Biodiversity and development

Thoughts from Latin America and the Caribbean

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Foreword

Biodiversity degradation and loss are global challenges that affect numerous dimensions of social and economic well-being. This is particularly true in Latin America and the Caribbean, a region rich in biological and cultural resources but trapped in development models that overexploit its natural riches. Those models tend to treat biodiversity and ecosystem services as if they were inexhaustible resources, which leads to their progressive degradation —generating, in many cases, irreversible damage— and undermines the bases for the region's social well-being and economic development.

Despite growing evidence that those models are not viable, the region continues to experience ecosystem degradation, jeopardizing its chances of overcoming the development traps in which it is caught. Scientific research has made it clear that maintaining the current development model is unsustainable. In that context, action to curb the biodiversity crisis is not only urgent: it is also feasible, desirable and less costly than dealing with the consequences of inaction.

The Economic Commission for Latin America and the Caribbean (ECLAC) believes that sustainability is not only viable, but essential to ensure economic growth that does not compromise the region's natural capital or aggravate the climate crisis. Alternatives exist that can take advantage of the resources available in the region, provided that effective coordination is achieved between key sectors and actors. What ECLAC proposes is strengthening institutional capacities and improving biodiversity governance to generate a big push for sustainability in order to build greener economies that are more resilient and equitable. The slogan "Peace with nature", proposed by Colombia for the sixteenth meeting of the Conference of the Parties to the Convention on Biological Diversity, highlights the urgency of adopting decisions that ensure a sustainable and equitable future, both for nature and for present and future generations.

Since ecosystems transcend political boundaries, cooperation between countries and regions is essential in addressing this crisis effectively and sustainably. Latin America and the Caribbean has a strategic opportunity to lead structural transformations by taking advantage of its abundant biological and cultural riches. Colombia's presidency of the sixteenth meeting of the Conference of the Parties to the Convention on Biological Diversity (Cali, 2024), Brazil's presidency of the thirtieth session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (Belém, 2025) and Costa Rica's co-presidency, together with France, of the United Nations Conference to Support the Implementation of Sustainable Development Goal 14, "Conserve and sustainably use the oceans, seas and marine resources for sustainable development", (third United Nations Ocean Conference; Nice, 2025) underscore the region's commitment towards international efforts for sustainability and nature. The aim of this document is to contribute to that consensus from a Latin American and Caribbean viewpoint by showing that, from the perspective of a range of different disciplines, biodiversity is a fundamental pillar for the economic development, health and livelihoods of millions of people and the planet.

José Manuel Salazar-Xirinachs
Executive Secretary
Economic Commission for Latin America
and the Caribbean (ECLAC)

Introduction

This document presents a brief analysis of the current state of biodiversity in Latin America and the Caribbean and highlights its fundamental role in the region's economic and social development. It aims to encourage debate on the need to integrate biodiversity into development models and to raise awareness of the need for a transition towards more sustainable and resilient practices. While it is true that our countries have been unable to resolve the great historical challenges of human development, it is increasingly important, as the region tackles the challenges of the accelerated loss and degradation of its natural heritage and the effects of climate change, for it to adopt a comprehensive and coordinated approach that promotes the conservation, recovery and sustainable use of ecosystems and that strengthens environmental governance. That natural heritage is the basis for the region's development potential.

Latin America and the Caribbean is recognized for its abundant and diverse natural and cultural riches, which, in combination with other productive factors, sustain the livelihoods, development and well-being of millions of people. At the same time, the region is notable for having a development model based on the intensive exploitation of its natural resources, which degrades ecosystems and increases climate vulnerability. Not only does the loss of biodiversity associated with this production model threaten environmental sustainability: it also limits the possibilities of reversing the traps of low economic growth and persistent social inequality that the region has faced for almost a decade (Salazar-Xirinachs, 2023).

In light of that situation, Latin America and the Caribbean needs to transform its development model and drive its economic recovery by adopting sustainable consumption and production practices that promote key sectors while preserving the region's valuable natural riches. This transformation, particularly in sectors that make intensive use of natural resources and ecosystem services, entails a transition towards the circular economy, the bioeconomy, regenerative and agroecological agriculture, sustainable tourism, the efficient management of water resources and so on. Not only would the implementation of a strategy based on those sectors enhance the region's natural heritage: it would also contribute to social well-being, public health and the reduction of socioenvironmental conflicts, which currently make the region one of the most dangerous for environmental defenders.

Achieving that transformation demands a significantly increased investment in biodiversity and in a range of instruments that are positive for nature and people. One first step in that direction is to reorient public investment from sectors that negatively impact nature towards practices and sectors that are more sustainable. The structuring of blended financing mechanisms and of appropriate financial vehicles that take different time scales into account is essential to attract private investment and ensure the economic viability of conservation and sustainable use projects. At the same time, the traditional view of the conservation of natural capital as a corporate social responsibility must be relegated to the past and, instead, it must be addressed as a strategic issue linked to risk management and long-term sustainability.

Given the close relationship that exists between biodiversity and climate change, the region's high vulnerability to the impact of the latter, and its abundant endowment of natural resources and ecosystems, the climate change and biodiversity agendas must be integrated from an ecosystemic perspective, with a focus on efficient spending and investment effectiveness. Biodiversity is fundamental to climate change adaptation and mitigation strategies, particularly in the Latin American and Caribbean region, where land use change (and the resulting loss of habitats and ecosystems) is the leading source of greenhouse gas emissions.

Improving transformative governance and strengthening institutional capacities and resources are also key elements in enhancing biodiversity as a foundation for the region's development. This includes

implementing more ambitious and coordinated policies that integrate biodiversity conservation objectives with job creation and economic development. A participatory and inclusive approach —with land-use policies and regulations that promote the sustainable management of resources such as water, soil and other key ecosystem services and that take local and Indigenous communities into account— is essential to ensure equity in the distribution of benefits and to encourage the sustainable management of natural resources.

Biodiversity offers a unique opportunity for transformative action. The ideas set out in this paper are intended to bolster the dialogue initiated at the sixteenth meeting of the Conference of the Parties to the Convention on Biological Diversity and to provide decision-makers and other key actors with inputs for pursuing concrete actions to ensure the preservation of natural heritage as a basis for a sustainable and equitable future. It thus highlights the need, within the framework of the vitally necessary reform of the international financial architecture, for an agreement on financing for biodiversity, with a particular emphasis on countries with a high endowment of natural resources and on those most vulnerable to their degradation. The protection and sustainable use of biodiversity must be seen as a shared responsibility that demands coordinated commitments and actions on a global scale. As the Pact for the Future states, "We must conserve, restore and sustainably use our planet's ecosystems and natural resources to support the health and well-being of present and future generations".[1]

Building a world where humanity lives in harmony with nature is the shared task of all of us.

[1] United Nations General Assembly resolution 79/1 of 22 September 2024.

1

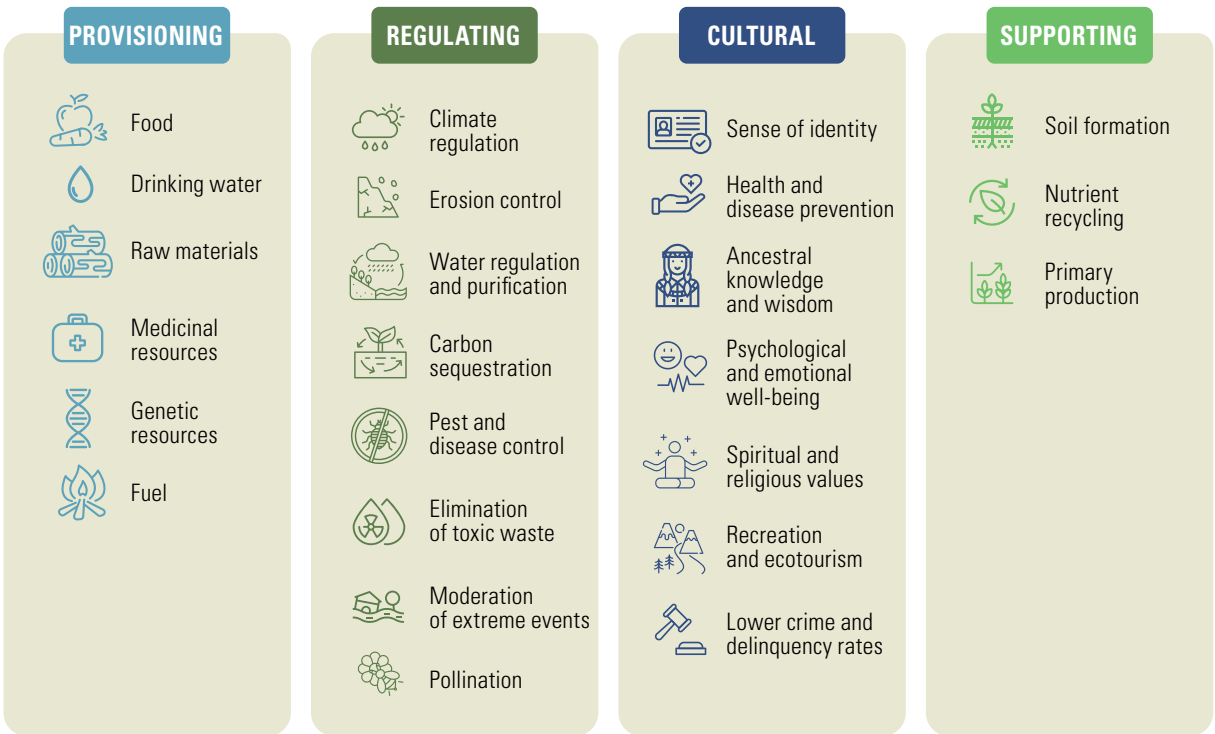
The Latin American and Caribbean region is endowed with a rich natural heritage that, in addition to helping regulate the planet's climate, supports a vast number of livelihoods. Its deterioration not only jeopardizes environmental sustainability, but also entails the depletion of an asset that is essential for economic and social development.

Biodiversity is essential for life

Humans depend on ecosystem services —or the contributions of nature— such as the production of water, oxygen, food, raw materials and various medicinal resources, which are necessary to ensure our subsistence and well-being. For example, at least 75% of crop outputs and almost 90% of wild flowering plants depend to some extent on animal pollination (IPBES, 2016), while 17% of the global population's animal protein intake comes from fisheries (FAO, 2020). It is estimated that more than half of global GDP is generated in sectors that depend either moderately or significantly on ecosystem services: construction, agriculture, food, tourism, textiles, aviation, supply chains and so on (WEF, 2020a).

Not only does biodiversity enable ecosystems to sustain economies through a variety of interconnected services: it also helps ensure their resilience. Ecosystem services can be categorized into the following groups: (i) provisioning services, including those that supply consumable products such as food, water and genetic resources, (ii) regulating services, which are part of the processes that strengthen ecosystems' resilience to disturbances and are therefore fundamental for the sustainability of economies and societies, (iii) cultural services, relating to aesthetic, spiritual, recreational, educational and health activities, and (iv) supporting services, including soil formation, nutrient recycling and the primary plant production (see diagram 1.1).

Diagram 1.1
Nature's contributions (ecosystem services)



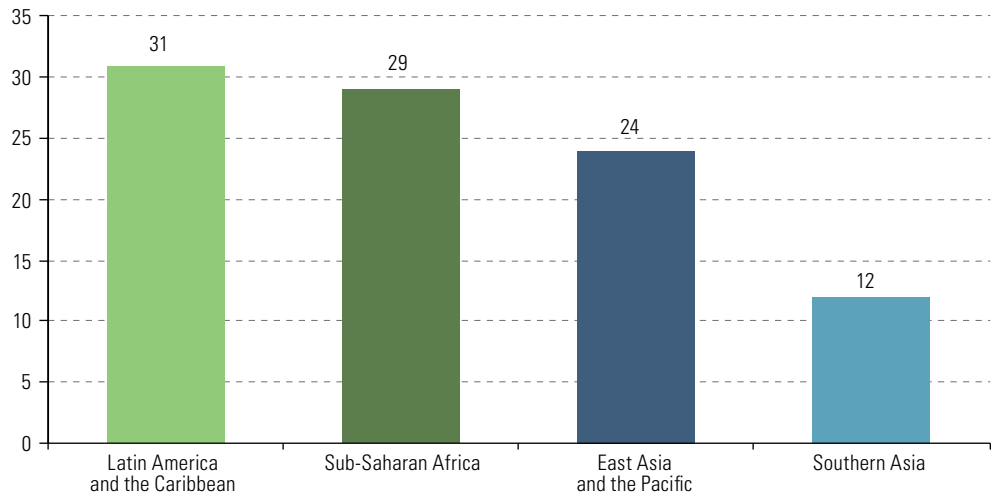
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of "Glosario ambiental: servicios ecosis… ¿qué?", March 2018 [online] http://www.wwf.org.co/?uNewsID=324210; J. Sarukhán and others, *Capital natural de México. Síntesis*, Mexico City, National Commission for the Knowledge and Use of Biodiversity, 2017, p. 60, and M. Aguado and others, *Explorando los vínculos entre la biodiversidad y la calidad de vida*, Dosieres Ecosociales, Madrid, FUHEM Ecosocial, 2024.

Latin America and the Caribbean is one of the world's most biodiverse regions: it possesses vast natural riches, which are essential for life and for the pursuit of a range of economic, social and cultural activities. The region is home to the world's most biodiverse countries and to a high proportion of species unique to the planet. Although it represents only 13% of the Earth's land surface, the region is home to nearly 50% of the world's biodiversity, including a significant portion of its tropical forests, which are critical to climate regulation and the water cycle at the global, regional and local levels. Oceans and seas are also of vital importance for Latin America and the Caribbean: in 23 of the region's 33 countries, coastal waters (exclusive economic zone) exceed the land area and more than 27% of the population lives in coastal areas (ECLAC, 2024a). Despite the methodological limitations of exercises of this kind, which tend to undervalue biodiversity, calculations made for Latin America and the Caribbean, together with the United States and Canada, indicate that the value of ecosystem services outstrips GDP by almost a factor of three (Maldonado and Moreno Sánchez, 2024). In other words, about three dollars of ecosystem service value are required to generate one dollar of output per year.

That richness manifests itself in landscapes, ecosystems, unique species and genetic varieties, including those obtained through ancestral domestication processes. It also has an extraordinary capacity to provide ecosystem services and affords the region an enviable position, seen in its vast potential for processing by-products for production and consumption. Along with the United States and Canada, the region accounts for 40% of the global ecosystem capacity to process natural products and manage consumption by-products, despite being home to only 13% of the world's population (IPBES, 2018).

The region's environmental income associated with biodiversity —in both monetary and non-monetary terms— greatly benefits rural communities and Indigenous Peoples. In rural areas, people are much more dependent on the environment for access to food, building materials, shelter, energy and a range of medicinal supplies than in urban areas. It has been estimated that among the rural populations of Latin America and the Caribbean, this income represents 31% of the total, the highest proportion of any region of the world (see figure 1.1). Another socioeconomic benefit of biodiversity is job creation and self-employment: for example, sectors intensive in biodiversity and ecosystem services —such as agroforestry, food and beverage production, fisheries and tourism— account for 25% of the region's total employment (World Bank, 2024a).

