MEASURING PROGRESS

THE ENVIRONMENTAL DIMENSION OF THE SUSTAINABLE DEVELOPMENT GOALS

LATIN AMERICA AND THE CARIBBEAN

UN environment programme

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Suggested citation:

UNEP, 2020. Measuring progress: the environmental dimension of the Sustainable Development Goals in Latin America and the Caribbean. United Nations Environment Programme. Panama City: Panama.

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Acknowledgements

We would like to thank the following people for their valuable comments and suggestions: Juan Bello, Roberto Borjabad, Andrea Brusco, Christopher Corbin, Christopher Cox, Gloritzel Frangakis, Francesco Gaetani, Leo Heileman, Rachel Kosse, Mateo Ledesma, Rosilena Lindo, Isabel Martínez, Elena Mendoza, Rowan Palmer, Jordi Pon, Carolina Quiroz, Dan Stothart, Adrián Cardona.

Design and layout

.Puntoaparte Editores

Credits

A digital version of this publication is available on the UNEP website (http://wedocs.unep.org).

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The Chilean plan of having an **all-electric public transport** fleet by 2040 will tackle air pollution and bring annual health benefits amounting USD 8 billion. Similar plans are in place in other countries, like Ecuador, Colombia and Costa Rica.

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Uruguay´s energy transition reduced fossil fuels´ use by almost 50% and ensured 98% of electricity comes from renewable sources. It also created some 50,000 new jobs and the costs of generating power has decreased to 40%.

ABBREVIATIONS

ALDFG Abandoned, lost or otherwise discarded fishing gear
ANNEX II Developed countries that pay for costs of developing countries in the UNFCCC framework
ARIUSA Alliance of Iberoamerican University Network for Sustainability and the Environment
BRT Bus rapid transit
CBD Convention on Biological Diversity
ccGAP Climate Change Gender Action Plans
CO2 Carbon dioxide
DMC Domestic material consumption
ETN Environmental Training Network
EU European Union
e-waste Electronic waste
FAO Food and Agriculture Organization of the United Nations
GCF Global Climate Fund
GDP Gross Domestic Product
GEF The Global Environmental Fund
GHG Greenhouse gas
GM Genetically modified
ILAC Latin America and the Caribbean Initiative for Sustainable Development
IPBES Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IUU Illegal, Unreported and Unregulated
IWRM Integrated Water Resources Management
KBA Key biodiversity areas
LAC Latin America and the Caribbean
LDC Least Developed Country
LME Large Marine Ecosystems
m³ Cubic meter
MEA Multilateral Environmental Agreement
MF Material footprint
MPI Multidimensional Poverty Index
MTOE Million tonnes of oil equivalent
NBSAP National Biodiversity Strategies and Action Plans
NDC Nationally Determined Contribution
non-Annex I Countries out of Annex I and Annex II of the UNFCCC, mostly developing countries
NTD Neglected tropical disease
ODA Official development assistance
PM 2.5 Particulate matter of 2.5 micrometres (it means a mass of air with particles with two and one half microns or less in diameter)
POP Persistent organic pollutants
RedLAC Latin America and Caribbean Network of Environmental Funds
SAICM Strategic Approach to International Chemicals Management
SCP Sustainable consumption and production
SDG Sustainable Development Goal
SEEA Systems of Environmental-Economic Accounts
SIDS Small Island Developing States
SPP Sustainable public procurement
STI Science, technology and innovation
UNCTAD United Nations Conference on Trade and Development
UNDP United Nations Development Programme
UNDRR United Nations Office for Disaster Risk Reduction
UNEP United Nations Environment Programme
UNESCO United Nations Educational, Scientific and Cultural Organization
UNFCCC United Nations Framework Convention on Climate Change
USD United States Dollars
VNR Voluntary National Review
WHO World Health Organization
10YFP 10 Year Framework of Programmes on Sustainable Consumption and Production Patterns

The Association of Los Nonualcos Municipalities, in El Salvador, emerged in 2002 to coordinate the response to the 2001 earthquake. Currently it engages 18 municipalities in the promotion of sustainable development and land management.

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INTRODUCTION

The balanced integration of sustainable economic growth, justice, social protection and care for the environment is reflected in the 2030 Agenda for Sustainable Development and its Sustainable Development Goals (SDG). As this document shows, the environmental dimension is present in all the SDGs in relation to poverty, hunger, health, education, gender, water and sanitation, energy, economic growth, human settlements, sustainable consumption and production (SCP), climate change, oceans and terrestrial ecosystems.

This greater integration is based not only on a precautionary principle of harm and risk reduction, but also on the role of natural resources to achieve human well-being, generate economic opportunities, and strengthen social and ecological resilience for present and future generations.

The future of the region's economies, as well as the ability of countries to combat poverty and reverse inequality, depends on the development pathways chosen today by governments, the private sector, civil society and development actors in general, as well as by the complex array of international, political, and climatic factors. As we will demonstrate in this document, it is crucial that the region advances in comprehensively including the environmental dimension in national and regional policies to strengthen resilience to shocks, ensure human health and maintain ecological stability.

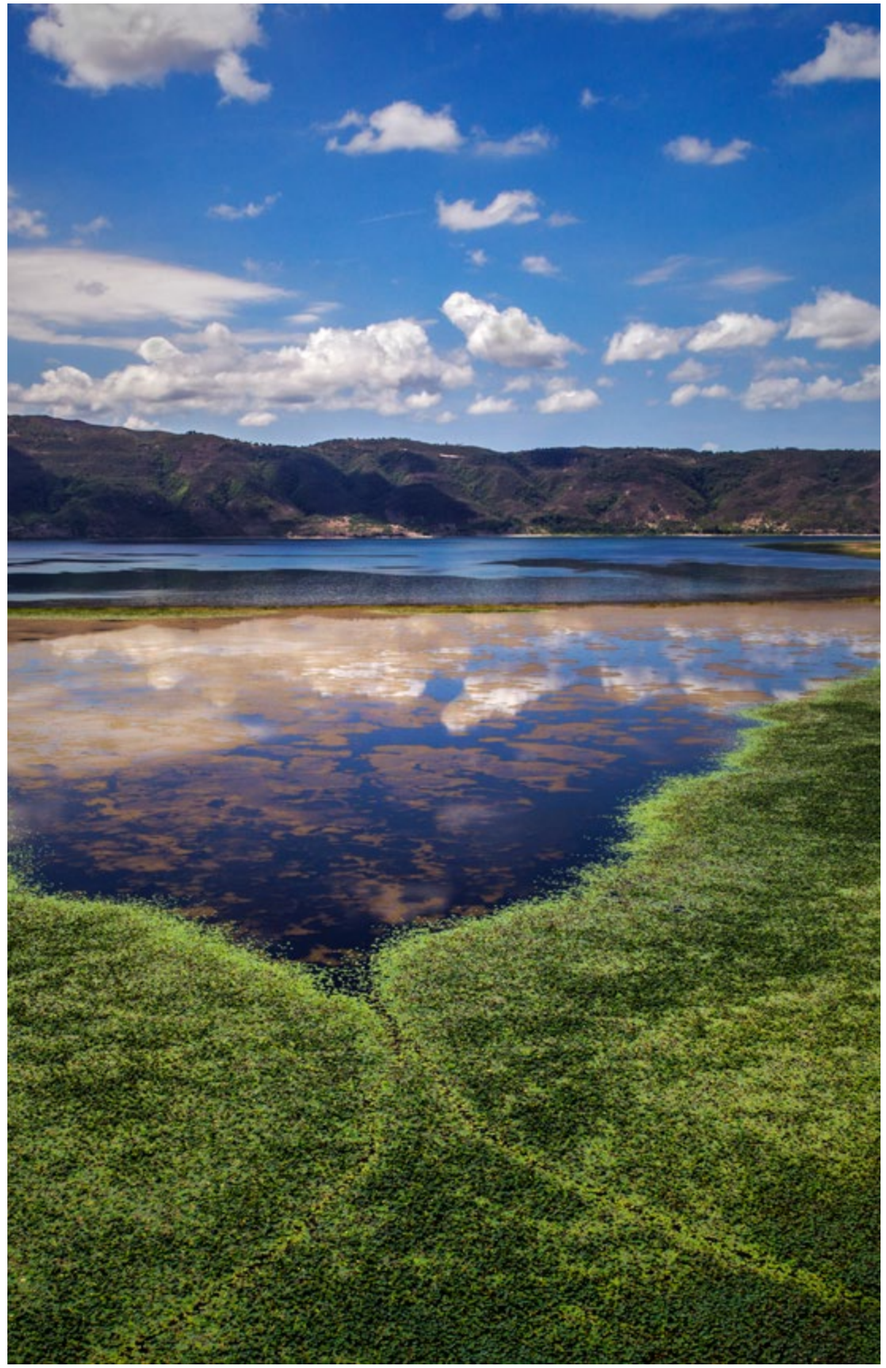
This report on the environmental dimension of the SDGs in Latin America and the Caribbean aims to:

1. Explore the relationship between the environment and the issues prioritized in each of the SDGs;
2. Present current data for the region on the environmental indicators of the SDGs to highlight progress and gaps in the environmental dimension of the 2030 Agenda;
3. Demonstrate the opportunities of sound environmental management for ensuring sustainable development alternatives that do not translate into natural resource exhaustion, environmental degradation and unsustainable livelihoods.

The recognition of the role of environmental sustainability in a prosperous future for humanity implies collective action, coordination at all levels, and policies that take an integrated, multidimensional and multisectoral approach. Over last decades, the Latin America and Caribbean (LAC) region has successfully put sustainable development initiatives into practice on different scales. Nevertheless, the region has not yet built on and expanded these efforts, options and tools, which can now be scaled up to achieve the SDGs (UNEP, 2016c).

This publication is intended to assist policymakers, civil society stakeholders, governments, communities and the private sector that seek to balance the integration of the three dimensions of sustainable development (social, environmental and economic) by providing insights into the challenges the region faces. To do this, it provides an overview of each of the 17 SDGs. In each section, the main interactions of specific SDGs with environmental issues are presented, reviewing available data and information on the SDG indicators related to the environment and/or proxy indicators in the region.

The Caribbean Biological Corridor initiative engages Cuba, Haiti and the Dominican Republic in the long-term conservation of biodiversity, based on ecosystems connectivity beyond country boundaries.



REGIONAL OVERVIEW

The region has made progress in addressing a number of high-priority socio-economic challenges such as improving water access and reducing the number of people living in slums. However, several common challenges remain.

National economies continue to have a persistent and heavy reliance on primary products and natural resources, and the region's composition of mainly middle-income countries belies widespread inequality, with many people remaining in 'vulnerable classes' at risk of falling into poverty.

Progress has taken place, in many cases, at the expense of the natural environment — agricultural frontiers continue to expand and the mainly urban population continues to grow, while following production patterns that exacerbate environmental degradation.

In this context and from our insights while producing this document, we highlight four of the main environmental (intertwined) issues the region has to overcome for the coming years.

DECOUPLING DEVELOPMENT FROM ENVIRONMENTAL DEGRADATION

Most of the countries present a higher Material Footprint and Domestic Material Consumption today than three decades ago. Over the last three decades, the regional rates of natural resource extraction and material consumption have grown more than GDP. Thus, **decoupling economic development from the intensive use of natural resources is not taking place.**

There are many opportunities for industries to become more efficient and reduce and /or adequately manage chemicals and waste, resulting in less pollution and reduced impacts on the health of humans and ecosystems.

DECARBONIZATION

There have been improvements in emissions intensity and energy access, and greenhouse gas (GHG) emissions remain stable in the region. Nevertheless, **with the exception of a few countries, the region has not begun the transition to a zero-carbon economy.**

Fossil fuels still account for a large part of energy matrixes despite the exponential growth in renewable energy sources in recent years. The recent reduction in fossil fuel use must be continued, as the region remains off track with respect to the Paris Agreement goals.

Fossil fuel subsidies are still prevalent, and they could be redirected to decarbonize economies. However, green financing mechanisms are still insufficient.

VULNERABILITY AND BIODIVERSITY LOSS

Populations and economies are already under pressure from trends in global climate change that are expected to become more extreme. For example, Andean glaciers, which provide a vital water resource, are melting, and the increase in the intensity and frequency of extreme weather events has left no country in the region unaffected.

Agricultural conversion is the main pressure driving ecosystem loss in the region, followed by mining activities, energy production and urban expansion. **Concerns are greater in regions like the Andes, the Chaco and the Amazon**, where these human activities advance into forests, wetlands, mountains, meadows and plateaus. Consequently, phenomena like droughts, wildfires and desertification are becoming more frequent, and the provision of essential ecosystem services, such as water and food, may be at stake.

In the region, agriculture, deforestation and land use changes are the main sources of GHG emissions and increased zoonosis risk. Unbalanced management contributes to the climate crisis, reduces basic ecosystem services and the resilience of communities, and threatens local food security.

GOVERNANCE, SOCIETY AND THE ENVIRONMENT

The region is advancing in the implementation of the 2030 Agenda by establishing interinstitutional coordination mechanisms, aligning National Development Plans with the SDGs and formulating national visions towards 2030. New and/or updated institutional arrangements are in place for the coordinated implementation of the 2030 Agenda, some of which count on the participation of national environmental institutions.

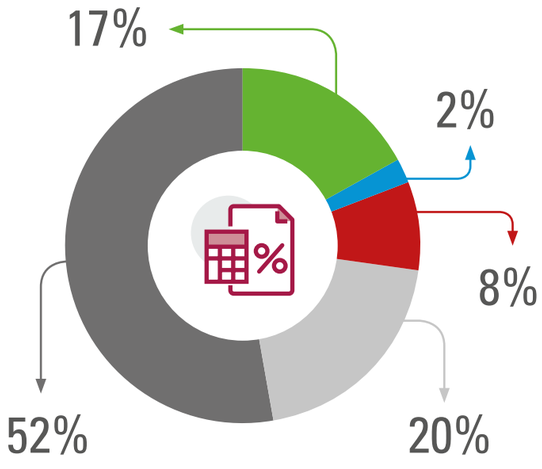
In general, the inclusion of the environmental dimension across SDG planning, implementation and monitoring is yet to be fully achieved, as shown by the Voluntary National Reviews presented so far at the High-Level Political Forum (UNEP/Cepei, 2018).

Despite substantial progress in recent decades, **environmental regulations still lack full compliance and enforcement in the region** (UNEP, 2019a).

Some countries show **worrisome numbers of environmental conflicts and deaths of environmental rights defenders**, most of them from minorities or vulnerable communities that rely on natural resources to sustain their livelihoods and cultural roots.

SDG ENVIRONMENTAL INDICATORS AND THEIR STATUS IN LAC

Despite advances, there is a regional deficit in the production and management of environmental data and related disaggregated data, with direct effects on environmental statistics. Thus, the systematic use of environmental data, in conjunction with social and economic data to support coherent policy and decision making, is still limited in the region. In many cases, national statistical capacities are hindered by financial constraints and a lack of long-term visions. Solutions to mitigate and solve these gaps are being worked on throughout the region, but insufficient data is still the reality for approximately 70% of the SDG environmental indicators in the region (chart below).



Source: UNEP (2019e)

Status of the SDG indicators with a direct environmental dimension in Latin America and the Caribbean

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- 11.3.1 Land consumption
- 11.3.2 Urban planning
- 11.4.1 Investment in cultural and natural heritage
- 11.5.1 Disasters: persons affected
- 11.5.2 Disasters: economic loss
- 11.6.1 Urban solid waste management
- 11.6.2 Ambient air pollution
- 11.7.1 Public land in cities
- 11.b.1 Disaster risk reduction for local goverment
- 11.b.2 Disaster risk reduction strategies
- 11.c.1 Financial assistance to LDCs

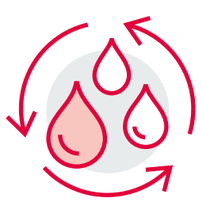
Related international agreements referring to environmental issues:

- Convention on Biological Diversity
- United Nations Framework Convention on Climate Change
- Sendai Framework for Disaster Risk Reduction

SDG 1 focuses on the reduction of poverty, through the implementation of social protection systems, ensuring equal access to natural and economic resources and increasing the resilience of vulnerable populations.

Poor populations are particularly vulnerable to disasters and environmental degradation, all more common in the current context of accelerated economic growth, rapid urbanization and natural resource extraction economies. On the one hand, the urban poor often live in precarious households in vulnerable areas, while the rural poor are dependent on natural resources for their livelihoods.

In this sense, there are clear connections between poverty and environment. Environmental degradation, disasters and climate change can exacerbate poverty, and in turn poverty can damage the environment and deplete natural resources due to unsustainable practices (UNDP/UNEP, 2017).



Directly related to the environment are targets 1.4 and 1.5 that consider equal rights to economic resources, basic services, land and natural resources, among others, and to build the resilience of the poor and those in vulnerable situations. In addition, the means of implementation 1.A aim to ensure a significant mobilization of resources to implement programmes and policies to end poverty in all its dimensions.

SDG 1 ENVIRONMENTAL INDICATORS	
1.4.2	**Land Tenure.** Proportion of total adult population with secure tenure rights to land, (a) with legally recognized documentation, and (b) who perceive their rights to land as secure, by sex and type of tenure
1.5.1	**Disasters: persons affected.** Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population
1.5.2	**Disasters: economic loss.** Direct economic loss attributed to disasters in relation to global gross domestic product
1.5.3	**Disaster risk reduction strategies.** Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030
1.5.4	**Disaster risk reduction strategies for local government.** Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies

Change in a positive direction
Change in a negative direction
Little negative or positive change
Insufficient data
No data

Source: UNEP (2019e)

In Mexico, the **Tarahumara indigenous people** apply traditional knowledge to the local conservation of biodiversity; the promotion of sustainable production practices also contributes to improve their quality of life.

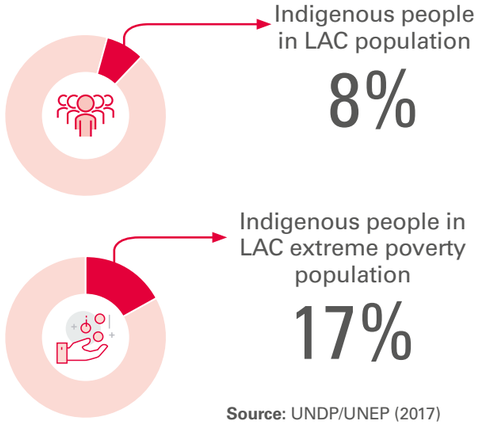
©Tarahumara Sustainable (UNEP/GEF)

MULTIDIMENSIONAL POVERTY INDEX

The target 1.A requires institutional capacity to measure poverty with a multidimensional approach, and not simply based on income levels. In light of this, the Multidimensional Poverty Index (MPI) (Table 1) considers 10 deprivations divided among the three dimensions (social, economic and environmental), which are weighted equally and cover 20 countries in Latin America and the Caribbean (LAC). Results show that approximately 40 million people (8%) live in a state of multidimensional poverty in the region, while 11 million (2%) suffer from severe multidimensional poverty (OPHI, 2018).

The region has been going through a process of rapid urbanization paired with high rates of informal work and poverty. These conditions of unplanned urbanization and high natural resources dependency have resulted in the degradation of ecosystem services and resources, leaving vulnerable populations especially at risk (UNDP/UNEP, 2018).

Graph 1.1 Indigenous People in LAC population and in extreme poverty LAC population



Source: UNDP/UNEP (2017)

Table 1.1 National multidimensional poverty indexes in LAC countries and the integration of the environmental dimensions

HONDURAS
Indirect

It contains the dimensions of health, education, work and housing. Currently, the health dimension incorporates indicators for access to an adequate water system, access to adequate sanitation and the type of fuel used for cooking.

EL SALVADOR
Integrated

It contains a module for exposure to environmental damage and risk: "the home is in a situation of privation if, in the last year, it has suffered damage due to flood, landslide, avalanche or watercourse, or if it is at risk of damage due to erosion."

COSTA RICA
Indirect

It incorporates "Health" within the dimension and includes indicators for water, waste and health services.

ECUADOR
Integrated

It has a dimension called "Habitat, housing and healthy environment" in which 3 indicators are included: access to water sources, sewage disposal systems and overcrowding.

MEXICO
Indirect

Within the dimension "Basic services for the household" the Mexican MPI incorporates indicators such as the use of firewood or coal and presence of a chimney (related to pollution and health), as well as access to water and basic health services.

DOMINICAN REPUBLIC
Explicit link

Within the dimension "Housing and environment" there are indicators referring to electricity and type of cooking fuel, overcrowding, water and sanitation and housing materials. It also introduces indicators of a more novel nature: proximity to any type of pollution source (with a distinction between the urban and rural areas) and the proximity to sources of environmental risk (stream, ravine, lagoon, watercourse, sea coast, landslide or erosion zone, dry or deviated river bed).

COLOMBIA
Indirect

It incorporates some indicators in the dimension "Public services for households" and "Housing conditions" that could be considered environmental.

PANAMA
Integrated

It contains five dimensions of equal weight: education, housing, basic services and access to Internet, environment and sanitation and work and health, each with a weight of 20%. The "Environment and sanitation" dimension includes four specific indicators: damage to homes due to natural phenomena, access to or condition of roads, inadequate waste management and lack of improved sanitation. Other indicators traditionally considered "environmental," such as housing materials and access to improved water sources are considered under the dimensions of housing and health.

CHILE
Integrated

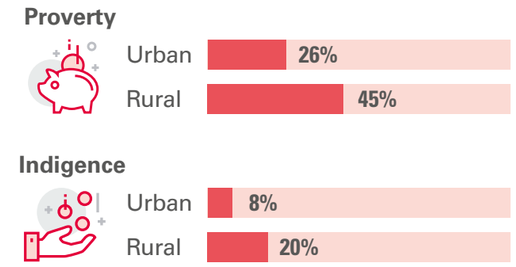
Air pollution, noise pollution, water pollution, visual pollution, waste in public areas, pests (rodents etc.).

Source: UNDP/UNEP (2018)

Additionaly, poverty rates in LAC are high in rural areas, with 45% of people living in poverty. Even though the rural population in LAC is less than 20% of the total population, these communities are often reliant on natural resources for their subsistence.

Natural assets have a strong interaction with household income, especially in rural areas. A World Bank study established three types of income and several assets that could determine a household's poverty level: 'agricultural income,' 'forest income' and 'environmental income,' all of which could be in cash or kind. Based on this, two conclusions can be reached: (i) it is hard for rural populations to break the poverty cycle without access to natural assets; and (ii) this strong reliance on natural resources makes populations vulnerable to agricultural market fluctuations and environmental pressures. This state of vulnerability means households can enter or exit the poverty threshold based on small cyclical changes (World Bank, 2015).

Table 1.2 Poverty in urban and rural areas in LAC



Source: CEPALSTAT (2020)

LAND TENURE AND ACCESS

Land tenure is considered one of the crucial factors for improving the quality of life of populations. Secure access to natural resources for vulnerable and marginal populations is essential for food security and sovereignty, sustainable land use and reducing environmental migrations (UNEP, 2019e), not only for farmers and marginal communities, but also for entire nations. The LAC region is one of the most unequal in the world, not only in terms of economic resources, but also in land distribution.

