit from due to their caring responsibilities. Moreover, tourism and agriculture are two critical sectors for women's employment and livelihood opportunities in Barbados. These two sectors are increasingly vulnerable to climate change and climate-induced natural disasters with an impact on women's resilience to climate change and -related shocks. The GAP will promote



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women's participation in various stakeholder engagement processes, increase the understanding of differential impacts of water management and climate change on women and diverse groups in Barbados and as a result strengthen the enabling environment for gender responsive policy interventions and project design.

Gender Risks: Violence against women in Barbados has been qualified as a "significant" social problem and a "serious social concern" by the UN High Commissioner for Human Rights. In the context of the investment, the ESIA highlight three main gender related risks: (i) gender-based violence and harassment of women and girls in the vicinity of the construction sites (ii) risk of underaged boys being informally hired and (iii) negative impact on female street vendors and users along the ABC highway that will be disrupted during construction.

As part of the ESMP, a gender perspective will be mainstreamed across the various social management plans (labour, security, social etc) with specific actions to mitigate GBVH risks such as code of conducts, training and awareness raising trainings and a grievance mechanism designed to handle GBVH related claims. Moreover, BWA has a policy in place to address sexual harassment at work.

Investments from excess savings

Any excess savings from the DfCC that are not required for the financing of the South Coast Water Reclamation Facility and associated facilities will be used to support eligible investments that will be structured to meet EIB Environmental and Social Standards.

EIB Paris Alignment for Counterparties (PATH) Framework

The promoter for the DfCC is the GoB. The GoB is a sovereign and exempt from the EIB PATH Framework.

BWA, the implementing agency of the investments triggered from the savings is in scope and screened out of the PATH framework, as it is not considered high emitting nor high vulnerability.

Other Environmental and Social Aspects

BWA has the overall responsibility for the design, implementation and operation of the investments coming from the savings of the DfCC. Contractor selection and construction monitoring will be performed by the relevant departments within BWA. The WRF will be operated by BWA. BWA will receive institutional capacity building, including on gender. BWA will be supported by a supervision consultant as well as a Project Executing Unit, all funded from the project.

Monitoring: BWA has a wastewater influent and effluent monitoring programme in place with regulatory requirements. These requirements are aligned with Lenders' requirements including EU standards.

Grievance Redress Mechanism: BWA and the contractor will be required to have in place a Grievance Redress Mechanism (GRM) prior to the start of construction and operational activities. This mechanism will allow for concerns/complaints to be received and to facilitate resolutions of the affected individuals. It will require BWA and/or the contractor to respond within a specified time. This mechanism offers affected communities/stakeholders an alternative to external dispute resolution processes. The GRM is also available to workers on the Project sites that experience an incident warranting and requiring the use of the GRM.

Conclusions and Recommendations

The proposed operation is in line with the Bank's Water Sector Orientation, by improving water supply and sanitation and by protecting water resources through the production of alternative water resources and additional storage, the reduction of Non-Revenue Water, and the extension and rehabilitation of the sewer network. It is aligned with the Clean Oceans Initiative (COI). The operation is also in line with EIB's commitments to contribute to building resilience to a changing climate and all types of natural disaster, fostering the transition to a net-zero



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economy and protecting, preserving and valuing biodiversity and ecosystem services as spelled out in the EIBG Climate Bank Road Map and the EIBG Environment and Social Policy.

With regard to the WRF, the Project has been structured to meet the EIB's Environmental and Social Standards, relevant national and Lenders' requirements. The ESMP and associated management plans has been prepared to address the findings of the ESIA and to improve E&S performance and risk management. The core ESMP requirements include but are not limited to enhancing and updating BWA's ESMS in line with international standards; preparation of design documents for the associated infrastructure based on the recommendations of the ESIA in line with Lenders' requirements, obtaining the necessary environmental and construction permits; enhancing human resource policy on aspects of gender, gender-based violence and harassment, retrenchment planning and grievance mechanism; including key EHSS requirements for contractor management, implementation of the ESMP for construction and operation phases.

The development of the ESMP and associated management plans including their effective implementation will be critical for the successful implementation of this key infrastructure which will serve as a notable step towards achieving water security, food security and climate resilience, whilst ensuring that the development the physical infrastructure does not compromise the existing physical and social environment.

The DfCC is expected to contribute fully to the Bank's climate action and environmental sustainability transversal objective, notably by contributing to sustainable use of water resources, circular economy, pollution prevention, biodiversity and ecosystem protection and to climate action through the policy framework and the investments from the savings.

The schemes supported and financed from the EIB part of the savings from the DfCC will be subject to the Government of Barbados and the Barbados Water Authority complying with the following undertakings:

- The Government of Barbados and/or the BWA will be required not to allocate Bank funds to project components that require a full EIA study until the EIA study and/or the necessary appropriate assessments have been finalised and approved by the relevant competent authority. Once any EIA study is available, the Promoter will provide the Bank with an electronic copy of the EIA study, for publication on the EIB website.
- The Government of Barbados and/or the BWA will follow EIB's Environmental and Social Standards for those investments funded through the savings from the EIB guarantee.
- Before the start of construction and operational activities, the BWA will prepare to the satisfaction of the Bank, the ESMP and associated plans for the WRF. The ESMP will include, amongst others (i) a Biodiversity Management Plan; Environmental Health and Safety Management Plan; (iii) Social Management Plan which includes a Livelihood Restoration Plan; (iv) Security Management Plan; (v) Workers Health and Safety Plan; (vi) Emergency Response Plan; (vii) Contractor Management Plan, (viii) Labour Management Plan (including Code of Conduct and GBVH Prevention); (ix) Heritage Management Plan (including Chance Find Procedures); (x) a Stakeholder Engagement Plan (SEP), and (xi) a Grievance Redress Mechanism (GRM) .
- Six (6) months prior to operation of the WRF, BWA will prepare, to the satisfaction of the Bank, an operation-related ESMP.
- The Government of Barbados and/or the BWA undertakes to implement and report on the project gender action plan (GAP).
- The Government of Barbados and/or the BWA undertakes to implement the WRF and associated infrastructure in line with the requirements of the ESMP and associated plans.

With the implementation of the Policy matrix, the implementation of the ESMP for the WRF and associated infrastructure, the eligibility requirements including pertaining to E&S for activities that will be financed from the savings in place, and above undertakings, the Operation is acceptable for financing in environmental and social terms.