Figure 1.1
Selected regions: environmental income
(Percentages of total income)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of F. Noack and others, "Responses to weather and climate: a cross-section analysis of rural incomes", *Policy Research Working Paper*, No. 7478, World Bank, 2015.
Note: Study data collected between 2005 and 2008.

In view of the above, biodiversity and the ecosystem services that derive from it are assets that should be taken into account in economic development models and plans, since they have a specific geographical expression and are not fully substitutable. Their preservation and regeneration are therefore fundamental issues for economic development and the construction of more prosperous, sustainable and inclusive societies.

The risks of natural heritage deterioration

In Latin America and the Caribbean, the natural heritage is seriously threatened by a development model based on the intensive use of natural resources, which tends to considerably reduce biodiversity. Agricultural activities, the extraction of non-renewable resources (mining or hydrocarbons) and electricity and water generation contribute 15.5% of the value added in the region (ECLAC, 2024a). The risks for nature that this development model entails can be seen at different levels (landscapes, ecosystems, species and genes) and can have local, national and regional repercussions.[1]

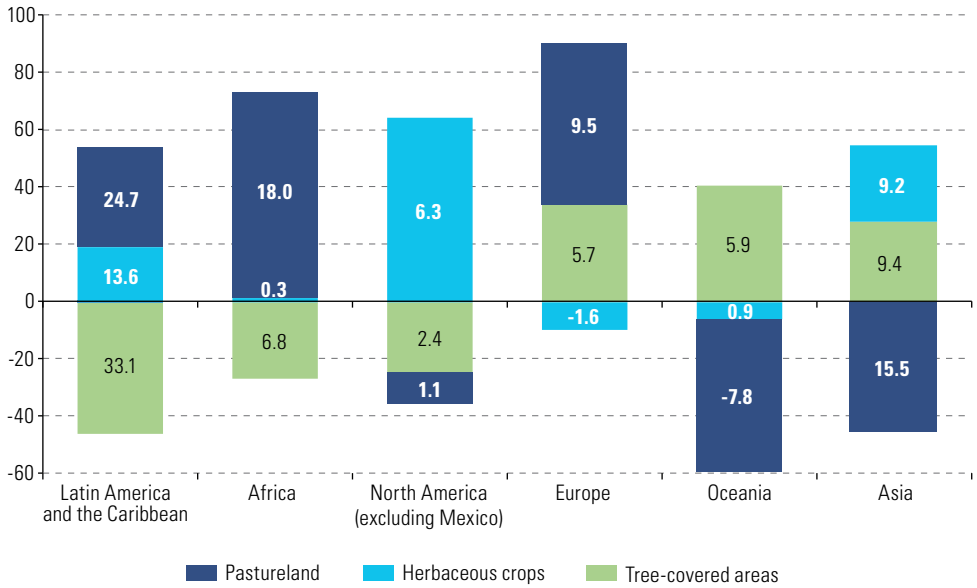
In terms of ecoregions, Latin America and the Caribbean are home to 10 of the 36 critical areas of high biodiversity and endemism, as well as biodiversity hotspots (IC, n.d.) Over the past three decades, the region has lost 150 million hectares of natural forests (ECLAC, 2021). If the previous decade's annual rate of deforestation continues, an additional 77 million hectares of forest will be lost by 2025. In 2020, 3.7 million metric tons of plastics were dumped into the oceans from Latin America and the Caribbean, 150% more than in 2010 (Cisneros, González and Alava, 2024). Plastics can alter habitats, harm wildlife health and affect biogeochemical cycles, which negatively impacts human health and ecosystem functions and services (Alava and others, 2023; Hu and others, 2024; Landrigan and others, 2023; MacLeod and others, 2021). The presence of invasive alien species also has consequences for the diversity, composition and functioning of ecosystems. The global cost of their presence has been estimated at over US$ 423 billion per year (2019 value) (IPBES, 2023). In addition, more than 2,300 invasive alien species are found on lands managed, controlled, used or owned by Indigenous Peoples and local communities, posing a threat to their ways of life and traditions and, at the same time, contributing to the marginalization of their members and to inequity in our societies.

Regarding the risk of species extinction, there was a notable decrease (94%) in the abundance of vertebrate populations, as measured by the living planet index, between 1970 and 2016: a decline almost three times greater than the one recorded in North America (WWF, 2020). This trend affects fish stocks to a greater extent owing to overexploitation. Fishery stocks reported a sharper drop in the Southeast Pacific, particularly along the coasts of Chile, Peru and Ecuador, where the percentage of sustainable stocks fell from 78% in 2008 to 33% in 2021 (FAO, 2024).

In Latin America and the Caribbean, the economic processes that cause biodiversity loss are closely related to agriculture, particularly to deforestation and land use change associated with agricultural activities (figure 1.2), which are also a major source of greenhouse gas emissions. The expansion of agriculture, especially through monocultures such as soybeans and cattle ranching, is the main cause of deforestation and has led to the loss of almost two thirds of the region's forests (Ritchie, 2024; ECLAC, 2022). Not only does this phenomenon aggravate environmental degradation: it also generates strong negative social and environmental externalities.

[1] The conceptual framework adopted by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) classifies the drivers of biodiversity loss and degradation as direct and indirect. The top five direct drivers, in order of importance, are habitat loss (usually due to changes in land or sea use), species overexploitation, climate change, invasive alien species and pollution. Indirect or underlying drivers include economic models, migration flows, cultural considerations, population growth, and patterns of consumption, organization and governance. This document highlights some of those drivers and, in this section, specific examples of direct drivers will be discussed.

Figure 1.2
Selected regions: net changes in land cover, by category and region of the world, 2001–2019
(Millions of hectares)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of CEPALSTAT [online database] https://statistics.cepal.org/portal/cepalstat/index.html?lang=en; Food and Agriculture Organization of the United Nations (FAO), FAOSTAT [online database] https://www.fao.org/faostat/en/#home.

In recent years, there has been an increase in the productive specialization of Latin American and Caribbean countries towards activities that make intensive use of natural resources; this can be seen, for example, in the region's foreign trade data. The share (direct and indirect) of natural resources in exports from the region's countries rose from 43.2% in 2000–2002 to 52.1% in 2019–2021 (ECLAC, 2024a). According to World Bank forecasts (Johnson and others, 2021), if the current trend of biodiversity loss and degradation continues, it will lead to the partial collapse of several essential ecosystem services, such as marine resource extraction, pollination and the provision of food and forests. That would lead to major economic losses, estimated at 3.4% of GDP, well above the estimated worldwide loss of (2.3%). The analysis stresses that inaction is not a viable option, since maintaining the current course of action ("business as usual") would affect all the world's regions, without exception.

Towards a sustainable biodiversity management model

In that context, there is a vital need for an integrated model of biodiversity management that takes account of its impact on a range of dimensions —environmental, social, cultural and productive— as well as of the effects of socioeconomic activities in their interactions with biodiversity. This implies recognizing the role it plays in maintaining the life and livelihoods of communities in their territories and in the well-being of the general population, given that it guarantees the ecosystem services that support the pursuit of numerous economic, social and cultural activities.

The prevailing productive development model in Latin America and the Caribbean, based on natural resource-intensive sectors, poses a high risk of overexploiting the natural heritage. Efforts must therefore be made to preserve, recover and maintain (allow the regeneration of) biodiversity and its ecosystem services, not only because this is crucial to keep the region's ecosystems from reaching a point of irreversible deterioration, but also because it can provide a splendid opportunity to overcome the traps of low growth and high inequality that the region has faced over the past decade (ECLAC, 2024b).

The correct management of natural resources, accompanied by a new set of productive development policies based on sustainability and circularity,[2] could benefit economies, companies, individuals and households by helping diversify the productive matrix and, at the same time, favouring a more sustainable expansion of existing value and production chains. Such a strategy would also bolster the natural heritage that sustains those processes, promote social well-being, improve public health and reduce socioenvironmental conflicts, at a time when the region is the world leader in the number of conflicts and murders of environmental defenders (ECLAC, 2024a; Global Witness, 2022; Rettberg, 2020).

Accordingly, productive development policies must incorporate, jointly and from a perspective of ecosystem integration, the objectives of conservation and sustainable use of biodiversity and job creation. Achieving a productive transformation that is compatible with the sustainable management of natural heritage demands a stronger commitment to the energy transition, the circular economy, the bioeconomy, sustainable agriculture, sustainable water management, bioindustrialization, decarbonization, ecosystem-based adaptation and other initiatives. In that context, territorial productive interconnection measures can be essential in improving productivity in biodiversity-rich areas and in ensuring that the benefits of the transition towards sustainable economies are distributed equitably, not only from a social and sectoral point of view, but also between one territory and the next (ECLAC, 2024c).

In relation to that, more ambitious and inclusive productive development policies that favour key sectors for the regeneration of the natural heritage and the strengthening of technical, operational, prospective and political capacities of institutions at all levels must be implemented (Salazar-Xirinachs, 2023). As discussed below (see section 5), strengthening governance and institutional capacities is essential for implementing and sustaining these policies. This will help increase knowledge about ecosystem sustainability thresholds and ensure an equitable sharing of the benefits. Progress with the regulation, restoration and management of biodiversity will also be needed, along with the adoption of an experimental approach based on continuous evaluations to improve decision-making related to ecosystem services.

[2] As proposed by Salazar-Xirinachs and Llinás (2023).

2

Latin America and the Caribbean has the opportunity to transform its development model through new consumption and production practices that boost key sectors and, at the same time, preserve and recover its valuable natural heritage.

A development model that depletes the natural riches of Latin America and the Caribbean and deepens development traps

Latin America and the Caribbean faces three development traps: low, volatile, exclusionary and unsustainable economic growth; high internal inequality with low social mobility and cohesion; and low institutional and governance capacities, which are essential to manage the transformations needed and tackle these vicious circles (Salazar-Xirinachs, 2023).

The current development model in Latin America and the Caribbean has been unable to overcome the region's stark productive heterogeneity and its historical dependence on low-value-added sectors. The productive structure continues to be largely centred on the exploitation of natural resources and exports of primary goods (Ocampo and Titelman, 2023); among other repercussions, this contributes to the degradation of the natural heritage and increases the region's already high vulnerability to climate change and natural disasters. Limited institutional capacities and ineffective governance, especially in rural areas, hinder the proper management of natural riches. As a result, most of the ecosystem services essential to sustain livelihoods and economies in the region have been reduced, degraded or lost.

The region continues to suffer from limited productive diversification and low investment in research and development, which has hampered the growth of more productive sectors and the sustainable use of natural resources. That situation has driven informal employment, especially in natural resource-intensive sectors, and has increased the already high level of inequality, further hindering the creation of formal, quality jobs (ECLAC, 2023; Circle Economy, 2023). The paradox between development and sustainability continues to exist, since the areas of Latin America and the Caribbean with the best natural ecosystem conservation records tend to have the worst living conditions.[1]

In that context, inaction is extremely costly, as regards not only the sustainability of economic activities, but also the maintenance of livelihoods. The situation is aggravated by the impact of the region's specialization on the export of goods situated in the first links of value chains. This leads to a structural asymmetry between Latin American economies and those of industrialized countries, given that the region's natural assets are depleted without receiving the monetary compensation that, in some way, would amortize the ecological debt generated by this development model.

In the region, the vicious circle of low productivity and deteriorating natural capital —two factors that are part of those development traps— is reinforced. In addition to the economic and financial risks associated with biodiversity loss (see section 3), the serious social repercussions of the environmental threats we currently face must be highlighted. Reverting that trend requires transforming the development model and adopting sustainable production and consumption practices to avoid reaching points of no return in the ecosystem services provided by biodiversity (see section 1). In that context, policies that guarantee the preservation of the natural heritage for present and future generations are essential.

A natural resource-intensive economy with poor performance in growth, sustainability and reducing inequality

The Latin American and Caribbean development model, which is intensive in its use of natural resources, tends to exacerbate, both directly and indirectly, biodiversity loss and degradation: directly, through activities such as fishing, agriculture, infrastructure development, mining and energy production; and indirectly, through the growing demand for water for agricultural and industrial uses, energy generation

[1] In Colombia, for example, areas with higher ecosystem integrity tend to have lower human development scores and higher rates of multidimensional poverty (UNDP, 2024).

and domestic use, as well as the final disposal of residues of all kinds, including toxic waste. These issues, coupled with the effects of climate change and rising pollution, place major pressure on hydrological cycles and the availability of water resources. In addition, the region has a low efficiency —below the world average— in the use of water resources, measured by the ratio between the value added of the entire economy and national water extraction. The Latin American average for that ratio is US$ 12/m^3, compared to US$ 19/m^3 in the rest of the world. In particular, 76% of the water extracted in the region for consumptive use[2] is channelled into agriculture, followed by domestic consumption (15%) and industrial use (9%) (ECLAC, 2024a).

Another factor reflecting this pressure is the overexploitation of fishery species, together with illegal, unreported and unregulated fishing, which has led to the decline —and, in some cases, the partial collapse— of marine populations. This caused a 33.8% drop in capture fishing productivity in Latin America and the Caribbean between 1999 and 2019 (ECLAC, 2024a). Forest cover loss (deforestation) is another factor affecting biodiversity and is closely related to land use change. Forestry products are very important resources in the region, as they are associated with activities such as construction, furniture manufacturing, paper production, the packaging industry and various others.

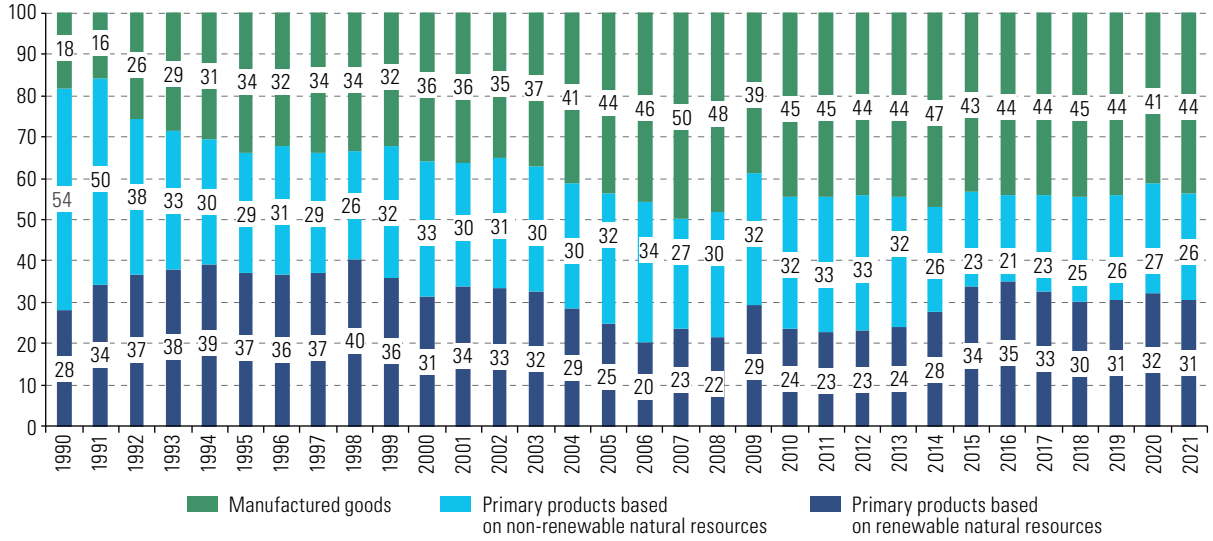
As a result, more than half of the economic activities in Latin America and the Caribbean have a high (17%) or medium (38%) dependence on nature and its ecosystem services (WEF, 2020a). In Colombia, for example, it is estimated that at least 48% of GDP comes from sectors with medium to very high dependence on ecosystem services, such as biomass stabilization and erosion control (important for trade, transport, lodging and financial services). Services provided by water (both surface and groundwater) and vegetation are also important, in terms of flood and storm protection, bioremediation and climate regulation (UNEP/WCMC, 2024). In Mexico, reports indicate that financial sector operations tend to be concentrated in sectors that make similar use of ecosystem services to those identified in the case of Colombia (Martínez-Jaramillo and others, 2023).