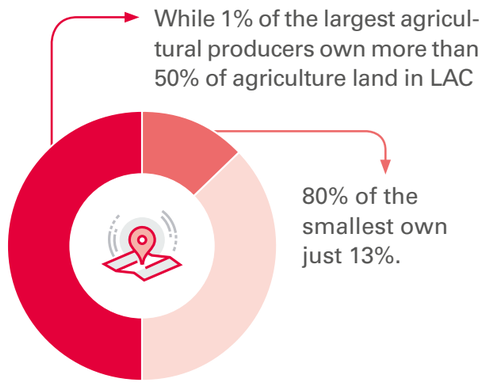
Table 1.3 Gini Coefficient for land

LAC is the region with the greatest inequality in the distribution of land, which is reflected in the GINI COEFFICIENT FOR LAND*	
LAC	0.79
EUROPE	0.57
AFRICA	0.56
ASIA	0.55

*0 to 1 (1 being total concentration)

Source: FAO (2017a)

Graph 1.2 Agricultural land distribution in LAC



Source: OXFAM (2016)

ACCESS TO FINANCING

Green microfinancing has become an innovative way to promote environmentally friendly initiatives, sustainable agriculture programmes and climate change adaptation actions among vulnerable populations. In the region, agricultural credits represent only 6% of the general credit portfolio, making rural areas a challenge for outreach. However, several projects have been implemented in farming and peasant communities focusing on agroforestry methods and sustainable organic agriculture. For example, coffee plantations have been a successful area of implementation in both Central and South America (Forcella et al., 2017).

In the 2011-15 period, 26% of institutions from 21 LAC countries reported having offered green microfinance products.

The total LAC market for green microcredit in 2014 was approximately USD 90 million in 43,000 operations.

However, regional outreach was still low: less than 0.5% of the loan and credit sectors offered green financing.

Source: Forcella et al. (2017)

The Brazilian **Bolsa Verde program** was an effective initiative to improve the living conditions of households in extreme poverty, providing additional cash transfers conditioned to forest conservation.

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Table 1.4 Microfinancing in rural LAC

In 2012, **250 million of people** in LAC still had no access to the formal financial sector	**Rural areas** present the biggest challenge for **microfinancing**
While **some countries** show signs of market saturation, **rural areas** remain underserved by the **microfinance industry**	**7 countries** in the Top 10 **"Global Microscope List"** (reflecting financial inclusion) are from **LAC region**
6% of the microfinance portfolio is dedicated to **agriculture**, **representing 2.4%** of the GDP in LAC	Over the last 15 years, **Agriculture** has represented a mean value of **4.84% in LAC GDP**
LAC banks are tending to incorporate **more customizable terms** for agrifinancing	The importance of **agrifinancing** is generally acknowledged among commercial banks with meaningful exposure to agriculture (about **15-20% of total portfolio**)
In a **World Bank study**, delinquency rates in smallholder lending portfolios were **analysed in four financial institutions**: in two, the **rate was lower** than the overall portfolio, while being higher in the other two	This **counters the belief** that farmers are inherently bad payers

Source: EIU (2018), Varangis et al. (2014)

DISASTERS' IMPACTS ON THE POOR

Consequences from disasters depend not only on the magnitude of the disaster, but are inherently related to a country's economic and social resilience (UNEP, 2019e). Economic losses from disasters are greater in developing nations and communities living in poverty, since infrastructure and resilience mechanisms are not fully developed.

Between 2003 and 2014, the cost of natural phenomena disasters in the region reached USD 34.3 billion, accounting for 25% of the global losses.

In 2017, economic losses attributed to disasters were estimated globally at over USD 300 billion, one of the highest ever. This was due to three severe hurricanes that reached the Caribbean Sea, affecting several countries in the region.

Disasters have disproportional effects on people living in poverty: from 1975 to 2000, people in extreme poverty accounted for 68% of disaster mortality.

Source: FAO (2017d, 2016a)

Moving beyond national response and action plans, the indicator of disaster risk reduction for local governments aims to assess the extent to which local governments are adopting and implementing disaster risk reduction plans and strategies. The goal is to implement comprehensive strategies at all levels, implementing measures necessary for the particular risks, needs and priorities of local communities (UNEP, 2019e).

Since 2010, the United Nations Office for Disaster Risk Reduction (UNDRR) has provided a platform called "Making Cities Resilient" where it devotes special attention to local plans for Disaster Risk Reduction. The campaign is in its second phase (2015-2030) and its first phase (2010-2015) was highly valued by partners and participating cities. The urban poor, particularly those living in informal settlements, are disproportionately affected by hazards and often lack the resources to recover from disasters. Since, in the region, 81% of people live in cities (most of them with high levels of poverty), this issue is of considerable significance.

The region has the largest number of cities participating in the "Making Cities Resilient" programme, among the continents. However, according to the programme´s website, Latin American and Caribbean cities using the 'Local Government Self-Assessment Tool' (LGSAT), or that are considered 'Role Models' by the project, are still few.

Table 1.5 Number of 'Role Model' cities that submitted Disaster Resilience Scorecard Self-Assessments

Source: UNDRR (2019)

Related international agreements referring to environmental issues:

- Cartagena Protocol on Biosafety to the Convention on Biological Diversity
- United Nations Framework Convention on Climate Change

To achieve the goal of zero hunger it is necessary to recognize its clear and direct connection with the environment. Nature provides us and other species with direct sources of food as well as the necessary ecosystem services to maintain agricultural systems and produce food. The expected population growth puts inevitable pressure on our production systems, consequently affecting our environment. Soil erosion, water pollution and Greenhouse Gas (GHG) emissions are some of the current issues that call attention to the need for sustainable agriculture.

Food insecurity in the region has shown a downward trend over the last decades, despite the bumpy trajectory in recent years. Efforts to achieve the 2030 Agenda zero-hunger goal cannot be made at the expense of the conservation of our natural resources. The goal of producing food for everyone in a sustainable way is a challenge that must be faced, since it is possible to do so (FAO et al., 2018).

Three SDG 2 targets are directly related to the environment and are crucial tools in this challenge. Target 2.3 and 2.4 call for sound practices in the agricultural chain, and 2.5 aims to protect genetic biodiversity. In this context, three indicators have a direct link to the environment.

SDG 2 ENVIRONMENTAL INDICATORS	
2.4.1	**Sustainable agricultural practices.** Proportion of agricultural area under productive and sustainable agriculture
2.5.1	**Secure genetic resources for food.** Number of plant and animal genetic resources for food and agriculture secured in either medium- or long-term conservation facilities
2.5.2	**Local breeds for agriculture.** Proportion of local breeds classified as being at risk of extinction

Change in a positive direction · Change in a negative direction · Little negative or positive change · Insufficient data · No data

Source: UNEP (2019e)

The **Santa Cruz Green Market**, in Trinidad and Tobago, is an example of community-based entrepreneurship to ensure healthier and sustainable local consumption while promoting low impact, non-polluting and resource efficient farming.

© Santa Cruz Green Market

SUSTAINABLE AGRICULTURAL PRACTICES

Sustainable agricultural practices are based on resource-efficient and resilient agricultural systems, with long-term goals, allowing farmers to adapt to environmental shocks and reduce negative impacts, while sustaining their livelihoods. To achieve truly sustainable agricultural practices, the 2030 Agenda suggests that all three dimensions be considered: economic, social and environmental (FAO, n.d.).

Sustainable traditional practices by small farmers and indigenous communities are a good example of sustainable agricultural practices in the region, as they are a source of knowledge on how to practice eco-agriculture. Some of these practices include agroforestry, polycultures, crop rotation systems and the management of shared resources (IICA, 2017). Despite this, the expansion of food production and unsustainable practices have led to several negative effects that, in turn, affect food production chains.

Agricultural and fishery production is expected to increase 17% in LAC in the next ten years.

This means an increment of 11 million hectares in agricultural land area as well as in the net per capita production.

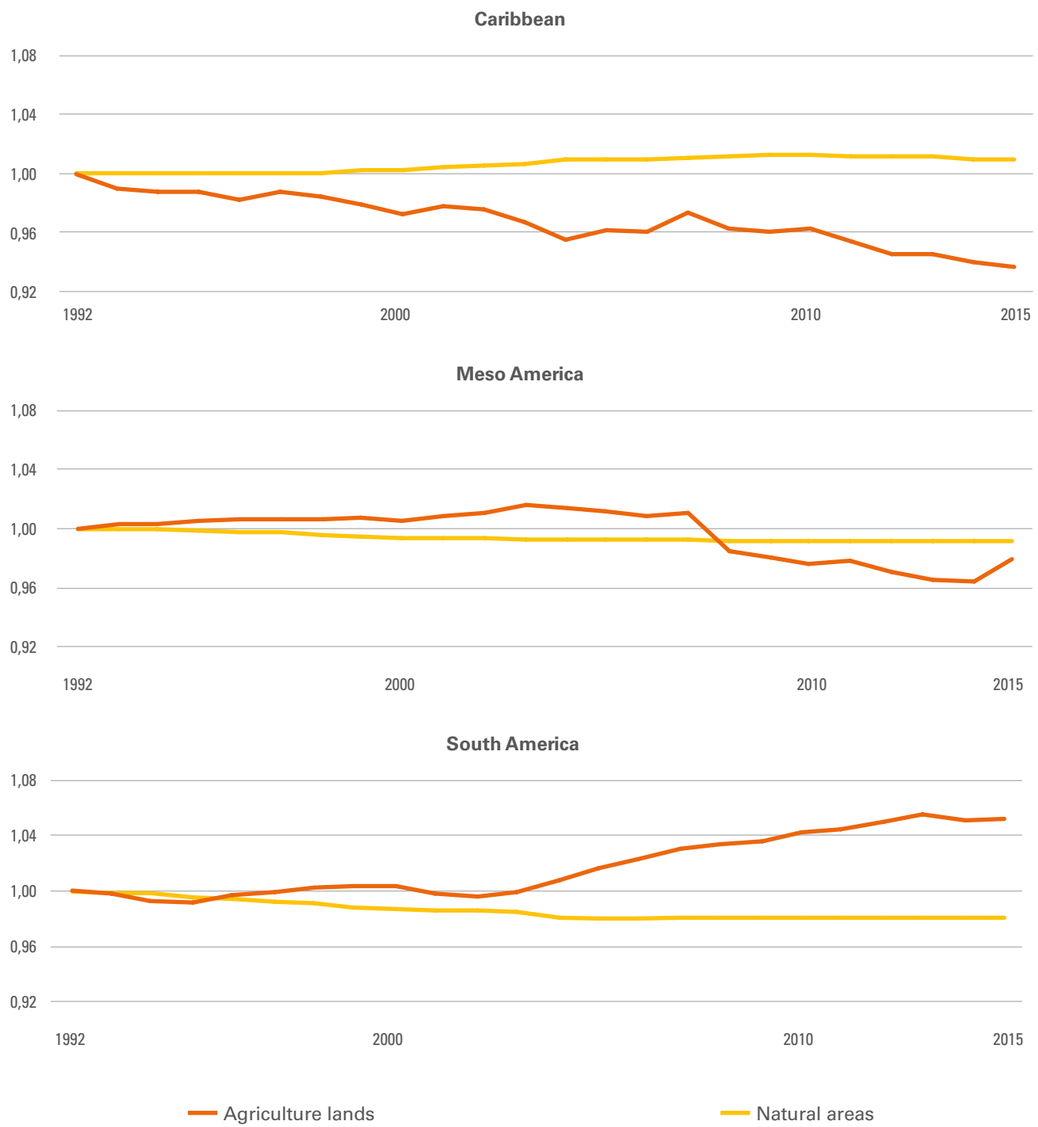
Soybean will account for over 62% of this expansion.

About 60% of this crop growth will be due to yield improvements.

Source: FAO/PAHO/WFP & UNICEF (2018)

Overcoming the tradeoff between productivity and ecosystem preservation is a current issue in LAC countries. Agricultural and urban expansion often results in a drastic loss of ecosystems such as wetlands, forests, mangroves and highlands. Current data demonstrates the relation between the expansion of the agricultural frontier and forest cover. In the following tables, this interaction is presented by sub regions, where one can infer a dualism: stable forest cover in Mesoamerica and the Caribbean, contrasting with agricultural pressures on natural systems in South America.

Graph 2.1 Index* of natural and agricultural land conversions in LAC sub regions, 1992 - 2015 (index 1992=1)

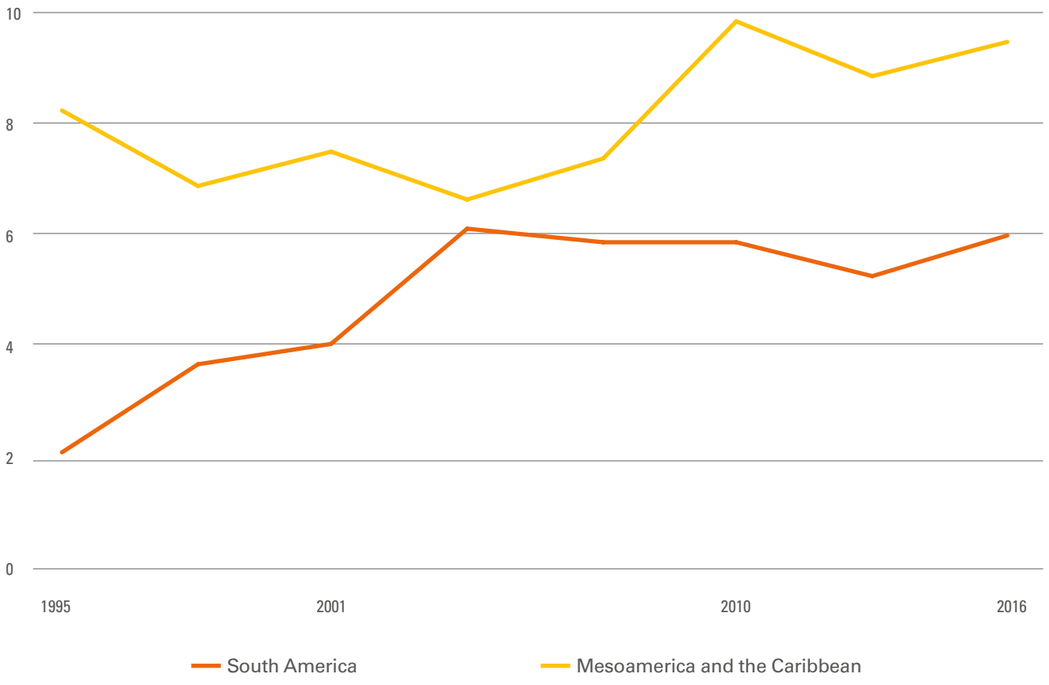


*The index baseline is 1 in 1992, thus smaller or larger numbers reflect land losses or gains in subsequent years (e.g 1.04 = an increase of 4% in area).Natural areas are considered as non-cultivated land and non-water surfaces, representing the sum of the following systems: grasslands, mangroves, permanent snow/glaciers, shrub-covered areas, shrubs and/or herbaceous vegetation, aquatic or regularly flooded areas, natural sparsely-vegetated areas and forested areas.

Source: FAO (2019a)

The expansion of urban areas, infrastructure and the agricultural frontier are major forces behind ecosystem loss, which causes disruptions in the nature environment, affects hydric cycles, contributes to climate change with GHG emissions and exacerbates soil erosion. Furthermore, the extensive use of agrochemicals, especially nitrogens, has decreased local biodiversity and polluted soil and waterways, all of which result in further stresses on systems and a diminished capacity to recovery from environmental shocks. In the region, the use of such substances, such as pesticides and fertilizers, has increased since 1995 (Graph 2.2).

Graph 2.2 Pesticide use in LAC 1995 - 2016 (kg/ha of agricultural surface)



Source: CEPALSTAT (2020)

In the long run, the path chosen for food production will determine new patterns and, consequently, change environmental outcomes throughout global regions. Studies show that the LAC region is prone to having slightly lower agricultural market shares under sustainable scenarios (Green growth and harmonious rebalancing scenarios at table 2.1). Although "green growth" and "harmonious rebalancing" may imply lower growth rates, their impacts on the environment will be less damaging, compared to scenarios with greater economic pressures ("business as usual", "better business and logistics" and "pessimistic" scenarios) that will not be sustainable (World Bank, 2013). Thus, it is important to rethink the circumstances in which food production growth will take place on the continent.

Table 2.1 Regional shares in global net food exports in business as usual and alternative scenarios for 2050 (proportion of LAC share)

	2010	Business as usual	Better business and logistics	Green growth	Harmonious rebalancing	Pessimistic view
Cereals	8	11	13	9	9	16
Fruits and vegetables	25	34	38	33	33	13
Meat	30	36	41	33	30	29
Oil seeds	42	50	56	50	49	55

Source: World Bank (2013)

MICRO FINANCING FOR IMPROVING FOOD PRODUCTION

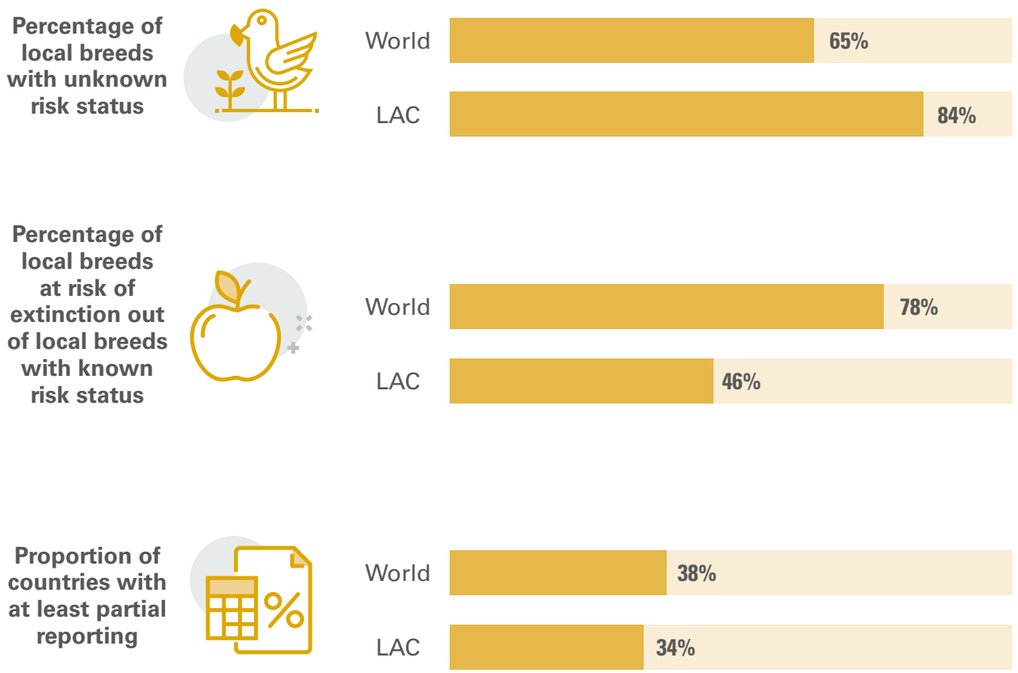
Small-scale and family farms represent an important pillar of the food production systems in the region. In-country assessments estimate that between 27% and 67% of food production comes from small-scale farmers, depending on the country (FAO et al., 2018). In addition, small-scale producers often contribute to conservation efforts and sustainability (IICA, 2017).

Given the importance of small-scale producers, extensive investments should be made to increase production and productivity, encourage the adoption of conservation methods and help producers access new markets. However, studies estimate that less than 10% of small-scale and family farmers in the region have access to credit and value chain finance systems (Varangis et al., 2014). Achieving the goal of zero-hunger will not be possible if vulnerable populations are excluded from financing mechanisms due to factors such as land tenure limitations, lack of guarantees, fear of financial risks and bureaucratic formal financing options, among others. In this sense, microfinancing tools are key to increasing small-scale agricultural production, helping communities exit the cycle of hunger and generating sustainable income.

GENETIC AND BIODIVERSITY SAFETY

Biodiversity for food and agriculture refers to all the plants and animals, wild or domesticated, that make up our intricate food systems, as well as those organisms and microorganisms that provide ecosystem services that allow us to produce food. All the elements that biodiversity encompasses are necessary to not only maintain our food production, but also to ensure the resilience of these systems. In a recent report, the United Nations Food and Agriculture Organization (FAO) noted that the foundation of our food systems is severely threatened due to the great loss of biodiversity. The LAC region shows the greatest decline in numbers of wild food species. This can be attributed to several factors such as overexploitation, pests, disease and invasive species being introduced into local ecosystems (FAO et al., 2018). Moreover, climate change also increases the temperature of the soil, affecting microorganisms and, as a consequence, the decomposition of organic matter and the availability of nutrients.

Graph 2.3 Level of knowledge on breeds and their risk of extinction



Source: FAO DAD-IS (2020)

Farmers that act as **seed guardians**, ensure the preservation of traditional varieties of crops that contribute to maintain biodiversity and enhance climate resilience in the Andean region.

© Piedad Martin

Several countries in the region report implementing conservation efforts to maintain biodiversity in agricultural systems. Despite such efforts, most countries reported knowledge gaps with respect to traditional sustainable use of biodiversity, underlining the need for capacity building and improved institutional capacity to develop and enforce comprehensive policies on biodiversity (FAO, n.d.). Beyond national policies, further actions for the conservation and use of biodiversity for food and agriculture are being undertaken in the region, including regional partnerships and gene banks. These efforts are very important for preserving local seeds and varieties of traditional crops, including breeds and seeds locally adapted to temperature variations.

Most of the Nationally Determined Contributions (NDCs) adopted by LAC countries include priority actions for environmentally sound agriculture, with low carbon emissions and sustainable practices.

Table 2.2 Regional policies and programmes for the conservation and/or use of biodiversity for food and agriculture

Policies/Programmes/ Partnerships	Description	Countries/Subregions involved
Mesoamerica Network on Genetic Resources	Supports conservation and sustainable use of genetic resources	Several countries of Mesoamerica (reported by El Salvador)
Regional Cooperation in Coffee Technology Development in Central America (PROMECAFE)	Provides support and exchange in the area of coffee cultivation (no explicit mention of biodiversity)	Dominican Republic, El Salvador, Panama and Jamaica (reported by El Salvador)
Caribbean Aqua Terrestrial Solutions Programme	Provides support for the prudent management and conservation of terrestrial and marine biodiversity and ecosystem services	Caribbean region (reported by Grenada)
Regional Fisheries Policy	Aims to ensure the sustainable management of fisheries resources within the Caribbean region, protecting marine biodiversity, habitats and ecosystem services	Caribbean region (reported by Grenada)
Caribbean Fish Sanctuary Partnership (C-Fish)	Strengthens community-based fish sanctuaries and marine protected areas in five countries in the Caribbean to enhance the resilience and productivity of coastal ecosystems	Dominica, Grenada, Jamaica, Saint Lucia, Saint Vincent and the Grenadines (reported by Grenada and Jamaica)
Caribbean Regional Fisheries Mechanism (CRFM)/Caribbean Large Marine Ecosystems Project (CLME+)/Organization of the Central American Fisheries and Aquaculture Sector (OSPESCA)	CRFM, OSPESCA and the FAO Western Central Atlantic Fisheries Commission signed a memorandum of understanding to facilitate, support and strengthen the coordination of actions to increase the sustainability of fisheries	Caribbean region (reported by Jamaica)
Caribbean Sea Ecosystem Assessment	A project under the Millennium Ecosystem Assessment on the condition and trends of Caribbean ecosystems (USAID, 2008)	Caribbean region (reported by Jamaica)
Integrating Watershed and Coastal Area Management in the Small Island Developing States Project	Global Environment Facility implemented by the United Nations Environment Programme and the United Nations Development Programme to strengthen the commitment and capacity of the participating countries to implement an integrated approach to the management of watersheds and coastal areas	Antigua and Barbuda, Bahamas, Barbados, Cuba, Dominica, Dominican Republic, Grenada, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Trinidad and Tobago (reported by Jamaica)
Eco-regional evaluation of the Great Chaco Forest	Transnational programme for zoning of priority conservation areas in the Great Chaco	Bolivia, Brazil, Paraguay

Source: (FAO, n.d.)