Another sign of the region's strong dependence on nature and ecosystem services can be seen in its participation in global value chains. The region's countries focus mainly on the initial stages, revealing a limited capacity to add value, and this is a trend that has been rising over the past two decades. Thus, between 1990 and 2021, the value of natural resource exports tripled from US$ 200 billion to US$ 600 billion. That increase is the result of factors such as increased exports of biomass and minerals (ECLAC, 2024a). Natural resources account for 56% of the region's total export value (according to 2021 data; see figure 2.1). Products directly linked to renewable natural heritage and biodiversity account for 31% of that percentage in 2021. As regards labour markets, agriculture remains the main source of employment in rural areas and, in general, those jobs are low-income and highly informal. In fact, it has been estimated that nearly 19% of employment (63.9 million jobs) in Latin America and the Caribbean is related to biodiversity and ecosystem services. Of those jobs, more than 40 million come specifically from agriculture (Maffei, 2021).

Under the current pattern of specialization, the region's material export footprint is more than twice as large as its material import footprint (Circle Economy, 2023). In addition, the per capita material intensity of exports (measured as the use of raw materials required to produce the volume exported per person) has more than doubled since the mid-1980s and is 25% higher than the world average (International Resource Panel, 2024). This has resulted in a positive trade balance for biomass and minerals equal to 3.2% and 2.2% of GDP, respectively, indicating that the region exports more material resources (including natural heritage) than it imports (ECLAC, 2024a).

[2] The "consumptive" use of water refers to the fact that once the resource is consumed, it is not returned to the place where it was obtained nor does it return in the same form in which it was extracted.

Figure 2.1
Latin America and the Caribbean: export shares of primary products based on renewable and non-renewable natural resources and manufactured products, 1990–2021
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), CEPALSTAT [online database] https://statistics.cepal.org/portal/cepalstat/dashboard.html?lang=en&indicator_id=4252&area_id=724, on the basis of United Nations, UN Comtrade, 2024.

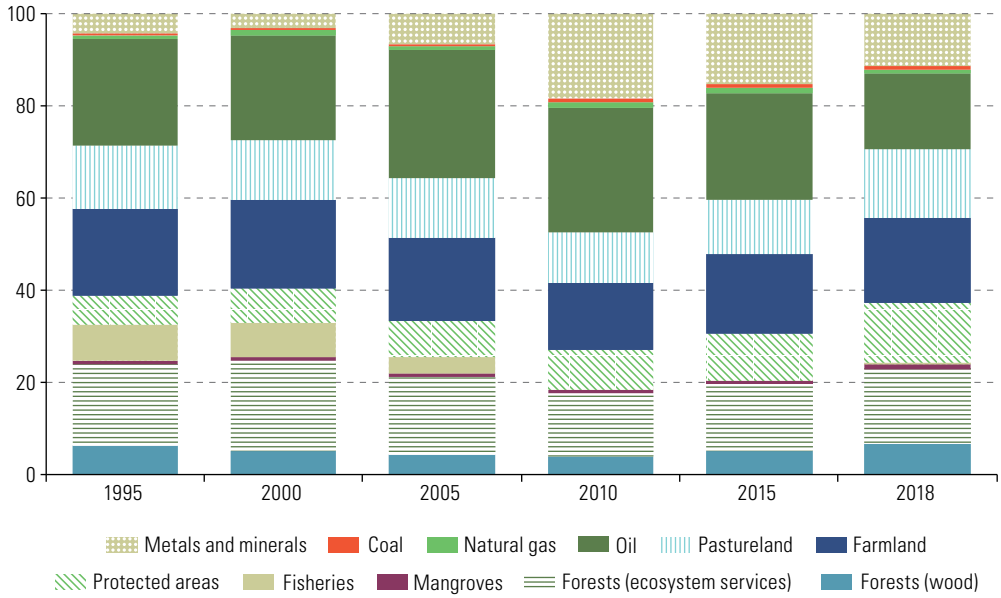
The export basket does not adequately reflect the potential of native biodiversity, given that there is a rising concentration on a small number of species. For example, the land turned over to the production of non-native monocultures —such as soybeans, sugar and coffee— has almost doubled (ECLAC, 2024a). In fact, the region's agricultural exports account for around a quarter of total global exports from that sector (De Miguel and Sánchez, 2023).

Adjusted net savings also enable the natural heritage degradation trend to be evaluated. That indicator is obtained by subtracting natural resource depletion and pollution damage from net national savings. In recent years, Latin America and the Caribbean has experienced a decline in adjusted net savings (from 8.6% of gross national income in 2006 to 3.9% in 2021) owing to the region's high dependence on fossil fuels (Johnson and others, 2021). In line with that trend, the monetary importance of the natural resources that can be valued at market prices (constant 2018 dollars) in the region fell by 9.4% between 2010 and 2018. There has also been an increasing focus on renewable natural resources that provide ecosystem services and that are key to the conservation of biodiversity, such as forests, protected areas, crops and pastureland. At the same time, less attention has been paid to subsoil assets, such as oil, natural gas, coal, metals and minerals (see figure 2.2). It should be noted, however, that the share within natural capital of tourism-related services in protected areas is rising (from 6% in 1995 to 13% in 2018), which is essential for preserving the world's biodiversity (Johnson and others, 2021).

Biodiversity-intensive products are undervalued and are often treated as low-value-added goods. This limits the scope for internalizing environmental and social costs and externalities. Consequently, while the profitability of these products may appear high, it is actually overestimated, as neither the costs borne by producers nor the prices paid by consumers adequately reflect the true cost of their environmental and social impact.

From that perspective, productive specialization based on natural resources tends to perpetuate a system of static advantages, which also derive from the exploitation of natural capital and do not take into account the costs associated with the depletion of the region's natural wealth or the benefits that its recovery could generate in the medium and long terms. This constrains the ability of Latin American and Caribbean economies to move towards a development model that is not only more inclusive, but also more sustainable, based on economic growth that is more diversified and more resilient in the long term.

Figure 2.2
Latin America and the Caribbean: composition of natural capital by natural resource type, 1995, 2000, 2005, 2010, 2015 and 2018
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of World Bank, "Wealth Accounting" [online] https://datacatalog.worldbank.org/search/dataset/0042066?_gl=1*12mg03y*_gcl_au*MTM3OTExNzkzLjE3MjQ2ODk0ODM [accessed in August 2024].

Opportunities for action

Latin America and the Caribbean urgently needs a shift in its productive development model that not only favours the conservation and regeneration of natural heritage and biodiversity, but also promotes the development of sectors with higher levels of productivity and the creation of quality jobs from a perspective of ecosystemic integrity. This demands a far-reaching transformation of its production and consumption systems. Thus, sustainable development will foster both higher economic growth and improvements in the quality of life, while at the same time ensuring the resilience of economic, social and environmental systems (De Miguel and Sánchez, 2023).

Achieving effective change requires that productive development policies incorporate instruments to promote innovation processes that increase the resilience and adaptation capacities of productive systems in the face of changes in nature. In particular, these policies must promote actions and measures for the regeneration and recovery of natural heritage and ecosystem services, which are essential to the economy and to the maintenance of livelihoods. Such actions and measures could include land-use planning policies and regulations and incentives for the sustainable management of water, soil and other ecosystem services.

In pursuit of that, one first action is to redirect public investment from sectors that negatively affect nature to those that are more sustainable and to encourage activities in areas including the circular economy, regenerative and agroecological agriculture, the bioeconomy and sustainable tourism, through greater spending on innovation, research and development, among other possible mechanisms. This reorientation must be accompanied by an enabling environment that encourages the private sector to invest in biodiversity through financial and regulatory instruments that provide short- and medium-term certainty. In addition, the risks inherent in these activities must be taken into account, and the active participation of local communities and Indigenous Peoples must be ensured. Another necessary step is to adjust and eliminate instruments and subsidies that contribute to natural heritage depletion, such as support for fossil fuels and certain agricultural practices, as described in section 3.

It should be recognized that in and of themselves, because of the absence of appropriate signals and sufficient and up-to-date information on the relative scarcity of resources and the resilience thresholds of different ecosystems, markets are severely constrained in their ability to manage biodiversity sustainably. The tragedy of the horizon[3] can be clearly seen in biodiversity-related investments. A combination of effective regulatory mechanisms and economic tools (incentives, certifications, labelling) is therefore essential to reorient production and consumption decisions in domestic and international markets. The thresholds of ecosystem resilience must also be identified and, in the absence of sufficient information, the precautionary principle must be applied and conservation prioritized. In addition, since the economic system is highly dependent on biodiversity and ecosystem services, the benefits of maintaining and expanding the natural heritage must be explicitly incorporated and the economic flows generated by biodiversity —which are generally not reflected in the cost structures of production— must be taken into account.

Transformations towards sustainable biodiversity management must be carried out in a coordinated fashion through inclusive governance that involves rural and ethnic communities, who are the primary custodians of biological wealth and the most affected by biodiversity loss. The inclusion of those groups will strengthen the soundness and effectiveness of actions to promote structural changes and defeat development traps.

Last but not least, the private sector must leave behind its traditional approach to the maintenance of natural capital, under which it is seen solely as a corporate social responsibility; instead, it must understand it as a strategic issue related to risk management. This involves redefining investment and funding allocation strategies towards the maintenance of natural capital to ensure its sustainability and prosperity throughout the business process, within a regulatory and institutional environment that promotes change of this kind.

[3] This term, coined by Mark Carney in 2015 in a discussion on climate change, refers to issues with impacts that transcend the traditional time frames of economic and political cycles and, in particular, the decision-making processes of the financial system (Fernández-Tellería and Uzqueda, 2023).

3

Transforming the unsustainable development model requires significant increases in biodiversity investment. The recovery of natural heritage will not only help ensure development sustainability, but will also prevent its current bases from being compromised in the long term.

The imperative of improving access to green finance and increasing its availability to conserve and maintain the natural heritage through a nature-positive productive transformation

In addition to the current limitations that prevent the proper valuation of natural capital and the urgent need for our economic systems to include relevant and comprehensive assessments of biodiversity, it is important to immediately increase public and private financial flows to protect and recover those assets, which are fundamental to sustaining livelihoods and the economy. On the contrary, the current trend is to underestimate the costs associated with ecosystem loss, as well as its medium- and long-term impact on worsening low growth and persistent inequality trajectories.

Markets, especially financial markets, still fail to recognize the value of natural heritage, unless it is related to a specific cash flow or the value of an asset. In that context, the tragedy of horizons can be seen more clearly, since the durations of economic and ecological cycles are often markedly different. As a result, the payback period is only met for a few ecosystem goods and services, which constrains project bankability.[1] Moreover, unlike other forms of capital, when natural capital is used sustainably, it practically does not depreciate; on the contrary, it self-regenerates. This occurs whenever the degradation to which it is exposed is less than its rate of recovery.

As for provisioning ecosystem services, which are extracted or produced to supply inputs and raw materials to various sectors' value chains and are therefore usually traded on traditional markets, their market prices do not incorporate a sustainability perspective either. This prevents recognizing the risks related to rising levels of extraction and the trend towards the homogenization of the products derived from them, which poses a high risk to biological wealth.

At the same time, most financial institutions still use traditional risk models that do not include the likely disappearance of the ecosystem services that play a key role in maintaining life and the economy (see table 3.1). Consequently, projects seeking to adopt new technologies to transform value chains that deteriorate the natural heritage or to implement nature-based solutions[2] face greater restrictions in accessing funding than environmentally unsustainable projects, such as those involving the use of fossil fuels or changes in land or sea use. In recent years, however, there has been an increase (from low or moderate to high and critical) in perceptions of the risk associated with biodiversity loss and ecosystem collapse resulting from the actions of the different actors that make up the economic system (WEF, 2012a, 2012b, 2014, 2015, 2016, 2017, 2018, 2019, 2020b, 2021, 2022 and 2023).

Given that situation, there is an urgent need to transform financing and encourage investments in nature. This requires not only ensuring the financial viability of biodiversity-related projects, but also creating enabling conditions to attract positive-impact investments that combine climate action, sustainable use and the protection of biodiversity. Achieving this demands combining public and private funding sources that favour nature-based solutions, payment for environmental services or other ecosystem-based approaches, as well as strengthening more diversified value chains in order to avoid putting biological wealth at risk owing to its high homogeneity.

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1 Project bankability refers to the feasibility of structuring projects through blended finance or public-private partnerships in order to generate attractive investor returns. Blended finance refers to financing mechanisms that use the resources provided by investors with at least two different risk-return profiles. These mechanisms enable sustainable development goals to be achieved in a cost-effective way (see Vergara, 2024).

2 Nature-based solutions are interventions based on the management, replication or emulation of biological systems and processes that face social challenges. They also offer multiple services and benefits to a wide range of stakeholders, which are positive for biodiversity and are highly effective and efficient from an economic point of view (Sowi´nska-´Swierkosz and García, 2022; IUCN, 2020). Nature-based solutions are a type of asset in which companies, governments and citizens can invest to work with nature in areas such as disaster reduction, food security and human health. This can be achieved by adopting measures to improve carbon sequestration on agricultural land and to prevent flooding through forest and mangrove conservation.

Table 3.1
Economic risks arising from biodiversity loss

Sources of risk		
Physical (acute and chronic): caused by the loss of biological diversity or the degradation or loss of ecosystem services	Transitional: caused by a lack of consistency with actions intended to protect, restore or reduce negative impacts on nature	Synergic: caused by the collapse of a complete system (and not by the failure of individual component parts)
- Provisionment of natural resources - Regulation services (water or climate) - Soil quality - Cultural and recreational services	- Political - Legal - Technological - Regulatory - Market-related - Changes in consumer and investor preferences	- Failures in the stability of ecosystems and macrohabitats - Failures in financial system stability - Contagion risks
⬇		
Economic risks		
Microeconomic	**Macroeconomic**	
- Stranded or damaged assets - Price volatility - Disruption of processes - Negative impacts on human health and labour productivity	- Prices - Productivity - Flows of goods and services and of capital - Socioeconomic shifts - Fiscal balance	

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of A. M. Penagos and S. Granados, conceptual note of the seminar Finanzas para la Biodiversidad y los Servicios Ecosistémicos, ECLAC, Ministry of Finance and Public Credit and Inter-American Development Bank (IDB), 2 May 2024.

Insufficient funding for the preservation of natural heritage

Positive or pro-biodiversity annual financial flows are significantly lower than those allocated to negative or nature-damaging investments. According to 2022 figures, while positive flows accounted for only US$ 200 billion, negative investments totalled US$ 6.7 trillion, or 33 times more (UNEP, 2023). Positive funding barely covers between 16% and 19% of the total needed to halt biodiversity loss and degradation (Deutz and others, 2020).[3] In addition, these funds come largely (82%) from public investment and are mainly earmarked for protecting biodiversity and landscapes, as well as agriculture, forestry and sustainable fisheries. Private investments account for the remaining 18%, which is mainly oriented towards biodiversity offsets,[4] the transition towards more sustainable supply chains and impact investments.

In contrast, global financial flows for climate action can be up to ten times greater than those for biodiversity conservation (Buchner and others, 2023). At the same time, negative incentives —which lead to biodiversity loss and degradation[5] and which, paradoxically, come largely from public spending (Deutz and others, 2020)[6]— amount to at least three times more than pro-biodiversity investments.

Although currently there is insufficient information available to accurately estimate regional funding needs, by 2030 the protection of at least 30% of the territory should be ensured through the establishment of protected areas or other effective forms of area-based conservation, which would require an annual

[3] Deutz and others (2020) provide an estimate of potential 2030 flows from current funding sources. However, according to estimates by other authors, such as the Organisation for Economic Co-operation and Development (OECD, 2020), the existing flows are lower, ranging somewhere between US$ 78 billion and US$ 91 billion.

[4] Offsets are conservation measures that include measurable improvements in the status of biodiversity and, once all mitigation measures have been adopted, seek to neutralize unavoidable adverse impacts. They should be used as a last resort and should ensure zero net biodiversity loss in the field by applying equivalencies of the affected elements (Alonso, Ayala and Chamas, 2020).

[5] Target 18 of the Kunming-Montreal Global Biodiversity Framework refers to the immediate or gradual modification or elimination of current incentives that generate adverse effects on biodiversity, with the goal of significantly and progressively reducing them by at least US$ 500 billion per year from now to 2030.

[6] Deutz and others (2020) calculated the harmful subsidies based on the agricultural, forestry and fisheries sectors. Because of their indirect nature, they did not include estimates of fossil fuel subsidies. As a comparison, OECD (2020) estimated negative flows for biodiversity at around US$ 568 million, while Koplow and Steenblik (2022) calculated a value of almost US$ 1.89 billion, about 2% of global GDP, based on estimates for sectors related to agriculture, fisheries, forestry, the oil industry, water, transport and construction.

investment of between 0.26% and 0.28% of regional GDP until the end of the decade. In addition, as a measure to avoid deforestation, if the market price were paid for each hectare expected to be deforested until 2030, the average annual investment would be equal to 0.06% of regional GDP (ECLAC, 2024d). Clearly, the available national data on funding needs confirm the existence of a trend towards a global biodiversity funding gap. In most countries, its value is well below or slightly above 1% of GDP (see table 3.2).

Table 3.2
Latin America and the Caribbean (7 countries): biodiversity spending, needs and funding gaps in the countries that belong to the Biodiversity Finance Initiative
(Millions of dollars, base year and percentages of GDP)

Country	Biodiversity financing			Estimated additional financing needs[a] *(Millions of dollars/year)*
	(Millions of dollars/year)	*(Base year)*	*(Percentages of GDP)*	
Chile	0.09	2014	0.036	79
Colombia	240–243	2015	0.12	49–335
Costa Rica	247.4	2014	0.5	111
Cuba	31.92	2016	1.30	15.69
Ecuador	134	2016	0.13	230
Mexico	1 170	2015	0.1	461.9
Peru	276	2016	0.14	70.5

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Biodiversity Finance Initiative (BIOFIN), "Biodiversidad en Chile: propuestas para financiar su conservación y uso sostenible", *Policy Brief*, United Nations Development Programme (UNDP), 2017; BIOFIN, *Movilizando recursos para la biodiversidad en Colombia: plan financiero*, UNDP, 2018; BIOFIN, "BIOFIN process in Costa Rica: how does it work?" [online] https://biofin.cr/en/about-us/ [accessed on 9 September 2014]; BIOFIN, *Cuba. Componente 4: Plan Financiero para la Biodiversidad*, Havana, UNDP, 2019; A. O. Silva, *Estrategia de Financiamiento para la Gestión Sostenible de la Biodiversidad en el Ecuador*, Quito, UNDP, 2017; BIOFIN, *Evaluación de necesidades de financiamiento para la biodiversidad en México 2017-2020*, Mexico City, UNDP, 2018; BIOFIN, *Plan de financiamiento de la diversidad biológica: movilizando recursos para el financiamiento de la biodiversidad en el Perú*, UNDP, 2019.

[a] These additional funding requirements, which assume that the base year funding spending is maintained constantly, were determined on the basis of the targets agreed on in national biodiversity strategies and action plans at the tenth meeting of the Conference of the Parties to the Convention on Biological Diversity, held in Aichi, Japan. It is likely that, at least in most cases, meeting these updated targets in line with the guidelines of the Kunming-Montreal Global Biodiversity Framework will require increased funding.

In addition to the limited availability of funding, it should be noted that historically, biodiversity conservation and restoration has been largely financed by private philanthropic donations and public funds. According to estimates by Deutz and others (2020), between 80% and 85% of the financing comes from public resources, either domestic or international. In that context, although the region's governments have made progress in allocating resources for measures for the protection and sustainable use of biodiversity, recent years have seen setbacks and budget reductions in some countries, especially on account of the economic and social crisis caused by the coronavirus disease (COVID-19) pandemic. For example, in 11 of the region's countries,[7] average spending on environmental protection in 2021 was 34% lower than in 2016 (De Miguel and Sánchez, 2023).

A range of public financing instruments currently exist, such as debt-for-nature swaps, official development assistance, sovereign biodiversity bonds (e.g. ocean bonds), payments for environmental services, biodiversity offsets and so on. In that context, public budgets are the most constant and reliable source of funding. These instruments, together with public sector financial instruments that are transferred to the private sector, are characterized by the type of transaction they produce,[8] and they are often combined to generate financial solutions that are tailored to the specific needs of each investment (BIOFIN, 2018). However, given that a number of ecosystem goods and services are public goods and services, public funding is and will continue to be essential to close the current biodiversity funding gap.

[7] Argentina, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, El Salvador, Honduras, Mexico, Peru and Uruguay.

[8] The Biodiversity Finance Initiative (BIOFIN) classifies the various financial instruments into six categories: grant, debt/equity, risk management, fiscal, market and regulatory (BIOFIN, 2018).

Innovative, efficient and coherent investments in nature

Guaranteeing biodiversity funding requires significant increases in investment, as well as considerable reductions in the funds allocated each year to activities that damage it. A more effective way to advance both objectives would be to redirect investments that negatively impact nature. Moreover, this can often be bolstered by integrating climate action with biodiversity action. In the context of fiscal constraints that characterizes Latin America and the Caribbean, there is an urgent need to redirect investments towards projects that are nature-positive. Public investment must be included in budgetary exercises, provided that it respects the need to achieve a responsible macroeconomic balance, in which positive biodiversity investments and expenditures prevail over negative ones.

Public investment must focus on conserving and restoring ecosystem services, which are considered public goods and, by their nature, are not marketable. This mainly includes regulating services, which maintain ecosystem resilience and are therefore indispensable for sustaining ecosystems' relations with economies and societies; cultural services, which offer aesthetic, spiritual, recreational, educational and health benefits; and supporting services, which involve soil formation, nutrient recycling and primary plant productivity. If investments are directed to local communities and Indigenous Peoples to reinforce the sustainable use of an ecosystem good or service that contributes to conservation or restoration, greater socioenvironmental benefits can be obtained.

From the private perspective, innovation in financial mechanisms is essential to achieve patient, long-term, high-risk investments. Innovation is essential so that financial instruments can include the transaction costs associated with adoption, such as investment recovery times, making the practices available to all the system's actors and the existence of complementary mechanisms (e.g. differentiated guarantees) to accelerate this transformation. Again, financial institutions are obliged to consider local communities and Indigenous Peoples as key stakeholders in all projects carried out in their territories.

Biodiversity-related markets need to recognize the risks inherent in scaling up and the trend towards the homogeneity of products derived from inputs and raw materials obtained from ecosystem services. This entails incorporating environmental safeguards based on empirical, scientific information that promote the use of sustainable practices, the definition of exploitation thresholds and the enforcement of the precautionary principle.

Mobilizing more resources for biodiversity requires recognizing that it is often a public good and that the goods and services it offers, while not marketable, are freely available for consumption. They also generate multidimensional benefits (in other words, co-benefits). Their protection and restoration therefore generates indirect positive financial returns. Accordingly, in contrast to traditional monetization mechanisms, the returns obtained from funding biodiversity should be valued in light of the non-monetized contribution derived from the protection of natural heritage and not only its productive transformation aimed at established markets (Flammer, Giroux and Heal, 2024).

Another very important factor is for the private financial sector to increase its knowledge about the relationships and interdependencies that exist between biodiversity and the functioning of the productive system. The objective is for the sector to incorporate, into its risk management, an integrated outlook regarding the funding of activities that are potentially harmful to biodiversity versus positive ones. The financial system's analyses must also include the co-benefits of investing in biodiversity and, consequently, must transform its classic project viability mechanisms.

Another key task is to establish funding instruments that allow for the creation of blended financing mechanisms for projects with a greater impact on biodiversity through concessionality (mainly interest rate subsidies for joint investments), which would attract private sector investment (Flammer, Giroux and Heal, 2024). According to Convergence (2022, cited in Vergara, 2024), 612 blended finance transactions were carried out globally between 2011 and 2021, of which 41 were for biodiversity conservation and

sustainable use actions. During the same period, 114 transactions of that type were carried out in Latin America and the Caribbean, of which 14 were for various biodiversity actions, which showcases the great potential of those financing mechanisms.

It should be noted that responsibility for protecting and restoring biodiversity, as well as the ecosystem services it provides, lies with all the world's countries, especially as regards ecosystem services that are considered global public goods. For that reason, an international agreement must be struck that guarantees adequate funding for biodiversity and, above all, supports countries with high biodiversity, endemism and low biodiversity disturbance owing to anthropogenic actions, as well as those with a high degree of risk and degradation. In connection with this, and as detailed in section 5, the role played by Indigenous Peoples and local communities in different actions aimed at protecting biodiversity funded in their territories must be recognized and emphasized.

4

Biodiversity loss and climate change are closely interconnected: they affect and exacerbate each other. Reversing the negative reciprocal effects requires adopting a comprehensive strategy that addresses both phenomena jointly, promoting coordinated actions in support of nature.

The negative reciprocal effect between the climate crisis and the biodiversity loss crisis is accelerating the loss of natural heritage in Latin America and the Caribbean

Climate change and biodiversity loss are closely interrelated and mutually reinforcing. Biodiversity and ecosystem services play an essential role in the regulation of greenhouse gases and in precipitation and atmospheric humidity. Ecosystems such as forests, peatlands and wetlands provide significant global carbon storage. For that reason, their conservation, restoration and sustainable use are often included in nationally determined contributions.

Ecosystems also function as natural barriers against extreme climate phenomena, such as alterations in rainfall patterns, droughts, storms, landslides and so on. In this way, they become key elements not only for mitigating climate change, but also for adapting to its effects, especially in the world's most vulnerable regions. In that context, biodiversity is a key component in meeting the goals of the Paris Agreement (Secretariat of the Convention on Biological Diversity, 2018).

In turn, global warming has a significant impact on biodiversity loss, by triggering cumulative effects such as the release of methane and carbon dioxide from thawing permafrost or forest fires. Climate change is therefore the third direct driver of global biodiversity loss (IPBES, 2019):[1] it modifies climate patterns and increases the frequency of extreme weather events, resulting in the reduction of genetic diversity and, on occasions, the extinction of species unable to adapt to the new conditions.[2] Climate change also leads to coral bleaching, an increase in the frequency and intensity of fires and the uncoupling of species' normal reproductive or migratory cycles, together with other effects that directly or indirectly reduce biodiversity, such as soil degradation or the geographical expansion of vectors and pests.

Consequently, if the degradation of ecosystems and the emission of greenhouse gases are not dealt with, climate change and the loss of biodiversity and its ecosystem services —in their interactions and interrelations— will tend to accelerate and increase risks that could deepen problems that have historically afflicted the region (Uribe Botero, 2015; IPCC, 2022) and that must be overcome in order to achieve the 2030 Agenda for Sustainable Development:

- Risk of food insecurity due to the increased frequency and/or severity of droughts.
- Risk to life and infrastructure from flooding and landslides.
- Risk of water insecurity.
- Risk of serious health repercussions from an increase in epidemics, particularly vector-borne diseases.
- Systemic risks of exceeding the capacity of infrastructure and utility systems.
- Risks of large-scale changes of biomes in the Amazon.
- Risks to coral reef ecosystems due to coral reef bleaching and high vulnerability to disturbances.
- Risks to socioecological systems in coastal areas from sea level rise, storm surges and coastal erosion.
- Financial risks for companies that depend on ecosystem goods and services.
- Financial risks for companies exposed to climate transition or the impacts of climate change.

[1] Second only to changes in the use of terrestrial and marine ecosystems, and the overexploitation of animals, plants and other organisms.

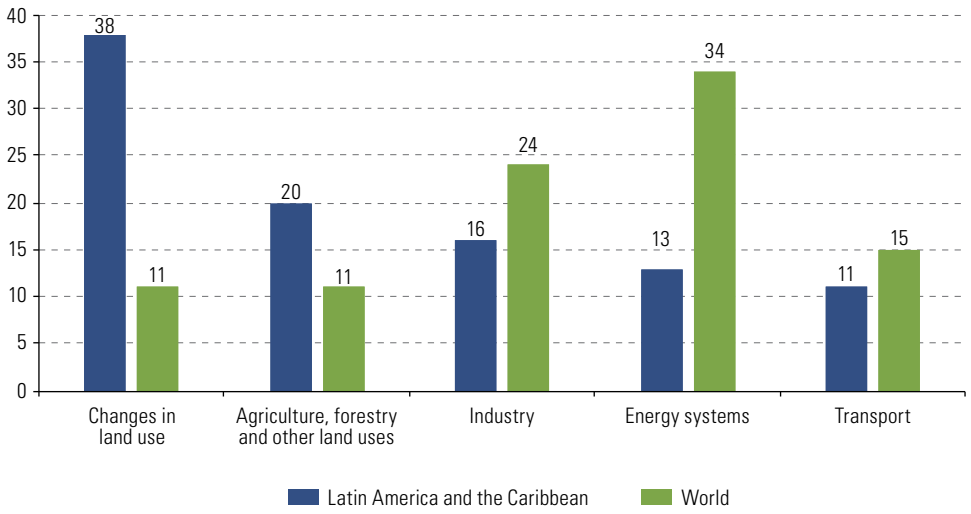
[2] Empirical information indicates that rising global temperatures due to climate change are already altering ecosystems around the world, especially the most vulnerable, such as coral reefs, snow-capped and high mountain areas, and polar ecosystems.