Centers of origin are defined as the geographical areas where a group of organisms developed their distinct characteristics. Keeping these centers of origin in mind in agricultural production is important to avoid genetic depletion and habitat loss. The LAC region has identified four primary centers of origin and diversity, home to many commonly consumed crops such as maize, potatoes, pineapple and cacao (Damania et al., 1998).

Table 2.3 LAC primary centers of origin and diversity

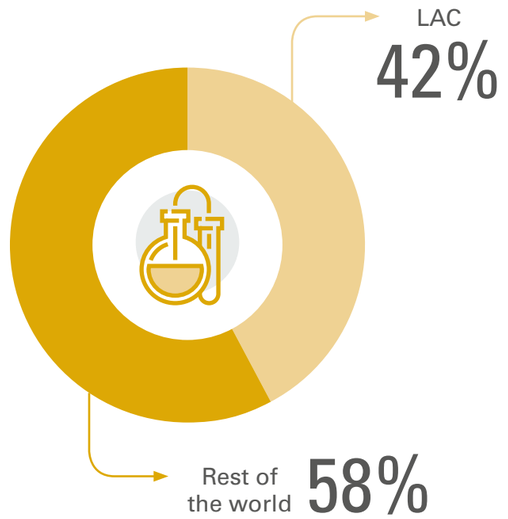
Number	Region	Features
VII	South Mexican and Central American Center	Important for maize, Phaseolus and Cucurbitaceous species, with spices, fruit and fibre plants (approximately 49 species)
VIII	South American Andes region: Bolivia, Peru, Ecuador	Important for potatoes and other root crops, Andean grain crops, vegetables, spices and fruit, as well as stimulants (coca, quinine, tobacco etc.) (approximately 45 species)
VIIIa	Central Chile	Only four species - outside the main area of crop domestication, and one of these (Solarium tuberosum) derived from the Andean center. This could hardly be compared with the eight main centers
VIIIb	Brazilian-Paraguayan	Again, outside the main centers with only 13 species, though Manihot (cassava) and Arachis (peanut) are of considerable importance; others such as pineapple, Hevea rubber, Theobroma cacao were probably domesticated much later

Source: Camargo and Lobos (2016)

Another major threat to biodiversity and ecosystem balance is the widespread practice of monoculture farming, which is common in the production of major food crops such as corn and sugar, as well as soy for biofuels (mostly driven by market demands). These plantations not only reduce plant diversity, but also affect pollinators, and can cause soil erosion and degradation.

Genetically modified (GM) crops are common in today's intensive agricultural areas. Advocates of this technology argue that GM crops have the potential to increase yields in food production and food security, decrease pressures on land, allow for unsuitable lands to be farmed and, finally, reduce the use of water and agrochemicals in production. However, more research is needed to assess long-term results. GM crops have, at times, had a negative impact on biodiversity and traditional crop genetics, as well as impacting non-target insect species and strengthening weed species (UNEP, 2011). Additionally, reported effects such as soil and water pollution, health effects and widespread biodiversity loss can be attributed to the extensive and unsustainable use of agrochemicals in GM crop production. In the region, there are ten countries with implemented legislation that permit the production of GM crops. However, there is evidence of illegal trade and black market flow of GM crops. In 2017, Brazil and Argentina were the countries with the highest percentage of land with GM crops (50% and 24%, respectively). Cuba and Panama are the only countries not planting GM crops in the LAC region with approvals for importing GM cereals, in this case, corn (ISAAA, 2017).

Graph 2.4 Total of genetically modified crops in 2017 (percentage of the total 190 million ha cultivated)



Source: ISAAA (2017)

In addition to being important for the communities' food security, **ancestral species** - like these native maize in Mexico - are important to maintain ecosystems´ balance and local biodiversity.

©Tarahumara Sustainable (UNEP/GEF)

3 GOOD HEALTH AND WELL-BEING

Related international agreements referring to environmental issues:

- Stockholm Convention on Persistent Organic Pollutants (POPs);
- Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade;
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal;
- Montreal Protocol on Substances that Deplete the Ozone Layer;
- Minamata Convention on Mercury;
- ILO's Chemicals Convention concerning Safety in the use of Chemicals at Work;
- Strategic Approach to International Chemicals Management (SAICM).

Human physical health and well-being is directly linked to a clean and healthy environment. Air, water and soil pollution are major threats to our health, often caused by poor waste management, hazardous chemicals and industrial outputs. Concomitantly, disasters and environmental shocks can also have significant impacts on human health. However, these same environmental factors can be the solution to health issues, allowing for advances in vaccines and plague control. Finally, nature can also ensure our mental health through the pleasure of being in harmony with our environment.

Two SDG 3 targets have a strong link to the environment. 3.3 addresses communicable and non-communicable diseases and 3.9 addresses chemical and hazardous contamination of air, water and soil.

SDG 3 ENVIRONMENTAL INDICATORS	
3.9.1	**Air pollution mortality.** Mortality rate attributed to household and ambient air pollution
3.9.2	**Water-related mortality.** Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services)
3.9.3	Mortality rate attributed to unintentional poisoning

● Change in a positive direction ● Change in a negative direction ● Little negative or positive change
● Insufficient data ● No data

Source: UNEP (2019e)

The increasing human pressure on natural systems is amongst the causal roots of **zoonotic issues**. Nature conservation can be the solution, otherwise the problem is likely to become more frequent.

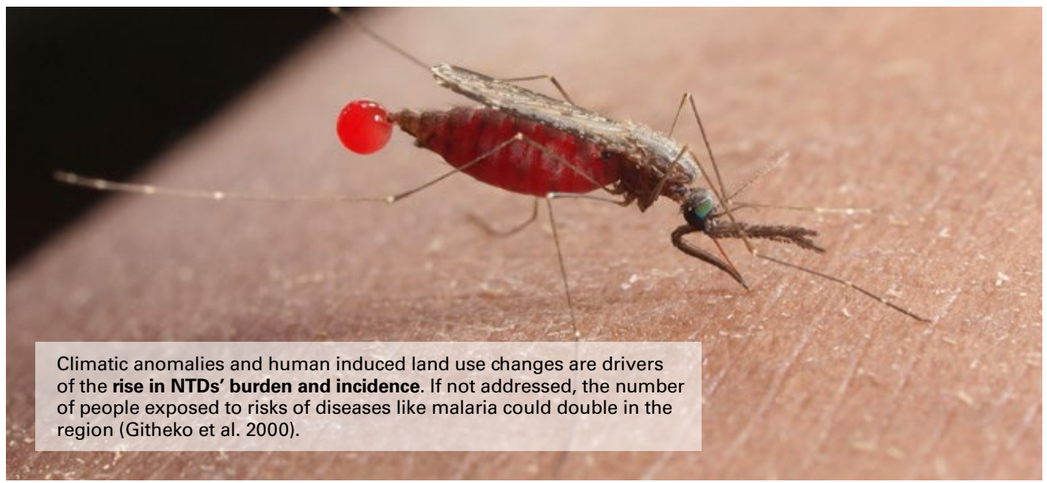
NEGLECTED TROPICAL DISEASES

The region still faces considerable challenges with respect to tropical diseases. As a parameter, it has the highest number of dengue cases in the world and neglected tropical diseases (NTD) affect over 90% of the population in some of Caribbean countries. Urban air pollution has been improving, but dangerous pollution levels are still a problem in some large metropolises. Furthermore, water and soil contamination are also reported, often the result of inadequate industrial activities, with impacts on human health.

Zoonoses, whether vector born or parasitic diseases (VBPDs), continue to be among the leading causes of death among vulnerable populations, both of which are influenced by ecological and climatic conditions (for more information, please refer to the box on the environmental drivers of zoonosis in this chapter).

Due to their prevalence within marginalized communities, the World Health Organization (WHO) classifies some of them as NTDs. Studies have shown that when biodiversity decreases, NTDs (many of them zoonoses) tend to increase, as they are dependent on host species and interactions such as competition and predator/prey relations (Bonds et al., 2012; Hotez et al., 2008). The same is applicable in instances of widespread deforestation (UNEP, 2016c). Current evidence also suggests that climate variability, specifically higher temperatures, directly influences the epidemiology of NTDs, resulting in both an increase in vector numbers as well as a broader territorial distribution.

Another link between NTDs and the environment are the specific ecological conditions that sustain vector populations. It is crucial to establish the type of NTDs that exist in each of the ten subregions and their ecosystems to undertake appropriate vector control and management. This is particularly important in LAC, given the region's great ecological diversity.



Climatic anomalies and human induced land use changes are drivers of the **rise in NTDs' burden and incidence**. If not addressed, the number of people exposed to risks of diseases like malaria could double in the region (Githeko et al. 2000).

Table 3.1 Ten LAC ecosystems and their specific relation with NTDs

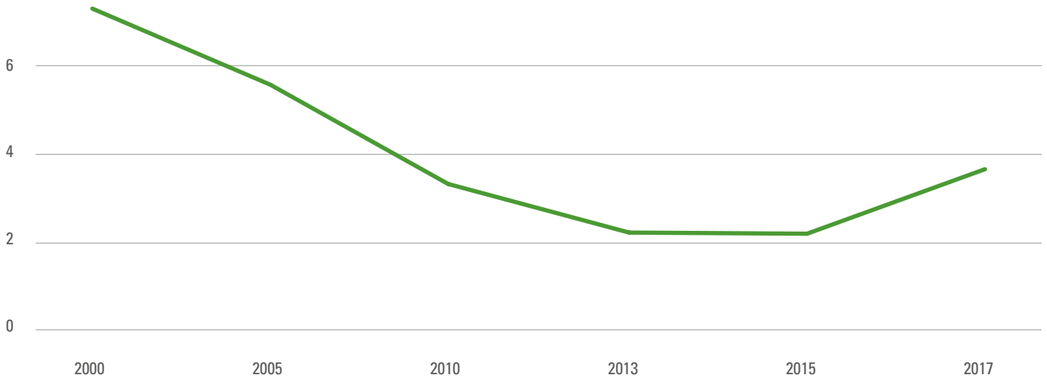
Subregion	NTDs	Co-Factors*
Southern cone of South America	Chagas, leishmaniasis, cysticercosis, echinococcosis, hemorrhagic fevers	Cattle ranching, minifundios, urban migration
Chaco (Bolivia, Paraguay, Argentina)	Chagas, leishmaniasis, STH	Cattle ranching, minifundios, animal husbandry
Andean region (Altiplano or Highland)	Fascioliasis, Chagas, leishmaniasis, plague, bartonellosis, STH, cysticercosis, echinococcosis, ectoparasites	Minifundios, urban migration
Amazonian basin	Chagas, leishmaniasis, STH, onchocerciasis, leprosy, trachoma, ectoparasites	Deforestation, mining, armed illegal groups, urban migration, indiscriminate colonization
Eastern Brazil	STH (esp. hookworm) schistosomiasis, Chagas disease, leishmaniasis, LF (NE only), echinococcosis, leprosy, leptospirosis	Cattle ranching, deforestation, minifundios, urban migration, monoculture
North Pacific of South America	STH, cystiercosis, leishmaniasis, onchocerciasis, echinococcosis	Deforestation, gold mining, armed illegal groups
Caribbean basin	STH, schistosomiasis, LF, leprosy, leptospirosis, fascioliasis	Economic dependence on tourism, deforestation, urban migration
Central America and Panama	STH, leishmaniasis, Chagas, onchocerciasis, cysticercosis, leptospirosis	Deforestation, desertification, migration
South and Central Mexico	STH, Chagas, cystiercosis, leishmaniasis, trachoma, onchocerciasis	Deforestation, migration
Northern Mexico	STH, Chagas, cysticercosis, leishmaniasis	Desertification, migration

*All subregions have co-factors of poor housing and lack of safe water and basic sanitation

Source: Hotez et al. (2008)

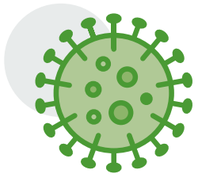
The World Health Organization (WHO) considers Malaria and Dengue fever to be among the most prevalent NTDs in the tropics and subtropics. Both diseases have shown an increase in cases following a loss in biodiversity and forest cover. A worrying trend has been identified in the Amazon region: each square kilometre of deforestation implies an increase of 27 new malaria cases (Chaves et al., 2018).

Graph 3.1 Malaria in LAC (per 1,000 population at risk)



Note: irregularities in the timeline
Source: WHO - GHO (2020)

The region continues to report the highest number of dengue cases in the world; a total of 2,227,677 cases in 2015. Since the first report of autochthonous transmission of dengue in Uruguay in 2016, all countries in the region now report dengue cases annually, albeit at different rates. In spite of this, the region reports the lowest case–fatality rate (0.05%) of all WHO regions. In 2019, the region recorded the highest number of dengue cases in its history, with 3 million cases and over 1,500 deaths. Brazil has by far the highest absolute number with 2.2 million cases, while the highest incident rates are seen in Belize, El Salvador, Honduras and Nicaragua (PAHO, 2019; PAHO – PLISA Database, 2019).



Drivers of zoonosis – transmission of infectious diseases from and to animals - in LAC

Zoonotic diseases, such as the recent COVID-19 outbreak, are infectious diseases naturally transmitted from vertebrate animals to humans and vice versa, often due to human pressures upon animals and ecosystems or natural pathogenic alterations (UNEP, 2016f). Two main human-related trends are increasing interactions between people and animals (with the likelihood of zoonosis to occur) and pressures on natural ecosystems and biodiversity loss.

Regarding ecosystem damage, the fragmentation, destruction and degradation of natural habitats in LAC can be attributed to the increasing rate of urban encroachment into natural areas, particularly in central Mexico, the north and south of the Andean region (surroundings of Bogota, Quito and Santiago), and the metropolitan zones of São Paulo, Rio de Janeiro and Buenos Aires. All these zones are within biodiversity hotspots (except Buenos Aires) and present the highest risk of new zoonotic events on the continent (UN, 2020). Moreover, land use change for agricultural purposes is also affecting ecosystems, mainly, but not exclusively, in the Amazon, Cerrado and El Chaco regions.

The estimated loss of area from natural systems' transformation in LAC is significant: 88% of the South Atlantic forest, 70% of the South American Rio de la Plata grasslands; 82% of mesic broadleaf forest in Mexico; 72% of tropical and dry forest in Mesoamerica; 66% of tropical dry forest in the Caribbean; 50% of the broader South American Mediterranean-climate biome; and 50% of the Cerrado (tropical savannah). These transformations, mostly ongoing, have led to a decline in the diversity and population sizes of native species (IPBES, 2018).

Other activities, such as wildlife trade (whether legal or illegal), game food habits and commoditization, can further lead to the emergence of zoonosis (UNEP, 2016e). Wildlife trade is common in many LAC countries (for more information, please refer to SDG 15), mainly involving reptile, mammal and bird species (UNODC, 2016).

While LAC is not among the regions with prevalent foodborne diseases, zoonotic parasites like the pork tapeworm (Taenia solium) and Toxoplasma gondii still present a significant challenge to local health systems (Havellar et al., 2015). Finally, environments with little biodiversity ecological integrity increase the likelihood of pathogenic transmission. This is usually the case of commodity-intensive areas (discussed in SDG 2), such as the South American Atlantic coastal forests and the tropical savannah, where biological diversity is being impacted by large-scale farming (UNEP, 2016e).

AIR POLLUTION

In the LAC region, an estimated 100 million people live in areas susceptible to air pollution (UNEP, 2016c). Although many countries have tried to implement air quality standards, the region still has cases of pollution limits above international standards, as well as countries without air quality legislation. In this sense, existing laws in the air quality policy framework require review in line with current scientific data on the health and environmental effects of air pollution. Laws should address the monitoring and control of ground level pollutants, as well as regulation measures to decrease emissions from major sectors such as transport and industry.

Table 3.2 Air pollution and related deaths in LAC countries

	Mortality rate* attributed to household and ambient air pollution, 2016 (per 100,000 people)	Pm 2.5 Mean annual exposure (2017) and variation since 1990 (micrograms/m³ and %)		Annual maximum concentration levels of particle matter allowed in LAC countries, compared to WHO guidelines**	
		EXP.	VAR.	PM 2.5	PM 10
Antigua and Barbuda	30	19	-17%	-	-
Argentina	27	13	-18%	15	50
Bahamas, The	20	17	-17%	-	-
Barbados	31	23	-18%	-	-
Belize	69	23	-16%	-	-
Bolivia	64	22	-10%	10	50
Brazil	30	13	-16%	-	50
Chile	25	21	-15%	20	50
Colombia	37	17	-19%	25	50
Costa Rica	23	16	-14%	-	150
Cuba	50	-	-	-	-
Dominica	-	19	-16%	-	-
Dominican Rep.	43	14	-11%	15	50
Ecuador	25	15	-19%	15	50
El Salvador	42	24	-21%	15	50
Grenada	45	23	-18%	-	-
Guatemala	74	24	-18%	10	20
Guyana	108	22	-10%	-	-
Haiti	184	15	-13%	-	-
Honduras	61	21	-24%	-	-
Jamaica	25	13	-16%	15	50
Mexico	37	21	-11%	12	40
Nicaragua	56	18	-22%	-	50
Panama	26	11	-13%	-	50
Paraguay	58	12	-15%	15	-
Peru	64	25	-13%	15	50
St Lucia	30	22	-16%	-	-
St Vinc & the Grenadines	48	22	-18%	-	-
Suriname	57	25	-17%	-	-
Trininidad and Tobago	39	24	-17%	15	50
Uruguay	18	9	-15%	-	50
Venezuela (B.R.)	35	17	-21%	-	50

*Age standardized. **WHO-AQG guidelines: 10 micrograms/m³ for PM 2.5 and 20 micrograms/m³ for PM 10, therefore green means inside and red means outside the standard.

Source: World Bank (2020); Riojas-Rodríguez et al. (2016)

Distribution of air quality monitoring stations among LAC countries.

Few cities in the region collect official data on ground level air pollutants, although the concentration of inhalable particles in many cities is above the established WHO Air Quality Guidelines. Improving and mainstreaming monitoring systems is a necessary step to protect the health of communities and guide legislation to regulate emissions.

Under the current scenario, premature mortality from exposure to PM 2.5 is expected to almost double in LAC by 2050, and forest fire emissions would be responsible for a large number of these deaths. By implementing measures to reduce these emissions by 75%, deaths in the region would decline by 37% in 2030, and a further 34% in 2050 (UNEP/CCAC 2016).

The monitoring and development of **alternative livelihoods for the primary mercury mining** sector prevents environmental and human health risks from mercury.

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WATER AND SOIL POLLUTION

Water pollution in the region is a widespread problem and can stem from different sources, including agricultural practices, mining operations and industrial production, and from direct release into water ways or through runoff from contaminated soils. Unsustainable agricultural practices represent threats to human health as well as the region's ecosystems. Agro-pollutants of greatest concern for humans include pathogens from livestock, pesticides, nitrates in groundwater, trace metallic elements and emerging pollutants, including antibiotics and antibiotic-resistant genes from livestock (FAO,2018d).

In addition, mining operations contribute to soil pollution and water security threats, resulting in permanent damage to adjacent bodies of water, even after the discontinuation of operations. There have been documented cases in the region where communities living downstream from mine sites showed elevated levels of mercury, copper, arsenic and zinc in urine and blood samples (Working Group on Mining and Human rights in Latin America, n.d.). The sources of some of this damage dates back more than a century. For example, soils that have been contaminated by arsenic compounds used to control cattle ticks and pests on banana plantations still contain high levels of pollutants (UNEP, 2019b).

Marine pollution is also a major problem for Caribbean nations, as they are burdened with marine waste problems as well as pathogens associated with poorly managed waste waters that thrive in sea water (discussed in SDG 14) (UNEP, 2016c).

Table 3.3 Mortality rate attributed to unsafe water, poor sanitation and lack of hygiene, 2016 (per 100,000 people)

Haiti	23.8
Guatemala	6.3
Bolivia	5.6
Guyana	3.6
Honduras	3.6
Dominican Republic	2.2
Nicaragua	2.2
El Salvador	2
Suriname	2
Panama	1.9
Paraguay	1.5
Venezuela (B.R.)	1.4
Peru	1.3
St Vincent and the Grenadines	1.3
Mexico	1.1
Belize	1
Brazil	1
Cuba	1
Costa Rica	0.9
Colombia	0.8
Ecuador	0.6
Jamaica	0.6
St Lucia	0.6
Argentina	0.4
Uruguay	0.4
Grenada	0.3
Barbados	0.2
Chile	0.2
Antigua and Barbuda	0.1
The Bahamas	0.1
Trinidad and Tobago	0.1

Source: World Bank (2020)

UNINTENTIONAL POISONING

Unintentional poisoning can be caused by household chemicals, pesticides, kerosene, carbon monoxide and medications, or the result of environmental contamination or occupational chemical exposure. The table below shows the mortality rates for the region for all sources of unintentional poisoning, showing a decreasing trend in recent years.

Persistent Organic Pollutants (POPs) are widely used in agricultural and industrial activities and may also be unintentionally released from many activities around the globe. Characteristics like persistence, long-range transport capacity and bioaccumulation imply numerous health risks for humans, including cancer and severe nervous system damage (GRULAC, 2009).

Two other significant contaminants are mercury and black carbon. The first can have serious adverse effects on human health and the environment arising from the production, use and disposal of mercury and mercury-added products (UNEP, 2014).

Artisanal and small-scale gold mining account for 71% of all mercury emissions in the Amazon region. Mexico is the world's largest mercury exporter, with 307 metric tonnes reported in 2015 (WWF, 2018; UNEP 2017c).

In Latin America, the transport sector is the largest source of human-generated black carbon emissions (NRDC, 2014).

Black carbon is one of the principal short-lived climate pollutants (SLCPs). Since it remains in the air for a relatively short period, reducing black carbon emissions could provide benefits almost immediately. There are many detrimental consequences for human health from exposure to such substance, including cancer, thrombosis and acute respiratory problems, among others. Black carbon ranks second among most powerful climate warming pollutants (NRDC, 2014).