Biodiversity loss and climate change deepen socioeconomic gaps in the region

The effects of climate change and ecosystem deterioration can be clearly seen in Latin America and the Caribbean. Since 2000, wildfires have affected 10.6 million people and 33 million hectares of land, causing an estimated US$ 1.3 billion in damage (OCHA/UNDRR, 2023). Floods and storms accounted for 80% of the region's climate change-related disasters since 1990 for a total of 1,384 events, which caused the loss of nearly 80,000 lives and affected more than 116 million people (ECLAC, 2024e). The region is also among the world's most affected by biodiversity loss. The risk of species extinction can be seen in the dramatic decline of the living planet index, which fell 94% between 1970 and 2016, almost three times more than in North America (WWF, 2020) (see section 1).

The region's greenhouse gas emissions profile is another issue that underscores the relationship between the development model, biodiversity and climate change. While the main source of global greenhouse gas emissions is the energy system, the main source of regional emissions is land use change, which in 2019 was the source of 38% of the regional total: a proportion three times higher than the sector in the rest of the world[3] and almost 4% of the global total (see figure 4.1).

Figure 4.1
World and Latin America and the Caribbean: distribution of greenhouse gas emissions, by sector, 2019
(Percentages)



Source: Adapted from Economic Commission for Latin America and the Caribbean (ECLAC), *The economics of climate change in Latin America and the Caribbean, 2023: financing needs and policy tools for the transition to low-carbon and climate-resilient economies* (LC/TS.2023/154), Santiago, 2024.

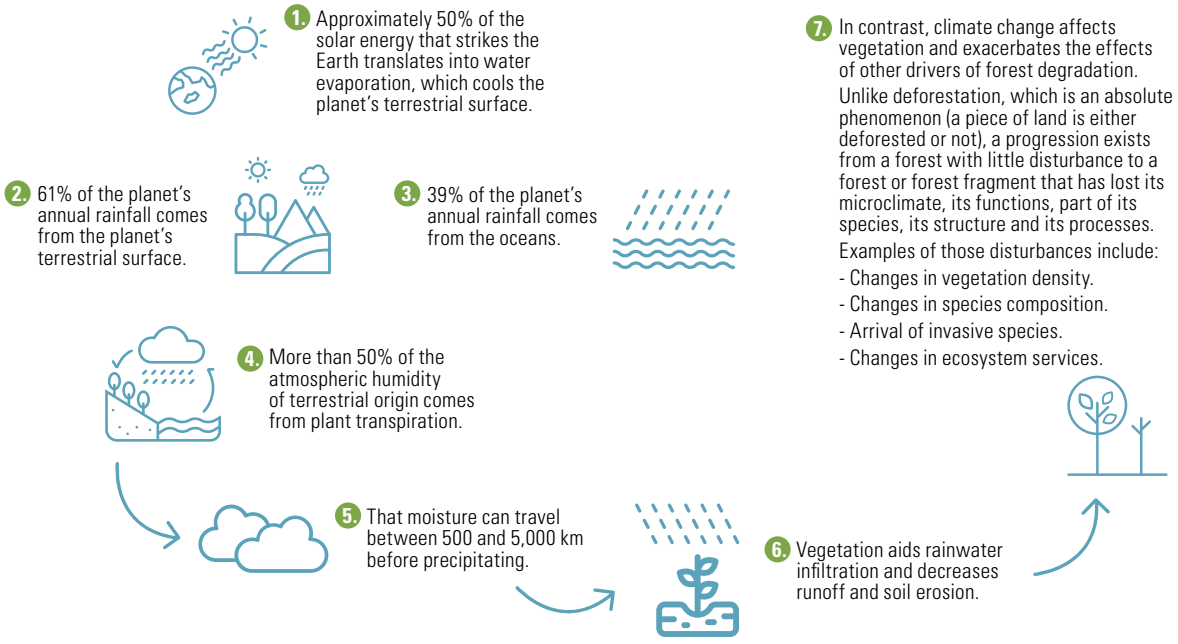
Climate change also affects biomes and territories across the hemisphere.[4] Because of their geographical location, many Latin American and Caribbean countries are highly susceptible to extreme weather events, which are more damaging when combined with anthropogenic environmental degradation that further diminishes the adaptive capacity of ecosystems. One example of this is the loss of vegetation cover in the Amazon basin, where it is estimated that the continuous reduction of forest cover —caused by deforestation, droughts and forest fires— could severely impact local rainfall patterns and lead to an almost 40% decrease in precipitation.

[3] The largest share of the region's emissions is caused by the deforestation of the Amazon for agriculture and livestock raising.

[4] In contrast, one positive example of the protection provided by ecosystems against climate change can be seen in Cuba. The presence of mangroves has reduced the land flooded after extreme events by 222 km² (the equivalent of 40,000 football fields), helping to protect more than 22,000 people annually and preventing economic losses of more than US$ 150 million. Coral reefs play a similar role in that they help lessen the impact of waves and reduce the flooded area by 76 km², thereby safeguarding more than 8,000 people and preventing economic losses in excess of US$ 400 million. Moreover, indications are that the protection systems provided by biodiversity will become increasingly important (ECLAC/Environmental Hydraulics Institute, 2018).

Observed and projected variations in the Amazon indicate that deforestation and forest degradation are causing climatic, carbon sequestration and hydrological changes and trends that have been identified by various authors as a manifestation of an irreversible transition that would have highly negative repercussions for local, regional and global environmental and climatic stability (Larrea and others, 2021; Gatti and others, 2021; Xu and others, 2022). For example, deforestation in the Brazilian Amazon affects rainfall in the Plurinational State of Bolivia, Uruguay, Paraguay and Argentina (Seymour, Wolosin and Gray, 2022). This is because vegetation —through evapotranspiration— influences the atmospheric part of the water cycle, generating humidity that condenses and precipitates in different places (the "flying river" phenomenon) and acts as air conditioning that cools the Earth's surface and the adjacent air. In addition, forests favour rainwater infiltration, protect the soil from wind and water erosion and dampen the effects of floods (Sheil, 2018) (see diagram 4.1).

Diagram 4.1
The role of vegetation in the water cycle and on climate, and the effects of forest degradation from climate change and other drivers



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of D. Sheil, "Forests, atmospheric water and an uncertain future: the new biology of the global water cycle", *Forest Ecosystems*, vol. 5; and E. Berenguer and others, "Drivers and ecological impacts of deforestation and forest degradation", *Amazon Assessment Report 2021*, C. Nobre and others (eds.), New York, Sustainable Development Solutions Network, 2021

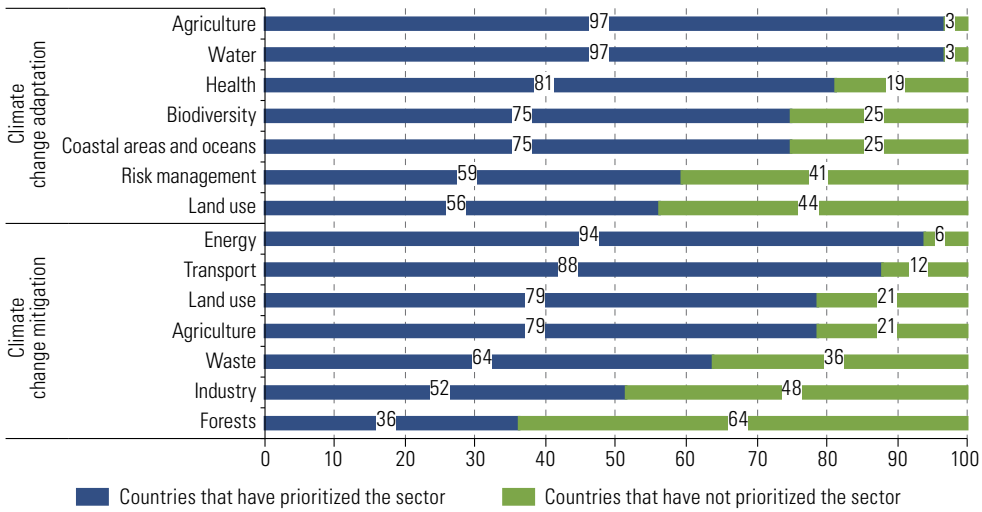
Anthropogenic alterations of the Amazon have intensified since the 1970s as a result of expanding agriculture and the extraction of oil and minerals (Larrea and others, 2021). By 2018, the Amazon had lost 870,000 km^2 of primary forest, and an additional amount of more than 1 million km^2 had been degraded (17% of the remaining forest) (Berenguer and others, 2021). Degraded forests are also a cause for concern because they tend to have higher tree mortality and lower carbon stocks, and they are linked to changes in microclimate and in the structure, function and composition of species (see diagram 4.1); they should therefore be considered a priority in restoration actions.

This has direct repercussions for the economy. A study by the Economic Commission for Latin America and the Caribbean (ECLAC, 2024d) provides a conservative forecast that, by 2030, the region's per capita GDP will have fallen by between 0.8% and 6.3% owing to the effects of climate change, with projected consequences of a drop of as much as 5% in labour productivity. This is because high temperatures above certain levels affect mental productivity, cognition and learning, and reduce workplace productivity (ECLAC, 2024d).

Despite the obvious impacts and identified risks of biodiversity loss and climate change, the integration of biodiversity into climate policies and of climate aspects into biodiversity policies remains weak, as does their inclusion in initiatives for human development and for improving the quality of life. This is despite the fact that the available information demonstrates the importance of biodiversity for climate change mitigation and adaptation capacities (Costello and others, 2022). In most countries, both the conservation of biodiversity and the fight against climate change are led at the sectoral level by the same institutions, but with limited coordination and little horizontal dialogue between the two agendas; as a result, it is difficult to adequately convey this interrelationship to the productive sectors in order to take the best measures for achieving both objectives.

An analysis of the sectors that the region's countries have prioritized in their national climate action commitments, as shown by their nationally determined contributions, indicates the central role of natural resource management in adaptation plans: water and agriculture are two priority sectors for almost all the countries, while biodiversity and coastal zones and oceans rank fourth in terms of the percentage of countries that have prioritized them. For climate change mitigation, the sectors prioritized by the highest percentage of countries are energy and transport and, in third place, land use change and forestry, together with agriculture (see figure 4.2).

Figure 4.2
Latin America and the Caribbean: priority sectors in nationally determined contributions
(Percentages of country numbers)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of ECLAC, *The economics of climate change in Latin America and the Caribbean, 2023: financing needs and policy tools for the transition to low-carbon and climate-resilient economies* (LC/TS.2023/154), Santiago, 2024, pp. 23–24.

Efforts to tackle climate change focus mainly on mitigation but, in the region, adaptation is key, and that is an area in which ecosystems are of greater relevance and even resources for biodiversity conservation can address climate objectives. At present, 89% of global climate finance is earmarked for mitigation and only 8% for adaptation (the remaining 3% is mixed). In addition, the resources allocated to climate action worldwide total close to US$ 1.26 trillion, ten times greater than those earmarked for biodiversity objectives (see section 3). It should be noted that between 2020 and 2021, 88% of official development assistance targeting biodiversity objectives also contributed to climate change adaptation or mitigation, or both. In contrast, only 18% of the climate-related official development assistance of the 32 Development Assistance Committee countries also pursued biodiversity goals (OECD, 2023).

The total investments needed to achieve the nationally determined contributions of Latin America and the Caribbean between 2023 and 2030 range from US$ 2.1 trillion to US$ 2.8 trillion, equal to an average annual investment of between 3.7% and 4.9% of GDP (between US$ 215 billion and US$ 284 billion) (ECLAC, 2024d). One of the most important investments is the financing of protected natural areas to conserve biodiversity (between 0.26% and 0.28% of GDP), which is key to adapting to the effects of rising temperatures (see section 3). Nevertheless, incorporating an integral and ecosystemic perspective into the region's development model goes beyond the conservation of protected areas and demands efforts in all economic sectors.

The necessary integration of the climate change and biodiversity agendas

The close relationship between biodiversity and climate change, together with the region's high vulnerability to the effects of those phenomena and its abundant endowment of natural resources and ecosystems, demand the integration of the climate change and biodiversity agendas, applying an ecosystemic perspective and a focus on spending efficiency and investment effectiveness.

Protecting and maintaining diverse ecosystems strengthens resilience to change and disturbance, as species variety enables ecosystems to better adapt to changing conditions, preserving their functionality and essential services while simultaneously helping mitigate climate change emissions.[5] The conservation and sustainable use of diverse ecosystems is also important for interconnecting the regulation of the financial and productive sectors in order to improve their environmental performance and to address, at the source of the problem, the causes of environmental degradation of both local ecosystems and of the great system that is the atmosphere.

To that end, progress must be made with policy innovations and flexible approaches to simultaneously achieve social and economic benefits through comprehensive pro-nature action. Instruments such as nature-based solutions, payments for environmental services and restoration schemes can have a positive impact on both agendas. This can be achieved from a perspective of socioecological systems, which facilitates an understanding of the complex relationships and cumulative effects of those interactions. In pursuing interventions for managing these interrelationships, it is crucial to avoid unequal impacts on people's quality of life and to address the current challenges in terms of both intra- and intergenerational equity (Pörtner and others, 2021a).

The circular economy, the efficient use of natural resources, the decarbonization of production processes and the adoption of business strategies that take account of climate change and biodiversity dependence in their competitive scenarios must also be encouraged.

This requires that the risks be addressed effectively. Accordingly, the various instruments must be integrated in an intersectoral manner, and institutional capacities for developing comprehensive policies and tools based on an approach of pro-nature action must be strengthened, in order to enable the adoption and successful implementation of timely and effective measures. An example of this is how the risk of food insecurity is managed: it must be considered from an agrifood systems perspective to reflect its multidimensional character and to reduce emissions and land use changes through value chains that respect natural limits and, at the same time, to guarantee accessible and healthy food for all.

The measures adopted should also be supported by better analytical information and assessments of the interrelated impacts of biodiversity loss and climate change, at both the national and subnational levels. This would facilitate the decision-making process, the implementation of policies and the monitoring of actions that contribute to both objectives.

[5] Ecosystems such as wetlands, forests and so on act as carbon sinks, reducing the concentration of greenhouse gases in the atmosphere and contributing to mitigation strategies (ECLAC, 2017; Climate Wise, n.d.; Government of Mexico, 2017).