Table 3.4 Mortality rate* attributed to unintentional poisoning, 2016 and variation 1990-2016

	2016	Variation
Antigua and Barbuda	0.4	-20%
Argentina	0.6	-25%
Bahamas, The	0.1	-67%
Barbados	0.2	-33%
Belize	0.5	-50%
Bolivia	2	-57%
Brazil	0.2	-33%
Chile	0.2	-33%
Colombia	0.4	0%
Costa Rica	0.3	0%
Cuba	0.3	-25%
Dominican Republic	0.4	-33%
Ecuador	0.6	-50%
El Salvador	0.2	-60%
Grenada	0.4	-50%
Guatemala	1.1	-35%
Guyana	0.7	-22%
Haiti	2.6	-28%
Honduras	0.4	-33%
Jamaica	0.2	-33%
Mexico	0.4	-43%
Nicaragua	0.6	-50%
Panama	0.4	-33%
Paraguay	0.3	-67%
Peru	0.9	-31%
St Lucia	0.2	-33%
St Vincent and the Grenadines	0.2	-33%
Suriname	0.4	-43%
Trinidad and Tobago	0.2	-33%
Uruguay	0.4	-33%
Venezuela (B.R.)	0.3	-40%

*Per 100,000 people **Note:** Gaps in data for Haiti, Suriname & Venezuela

Source: World Bank (2020)

4 QUALITY EDUCATION

The concept of 'education for sustainable development' encompasses environmental education, addressing aspects of our natural and built environments, as well as the socio-ecological and economic aspects of the problems surrounding them. Moreover, such education should include a range of environmental and development issues that affect or are affected by human activities and natural phenomena.

Education as a key tool to provide sustainable lifestyles is pivotal for the success of the 2030 Agenda, a question directly addressed by target 4.7.

SDG 4 ENVIRONMENTAL INDICATORS

4.7.1	Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment

Change in a positive direction · Change in a negative direction · Little negative or positive change · Insufficient data · No data

Source: UNEP (2019e)

The United Nations Educational, Scientific and Cultural Organization (UNESCO) has "The Recommendation concerning Education for International Understanding, Co-operation and Peace and Education relating to Human Rights and Fundamental Freedoms" as one of its guiding pillars. Known as the 1974 Recommendation, it has four guiding principles, one of which addresses sustainable development and environmental matters.

Table 4.1 Guiding Principles and related Topics of the 1974 Recommendation

Cultural Diversity and Tolerance	International understanding, solidarity and cooperation Intercultural and interreligious dialogue Global citizenship
Peace and Non-violence	Friendly relations among nations Preventing violent extremism Preventing other forms of violence, including bullying and gender-based violence
Human Rights and Fundamental Freedoms	Equality, inclusion and non-discrimination Justice and fairness Ethics, morals and values
Human Survival and Well-being	**Climate change** **Environmental sustainability, caring for the planet** **Sustainable development, consumption and livelihood**

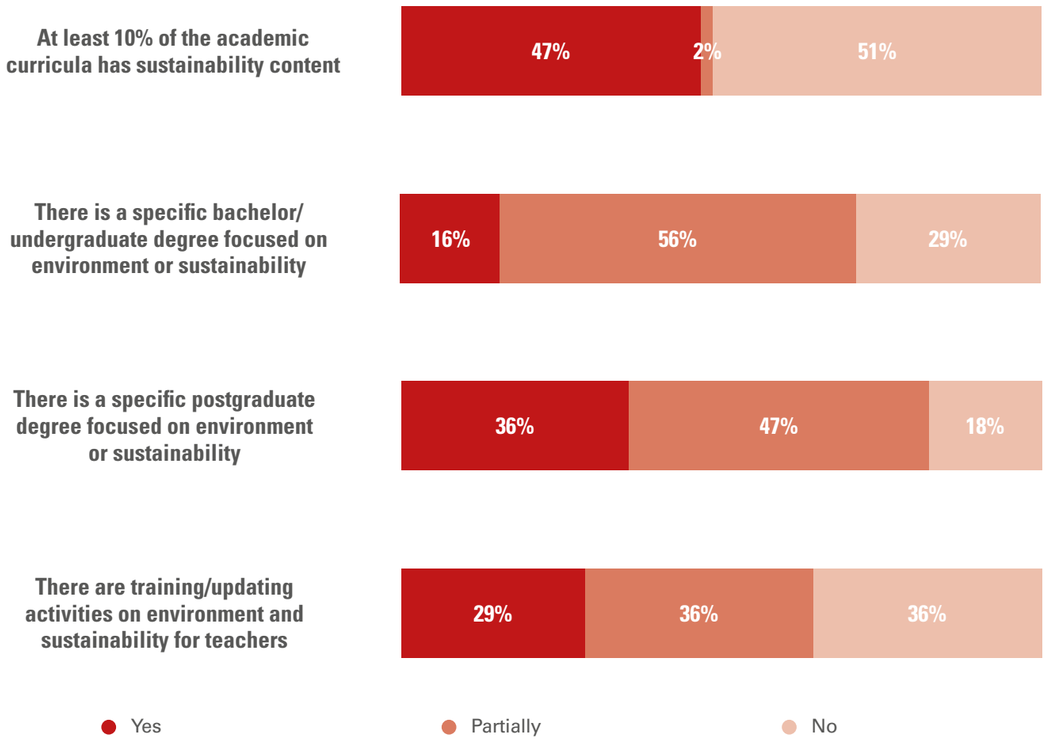
Source: UNESCO (2018)

92% of Latin American and Caribbean Countries reported including Human Survival and Well-Being Topics in their formal education curricula, accordingly to UNESCO.

Currently, all governments in the region have legislation, public policies and plans for environmental education (please see Appendix 1 for detailed information by country). Countries have addressed the issue of environmental education using different strategies. Some countries mention the concept in one or many environmental laws, while others have implemented national strategies for environmental education. In some cases, the concept has been included in education laws.

Education is the steppingstone for our societies to attain sustainable practices and environmental stewardship. To achieve this goal, education must be considered not just at primary education levels, but encompass all aspects of society, including basic education, university, post-graduate and private and public sectors of society. A survey of 45 universities in 10 countries in the region aimed to assess the institutions' progress in matters of sustainable development and sustainability education, for staff, faculty and students, and found that more than half of the surveyed higher education institutions showed advances in education strategies and teacher training, as well as among assessment teams in charge of guiding curriculum reviews to introduce sustainability criteria.

Graph 4.1 Environment and sustainability in LAC universities (10 countries)



Source: Blanco-Portela & Benayas (2017)

Successful promotion and implementation of education for sustainable development and environmental stewardship requires multidimensional efforts from governments, international institutions and the private sector.

The Environmental Training Network (ETN) for Latin America and the Caribbean was created in 1980 during a session of the UNEP Governing Council following a request by the governments of the region. It aims to achieve sustainable development and environmental stewardship in the region through the implementation and strengthening of environmental education, relying on intergovernmental cooperation with support from UNEP. Furthermore, the network focuses on strengthening both environment and education ministries and authorities. Embedded in the ETN are several initiatives such as the Alliance of Iberoamerican University Network for Sustainability and the Environment (ARIUSA) and RedLAC (Table 4.2).

Table 4.2 RedLAC and ARIUSA membership

RedLAC member countries and figures	ARIUSA countries* and academic institutions
Over 5,800 environmental conservation projects managed	442 academic institutions
Over 900 protected areas supported	26 Environmental Academic Networks
21 regional and national members	22 countries enrolled
Over USD 7 million in grants for co-financing initiatives	Over 15 regional and national networks

*Portugal and Spain are also members

Source: RedLAC (2019); ARIUSA (2019)

Related international agreements referring to environmental issues:

- The Convention on the Elimination of All Forms of Discrimination against Women (CEDAW)

Achieving gender equality and empowering all women and girls also includes an environmental dimension. Just as women and men have different access to education, economic opportunities and leisure, they also relate to the environment differently. There is a strong gender dimension in how people access land and natural resources, engage in environmental management and experience vulnerability to environmental challenges. Moreover, environmental issues can impact women more severely; for instance, pregnant and lactating women face greater threats from pollution.

Target 5.a specifically refers to the need to give women equal rights to environmental resources and the economic and social benefits derived from them.

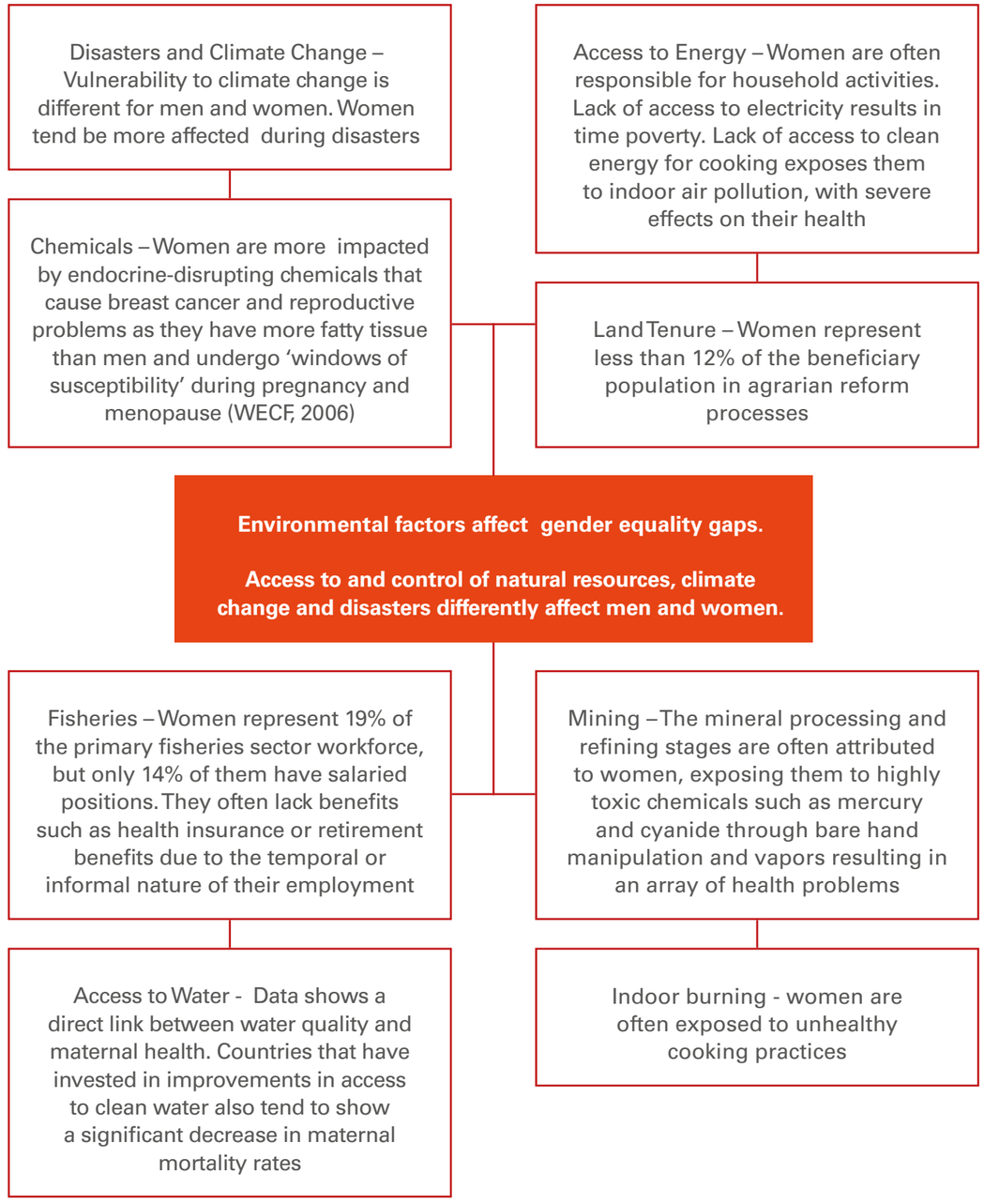
SDG 5 ENVIRONMENTAL INDICATOR

5.a.1	**Women agricultural landowners.** (a) Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex; and (b) share of women among owners or rights-bearers of agricultural land, by type of tenure

Change in a positive direction · Change in a negative direction · Little negative or positive change · Insufficient data · No data

Source: UNEP (2019e)

Graph 5.1 Identified gender gaps in environmental matters



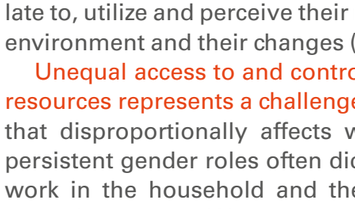
The region is advancing in closing gender gaps, such as access to education and employment. However, women continue to face discrimination related to access to and control over resources and inclusion in decision-making processes; and they still suffer widespread gender violence. Recognizing that these multidimensional inequalities are pivotal to achieving sustainable development and resilience, the SDGs have not only included a specific goal –SDG 5- but also incorporated gender equality in all the SDGs with specific targets and indicators (UN Women, 2014; UNEP, 2016d).

The persistence of current societal structures, gender norms and practices reinforces inequalities and power imbalances between men and women. These deep-rooted societal norms, in both public and private spheres, directly influence the way men and women relate to, utilize and perceive their resources, the environment and their changes (UNEP, 2016d).

Unequal access to and control over natural resources represents a challenge in the region that disproportionally affects women. These persistent gender roles often dictate women's work in the household and their relation to natural resources. Women are often responsible for domestic and care-work, which means that access to resources like water, food, timber and energy dramatically influence their workload. Lack of access to these resources results in time poverty, social and economic pressures (UNEP, 2017a) and is one of the factors contributing to the "feminization" of poverty in the region.

ACCESS TO AGRICULTURAL LAND

In particular, access to agricultural land is considered key for achieving economic and social parity. Land tenure does not only positively affect women personally, but also brings prosperity to their families and communities (UNEP, 2016d). Unequal access to land continues to be a widespread problem, and countries such as Honduras, Mexico, Nicaragua and Peru still have a very unequal land tenure distribution (UNEP, 2016d; FAO, 2018e). Aside from basic access to land, women also tend to own less productive land and they receive only 10% of loans and 5% of the technical assistance for the sector (UNEP, 2017a; UNSDG LAC, 2017).



With the exception of Ecuador and Jamaica, women account for less than 30% of landholdings in LAC countries.

Graph 5.2 Distribution of women landholders in LAC

FAO defines landholders as the person who makes major decisions and exercises management control over the agricultural resource.

Despite legal equality, the data portrays a significant gender gap.

Source: FAO (2018e)

GENDER IN MULTILATERAL ENVIRONMENTAL AGREEMENTS AND NATIONAL ADVANCES

All the Rio Conventions (Climate Change, Biodiversity and Desertification and Land Degradation) have Gender Action Plans and the main international financing mechanisms have policies and guidelines on gender equality and women's empowerment.

This integration is already having an impact on national policies and actions. Gender equality financing for environmental actions has been improving through the actions of the Global Environment Fund (GEF) and the Global Climate Fund (GCF). GEF established a gender mainstreaming policy in 2011, stating that funded projects should address a minimum of seven gender requirements. As a result, Latin America has increased its gender-responsive projects by 75%, representing the largest increase among regions. In turn, the GCF was established with a specific gender policy at its creation, including a specific Guidebook dictating procedures to ensure that climate initiatives involve women and men equally.

Moreover, climate change and disaster vulnerability are both factors that affect women and men differently. The impacts of such events can result in biodiversity and natural resource loss, which exacerbate already existing gender inequalities. These events also reinforce women's roles in societies as care takers; and women are often overburdened with unpaid work during times of disaster or climate variability (WHO – GHO Database). Gender-differentiated climate change policy and adaptation measures are necessary to ensure resilience not only for women, but entire communities.

The Convention on Biological Diversity was the first multilateral environmental agreement to adopt a Gender Action Plan (Table 5.1). The current 2015-2020 Gender Plan of Action is an important decision and mandate for Parties on the integration of gender considerations, possible actions and gender mainstreaming across policies and National Biodiversity Strategies and Action Plans (NBSAPs)

Table 5.1 LAC countries mentioning gender equality in their NBSAP or national targets

Argentina	Mexico
Bolivia	Nicaragua
Brazil	Panama
Costa Rica	Paraguay
Cuba	Peru
Ecuador	St Kitts and Nevis
Guatemala	St Lucia
Guyana	Trinidad and Tobago
Honduras	Venezuela (B.R.)
Jamaica	

Source: CBD Website (2019)

Climate Change Gender Action Plans (ccGAPs) aim to strengthen a country's current national climate change policies, plans or strategies. Part of the plans' core is a push for more in-depth reflection and awareness of gender inequities and their implications, as well as the importance of valuing women's inputs and experiences regarding natural resources, conservation and disasters. Moreover, the participative character of these actions is aimed at informing and including all affected and involved actors and stakeholders in the climate change and gender dialogue to identify main areas of concern. In line with the ccGAPs are countries' Nationally Determined Contributions (NDCs), which are a core component of the Paris Agreement. The NDCs embody countries' specific actions and efforts to reduce emissions and develop strategies to adapt to and mitigate the impacts of climate change. Each country is required to report on their NDCs in order to assess whether or not the UN 1,5 - 2°C global temperature increase target will be reached. Thirteen NDCs in the region already include gender equality actions.

Table 5.2 Countries that include SDG 5-related actions in their NDCs and countries with a ccGAP

The inclusion of gender equality in environmental policies is still **weak** in the region	Countries that include SDG 5-related actions in their NDCs[i]	COUNTRIES WITH A ccGAP[ii]	Climate change gender action plans look to enhance mitigation, adaptation and cross-sectoral efforts in national climate policies, addresing **Gender-specific issues**
	Brazil	Costa Rica	
	Barbados	Cuba	
	Costa Rica	Dominican Rep.	
	Dominica	Haiti	
	Dominican Republic	Peru	
	Guatemala	Panama	
	Haiti		
	Honduras		
	Mexico		
	Panama		
	Paraguay		
	Peru		
	St Vincent and the Grenadines		

Source: (i) WEDO (2018); (ii) IUCN (2019a)

6 CLEAN WATER AND SANITATION

Related international agreements referring to environmental issues:

- Convention on Biological Diversity
- The RAMSAR Convention on Wetlands
- UN Watercourses Convention

Water is the essential resource that sustains life on Earth, and healthy ecosystems are crucial to preserve it. Ecosystems can store and ensure water availability for humans, in addition to regulating water flows, which reduces the risks of droughts and floods. Globally, the pressures on water resources are growing, not only from economic and social activities, but also due to the reduced availability of water resources from environmental degradation, pollution and climate change. Water overuse and pollution reduce the capacity of ecosystems to sustain life and support economic activities and pose a threat to biodiversity (HLPW, 2018).

Six of the 8 SDG 6 targets are directly related to the environment, addressing topics such as: water quality (target 6.3); water efficiency and water stress (target 6.4); integrated water management (target 6.5); management of water-related ecosystems (target 6.6) and local and global means of implementation and actions to achieve this goal (targets 6.a and 6.b).

SDG 6 ENVIRONMENTAL INDICATORS	
6.1.1	**Safe drinking water.** Proportion of population using safely managed drinking water services
6.3.1	**Wastewater treatment.** Proportion of domestic and industrial wastewater flows safely treated
6.3.2	**Water quality.** Proportion of bodies of water with good ambient water quality
6.4.1	**Water efficiency.** Change in water-use efficiency over time
6.4.2	**Water stress.** Level of water stress: freshwater withdrawal as a proportion of available freshwater resources
6.5.1	**Water resource management.** Degree of integrated water resources management
6.5.2	**Water cooperation.** Proportion of transboundary basin area with an operational arrangement for water cooperation
6.6.1	**Water related ecosystems.** Change in the extent of water-related ecosystems over time
6.a.1	**Investment in water and sanitation.** Amount of water- and sanitation-related official development assistance that is part of a government coordinated spending plan
6.b.1	**Local water management.** Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management

Change in a positive direction · Change in a negative direction · Little negative or positive change · Insufficient data · No data

Source: UNEP (2019e)

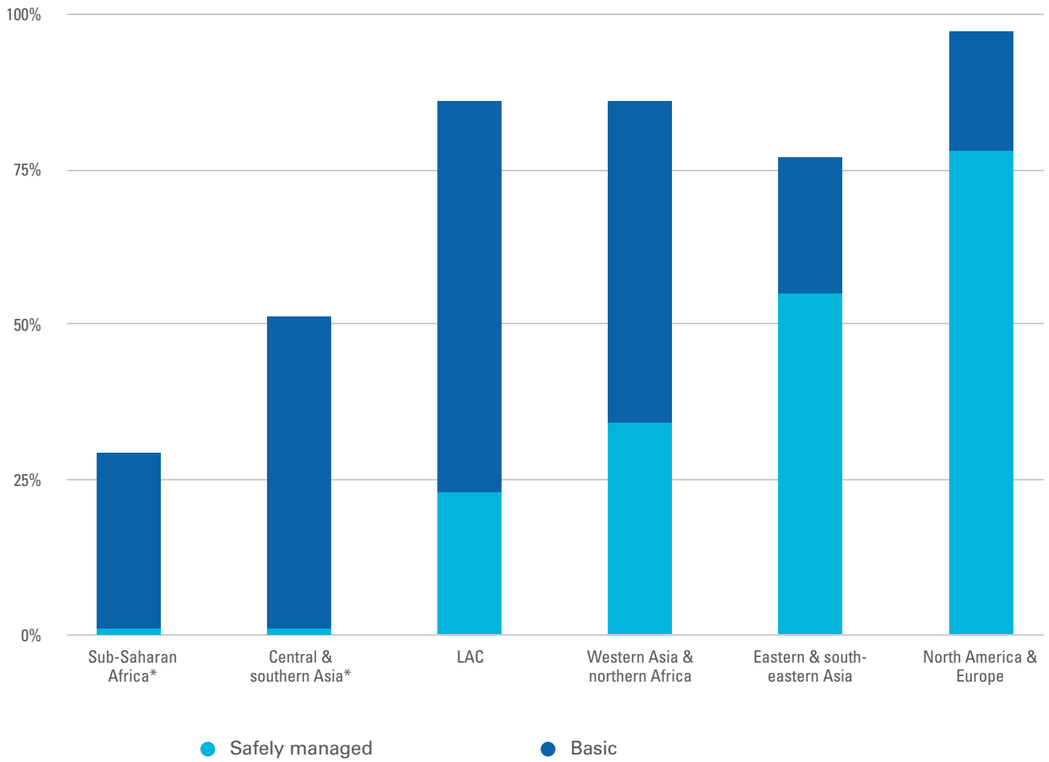
LAC is a water-rich region and has the highest per capita availability of fresh water in the world (UN, 2009). The Amazon basin alone contains 30% of the planet's fresh water. However, this regional average hides heterogeneous water availability in the region due not only to natural conditions, but also to unequal access to water resources and growing pressures on them from population growth, urbanization and economic development.

WATER QUALITY AND INFRASTRUCTURE

LAC has achieved great advances in access to water over the last decades. In the vast majority of LAC countries, approximately 90% of population has access to water. However, there is still a significant degree of inequality between rural and urban areas, with the later having 10% to 60% greater access to water.This disparity almost exclusively affects poor rural populations and regions (WHO/UNICEF, 2016).

Additionally, 85% of the population has access to basic sanitation in the region. Chile is the only country that provides universal basic sanitation services for its population, followed closely by Costa Rica, Barbados and Uruguay. Nonetheless, some countries, such as Bolivia and Haiti, provide less than 60% of the population with basic sanitation (World Bank, 2020).

Graph 6.1 Estimates of safely managed sanitation services, per global region (2015)



* Insufficient data to estimate safely managed services

Source: WHO/UNICEF (2017)

Table 6.1 Percentage of population with access to safe drinking water and ratio of improvement in LAC countries, 2015 (and improvement 1997-2015)

	Access	Improv.
Barbados	99%	2%
Uruguay	99%	3%
Belize	99%	22%
Argentina	99%	4%
Chile	99%	6%
Bahamas	98%	2%
Guyana	98%	17%
St Kitts and Nevis	98%	0%
Brazil	98%	7%
Paraguay	98%	45%
Ant & Barbuda	98%	0%
Costa Rica	98%	4%
Grenada	97%	0%
St Lucia	96%	3%
Mexico	96%	11%
St Vinc. & the Grenadines	95%	3%

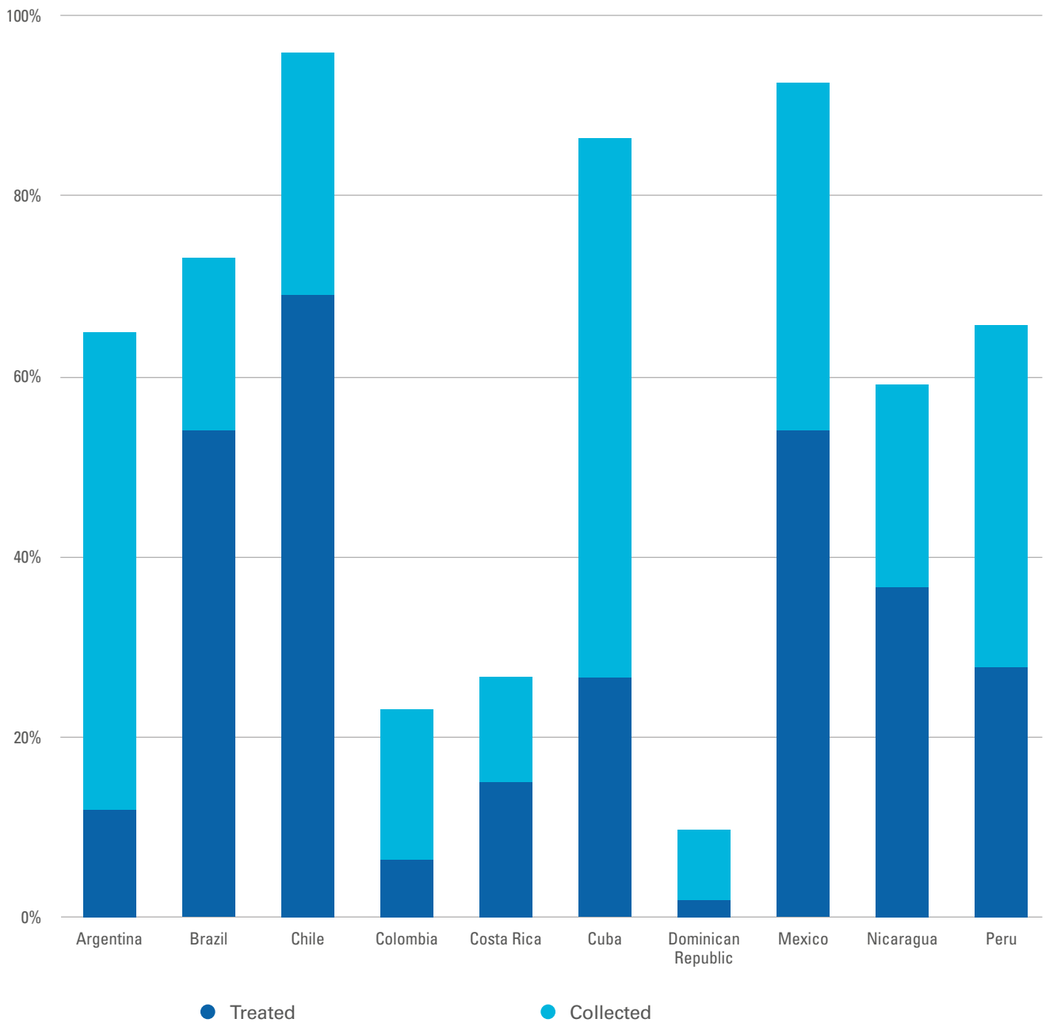
	Access	Improv.
Trin & Tobago	95%	2%
Cuba	95%	6%
Suriname	95%	7%
Panama	95%	8%
Dominica*	94%	0%
El Salvador	94%	19%
Jamaica	94%	0%
Venezuela (B.R.)	93%	3%
Guatemala	93%	14%
Colombia	91%	2%
Honduras	91%	16%
Bolivia	90%	19%
Nicaragua	87%	13%
Ecuador	87%	12%
Peru	87%	11%
Dominican Rep	85%	-3%
Haiti	58%	-6%

* Values of 2007, instead of 2015

Source: FAO (2019a)

Adequate measures to treat and dispose of wastewater are needed to avoid problems like water resource pollution and fecal-borne zoonosis. The LAC region has overall low wastewater treatment rates. Despite data gaps, an analysis of data available in 10 countries reinforces the heterogeneity of water-related services throughout the region.

Graph 6.2 Proportion of municipal wastewater collected and treated (10 LAC countries)



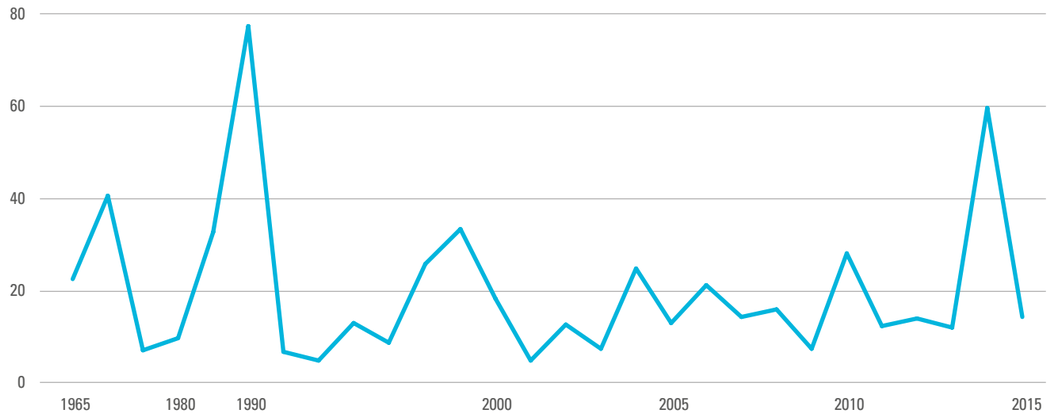
Note: Data based on country reports, with report periods varying between 2008 and 2016. Please consider these numbers as estimations due to variation in assumptions and methodologies.

Source: FAO (2016b)

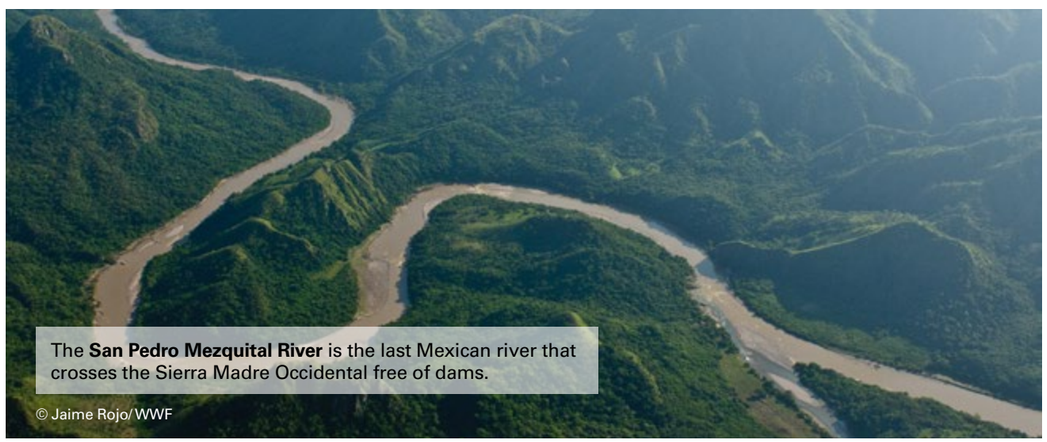
WATER EFFICIENCY AND WATER STRESS

Water efficiency, or water productivity, refers to the relation between Gross Domestic Product (GDP) and annual total freshwater use. The region's efficiency rate is above the global average. However, among countries, there is remarkable heterogeneity, where rates vary between USD 265 to USD 1.60 of GDP generated by cubic meter of freshwater.

Graph 6.3 LAC water productivity, 1965-2015 (2010 USD GDP/m³ of freshwater withdrawal)



Source: World Bank (2020)


The **San Pedro Mezquital River** is the last Mexican river that crosses the Sierra Madre Occidental free of dams.

© Jaime Rojo/ WWF

Table 6.2 Water productivity in LAC countries (2010 USD GDP per m^3 of freshwater withdrawal)

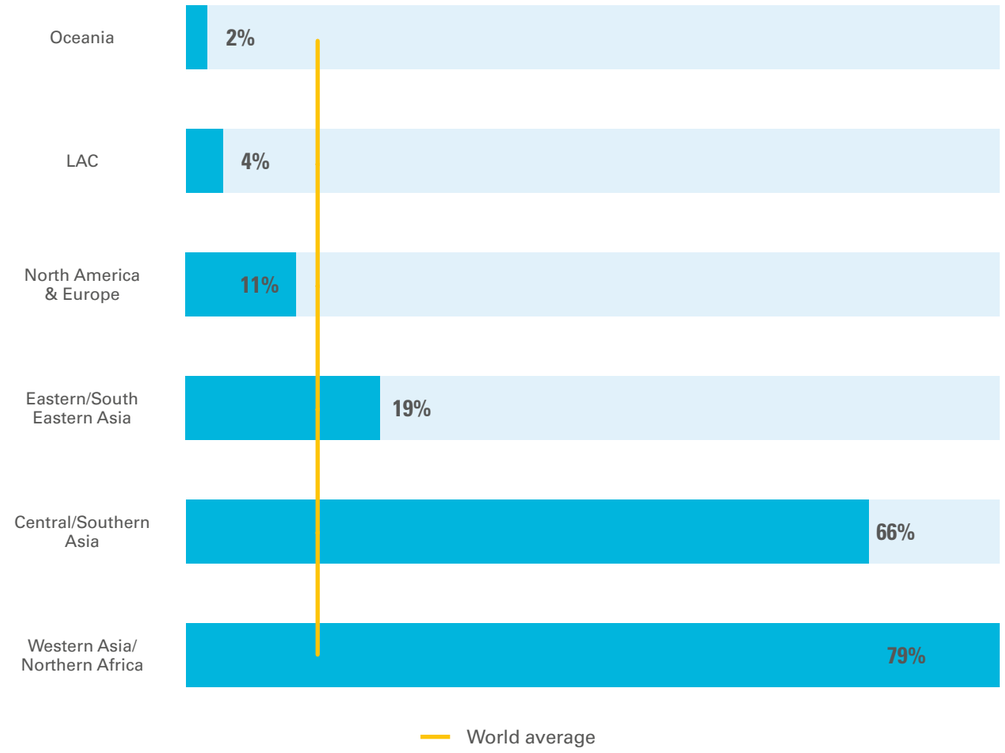
Ant & Barbuda	265.5	2012
St Vinc. & the Grenadines	88.7	2013
Trin & Tobago	65.7	2011
St Kitts and Nevis	63.0	2012
Grenada	59.8	2014
Venezuela (B.R.)	31.9	2000
Brazil	29.5	2010
Panama	28.4	2010
Colombia	24.9	2000
Dominica	24.7	2010
Costa Rica	17.8	2013
Mexico	14.3	2015
Argentina	11.9	2011
Paraguay	11.7	2012
El Salvador	11.4	2000
Cuba	10.1	2013
Belize	9.4	2000
Bolivia	9.0	2009
Uruguay	8.2	2000
Dominican Republic	7.6	2010
Nicaragua	6.0	2011
Ecuador	5.0	2000
Haiti	4.8	2009
Suriname	4.0	2000
Guyana	1.6	2010

Note: Please note the different years of reference.

Source: World Bank (2020)

With respect to water stress, levels in the region are considerably better than the world average, with most LAC countries presenting values lower than 10%. Notwithstanding, Mexico and some Caribbean countries present worrisome figures, and all the climate change projections for water stress in the region forecast the worsening of scenarios.

Graph 6.4 Level of water stress by region, 2015 (%)

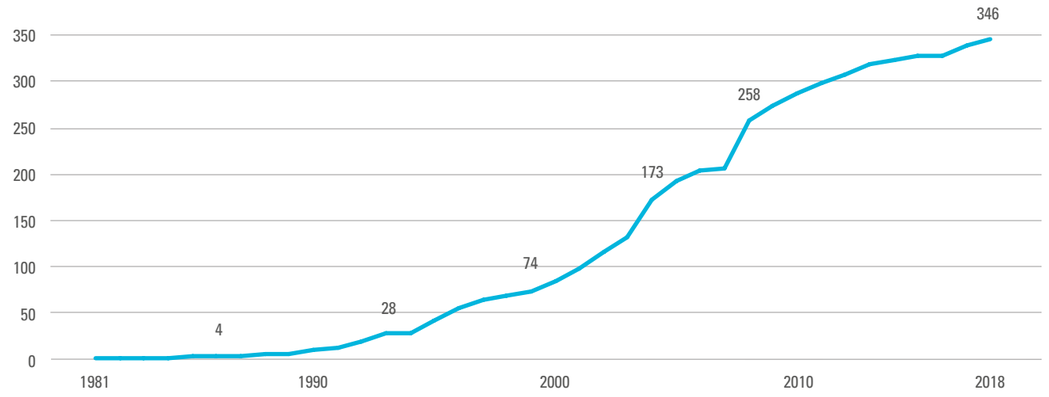


Source: FAO (2018c)

WATER-RELATED ECOSYSTEMS

Beyond ensuring the conservation of natural assets, healthy water-related ecosystems provide a lot of other benefits. Ecosystems provide four main services: the provision of water and other resources, regulating environmental services, providing leisure and cultural activities and supporting life and the economy (WWAP, 2015). The Ramsar Convention provides the international framework for the conservation and responsible use of wetlands and their resources. Today, LAC has 346 Ramsar sites distributed among 28 countries, being the second largest area in the world. Globally, Mexico is the second country with most Ramsar sites in the world, while Brazil and Bolivia have the largest areas under Ramsar protection status (CEPALSTAT, 2020).

Graph 6.5 Evolution of Ramsar sites in LAC, 1981-2018



Source: Ramsar website (2019)

Table 6.3 Ramsar sites in LAC countries, 2018

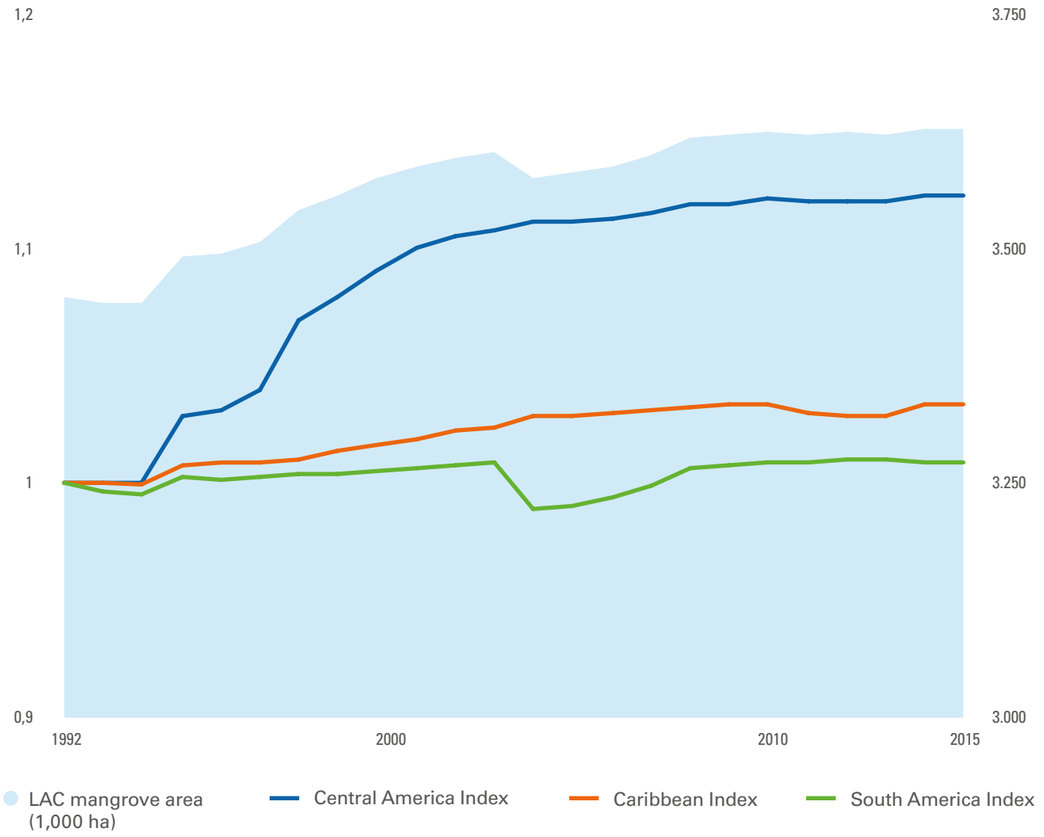
Mexico	142	Colombia	7	Trinidad & Tobago	3
Brazil	27	El Salvador	7	Uruguay	3
Argentina	23	Guatemala	7	Belize	2
Ecuador	19	Cuba	6	St Lucia	2
Chile	14	Paraguay	6	Antigua & Barbuda	1
Peru	13	Panama	5	Bahamas	1
Costa Rica	12	Venezuela (B.R.)	5	Barbados	1
Bolivia	11	Dominican Republic	4	Grenada	1
Honduras	10			Suriname	1
Nicaragua	9	Jamaica	4		

Source: Ramsar website (2019)

In spite of this, LAC is the region with the highest rate of wetland loss over the last 50 years due to poor water management, land use changes, pollution, unplanned urbanization and poorly designed water infrastructures, such as dams.

Mangroves are systems of special importance for the region and its communities, as they are a source of food and forest products. These ecosystems also help to control erosion and the impacts of rising sea levels, a matter of great importance in a climate emergency era. However, in recent decades economic interests have posed a threat to the preservation of mangroves in the region. Many of them were converted to other land uses, such as salt production, agriculture and shrimp ponds. Moreover, these forests also face pressure from urban and industrial pollution and oil spills (particularly in oil extracting regions) (FAO, 2007). Despite this, mangrove coverage in LAC has increased slightly over the last decades, especially in Central America.

Graph 6.6 Mangrove areas in LAC and sub regional mangrove areas indexes (index 1992=1), 1992-2015



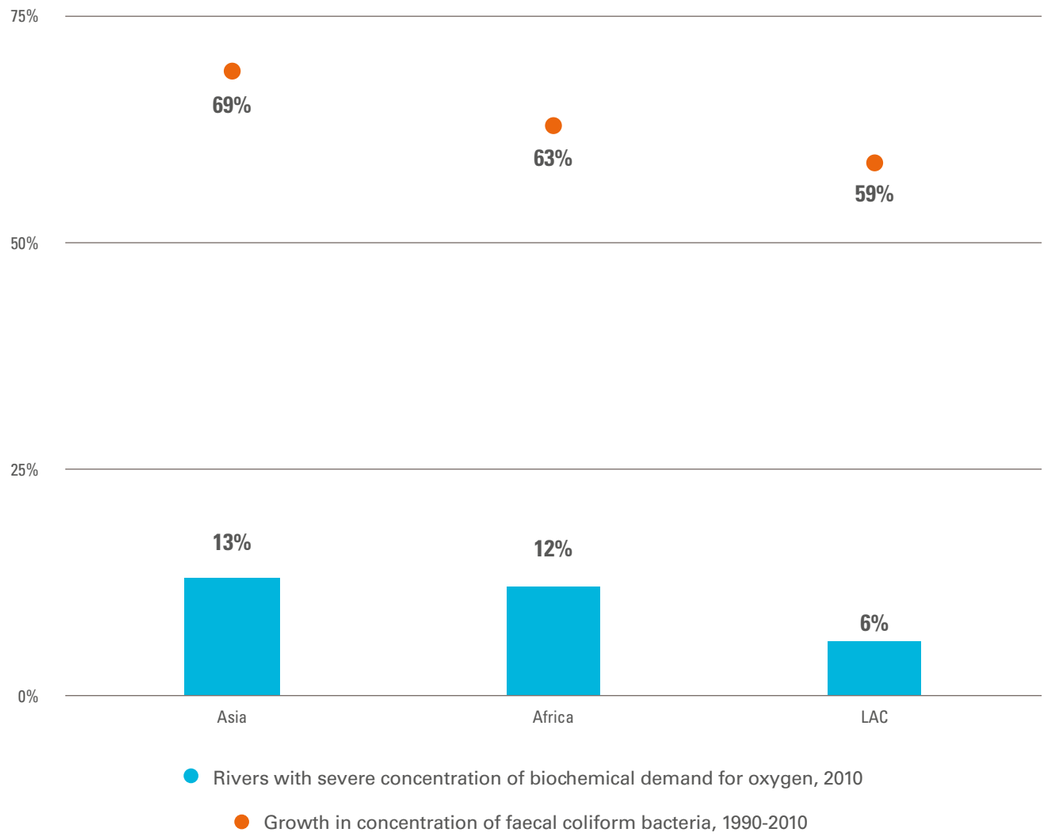
Note: Right axis for the total, left axis for the indexes.

Source: FAO (2019a)

Water pollution has also worsened in most rivers in the LAC region. Severe pathogenic pollution is estimated to affect approximately a quarter of Latin American rivers, while severe organic pollution is estimated to affect up to one-tenth of rivers; and saline pollution is found in approximately 5% of river surface water in the region (UNEP, 2016a). The worst levels of fecal coliform bacteria are found on the South American west Coast, the Brazilian shoreline and the central-north area of Central America.

Water quality sensor networks in LAC still have large spatial gaps, especially in rural areas. Sustainability of existing networks is also difficult due to operational costs and maintenance. UNEP is working with space agencies to enhance national capacities for the use of satellite technology to monitor water quality, especially for the systematic production of parameters that can be obtained with optical multi-spectral sensors.