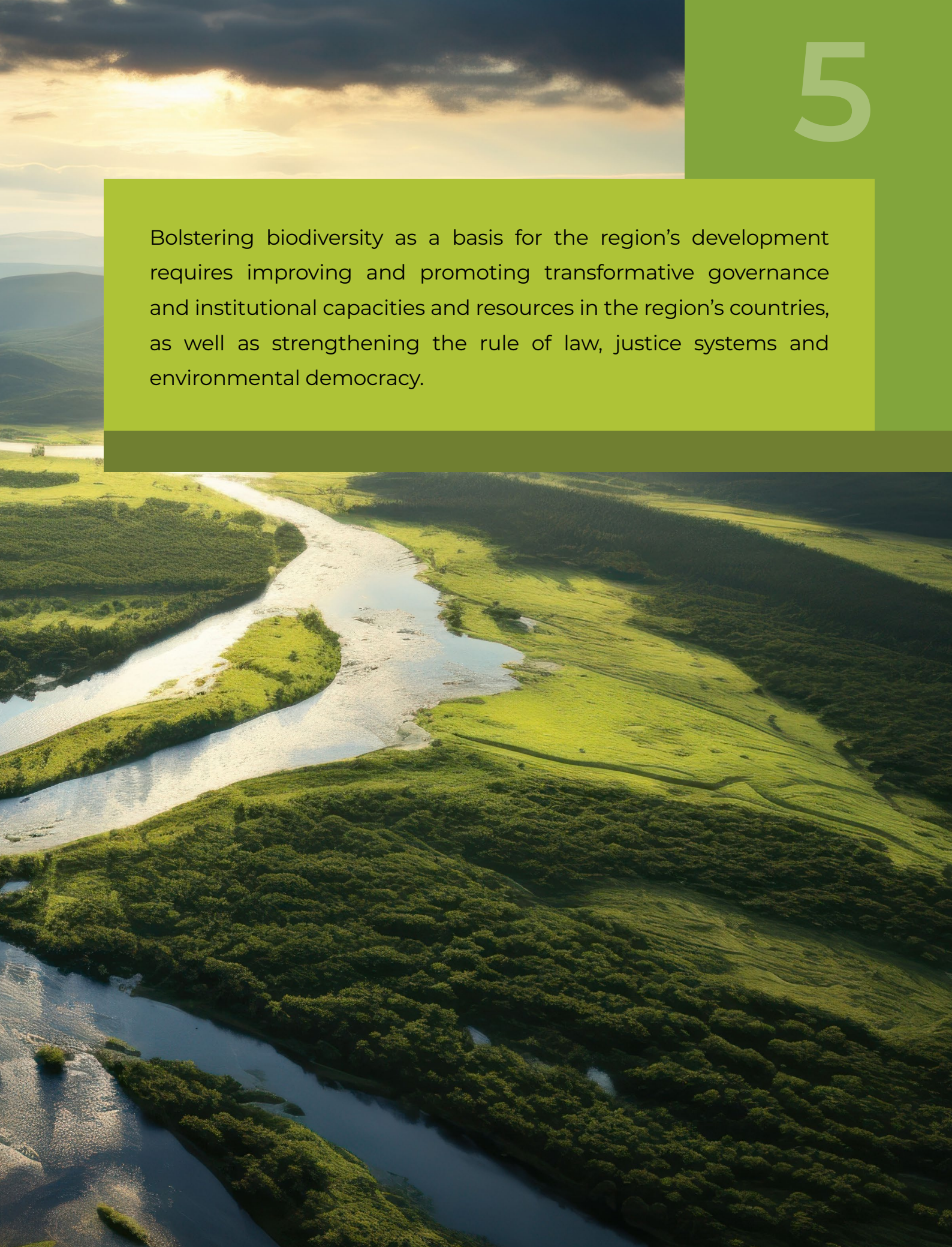
The integration, coherence and coordination of the current governance systems of the institutional framework responsible for the fight against climate change and biodiversity loss is also needed. This implies considering scales, actors and territories to prevent separate calls from being issued, and to avoid disconnected budgets and indicators. The geographical and cultural locations of effects and impacts must be determined to ensure effective and relevant management with local results.

The work of communities in developing adaptation strategies based on their understanding of local biodiversity —which has proven effective in meeting the challenges of climate change— must be strengthened. This must be accompanied by strategies for protecting people's rights and ensuring an equitable and fair distribution of the burdens of climate change and its impacts, and of the fruits of the actions taken to address it. To achieve this, local community-led solutions, knowledge-sharing and empowerment for local action should be promoted (Pörtner and others, 2021b) (see section 5).

Lastly, in formulating their nationally determined contributions to address climate change, countries must incorporate a human rights approach: in other words, their plans and commitments must not only address the reduction of greenhouse gas emissions and adaptation to climate change, but also ensure that all rights are respected and protected and that the strategies do not deepen existing inequalities (ECLAC, 2019).

5

Bolstering biodiversity as a basis for the region's development requires improving and promoting transformative governance and institutional capacities and resources in the region's countries, as well as strengthening the rule of law, justice systems and environmental democracy.



Capacities and enabling conditions for change

Concern about biodiversity loss and degradation has focused primarily on its direct drivers, such as habitat destruction, species overexploitation, climate change, pollution and invasive alien species, and, to a lesser extent, on its indirect drivers, such as economic, political, social and governance structures and the values that define people's relationship with nature (IPBES, 2019). Although strategies to address the first group help to react, anticipate and plan, they are not sufficient if they do not simultaneously and comprehensively address the underlying drivers (WWF, 2022; IPBES, 2019; Abson and others, 2017).

Reducing and reversing the impact of the indirect drivers of nature loss and degradation requires far-reaching cultural and economic changes, a challenge that is beyond environment ministries and is diluted among the original mandates in the other sectors. One of the main lessons learned from the failure to achieve the Convention on Biological Diversity's 2010–2020 Aichi Biodiversity Targets was the lack of attention paid to the indirect drivers, to the means of implementation and to the necessary enabling conditions. To overcome those limitations, the goals and targets of the Kunming-Montreal Global Biodiversity Framework (2022–2030) have been structured to include a series of implementation tools and methods with a broader, more ambitious and concrete approach, including the socioeconomic and cultural dimensions (Secretariat of the Convention on Biological Diversity, 2022).

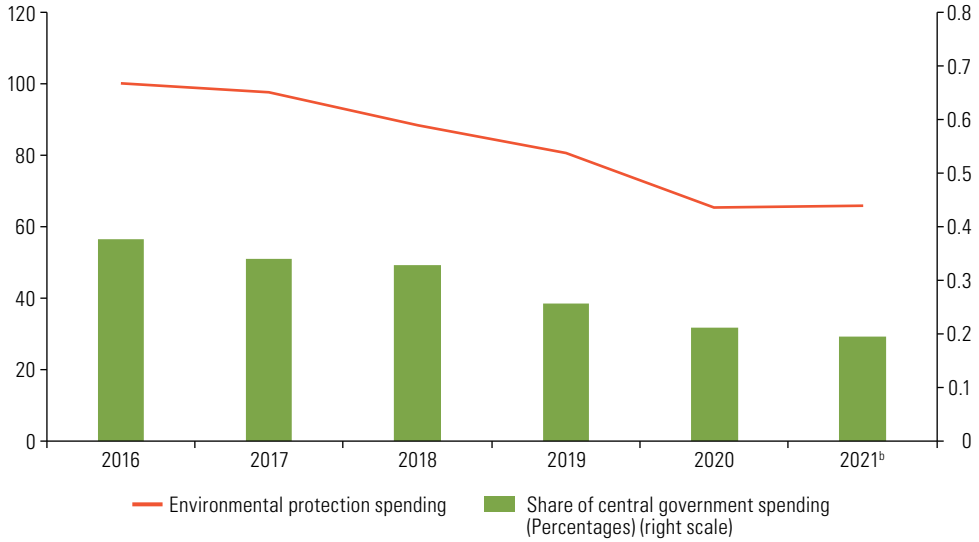
ECLAC has on several occasions pointed out that the region's development model, above and beyond the differences between countries, is incapable of generating sufficient, sustained economic growth to close social gaps without destroying the natural foundations that sustain it (De Miguel and Sánchez, 2023). The convergence of unmet economic, social and environmental demands only exacerbates the erosion of public trust in institutions and further highlights the importance of discussions on how to achieve a just and sustainable transition. Consequently, economic, social and political structures must also be addressed. Therefore, in order to bring about a structural change that, in addition to closing socioeconomic gaps, promotes a just and sustainable transition, participatory processes must be developed. In that context, the issues of governance, institutional capacities and venues for social dialogue must be addressed (Salazar-Xirinachs, 2023).

Progress and setbacks in the region

Despite the progress made with the development of environmental institutions in Latin America and the Caribbean, great challenges still remain in equipping this sector with the capacities needed to effectively coordinate the different sectors and stakeholders with which it interrelates. For example, all the countries of Latin America and the Caribbean are parties to the Convention on Biological Diversity and the region is notable for having fulfilled its commitment to develop national biodiversity strategies and action plans. In fact, 30 of the region's 33 countries have completed a second update of their national biodiversity strategies and action plans, and, as of 2022, four had already adopted a third update. Moreover, several countries have made remarkable efforts to adapt their national biodiversity strategies and action plans to the new Kunming-Montreal Global Biodiversity Framework (Secretariat of the Convention on Biological Diversity, 2024). At the national institutional level, however, regulatory and enforcement functions remain dispersed among various entities. Other authorities that are responsible for regulating a sector deemed key in reducing the ecological footprint to alleviate pressures on ecosystems have not incorporated the care and sustainable use of biodiversity as a driving factor in the sector's activities. The environmental sector lacks the necessary personnel and resources, and its political weight is limited, which hinders the consolidation of a solid institutional framework and effective political influence throughout the government apparatus.

An analysis of 21 of the region's countries shows that 61% of them made changes to their environmental authorities between 1980 and 2021, mainly elevating them to ministerial rank or splitting off other responsibilities, such as housing and urban planning. Since it is still a "young" sector, however, the institutional framework for the environment remains fragmented and suffers from significant shortcomings, such as the lack of sound environmental assessment systems, environmental courts or tribunals, offices of environmental superintendents, prosecutors or attorneys, and an institution in charge of generating and disseminating knowledge on biodiversity and supporting decisions in this area (ECLAC, 2024a). In addition, the budget allocated to this sector is insufficient and often highly vulnerable to fiscal constraints, which reduces the capacity for action and dialogue with well-established sectoral actors (see figure 5.1).

Figure 5.1
Latin America and the Caribbean (11 countries):[a] environmental protection spending, 2016–2021
(Index: 2016 = 100, and percentages of central government spending)

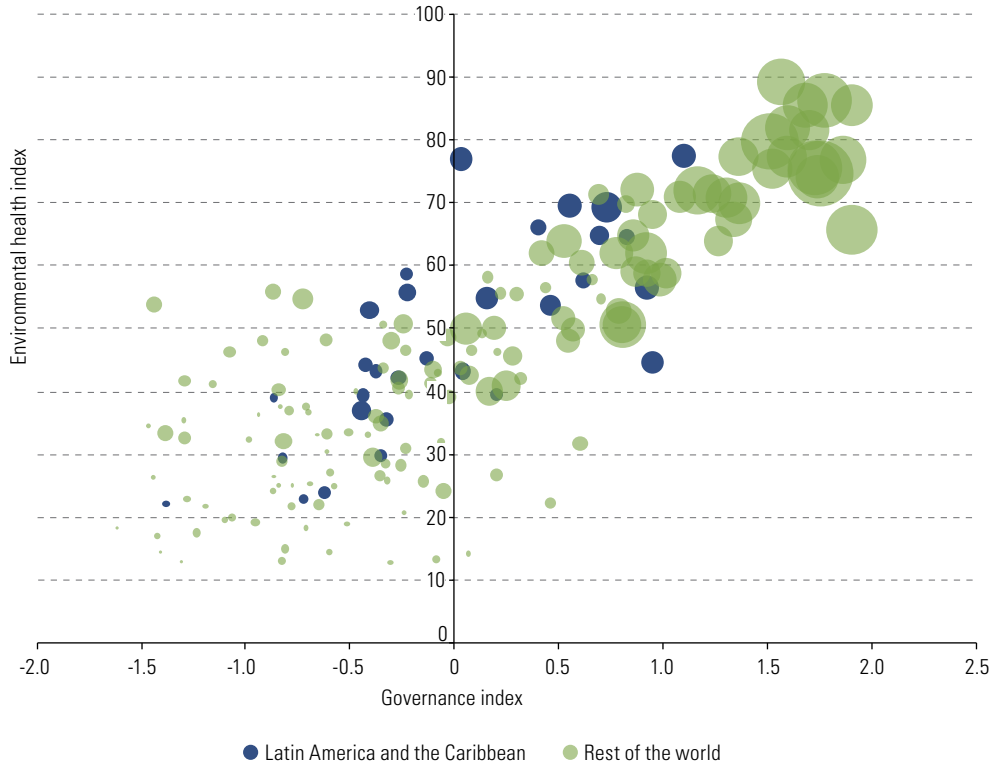


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of national budget statistics.
[a] Argentina, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, El Salvador, Honduras, Mexico, Peru and Uruguay.
[b] Preliminary figures.

The protection and sustainable use of biodiversity requires significant strengthening of national governance frameworks, the rule of law and institutional capacities. Improving the quality of regulations and institutions, strengthening transparency, accountability and government effectiveness, and ensuring political stability and the rule of law all contribute to progress in environmental health indicators and economic indicators (see figure 5.2). In that scenario, strengthening institutional capacities is essential not only to address the challenges of climate change and biodiversity loss, but also to effectively manage natural resources and ensure a distributive justice that takes due account of economic, environmental and social needs (Salazar-Xirinachs, 2023).

The lack of understanding of how various sectors and actors depend on biodiversity and how they impact it is a significant barrier to sustainable natural resource management (Alvarado, Tambutti and Rankovic, 2022). This issue is addressed in targets 14 and 15 of the Kunming-Montreal Global Biodiversity Framework. At the same time, collectives that are respectful of nature, such as Indigenous Peoples and many local communities, often do not have the wherewithal (frameworks for access to resources, technical and financial support, representation on decision-making bodies and so on) to manage resources sustainably.

Figure 5.2
Latin America and the Caribbean and the rest of the world: relationship between the governance index, the environmental health index and per capita GDP, 2021–2024



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of World Bank, "World Development Indicators", 2024 [online] https://databank.worldbank.org/source/world-development-indicators (for GDP and governance data); and Yale University, "Environmental Performance Index", 2024 [online] https://epi.yale.edu/downloads (for environmental health data).