Graph 6.7 Snapshot of Asia, Africa and LAC rivers



Source: UNEP (2016a)

WATER RESOURCE MANAGEMENT

Most of the world's water resources are shared between countries. Transboundary waters create social, economic, environmental and political inter-dependencies that make cooperation a precondition for sustainable development (FAO, 2018c). Integrated Water Resources Management (IWRM) is commonly used to evaluate a country's role in transboundary water management, using a scale from 0 to 100 (UNEP, 2019c). LAC has the lowest IWRM global rate. At a national level, Cuba has the highest regional rate, followed by Bolivia, Brazil, Colombia and Mexico. Guyana and Suriname present very low rates.

Joint management of transboundary waters has a clear importance for combating environmental pollution. In the region, the Amazon basin and Central America have the highest environmental risks of transboundary water pollution, especially from the agricultural sector (main water consumer), and household and commercial sectors (the biggest emitters of toxic substances) (UNEP, 2016c).

In general, water-related wealth is not reflected in economic accounts and in the financial criteria used for decision-making on water-related issues, a gap that UNEP and other institutions have been working on to implement an integrated network of Systems of Environmental-Economic Accounts (SEEA), with water being part of it (SEEA-Water). The solution to many challenges in sustainable water management lies in better governance and planning. One of the priorities for Latin America and the Caribbean is to improve and consolidate water governance (UN, 2009). Some countries still have statistical and benchmarking gaps with respect to their hydric systems, and they have been striving to improve control and find new tools to measure and monitor water assets.

All LAC countries have at least one policy for integrated water resources management (included in Appendix 1). However, most of

Table 6.4 Water and sanitation official development assistance (ODA) received by LAC countries, 2017 (2017 USD million)

Bolivia	200.5
Brazil	95.8
Peru	57.4
Ecuador	47.6
Cuba	37.4
Dominican Rep.	37.0
Haiti	35.1
Nicaragua	30.8
Costa Rica	28.3
Guatemala	14.9
Guyana	14.6
Mexico	13.2
El Salvador	13.1
Colombia	12.6
Argentina	11.6
Honduras	10.4
Paraguay	8.6
Chile	4.8
Panama	4.7
Grenada	3.7
St Lucia	2.8
Dominica	2.8
Suriname	1.6
Uruguay	0.7
Jamaica	0.6
Antigua & Barbuda	0.4
Belize	0.4
Venezuela (B.R.)	0.2
St V & the Grenad.	0.03

Note: ODA is defined as official financial administered flows for economic development and welfare of developing states as main purpose, with a grant share of at least 25%.

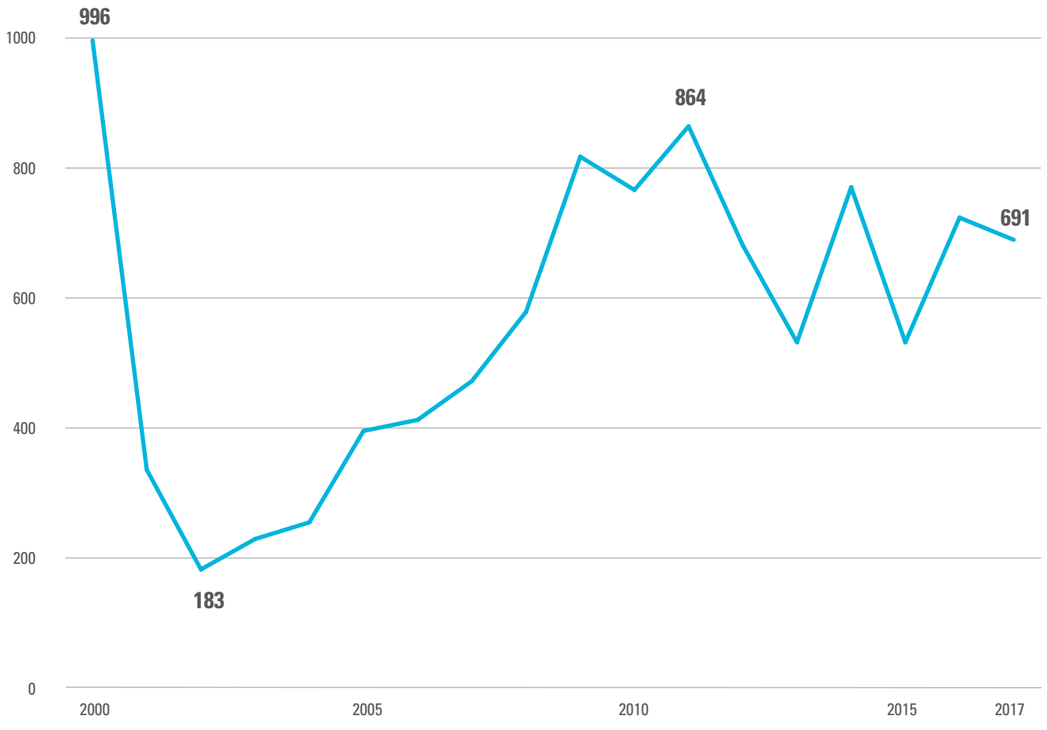
Source: UNSD (2020)

the countries have limited technical and institutional capacities to manage water resources, and water policies are still not at the core of political agendas (WWAP, 2015). These deficiencies are manifested in unsustainable and informal water use practices, leading to a myriad of environmental and social threats.

Due to the disparities and financial constraints to investing in the water sector, the LAC region has been supported by international technical and financial cooperation. Over the last years, the total amount of ODAs received for water issues has decreased. Starting from a peak of USD 1 billion in early 2000, this amount has followed an up-and-down trajectory, reaching a total of almost USD 700 million in 2017. Bolivia is by far the biggest recipient, with 30% of disbursements.

Compared to other regions, LAC is far from Asia and Africa in this regard, despite the importance of the region´s freshwater resources and the heterogeneity and number of Landlocked Countries, Small Island Developing States (SIDS) and Least Developed Countries (LDCs).

Graph 6.8 LAC official development assistance received for water and sanitation, 2000-17 (2017 USD million)



Note: ODA is defined as official financial administered flows for economic development and welfare of developing states as main purpose, with a grant share of at least 25%.

Source: UNSD (2020)

Water Funds mobilize funding and partnerships for a transparent and egalitarian water governance that ensures access to drinking water in main cities of nine countries of the region.

©Tarahumara Sustainable (UNEP/GEF)

7 AFFORDABLE AND CLEAN ENERGY

Related international agreements referring to environmental issues:

- United Nations Framework Convention on Climate Change and related Paris Agreement

Energy lies at the heart of the concept of sustainable development. It supports the links between economic growth, quality of life and the sustainable management of natural resources. Nature provides a wide range of renewable and non-renewable energy sources. The way we choose to generate, transmit and consume energy has direct effects on both the environment and our lives. A number of economic sectors represent the strong nexus between energy and the environment (for instance transport and heating/cooling systems), where efforts must focus on reducing the use of fossil fuels and other sources of pollution.

All the SDG 7 targets are tied to the environment. Target 7.1 calls for access to affordable, reliable, sustainable and modern energy for all, Target 7.2 calls for greater use of renewable energy, Target 7.3 refers to improving energy efficiency, Targets 7.a and 7.b encourage further investments and international cooperation for improving energy infrastructures.

SDG 7 ENVIRONMENTAL INDICATORS	
7.1.2	**Reliance on clean fuels.** Percentage of population with primary reliance on clean fuels and technology
7.2.1	**Renewable energy.** Renewable energy share in total final energy consumption
7.3.1	**Energy intensity.** Energy intensity measured in terms of primary energy and GDP
7.a.1	**Clean energy research and technology.** International financial flows to developing countries in support of clean energy research and development and renewable energy production, including in hybrid systems
7.b1	**Investment in energy efficiency.** Installed renewable energy-generating capacity in developing countries (in watts per capita)

Change in a positive direction · Change in a negative direction · Little negative or positive change · Insufficient data · No data

Source: UNEP (2019e)

MOVE Latam leverages the transition towards electric mobility in LAC through the use of innovative eco-friendly technologies. In the picture, a Colombian street full of new electric buses.

© Editron Temporal Gomes, SUNWIN

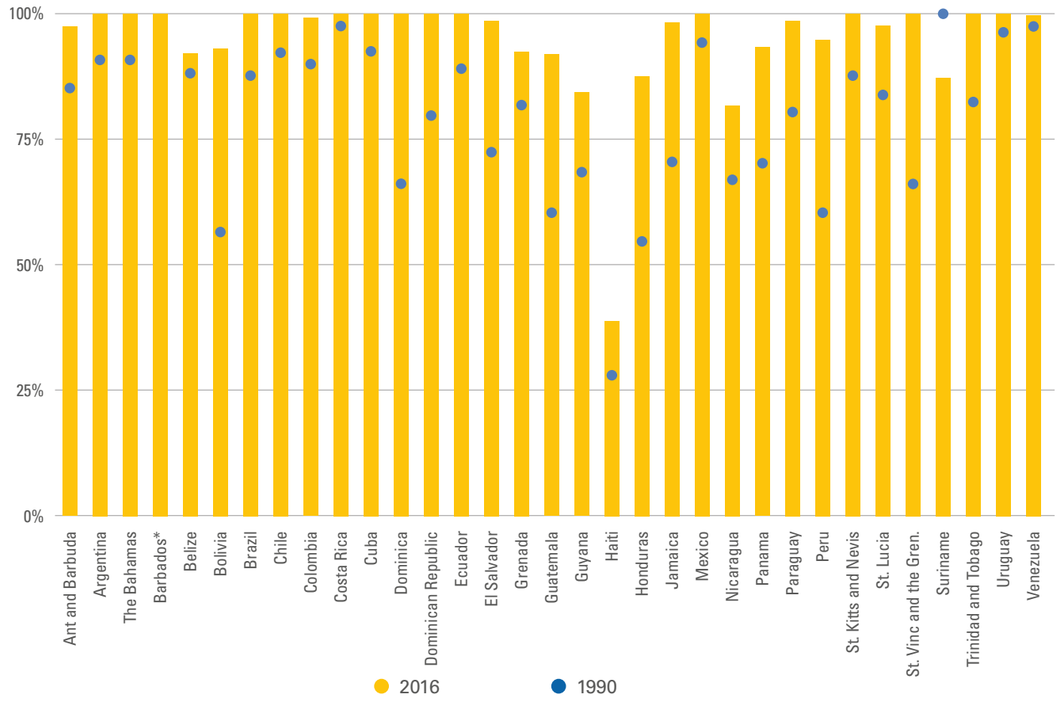
UNIVERSAL ACCESS TO ENERGY

The main characteristics of the energy sector in the region are a high ratio of access (although still not universal), a high potential for renewable energy generation and an energy intensity that must be improved.

Regarding the first characteristic, the region has made great efforts in improvements in recent years. Since 1990, the percentage of the population supplied by electricity in the region has increased from 79% to 95%. The nearly 30 million people that still lack access to energy are mostly in rural areas and poorer regions, with lack of access to clean fuels and technologies for cooking and other uses. However, just providing access is not enough- the provision of reliable, renewable and efficient systems must also be provided.

LAC households consume a high rate of clean gaseous fuels (such as LPG, natural gas and biogas) that has been steady over the last six years (IEA et al., 2019).

Graph 7.1 Access to electricity in LAC countries, 1990 vs 2016 (% of population)



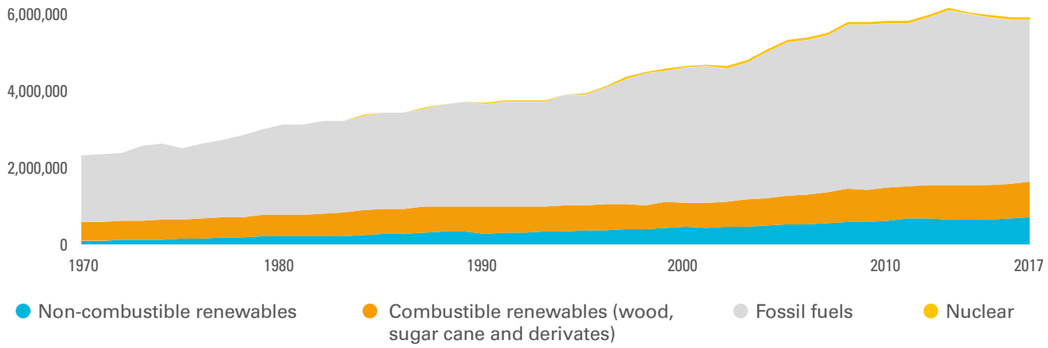
Note: No data for 'Barbados 1990' **Source:** World Bank (2020)

RENEWABLE ENERGY

Renewable energy sources account for about half of the total energy supply and a quarter of direct energy consumption in LAC. The strong reliance on hydroelectric generation is being complemented by a growing diversity of other renewables sources. The share of hydroelectric generation fell from 97% to 84% between 2000 and 2016. Bioenergy is currently the second major renewable energy source (at 8%), with most of this energy generation coming from sugar mills and wood processing industries. Wind energy is the third source (6%).

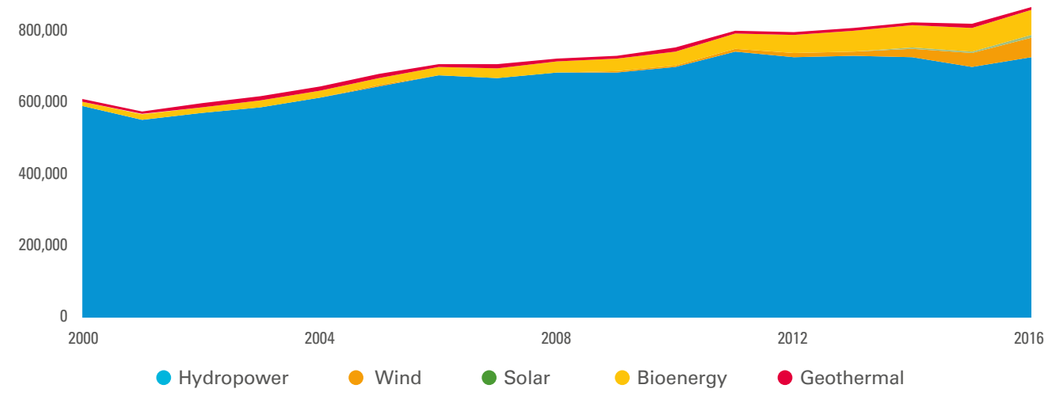
About one quarter of energy production is used in transformation processes (IRENA, 2016). The rest is consumed by the industrial sector (42%), households (33%) and commerce and transport (10% each). Fossil fuels account for almost 50% of electricity generation in LAC.

Graph 7.2 LAC Primary energy supply by source, 1970-2017 (thousand of barrels of oil equivalent)



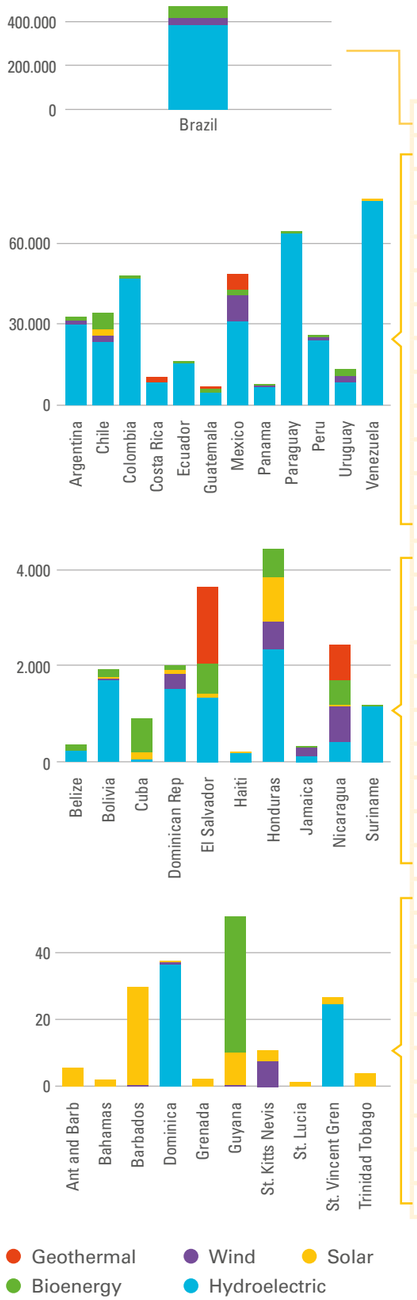
Source: CEPALSTAT (2020)

Graph 7.3 LAC Renewable Electricity Matrix, 2000-2016 (GWh of electricity generation)



Source: IRENA (2019)

Graph 7.4 Renewable energy in LAC countries



	Production (GWh)	Proportion in energy matrix	Evolution of renewable proportion 1990 - 2015
Brazil	465,579	44%	-12%
Venezuela (B.R.)	76,099	13%	7%
Paraguay	63,902	62%	-21%
Mexico	48,937	9%	-36%
Colombia	48,339	24%	-38%
Chile	34,319	25%	-27%
Argentina	32,524	10%	13%
Peru	26,030	26%	-35%
Ecuador	16,446	14%	-43%
Uruguay	13,422	58%	29%
Costa Rica	10,630	39%	-15%
Panama	7,255	21%	-51%
Guatemala	6,435	64%	-15%
Honduras	4,404	52%	-27%
El Salvador	3,633	24%	-64%
Nicaragua	2,445	48%	-30%
Dominican Rep	2,021	16%	-41%
Bolivia	1,937	18%	-53%
Suriname*	1,179	25%	-20%
Cuba	914	19%	-55%
Belize	383	35%	-8%
Jamaica	345	17%	120%
Haiti	208	76%	-6%
Guyana	50	25%	-40%
Dominica	37	8%	-46%
Barbados	30	3%	-85%
St Vincent Gren	27	6%	-62%
St Kitts Nevis	11	2%	-96%
Ant & Barb	6	0%	0%
Trinidad Tobago	4	<1%	-76%
Grenada	2	11%	31%
Bahamas*	2	1%	191%
St Lucia	1	21%	-61%

* Period of evolution 2000-2015

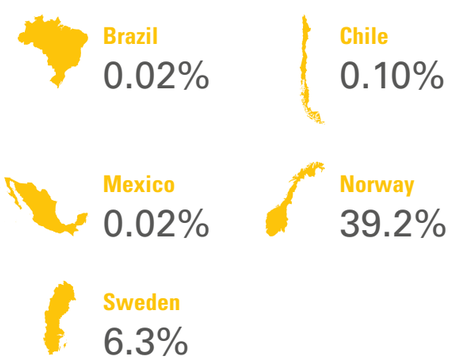
Source: IRENA (2019); World Bank (2020)

Electric mobility has become a global trend to overcome "transport´s dependency on oil." The region presents positive trends in this regard, such as growing electric vehicle sales, electric public transport initiatives, roadway recharge corridors and sectoral incentive policies. Biofuels are also part of this pathway as they contribute to decarbonization and to the demand for agricultural commodities that could improve farmers' financial security. However, they can entail significant burdens for natural systems, such as the large quantities of water required, which could place additional burdens on the region´s water resources. Advanced biofuels may be an option to achieve better outcomes with lower environmental impacts.

If the current fleet of buses and taxis of 22 Latin American cities were replaced with electric vehicles right now, the region could save almost USD 64 billion in fuel by 2030 and avoid the emission of 300 million metric tonnes of carbon dioxide equivalent (UNEP, 2018c)

Table 7.1 The electric car market in LAC

Still a sleeping sector: The market share of electric cars in three LAC countries compared to global leaders (2017)



Source: IEA (2018)

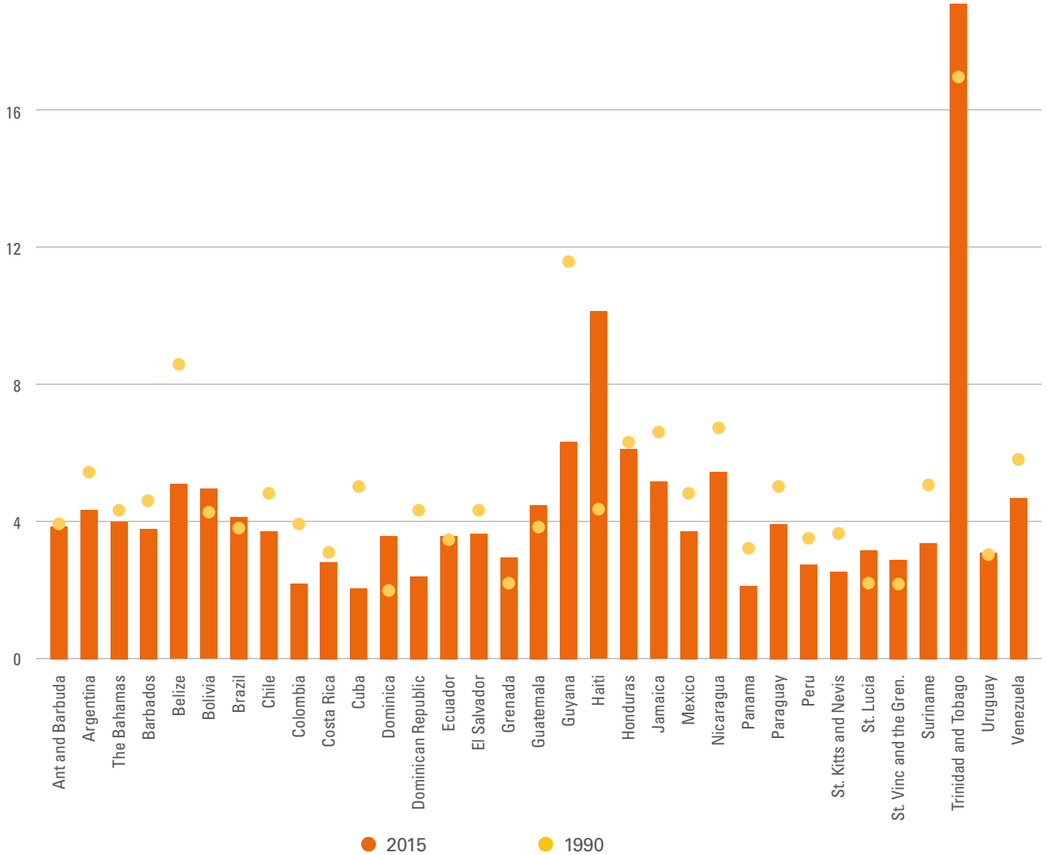
LAC has the cleanest energy matrix in the world, but some important points should be considered when analyzing this information. The demand for renewable energy, including hydro, biofuels and waste, geothermal, wind and solar grew from 77 million metric tonnes of oil equivalent (MTOE) in 1971 to 208 MTOE in 2013. Nevertheless, the share of renewable sources in the primary energy mix declined from 33% to 24% over last three decades. One of the reasons for this is the switch to modern and more efficient energy sources (e.g. from traditional biomass to electricity). In this regard, despite the fact that current renewable energy is increasingly cost-effective, LAC fossil fuel energy supply increased approximately two and half times between 1970 and 2017, maintaining its share in the energy matrix fairly constant: about three quarters (CEPALSTAT, 2020).

The problem is exacerbated by regional heterogeneity and a high reliance on hydroelectric generation. The latter, despite being renewable, is a topic of controversial debates due its environmental and social impacts. With respect to regional heterogeneity, if we exclude Brazil, the share of renewables in LAC electricity generation falls from 52% to 38% in the region (IDB, 2016), due to the country's substantial hydroelectric generation. In this sense, petroleum power generation represents around 80% of energy consumption in Caribbean economies (UNEP, 2019g).