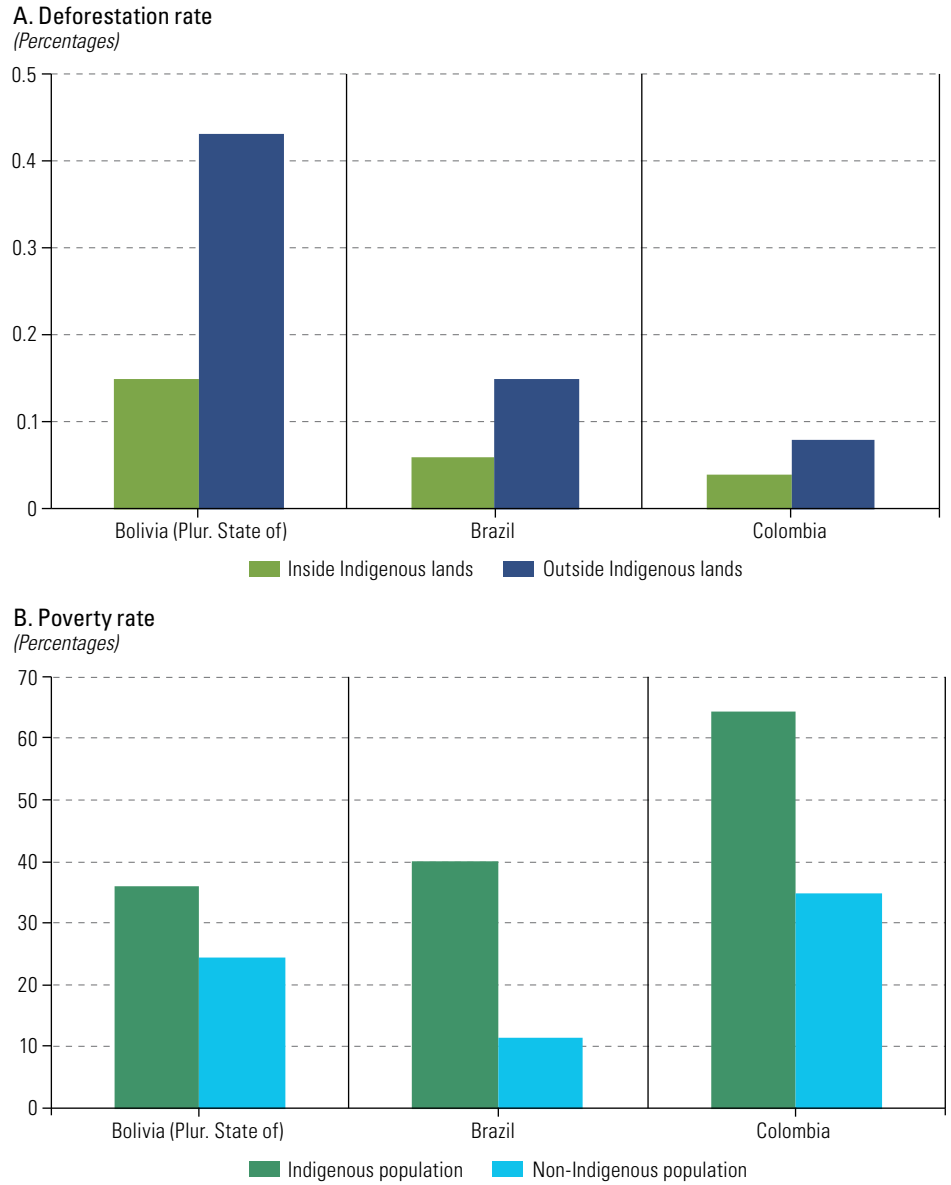
Note: The governance index indicates the median of the values for its six component categories, in accordance with data availability: regulatory quality, government effectiveness, political stability and absence of violence, control of corruption, rule of law, and voice and accountability. The environmental health index comprises 13 indicators grouped into four categories: waste management, heavy metals, sanitation and drinking water, and air quality. Bubble size indicates per capita GDP.

The Latin American and Caribbean region is privileged not only for its biodiversity, but also for its extraordinary cultural richness. It is home to 800 Indigenous Peoples, which account for more than 57.5 million people (about 9.5% of the region's total population and twice the world average) (Pedrero, 2023). Traditional knowledge and the nature-friendly management of vast territories have protected wild species and habitats, which has contributed to climate change adaptation and mitigation, the water cycle, the conservation and development of agrobiodiversity, the diversification of agricultural production and the implementation of production systems that minimize soil erosion and the chemical contamination of water and soil. While the nature-friendly lifestyles of Indigenous Peoples have benefited the rest of the population, they have not received sufficient recognition. In addition to facing disproportionate poverty (see figure 5.3), the participation of Indigenous Peoples in environmental and climate issues remains limited (FAO/FILAC, 2021; ECLAC and others, 2020). One example of this exclusion is that over the last decade, less than 1% of global climate finance has gone to support land tenure and forest management by Indigenous and local communities (ICCA Consortium, 2021).

In addition, Indigenous Peoples and local communities face threats such as land use change, violence and encroachment on their territories, which weakens their ability to manage ecosystems effectively (ECLAC and others, 2020). Recognition of their rights is limited in most of the region's countries, with which they face the risk of natural resources being exploited without their free, prior and informed consent. Those rights are recognized in only seven countries, albeit restrictively, and in many cases resource management remains under the State's control or is concessioned to private companies, which weakens Indigenous

Peoples' capacity to effectively manage and protect their territories (Pedrero, 2023; Notess and others, 2018; Del Popolo, 2017). Thus, the region has become one of the most dangerous for environmental defenders, and especially for Indigenous defenders, with an average of 4 murders of Indigenous defenders per month in the five years prior to the coronavirus disease (COVID-19) pandemic, a figure that increased to 10 murders per month during the pandemic (ECLAC and others, 2020; Pedrero, 2023).

Figure 5.3
Deforestation rates inside and outside Indigenous woodlands and incidence of poverty in the Indigenous and non-Indigenous population
(Percentages)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of M. Pedrero, "Hacia una recuperación económica transformadora de América Latina-Abya Yala: desafíos para garantizar los derechos colectivos de los pueblos indígenas", *Project Documents* (LC/TS.2023/35), Santiago, ECLAC, 2023; and Food and Agriculture Organization of the United Nations/Fund for the Development of the Indigenous Peoples of Latin America and the Caribbean (FAO/FILAC), *Forest governance by indigenous and tribal peoples: an opportunity for climate action in Latin America and the Caribbean*, Santiago, FAO, 2021.

Institutional strengthening and transformative governance in pursuit of biodiversity

States have the duty of ensuring the integrity of their territories and the human right to a clean, healthy and sustainable environment.[1] They therefore play a critical role in governance and fostering sustainable development. Their public function is to establish the regulatory framework and oversee compliance with it, and to create the conditions necessary to strengthen the generation of information, access to it, and the participation and self-organization of private and civil society actors, based on joint responsibility and transparency, in addition to guaranteeing access to justice. The academic sector, multilateral and cooperation agencies, organized civil society and the public sector can provide technical and financial support to strengthen those governance systems. Indigenous Peoples and local communities are also important partners, able to provide expertise and ensure the adaptive management of their territories (Catacora-Vargas and others, 2022).

Interconnecting all these dimensions and stakeholders requires an institutional framework to promote partnerships among public sectors and between public and private sectors, where the private sector is understood as including various sectors of society above and beyond the business community. There must be an institutional framework for dialogue and participation that facilitates negotiations in a context marked by numerous and intense environmental conflicts, and cooperative work seeking to reach legitimate consensuses among diverse economic and social actors is also needed (Marín and Pérez, 2024). One essential issue in pursuing major transformations in development models is the creation of collective venues where the various institutions of the State and society can discuss and build a shared vision of the future, with broad agreements on policies and long-term action plans (Salazar-Xirinachs, 2023).

Some of the key capacities needed to drive the integration of biodiversity into the economic and productive sectors include, at the technical level, incorporating biodiversity into the medium- and long-term planning of various sectors and creating innovative instruments to mobilize financing and investments that promote it. To improve those capacities, the available information must be analysed, gaps must be identified, and capabilities and processes must be created to generate the information, data and indicators needed to strengthen timely decision-making on the dynamic environment that is the evolution of ecosystems under pressure from economic development and climate change. In terms of operational capacities, coherence and coordination between the environmental sector and other sectors must be improved in order to facilitate a common language that enables the development of shared diagnoses and joint agendas. In the political sphere, the leadership of the environmental authorities must be strengthened, to construct a State that is active in dialogue and cooperation among diverse actors. From a prospective perspective, it is very useful to understand the cost of inaction and to expand the currently limited impact assessments of sustainable use and conservation policies that are being pursued in a multidimensional way: in other words, not only as regards the maintenance or recovery of species and ecosystems, but also in other areas, such as created jobs and their quality, value chains, and the gender and rights approach.

These capabilities are essential to achieve cross-sectoral integration of biodiversity, which must be reciprocal. Not only does this mean that biodiversity must be integrated into the planning and implementation of activities in other sectors, but additionally that the environmental sector must incorporate the concepts and needs of other sectors to enable effective dialogue (Alvarado, Tambutti and Rankovic, 2022). As already noted, structural changes require an active and represented society in decision-making. The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES, 2019) has proposed four multi-stakeholder, multi-scalar and multidimensional governance approaches, which serve as levers for "transformative change" in support of biodiversity (in the terms used by CBD). These approaches were outlined in an ECLAC study based on successful experiences in the region (Catacora-Vargas and others, 2022) that implement them to varying degrees, and they

[1] United Nations General Assembly resolution 76/300 of 28 July 2022.

were systematized to facilitate their adoption and adaptation in other contexts. The four approaches are: (i) integrative, which addresses coherence and effectiveness from a social, economic and ecological perspective based on biodiversity, (ii) inclusive, for the equitable, effective and active participation of different stakeholders and sectors, particularly those that are usually excluded, (iii) informed, intended to expand capacities, integrate different forms of knowledge and reduce information —and, consequently, power— gaps among the actors involved in biodiversity management, and (iv) adaptive, in order to seek and implement processes and arrangements adapted to local ecological, social and institutional contexts, as a strategy to advance sustainability and resilience (see table 5.1).

Table 5.1
Latin America and the Caribbean: governance approaches and practices for transformative change in support of biodiversity, as identified in 10 experiences

Integrative	Inclusive	Informed	Adaptive
Coherence and effectiveness	**Equality, representation and active participation**	**Access to information and different knowledge systems**	**Contextualization, sustainability and resilience**
- Application of a territorial approach to conservation. - Long-term spatial planning. - Granting territorial security and access to ecosystems and their components, especially for Indigenous Peoples and local communities. - Conservation through sustainable use. - Conservation through the fair and equitable sharing of the benefits arising from the utilization of genetic resources, in accordance with the Nagoya Protocol. - Design and implementation of other effective area-based conservation measures. - Integration of biodiversity into different sectors. - Transdisciplinary approach. - Establishment of innovative financial mechanisms for the conservation and sustainable use of biodiversity.	- Conservation through processes with a biocultural approach. - Consideration of the collective rights of Indigenous Peoples and local communities in the sustainable management of biodiversity. - Appraising roles and strengthening women in conservation through sustainable use. - Inclusion of young people in biodiversity-related processes. - Fair and equitable sharing of the benefits arising from the utilization of genetic resources, in local processes and among local stakeholders. - Multi-stakeholder approaches.	- Simplification of complex information to facilitate participatory, multi-stakeholder processes. - Participatory monitoring and management of databases with local stakeholders to measure the achievement of objectives.	- Participatory capacity-building for adaptation to the local context. - Participatory planning. - Co-management of ecosystems. - Conservation of biodiversity through artisanal and small-scale sectors. - Control of invasive alien species through a comprehensive approach involving different stakeholders.
	- Representative discussions for local dialogue and coordination between sectors. - Co-creation of knowledge based on knowledge-building dialogues, integrating traditional and local knowledge with technical and scientific knowledge.		

Source: G. Catacora-Vargas and others, "Governance approaches and practices in Latin America and the Caribbean for transformative change for biodiversity", *Project Documents* (LC/TS.2022/203), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2022.

Regardless of the identified weaknesses, Latin America and the Caribbean have numerous good practices of collective and multi-stakeholder governance in harmony with nature that warrant greater recognition. Strengthening governance in the region therefore involves recognizing inclusive sociopolitical compacts in which all stakeholders participate and establishing collaborative institutional mechanisms to facilitate the building of lasting consensus. The 1992 Rio Declaration on Environment and Development states that access to information, participation in decision-making and access to justice, are essential to meet environmental challenges, especially in a context where biodiversity is managed primarily by cooperatives, Indigenous Peoples, families, microenterprises and small and medium-sized enterprises (MSMEs). This approach is reflected in target 22 of the Kunming-Montreal Global Biodiversity Framework, which calls for the equitable participation of Indigenous Peoples and local communities in decision-making, respecting their land rights and traditional knowledge and ensuring their role as relevant agents of change.

Targets 15 and 21 of the Kunming-Montreal Global Biodiversity Framework also highlight the need to make information available to all stakeholders. In that context, the Regional Agreement on Access to Information, Public Participation and Access to Justice in Environmental Matters in Latin America and the Caribbean (Escazú Agreement), in force since 2021, with 17 States parties and 24 signatory countries,

reinforces the region's commitment to sustainable development and environmental democracy. The agreement guarantees access to information, public participation and justice in environmental matters, and protects the right to a healthy environment, which is integrally linked to human rights and sustainable development. Its implementation represents a great opportunity for the region to broaden and deepen environmental governance, encouraging citizen participation in the deployment of policies focused on environmental protection and the conservation and sustainable use of biodiversity, intertwined with the search for inclusive and equitable development for present and future generations.

Bibliography

Abson, D. J. and others (2017), "Leverage points for sustainability transformation", *Ambio*, vol. 46, No. 1.

Aguado, M. and others (2024), *Explorando los vínculos entre la biodiversidad y la calidad de vida*, Dosieres Ecosociales, Madrid, FUHEM Ecosocial.

Alava, J. J. and others (2023), "Ecological impacts of marine plastic pollution, microplastics' foodweb bioaccumulation modelling and global ocean footprint: insights into the problems, the management implications and coastal communities inequities", The Nippon Foundation-Ocean Litter Project (2019- 2023), *Working Paper Series*, No. 2023-01, Vancouver, Institute for the Oceans and Fisheries, The University of British Columbia.

Alonso, V., M. Ayala and P. Chamas (2020), "Compensaciones por pérdida de biodiversidad y su aplicación en la minería: los casos de la Argentina, Bolivia (Estado Plurinacional de), Chile, Colombia y el Perú", *Environment and Development series*, No. 167 (LC/TS.2020/26), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC).

Alvarado, V., M. Tambutti and A. Rankovic (2022), "Experiencias de integración de la biodiversidad en los sectores productivos, económicos y financieros de América Latina y el Caribe", *Project Documents* (LC/TS.2022/206), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC).

Berenguer, E. and others (2021), "Drivers and ecological impacts of deforestation and forest degradation", *Amazon Assessment Report 2021*, C. Nobre and others (eds.), New York, Sustainable Development Solutions Network.

BIOFIN (Biodiversity Finance Initiative) (2018), *2018 BIOFIN Workbook*, New York, United Nations Development Programme (UNDP).

Buchner, B. and others (2023), *Global Landscape of Climate Finance 2023,* Climate Policy Initiative.

Carney, M. (2015), "Breaking the tragedy of the horizon – climate change and financial stability", speech delivered at Lloyd's of London, 29 September [online] https://www.bankofengland.co.uk/speech/2015/breaking-the-tragedy-of-the-horizon-climate-change-and-financial-stability.

Catacora-Vargas, G. and others (2022), "Governance approaches and practices in Latin America and the Caribbean for transformative change for biodiversity", *Project Documents* (LC/TS.2022/203), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC).

Circle Economy (2023), *The Circularity Gap Report*: *América Latina y el Caribe*, Amsterdam.

Cisneros, A. M., P. G. González and J. Alava (2024), "Diagnóstico de beneficios económicos y multidimensionales de la integración de la biodiversidad y la gobernanza innovadora para la implementación temprana del Marco Mundial de Biodiversidad de Kunming-Montreal", unpublished.

Climate Wise (n.d.), "Why biodiversity matters when addressing climate change" [online] https://climate-wise.com/why-biodiversity-matters-when-addressing-climate-change/ [accessed in August 2024].