ENERGY EFFICIENCY

Energy intensity in the region has decreased over the last decades. Since the 70´s, the amount of energy required per unit of Gross Domestic Product (GDP) dropped by about 13% (Balza et al., 2016) and today the region requires 4.4 megajoules for each dollar of GDP. However, in the same period, the energy demand increased in tandem with the economy. Energy use has more than tripled over the past forty years, from 248 million MTOE in 1971, to 848 million in 2013. Thus, despite advances in energy efficiency, the region is still facing the challenge of sustaining economic growth while at least maintaining the same level of natural resource use. This absolute decoupling is fundamental to reach the SDG target of a 2.7% decrease in annual average energy intensity.

Graph 7.5 Energy intensity level of primary energy in LAC countries (MJ/$2011 PPP GDP)



Source: World Bank (2020)

Although demonstrating consistent progress, the annual rate of improvement in energy efficiency in LAC is only 0.82%, well below the global average of 1.7 % (UN, 2015).

Between 2005 and 2017, most investments in renewable energy in Latin America and the Caribbean were made in solar (35%) and wind (32%) technologies (ECLAC, 2018c)

The region still needs to overcome electric power losses. Since the 70´s, losses have varied between 14% and 16%. There are many ways to improve energy efficiency in the LAC region, including in technical and political areas, such as reducing energy theft from electric grids and fraud in measuring equipment, as well as reducing energy interruptions and adopting more efficient technologies. Most of the solutions require substantial investments, but some of them are simply a matter of behaviour, like reducing energy theft and climate-friendly buildings. The latter is key since heating/cooling devices represent the highest rate of energy consumption.

ENERGY MANAGEMENT AND INTERNATIONAL COOPERATION

Sustainable energy systems will only be achieved if proper energy governance is provided, with robust investments, effective policies and private sector and citizen engagement. International cooperation is also fundamental, fostering a global environment for research and access to cleaner technologies, with well-targeted investments and effective monitoring processes.

The recent price decline in non-conventional renewable energy technologies provides an opportunity to overcome regional barriers. The fact that many countries have many energy resources and a clean energy mix sometimes misleads countries in the region to exert over taxation on energy consumption or to ignore environmental concerns (ECLAC, 2014). In addition, financial crises and political instabilities can hinder the feasibility of long-term investments, which, aside from diminished policy effectiveness, may also drive away private partners, which are fundamental, particularly in small economies.

Table 7.2 Regulatory Indicators for Sustainable Energy (RISE) in LAC countries

RISE is a World Bank tool that compares national policy and regulatory frameworks for sustainable energy. It uses the three pillars of sustainable energy—access to modern energy, energy efficiency, and renewable energy, in a 0-100 score range. Twenty LAC countries have scores:

Mexico	79	Peru	61
Chile	77	Bolivia	60
Brazil	74	Colombia	59
Uruguay	71	El Salvador	56
Panama	69	Paraguay	54
Jamaica	67	Nicaragua	49
Argentina	64	Guatemala	48
Costa Rica	63	Venezuela (B.R.)	48
Dominican Rep	61	Honduras	35
Ecuador	61	Haiti	20

Source: RISE Website, accessed Feb/2020. (https://rise.worldbank.org/)

The abundance of natural resources has made LAC one of the most attractive regions for international investments in renewable energy in recent years. The share of foreign resources in renewable energy investments in LAC is approximately 16%, (compared to 11% worldwide). Almost 90% of this total comes from Europe and North America, in part driven by the strong presence of local competitors in Asian countries.

In 2018, total investments in the region totaled USD 12 billion, compared to USD 18 billion the year before. Between 2005 and 2015, these investments increased almost four-fold, with Brazil and Mexico attracting around three quarters of them. However, in the last years, investments have decreased, pushing countries to look for new implementation tools, such as net metering and financial instruments (tenders, auctions, grants and subsidies). These tools encourage cheaper and more efficient pathways, given the competitive and non-governmental nature of investments (FS-UNEP Centre, 2019).

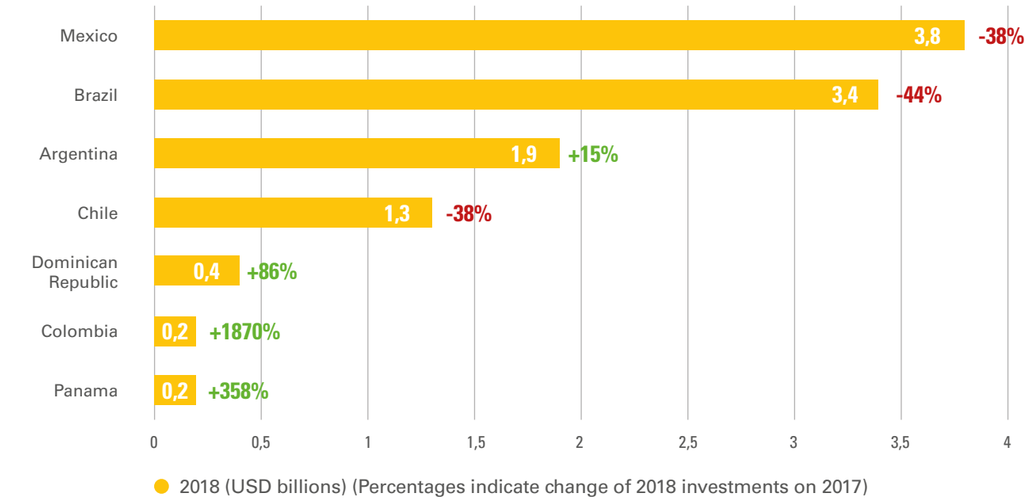
Chile was ranked world leader in renewable energies in emerging markets, according to the "Bloomberg NEF 2018 Climate scope Ranking", with three other LAC countries ranking among the top 10: Brazil, Mexico and Peru.

Graph 7.6 Fiscal incentives for renewable energy in LAC countries

	Depreciation	Tax Relief	Income Tax	Import Duty	Tax Rebate	Other
Argentina	●	●	●	●	●	●
Bahamas	●	●	●	●	●	●
Barbados	●	●	●	●	●	●
Belize	●	●	●	●	●	●
Bolivia	●	●	●	●	●	●
Brazil	●	●	●	●	●	●
Chile	●	●	●	●	●	●
Colombia	●	●	●	●	●	●
Costa Rica	●	●	●	●	●	●
Dom. Republic	●	●	●	●	●	●
Ecuador	●	●	●	●	●	●
El Salvador	●	●	●	●	●	●
Guatemala	●	●	●	●	●	●
Guyana	●	●	●	●	●	●
Haiti	●	●	●	●	●	●
Honduras	●	●	●	●	●	●
Jamaica	●	●	●	●	●	●
Mexico	●	●	●	●	●	●
Nicaragua	●	●	●	●	●	●
Panama	●	●	●	●	●	●
Paraguay	●	●	●	●	●	●
Peru	●	●	●	●	●	●
Suriname	●	●	●	●	●	●
Trinidad and Tobago	●	●	●	●	●	●
Uruguay	●	●	●	●	●	●
Venezuela (B.R.)	●	●	●	●	●	●

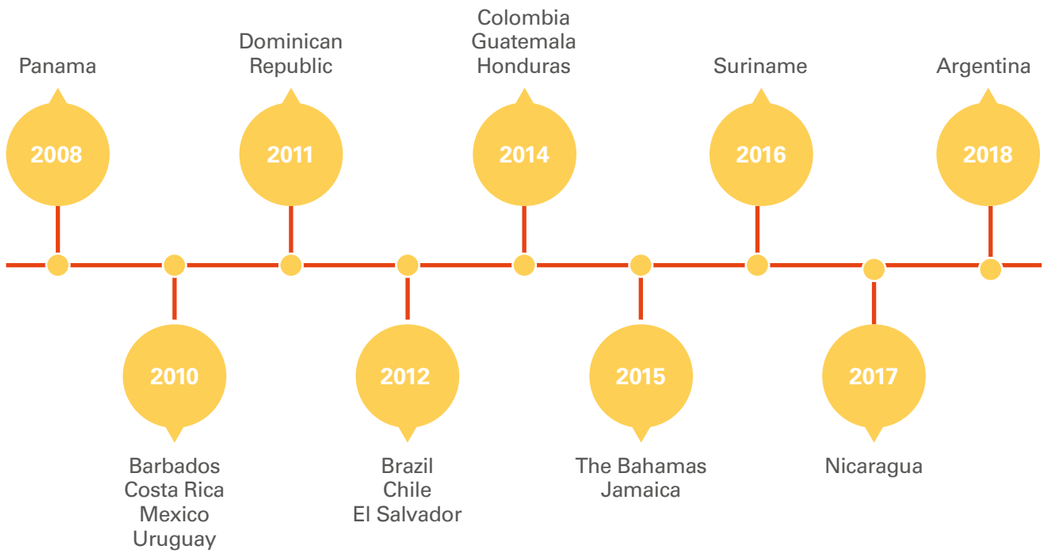
Source: ECLAC (2017b)

Graph 7.7 Renewable energy capacity investment in LAC countries, 2018 and change on 2017



Source: FS - UNEP Centre (2019)

Table 7.3 LAC countries with net metering policies (year of adoption)



Source: Mejdalani et al., 2018

Also known as tenders, energy auctions are the fastest growing policy instrument to promote renewable energy worldwide. As of 2016, at least 34 countries in the world were holding renewable energy tenders. In LAC, 10 countries have used this instrument in recent years, representing an amount of approximately USD 5 billion in 2017 alone (ECLAC, 2018c). Grants and subsidized loans are primarily focused on the expansion of energy coverage in LAC, mainly through home solar energy systems in poor or rural areas (IRENA, 2016).

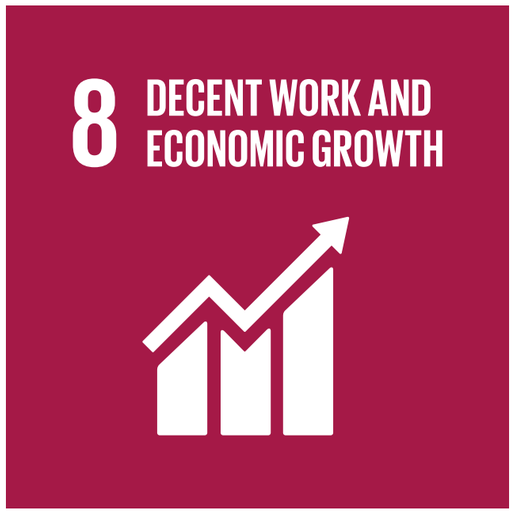
Table 7.4 Renewable energy tenders in LAC countries

No. of years with energy auctions in the 2006-2017 period					
	Wind	Solar	Bio-energy	Hydro power	Geo-thermal
Argentina	3	3	3	3	1
Belize	1	1	1	1	1
Brazil	8	3	8	7	-
Costa Rica	-	1	-	-	-
El Salvador	3	3	2	2	1
Honduras	1	-	1	1	-
Mexico	2	2	2	2	2
Panama	3	2	1	4	1
Peru	4	6	5	6	1
Uruguay	4	1	1	1	-

Source: REN21 (2017)

Finally, many LAC countries still have fossil fuel subsidies and energy bill discounts in place; practices with negative environmental consequences and that are often an inefficient way to improve social equity (a study showed that only 10% of these subsidies reaches the poorest quintile of the population). Moreover, subsidies can harm the environment when designed to promote non-clean technologies (discussed in more detail in SDGs 8 and 12).

SDG 7 seeks to promote a sustainable energy system, where everyone has access to electricity, while ensuring a fair economic system and, most of all, the responsible exploitation of our natural wealth. This is a moment for the region to seize the opportunity in this new era of renewable energy sources.



Related international agreements referring to environmental issues:

- Convention on Biological Diversity
- Chengdu Declaration on Tourism and the Sustainable Development Goals
- Manila Call for Action on Measuring Sustainable Tourism
- Occupational Safety and Health Convention

SDG 8 encourages inclusive and sustainable economic growth, while promoting decent work. A preserved environment is key to achieving this goal. Unchecked and unsustainable economic growth has resulted in numerous negative environmental impacts. Nature has been treated as a free and unlimited resource, leading to overexploitation and severely threatened ecosystems, resulting in biodiversity loss, degradation of water sources and desertification, among other problems.

To halt this vicious circle, the economic system must use natural resources more efficiently and within natural limits, with environmental assets considered in national economic accounts.

SDG 8 includes 3 targets related to the environment: Target 8.3 for the creation and formalization of decent jobs, including green jobs; target 8.4 on decoupling and resource efficiency; and target 8.9 aimed at promoting sustainable tourism.

SDG 8 ENVIRONMENTAL INDICATORS	
8.4.1	**Material footprint.** Material footprint, material footprint per capita, and material footprint per unit of GDP
8.4.2	**Domestic Material Consumption.** Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP
8.9.1	**Sustainable tourism.** Direct GDP as a proportion of total GDP and in growth rate

● Change in a positive direction ● Change in a negative direction ● Little negative or positive change
● Insufficient data ● No data

Source: UNEP (2019e)

The Conservationist Association of Rural and Alternative Community Tourism (ACTUAR) in Costa Rica is an alliance of thirty-six partners that ensures at least 80% of the income from sustainable tourism remains in the host communities.

© ACTUAR, Costa Rica

RESOURCE EFFICIENCY AND ECONOMIC DECOUPLING

LAC rates of natural resource consumption per capita are increasing. Thus, the decoupling between economic growth and environmental degradation has not been occurring in the region - and trendlines show this as an increasingly distant reality. This is caused not only by population growth, but also by higher levels of per capita consumption and higher material use per unit of GDP. This results in higher levels of natural resource extraction, from renewable and non-renewable sources, leading to more GHG emissions and other forms of environmental degradation (ILO, 2018). Current trends show a continuing upward trend in global material consumption, fueled in particular by Asia and Latin America (ILO, 2019a). Without urgent action, rapid growth and inefficient use of natural resources will continue to place unsustainable pressures on the environment (IRP, 2019).

Over the last three decades, natural resources extraction has grown more than GDP in the region. **Decoupling** economic development from environmental harm is a paramount feature for sustainable development.

© Ganadería Sostenible Colombia

Table 8.1 Per capita material footprint in LAC countries

	2015 (ton/cap)	Variation 1990-2017
Guyana	116.73	92%
Uruguay	35.78	304%
Bahamas	20.89	-49%
Chile	17.07	77%
Brazil	16.43	65%
Paraguay	14.64	54%
Suriname	14.37	-8%
Argentina	14.29	49%
Ant & Barbuda	13.63	-30%
Barbados	11.10	-49%
Ecuador	10.70	55%
Colombia	10.36	71%
Mexico	9.62	17%
Peru	9.38	81%
Jamaica	8.26	-17%
Cuba	8.09	-50%
Costa Rica	8.08	52%
Belize	7.95	-10%
Panama	7.93	29%
Venezuela (B.R.)	7.42	21%
Dominican Rep.	6.55	59%
El Salvador	6.31	101%
Bolivia	5.39	-7%
Trin &Tobago	5.37	34%
Honduras	4.37	43%
Nicaragua	4.20	59%
Guatemala	3.82	48%
Haiti	1.34	6%

Source: UNEP - IRP (2020)

Table 8.2 Per capita domestic material consumption in LAC countries

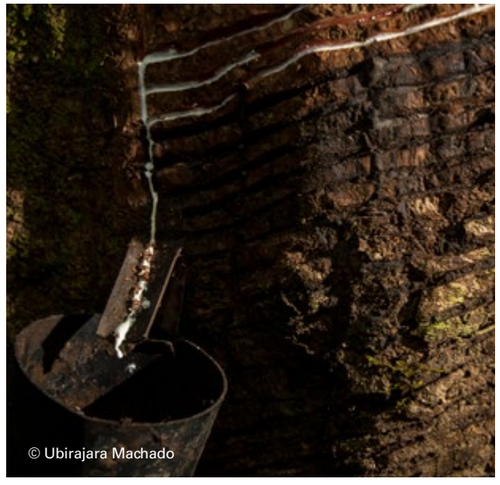
	2017 (ton/cap)	Variation 2000-2017
Chile	41.34	10%
Uruguay	34.47	35%
Guyana	21.58	2%
Trin & Tobago	19.90	60%
Peru	14.71	31%
Brazil	12.80	44%
Suriname	12.72	5%
Bolivia	11.48	64%
Argentina	11.21	20%
Belize	8.56	-27%
Ecuador	8.09	48%
Mexico	8.00	0%
Paraguay	7.80	32%
Costa Rica	7.51	7%
Panama	7.01	8%
Cuba	6.54	-26%
Venezuela (B.R.)	6.27	-25%
Jamaica	5.89	-36%
Colombia	5.87	16%
Nicaragua	5.50	33%
Dominican Rep.	5.25	8%
Guatemala	5.02	9%
El Salvador	4.15	8%
Honduras	4.02	-1%
Dominica	4.00	-4%
Bahamas	2.89	-74%
Ant & Barbuda	2.72	-49%
Barbados	2.04	-71%
Haiti	1.28	18%
Grenada	0.79	-82%

Source: UNSD (2020)

With respect to material consumption and footprint, LAC has medium figures compared to global levels, but shows an ascending trend over the last decades. Most LAC countries have higher material footprints and domestic material consumption rates per capita today compared to decades ago.

Decoupling economic growth from natural resource exploitation is a structural change needed to achieve sustainable development and, therefore, the SDG. This requires the sound management of natural resources and the integration of natural capital accounts in the economic system, while human capital must be the driver of development (Lange et al., 2018).

Comparing material footprint, domestic extraction and domestic consumption with the regional GDP, it is evident that economies are growing by relying on material extraction (Graph 8.2). In a global comparison, LAC consumption intensity follows a stark trend, while the economies of Africa, Europe and North America show positive trends in the capacity to convert materials in GDP (Graph 8.3). This means that LAC economies could improve their productivity in terms of material use without compromising production and GDP.



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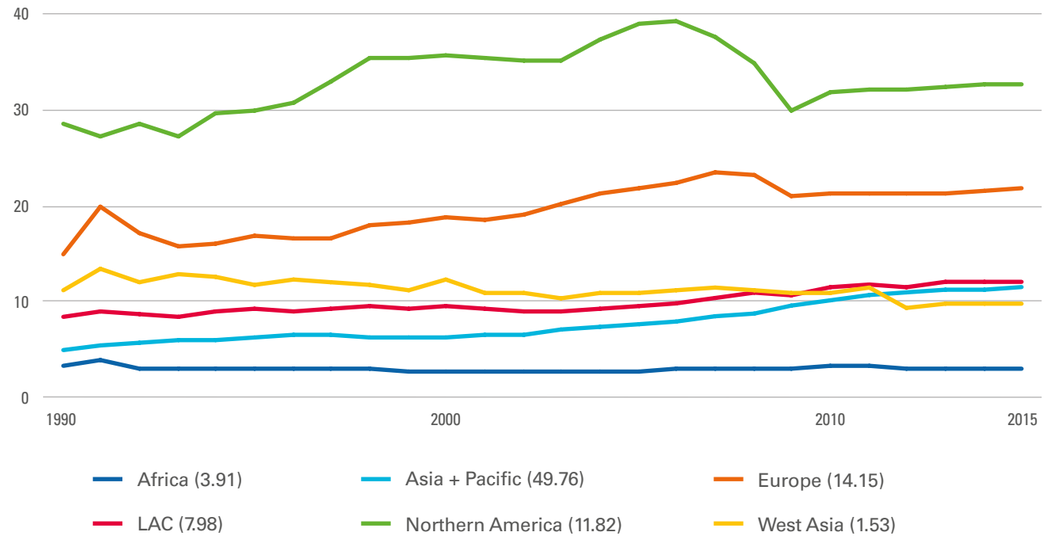
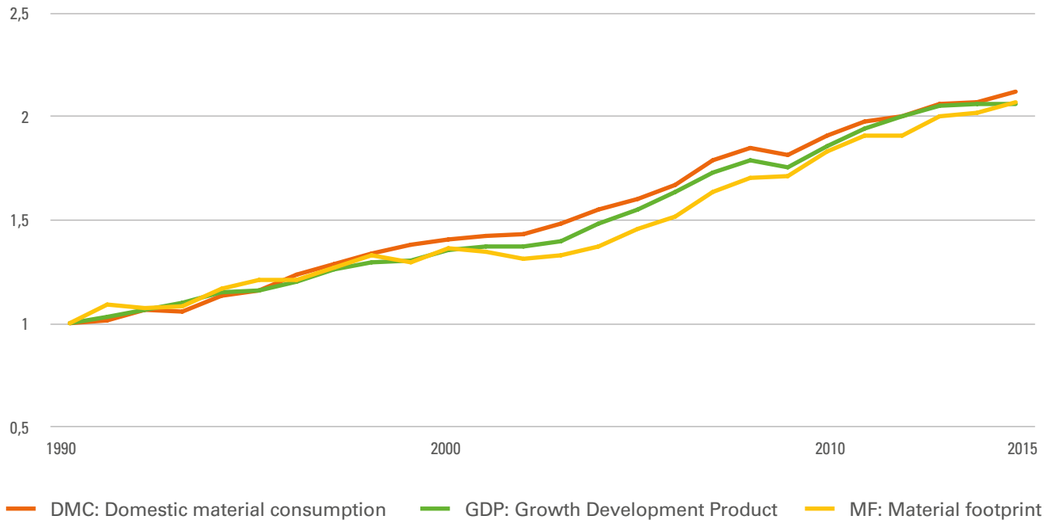
Graph 8.1 Per capita material footprint per global region, 1990-2015 (tons/cap)



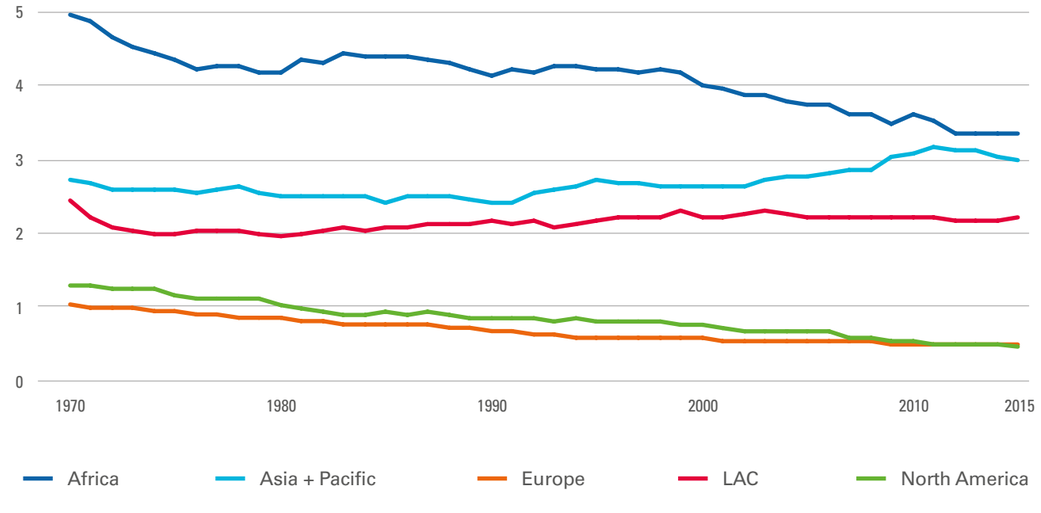
Note: In parenthesis the 2015 values for each region. **Source:** UNEP - IRP (2020)