Convergence (2022), "Market Data – Historical Deals Summary Analysis" [online] https://www.convergence.finance/historical/deal/summary-analysis.

Costello, M. J. and others (2022), "Cross-chapter paper 1: biodiversity hotspots", *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, H.-O. Pörtner and others (eds.), Intergovernmental Panel on Climate Change (IPCC), Cambridge, Cambridge University Press.

De Miguel, C. and J. Sánchez (2023), "Environment and sustainable development: contemporary challenges for ECLAC and Latin America and the Caribbean", *CEPAL Review*, No. 141 (LC/PUB.2023/29-P/-*), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC).

Del Popolo, F. (ed.) (2017), *Los pueblos indígenas en América (Abya Yala): desafíos para la igualdad en la diversidad*, ECLAC Books, No. 151 (LC/PUB.2017/26), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC).

Deutz, A. and others (2020), *Financing Nature: Closing the Global Biodiversity Financing Gap*, The Paulson Institute/The Nature Conservancy/Cornell Atkinson Center for Sustainability.

ECLAC (Economic Commission for Latin America and the Caribbean) (2024a), *Natural Resources Outlook in Latin America and the Caribbean, 2023* (LC/PUB.2024/4), Santiago.

___(2024b), *Development Traps in Latin America and the Caribbean: Vital Transformations and How to Manage Them* (LC/SES.40/3-P), Santiago.

___(2024c), *Panorama of Productive Development Policies in Latin America and the Caribbean, 2024* (LC/PUB.2024/15-P), Santiago.

___(2024d), *The economics of climate change in Latin America and the Caribbean, 2023: financing needs and policy tools for the transition to low-carbon and climate-resilient economies* (LC/TS.2023/154), Santiago.
___(2024e), CEPALSTAT [online database] https://statistics.cepal.org/portal/cepalstat/index.html?lang=es [accessed in August 2024].
___(2023), *Halfway to 2030 in Latin America and the Caribbean: progress and recommendations for acceleration* (LC/FDS.6/3/Rev.1), Santiago.
___(2022), *A decade of action for a change of era* (LC/FDS.5/3), Santiago.
___(2021), "Forest loss in Latin America and the Caribbean from 1990 to 2020: the statistical evidence", *ECLAC Statistical Briefings*, No. 2, Santiago.
___(2019), *Climate change and human rights: contributions by and for Latin America and the Caribbean* (LC/TS.2019/94), Santiago.
___(2017), "El cambio climático y sus efectos en la biodiversidad de América Latina", *Síntesis de Políticas Públicas sobre Cambio Climático*, Santiago.
ECLAC/Environmental Hydraulics Institute (Economic Commission for Latin America and the Caribbean/Environmental Hydraulics Institute) (2018), "The effects of climate change in the coastal areas of Latin America and the Caribbean: evaluation of systems for protecting corals and mangroves in Cuba", *Project Documents* (LC/TS.2018/71), Santiago.
ECLAC and others (Economic Commission for Latin America and the Caribbean and others) (2020), "The impact of COVID-19 on indigenous peoples in Latin America (Abya Yala): between invisibility and collective resistance", *Project Documents* (LC/TS.2020/171), Santiago.
FAO (Food and Agriculture Organization of the United Nations) (2024), "Global food production data", FAODATA Explorer [online] https://dataexplorer.fao.org/ [date of reference August 2024].
___(2020), *The State of World Fisheries and Aquaculture 2020: Sustainability in Action*, Rome.
FAO/FILAC (Food and Agriculture Organization of the United Nations/Fund for the Development of the Indigenous Peoples of Latin America and the Caribbean) (2021), *Forest governance by indigenous and tribal peoples: an opportunity for climate action in Latin America and the Caribbean*, Santiago.
Fernández-Tellería, B. and M. C. Uzqueda (2023), "El 'green premium' en las finanzas sostenibles: reflexiones para Bolivia", *Revista Latinoamericana de Desarrollo Económico*, vol. 21, special issue.
Flammer, C., T. Giroux and G. Heal (2024), "Blended finance", *NBER Working Paper Series*, No. 32287, National Bureau of Economic Research (NBER).
Gatti, L. V. and others (2021), "Amazonia as a carbon source linked to deforestation and climate change", *Nature*, vol. 595.
Global Witness (2022), *Decade of defiance: ten years of reporting land and environmental activism worldwide* [online] https://globalwitness.org/en/campaigns/land-and-environmental-defenders/decade-of-defiance/.
Government of Mexico (2017), "Conservación de ecosistemas y adaptación al cambio climático", 8 March [online] https://www.gob.mx/inecc/acciones-y-programas/conservacion-de-ecosistemas-y-adapatacion-al-cambio-climatico.
Hu, C. J. and others (2024), "Microplastic presence in dog and human testis and its potential association with sperm count and weights of testis and epididymis", *Toxicological Science*, vol. 200, No. 2, August.
IC (International Conservation) (n.d.), "Biodiversity hotspots: targeted investment in nature's most important places. Why are biodiversity hotspots important?" [online] https://www.conservation.org/priorities/biodiversity-hotspots [date of reference: August 2024].
ICCA Consortium (2021), *Territories of Life: 2021 Report. Executive Summary* [online] https://report.territoriesoflife.org/wp-content/uploads/2021/05/ICCA-Territories-of-Life-2021-Report-EXECUTIVE-Summary-ENG.pdf.
International Resource Panel (2024), Global Material Flows Database [online] https://www.resourcepanel.org/global-material-flows-database.
IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services) (2023), *Thematic Assessment Report on Invasive Alien Species and their Control of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*, H. E. Roy and others (eds.), Bonn.
___(2019), *Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*, S. Díaz and others (eds.), Bonn.
___(2018), *Summary for policymakers of the regional assessment report on biodiversity and ecosystem services for the Americas of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*, J. Rice and others (eds.), Bonn.
___(2016), *The assessment report of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services on pollinators, pollination and food production*, S. G. Potts and others (eds.), Bonn.
IPCC (Intergovernmental Panel on Climate Change) (2022), *Climate Change 2022: Impacts, Adaptation, and Vulnerability: Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, H. O. Pörtner and others (eds.), Cambridge, Cambridge University Press.

IUCN (International Union for Conservation of Nature and Natural Resources) (2020), *Guidance for using the IUCN Global Standard for Nature-based Solutions: a user-friendly framework for the verification, design and scaling up of Nature-based Solutions*, first edition, Gland.
Johnson, J. and others (2021), *The Economic Case for Nature: A global Earth-Economy Model to Assess Development Policy Pathways*, Washington, D.C., World Bank.
Koplow, D. and R. Steenblik (2022), *Protecting Nature by Reforming Environmentally Harmful Subsidies: The Role of Business*, Earth Track.
Landrigan, P. J. and others (2023), "The Minderoo-Monaco Commission on Plastics and Human Health", *Annals of Global Health*, vol. 89, No. 1.
Larrea, C. and others (2021), "Globalization, extractivism, and social exclusion: country-specific manifestations", *Amazon Assessment Report 2021*, C. Nobre and others (eds.), New York, Sustainable Development Solutions Network.
MacLeod, M. and others (2021), "The global threat from plastic pollution", *Science*, vol. 373, No. 6550.
Maffei, L. (2021), *Transición justa y empleo verde en el marco de la protección de la biodiversidad en América Latina y el Caribe*, Regional Office for Latin America and the Caribbean, International Labour Organization (ILO).
Maldonado, J. H. and R. D. P. Moreno Sánchez (2024), "Camino a la COP 16: biodiversidad en América Latina y el Caribe. Importancia económica", *Documento CEDE*, No. 19, Bogotá, Universidad de los Andes.
Marín, A. and C. Pérez (2024), "Nuevas perspectivas para el desarrollo en base a recursos naturales: una visión neo-schumpeteriana para América Latina", *Recursos naturales y desarrollo sostenible: propuestas teóricas en el contexto de América Latina y el Caribe*, Natural Resources and Development series, No. 220 (LC/TS.2023/198), J. Sánchez and M. León (coords.), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC).
Martínez-Jaramillo, S. and others (2023), *Dependencies and impacts of the Mexican banking sector on ecosystem services*, Bank of Mexico.
Noack, F. and others (2015), "Responses to weather and climate: a cross-section analysis of rural incomes", *Policy Research Working Paper*, No. 7478, World Bank.
Notess, L. and others (2018), *The Scramble for Land Rights: Reducing Inequity between Communities and Companies*, Washington, D.C., World Resources Institute (WRI).
Ocampo, J. A. and D. Titelman (2023), "Rethinking development in Latin America", *Journal of Human Development and Capabilities*, vol. 24, No. 4.
OCHA/UNDRR (Office for the Coordination of Humanitarian Affairs/United Nations Office for Disaster Risk Reduction) (2023), *Disaster Overview in Latin America and the Caribbean 2000 – 2022* [online] https://www.unocha.org/publications/report/world/panorama-de-los-desastres-en-america-latina-y-el-caribe-2000-2022.
OECD (Organisation for Economic Co-operation and Development) (2023), *Climate-related Official Development Assistance in 2021: A Snapshot*, Paris.
___(2020), "A comprehensive overview of global biodiversity finance, *OECD Environment Policy Papers*, No. 47, Paris, OECD Publishing.
Pedrero, M. (2023), "Hacia una recuperación económica transformadora de América Latina-Abya Yala: desafíos para garantizar los derechos colectivos de los pueblos indígenas", *Project Documents* (LC/TS.2023/35), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC).
Pörtner, H. O. and others (2021a), *IPBES-IPCC co-sponsored workshop report on biodiversity and climate change*, Bonn, Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)/Intergovernmental Panel on Climate Change (IPCC).
___(2021b), *Scientific outcome of the IPBES-IPCC co-sponsored workshop on biodiversity and climate change*, Bonn, Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).
Rettberg, A. (2020), "Violencia en América Latina hoy: manifestaciones e impactos", *Revista de Estudios Sociales*, vol. 73.
Ritchie, H. (2024), "Drivers of deforestation", Our World in Data [online] https://ourworldindata.org/drivers-of-deforestation.
Salazar-Xirinachs, J. M. (2023), "Rethinking, reimagining and transforming: the 'whats' and the 'hows' for moving towards a more productive, inclusive and sustainable development model", *CEPAL Review*, No. 141 (LC/PUB.2023/29-P/-*), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC).
Salazar-Xirinachs, J. M. and M. Llinás (2023), "Towards transformation of the growth and development strategy for Latin America and the Caribbean: the role of productive development policies", *CEPAL Review*, No. 141 (LC/PUB.2023/29-P/-*), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC).
Sarukhán, J. and others (2017), *Capital natural de México. Síntesis*, Mexico City, National Commission for the Knowledge and Use of Biodiversity.
Secretariat of the Convention on Biological Diversity (2024), *Report of the regional dialogue on national biodiversity strategies and action plans for countries in Latin America* (CBD/NBSAP/OM/2024/4/2), 26 August.
___(2022), "Kunming-Montreal Global Biodiversity Framework" (CBD/COP/DEC/15/4) [online] https://www.cbd.int/doc/decisions/cop-15/cop-15-dec-04-en.pdf.

___(2018), "Climate Change is a major and growing driver of biodiversity loss", 26 November [online] https://www.cbd.int/article/biodiversityloss-climatechange.
Seymour, F., M. Wolosin and E. Gray (2022), *Not Just Carbon: Capturing All the Benefits of Forests for Stabilizing the Climate from Local to Global Scales*, Washington, D.C., World Resources Institute (WRI).
Sheil, D. (2018), "Forests, atmospheric water and an uncertain future: the new biology of the global water cycle", *Forest Ecosystems*, vol. 5.
Sowi´nska-´Swierkosz, B. and J. García (2022), "What are nature-based solutions (NBS)? Setting core ideas for concept clarification", *Nature-Based Solutions*, vol. 2, December.
UNDP (United Nations Development Programme) (2024), "Informe Nacional de Desarrollo Humano. Colombia: territorios entre fracturas y oportunidades" [online] https://indh2024.pnud.org.co/ [accessed in August 2024].
UNEP (United Nations Environment Programme) (2023), *State of Finance for Nature: The Big Nature Turnaround – Repurposing $7 trillion to combat nature loss*, Nairobi.
UNEP/WCMC (United Nations Environment Programme/World Conservation Monitoring Centre) (2024), "Exploring how Colombia's economic prosperity is dependent upon the state of nature", unpublished.
Uribe Botero, E. (2015), "El cambio climático y sus efectos en la biodiversidad en América Latina", *Project Documents* (LC/W.693), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC).
Vergara, J. (ed.) (2024), *Finanzas y biodiversidad para territorios posibles*, EAFIT University.
WEF (World Economic Forum) (2023), *The Global Risk Report: 18th Edition*, Geneva.
___(2022), *The Global Risks Report 2022: 17th Edition*, Geneva.
___(2021), *The Global Risks Report 2021*: *16th Edition*, Geneva.
___(2020a), *Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy*, Geneva.
___(2020b), *The Global Risks Report 2020: 15th Edition,* Geneva.
___(2019), *The Global Risks Report 2019: 14th Edition*, Geneva.
___(2018), *The Global Risks Report 2018: 13th Edition*, Geneva.
___(2017), *The Global Risks Report 2017: 12th Edition*, Geneva.
___(2016), *The Global Risks Report 2016: 11th Edition*, Geneva.
___(2015), *Global Risks 2015: 10th Edition*, Geneva.
___(2014), *Global Risks 2014: Ninth Edition*, Geneva.
___(2012a), *Global Risks 2013: Eighth Edition*, Geneva.
___(2012b), *Global Risks 2012: Seventh Edition*, Geneva.
World Bank (2024a), "World Development Indicators" [online] https://databank.worldbank.org/source/world-development-indicators.
___(2024b), "Wealth Accounting" [online] https://datacatalog.worldbank.org/search/dataset/0042066?_gl=1*12mg03y*_gcl_au*MTM3OTExNzkzLjE3MjQ2ODk0ODM [accessed in August 2024].
WWF (2022), *Living Planet Report 2022: Building a Nature-Positive Society*, R. E. A. Almond and others (eds.), Gland.
___(2020), *Living Planet Report 2020: Bending the Curve of Biodiversity Loss*, E. A. Almond and others (eds.), Gland.
Xu, X. and others (2022), "Deforestation triggering irreversible transition in Amazon hydrological cycle", *Environmental Research Letters*, vol. 17, No. 3.

This document examines the challenges and opportunities facing Latin America and the Caribbean in biodiversity conservation and sustainable development. While the region has abundant natural resources that have been instrumental in driving economic growth, their overexploitation has jeopardized this valuable heritage and exacerbated social inequality, and that, together with habitat loss, deforestation and climate change, threatens long-term sustainability. In that context, the development model must be reoriented towards a more sustainable one that values, preserves and regenerates the region's natural heritage.

Achieving this requires strengthening the participation of local institutions and actors and promoting research, investment and effective environmental governance, including the recognition of Indigenous Peoples, as key actors in the protection of biodiversity. Integrating conservation into public policies and decision-making processes will enable the region not only to ensure a more prosperous and sustainable future for its inhabitants, but also to produce innovative solutions to environmental challenges.

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