Graph 8.2 Economic growth vs material consumption in LAC, 1990-2015 (index 1990=1)



Source: UNEP - IRP (2020)

Graph 8.3 Domestic material consumption per GDP, per global region, 1970 - 2015 (kg of DMC/USD of GDP)



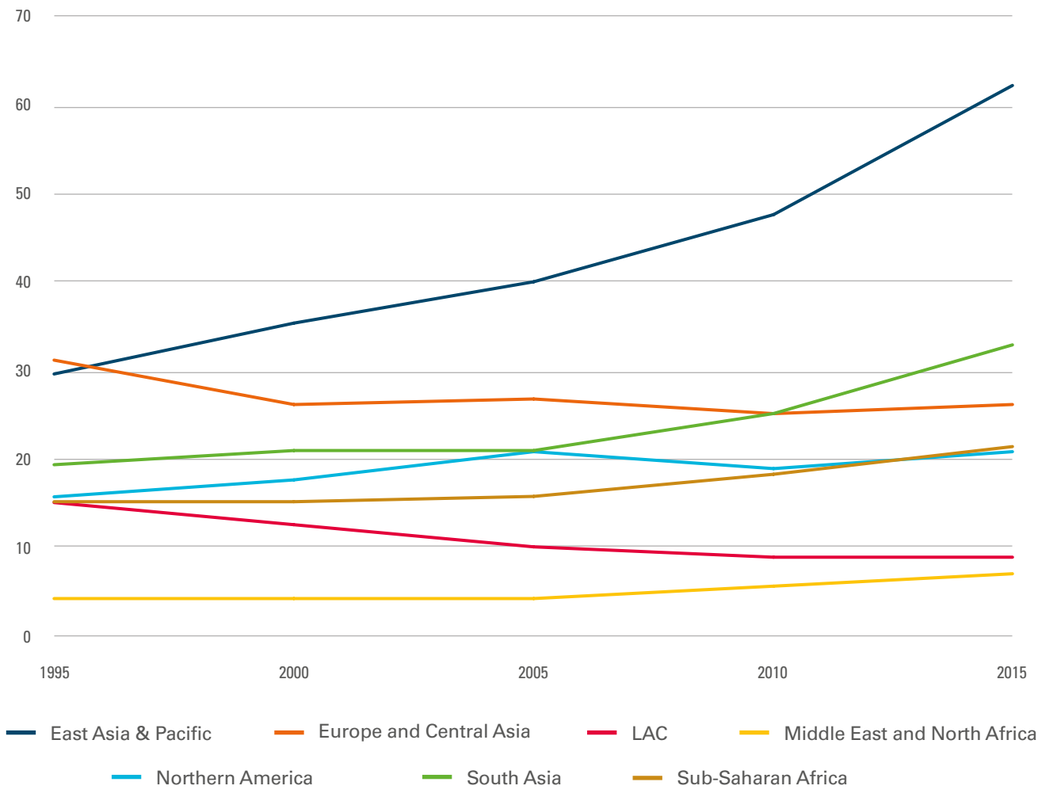
Source: UNEP - IRP (2020)

DECENT JOBS

In a context of limited decent jobs, issues like air pollution, land degradation and changes in rain patterns can represent even more meaningful economic losses. High rates of unaccountable informal jobs can aggravate these impacts, making them harder to remedy. Particularly, global warming is increasing heat stress and the occurrence of extreme weather events, resulting in job and productivity losses. "Urban heat islands" can further exacerbate these impacts, mainly in highly urbanized areas like LAC. In addition, these hazards will primarily affect the poor population, the informal sector and people highly dependent on natural resource extraction (e.g. fishermen, indigenous peoples, indigenous communities and agricultural workers) (ILO, 2019b). For example, heat stress could contribute to up to 2.5 million lost jobs by 2030 in the region, mainly in South America (ILO, 2019b). Disaster risks related to anthropogenic activities, like mining and deforestation, have been increasing over the century.

Informal sectors, also known as the shadow economy, can contribute to undesirable environmental outcomes. Groups and individuals in the informal sector tend to not be accountable for environmental degradation actions, leading to two main issues: (a) governments are not able to design the best possible environmental policies; and a (b) lack of accountability, monitoring and incentives to encourage the shadow economy to care about the environment. Although no exact figures exist, informal employment in LAC is estimated to account for half of total employment. However, in some LAC countries it may account for

Graph 8.4 Labour income losses from air pollution in global regions, 1995-2015 (USD billion)



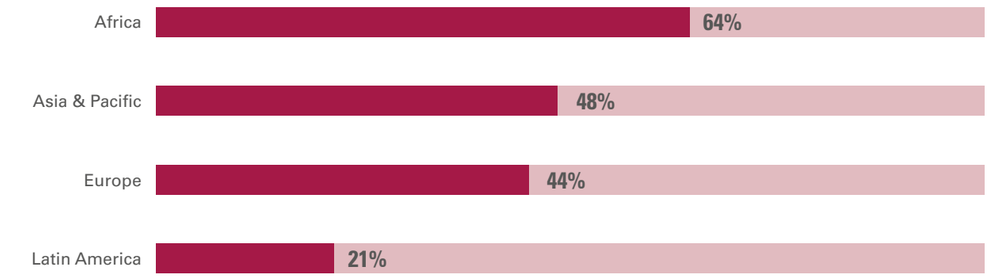
Source: Lange et al. (2018)

more than three quarters of total non-agricultural employment.

It is important to note that informal sectors can also contribute to positive environmental outcomes when associated with the green and/or circular economy. For instance, waste pickers reduce the carbon footprint by recycling trash, thus reducing decomposition and methane emissions in landfills, saving energy and increasing recycling rates (Scheinberg et al., 2010). In accordance with SDG 8, policies should promote the creation of decent and greener jobs, creating opportunities to formalize jobs.

Circular economies are a robust way of steering our systems towards these objectives. Roughly speaking, circular models mean reallocation of extractive sectors to recycling and waste management activities (ILO, 2018). This would ensure a transition from a "produce-use-discard" model to a "produce-use-reuse" model, encouraging the more efficient use of resources, without the loss of jobs (just a redistribution of them). The American continent is expected to have the highest number of job opportunities within circular economy scenarios (ibid.).

Graph 8.5 Public employments programmes with environmental components by region, 2013



Source: ILO (2018)

SUSTAINABLE TOURISM

Tourism sites and activities rely on a great variety of ecosystem services, such as the provision of food and freshwater, air quality and aesthetic and cultural value. If poorly managed, tourism can pose a serious threat not only to these ecological assets, but also to societal and cultural values, which usually are strongly tied to the local environment.

Sustainable tourism is a pivotal sector in the 2030 Agenda´s environmental approach. First, because it can be a low-impact service sector in environmental terms; second, because it is the world's largest and fastest growing economic sector (UNEP, 2016c) and, lastly, due to its connection with a wide array of stakeholders and sectors, with substantial potential for positive multiplier effects (UNWTO/UNEP, 2019). Data on sustainable tourism performance is still scarce and tangential. Nonetheless, governments worldwide are starting to implement political and tourism policies with stronger sustainability approaches (ibid.).

The Caribbean is a region highly dependent on the tourism industry and, consequently, on the protection of its natural and cultural heritage (Sherma et al., 2012). Travel and tourism sectors account for 15.2% of the Caribbean's GDP and 13.8% of employment. However, in many Caribbean countries, the sector accounts for more than 25% of GDP – more than double the world average of 10.4%. In Latin America, this rate is 9% (WTTC, 2018). Today, the region heads a strong movement towards mainstreaming sustainability in the tourism sector, although there are still substantial barriers (e.g. lack of information and funding and a conducive enabling environment) (Sherma et al., 2012). The region must be prepared to deal with climate change and a higher number of extreme weather events, like the remarkable 2017 hurricane season that took 4 years to recover from and resulted in over USD 3 billion in economic losses in the sector (WTTC, 2018).

The World Travel and Tourism Council rates the Caribbean as the most tourism-dependent region in the world. In some countries, like Bahamas and Saint Lucia, the sector accounts for more than 80% of GDP (UNEP, n.d.).

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Related international agreements referring to environmental issues:

- Montreal Protocol on Substances that Deplete the Ozone Layer
- Strategic Approach to International Chemicals Management (SAICM)
- United Nations Framework Convention on Climate Change

SDG 9 centres on three pillars: industry, innovation and infrastructure. Designing and constructing more sustainable infrastructures and industrial processes and exploring the potential of eco-technologies can minimize negative social and environmental impacts, as well as ensure resilient and efficient production systems. Economies need to produce and consume goods more efficiently, generate less waste and make a drastic shift towards renewable energy, focusing on the implementation of circular economies (UNEP, 2019e).

SDG 9 has four targets related to the environment: target 9.1 to develop sustainable and resilient infrastructures; 9.2 to promote inclusive and sustainable industrialization; 9.4 to upgrade infrastructure and retrofit industries to make them sustainable; and target 9.a to enhance financial and technical support to facilitate sustainable and resilient infrastructures.

SDG 8 ENVIRONMENTAL INDICATORS

9.4.1	**CO2 emissions** per unit of value added

Change in a positive direction · Change in a negative direction · Little negative or positive change · Insufficient data · No data

Source: UNEP (2019e)

It is recognized that the region must implement drastic changes in modes of production and infrastructure through innovation and investment to attain sustainable development and reduce water, soil and air pollution.

Small Island Developing States (SIDS) face particular challenges as small populations, limited resources and vulnerability to environmental and economic shocks have hampered their development. Only a few have been able to develop industries, such as manufacturing, and most still rely on resource extraction to sustain their economies (World Bank/UNDESA, 2017).

Infrastructure is considered one of the backbones of economic development and sustainable growth, yet it also has direct and indirect impacts on the environment. It is estimated that the region requires investments of up to USD 300 billion per year to develop essential infrastructure, presenting an opportunity for a drastic shift towards sustainability and quality. Moreover, 70% of the increase in projected future GHG emissions would come from infrastructure yet to be built. Sustainable infrastructure would not only deliver needed services in a resilient and socially inclusive way, but also preserve ecosystems and natural resources (IDB, 2018b).

Balancing the socioeconomic and environmental aspects of infrastructure can be challenging.

Countries must avoid investments that lock in carbon-intensive and resource-inefficient infrastructure, technology and industrial production systems, and instead focus on investments in green infrastructure, clean energy, clean technology and human and natural capital. They also must ensure that infrastructure investments generate positive social outcomes, benefit the poor, leave no one behind, and respect human rights. Because of these complex interdependencies, integrated approaches are needed:

1. They allow for the optimization of the environmental, social, and economic challenges and opportunities associated with infrastructure development by considering the services to be delivered, and not just the assets created. This results in infrastructure that optimizes outcomes vis-a-vis the SDGs and minimizes trade-offs between different goals.

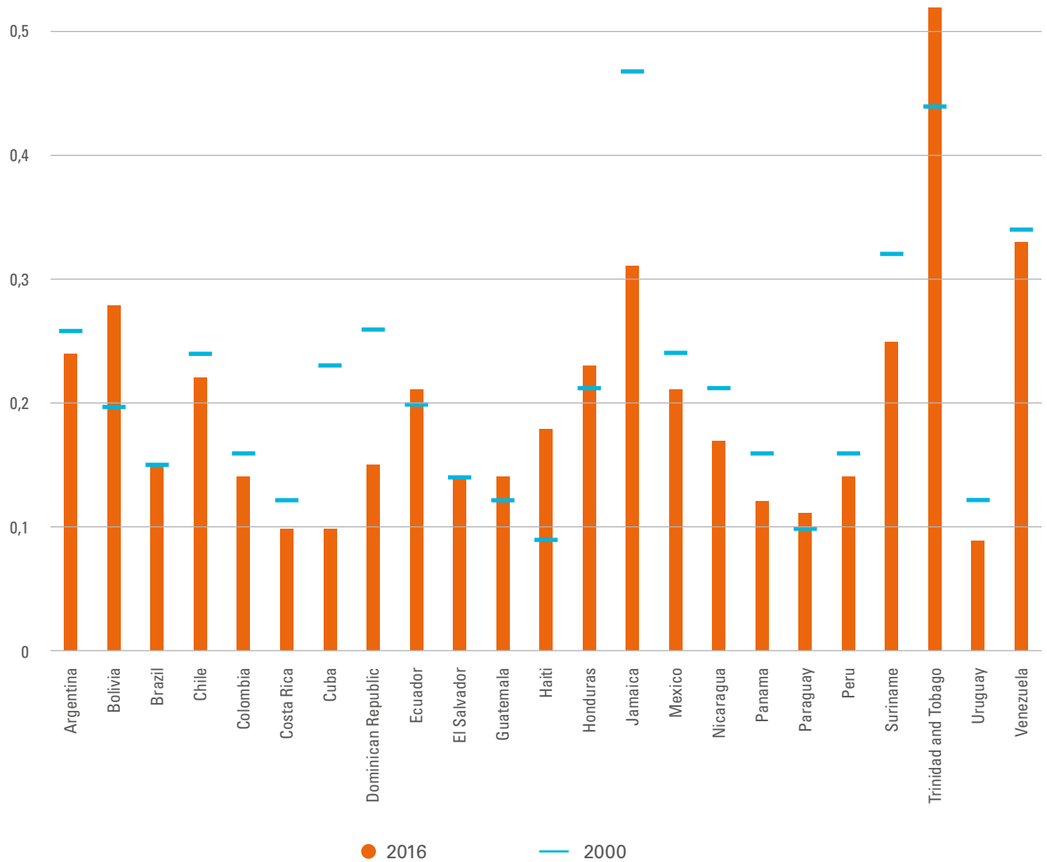
2. They result in longer-lasting infrastructure that is more resilient to risks, for example those associated with climate change or human-made/technological disasters.

3. By identifying and addressing potential risks early in the planning process, they increase the bankability of infrastructure projects, making them more attractive to investors.

EMISSION INTENSITY

Carbon dioxide emissions per unit of added value is an indicator computed as the ratio between carbon dioxide (CO2) emissions from fuel combustion and the added value of associated economic activities (UN, 2019). As countries reach higher levels of industrialization and economic diversification, emission intensity tends to improve, resulting in more efficient economies. Globally, carbon intensity has decreased almost 40% over the last five decades. In LAC, despite presenting lower absolute values, the reduction was only 25% (World Bank, 2020). The situation in at least nine countries is more acute, where there is a negative trend.

Graph 9.1 Emissions intensity per GDP in LAC countries, 2000 vs 2016 (kg of CO2/2010 USD)



Source: UNSD (2020)

A number of studies have concluded that the region needs to invest at least 5% of GDP for a prolonged period to solve the shortage in financing for infrastructure and green projects. Currently, the region´s investment only covers half of these needs. An increase of USD 120–150 billion per year is required to achieve the region´s development objectives.

Source: ECLAC (2017c); IDB (2018b)

GREEN INDUSTRIES AND ECO-INNOVATION

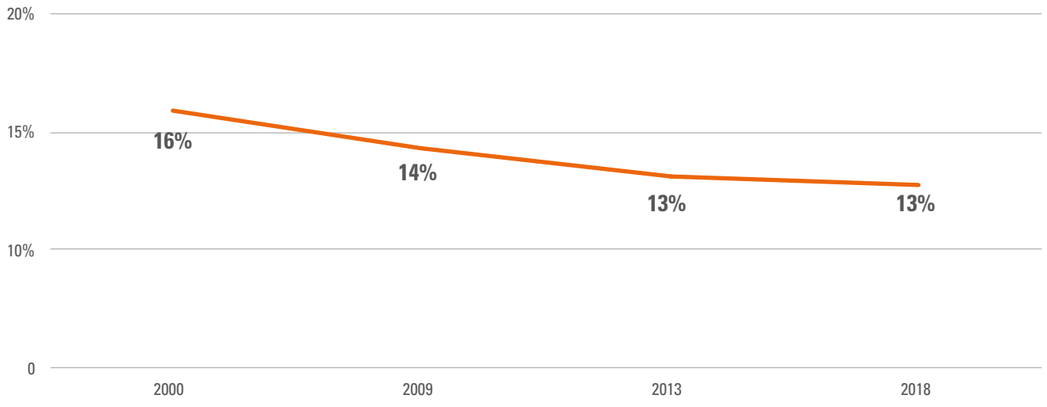
In the region, the main two drivers of economic growth in 2017 were the service sector and the manufacturing sector (ECLAC, 2018b). Medium and high technology industries can be a main driver for economic growth and, in turn, social development, and provide great opportunities to reduce environmental risks as well as contribute to resilience and increased efficiency in the use of natural resources. To ensure this, the industrial sector should minimize detrimental effects on the environment and human health, such as emissions and pollutants released into air, soil and water (Greentumble, 2017).

In most LAC countries, the share of high-technology industries in the industrial sector has increased. Brazil and Mexico have, by far, the highest revenues from high-tech exports. As a whole, 14% of LAC exportations have a high-technology profile, however this percentage is lower than Europe's and Northern America's, and half that of Industrialized Asia.

The Richie Haynes Boardwalk in **Barbados** is a beautiful shoreline which ensures safe access of citizens to the beach, the protection of the coast from climate related hazards and the protection of local marine biodiversity

© Coastal Zone Management Unit, Government of Barbados.

Graph 9.2 Manufacturing value added in LAC, 2000-2018 (% of GDP)



Source: World Bank (2020)

Greener industries and more sustainable production methods are not enough. Green industry refers to production methods that do not harm ecosystems, while improving quality of life. This often requires interventions at the micro and macro level, including policies, incentives, regulatory tools, company investments and changes in consumer behaviour.

A major obstacle for this change in the industrial sector has been the failure to properly price negative externalities, distorting the real costs of "cheap" goods. Although governments in the region have increasingly adopted legal instruments and policy tools with the traditional command and control approach to environmental impacts, institutional, technical and financial resources are often lacking to fully enforce them (ECLAC, 2017c).

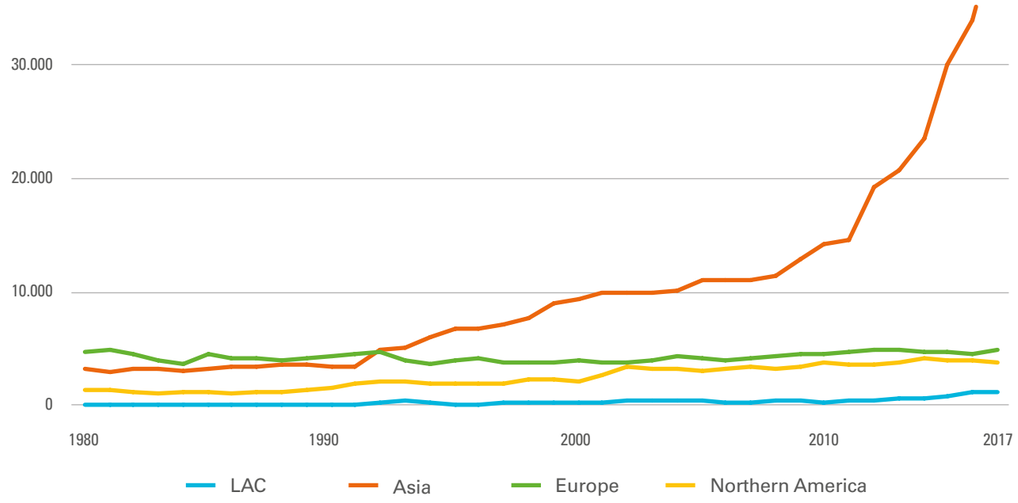
Advancing science, technology and innovation (STI) capacities in industrial sectors can be an effective way to develop more environmentally friendly industries without imposing an excessive cost. National STI policies in the region mention environmental standards and preservation. Nonetheless, expenditures for research and development in the region are still mostly reliant on public financing (UNESCO, 2019b) and account for less than 1% of GDP, much lower than the global average (World Bank, 2020). In the Caribbean, research and development disbursements are less than 0.2% of GDP, while the Caribbean Council of Science and Technology suggests 3% as ideal (ECLAC, 2007).

All countries in the region have Science, Technology and Innovation (STI) policies, and Appendix 1 list those that include references to the environment.

Eco-innovation could be considered a branch of green industry since it aims to address current and future environmental problems, increase resource use efficiency and satisfy market demands using less materials and energy. Eco-innovation considers the "life cycle" of products, from creation to final disposal, to promote circular processes that reuse materials.

Green patents can be used as a measurement for green innovation and technologies. Globally, patents for green technology have increased steadily. However, in the LAC region the trend is slower, which could in part be attributed to insufficient investment and research in the region.

Graph 9.3 Environmental technology patents publications per global region, 1980 - 2017



Source: WIPO Statistics (2019)

Table 9.1 Environmental technology patents in LAC countries, 2000-2017

	Patents/ 100,000 people	Total
Brazil	2.50	5,224
Mexico	2.11	2,729
Chile	1.58	285
Argentina	1.38	613
Uruguay	1.30	45
Costa Rica	1.06	52
Peru	0.92	297
Colombia	0.50	245
Panama	0.39	16
Cuba	0.37	43
Ecuador	0.32	53
Dominican Rep.	0.12	13
Guatemala	0.11	18
El Salvador	0.08	5
Honduras	0.05	5
Nicaragua	0.03	2

Source: WIPO Statistics (2019)

Related international agreements referring to environmental issues:

- Regional Agreement on Access to Information, Public Participation and Justice in Environmental Matters in Latin America and the Caribbean, Escazú Agreement
- Global Compact for Safe, Orderly and Regular Migration
- United Nations Framework Convention on Climate Change
- Sendai Framework for Disaster Risk Reduction

ENVIRONMENTAL INEQUALITIES

Both within and between countries, inequality remains one of the largest obstacles to environmental sustainability since it fuels unsustainable patterns of production and consumption (Chancel and Piketty, 2015). High inequality is associated with a preference for overconsumption of private and positional goods, thereby weakening public and merit goods (López and Palacios, 2014) that are far more efficient in terms of their environmental footprint.

The resulting overuse and degradation of natural resources from industrialization and changes in consumption choices can also have significant implications for inequality between and within countries. Most of the demand for natural resources comes from developed countries, where the material footprint, a measure of global material extraction used to meet the domestic final consumption demand of each country, is 60% higher than in upper-middle-income countries and 13 times the level of low-income countries (UN, 2019). Forced by market pressures to produce more goods faster, resource-rich countries commonly end up overusing their natural capital and consequently bear the disproportionate negative externalities of accelerated natural resources use and over exploitation.

Despite these relationships, the main focus of SDG 10 is social, economic and political inclusion, transparent financial markets and improvements in external assistance. This is the only SDG with no indicators directly related to the environment. However, social and economic inequalities tend to be both caused by, and generate, unsustainable pressures on natural resources. In particular, migration (referenced in target 10.7) has complex associations with the ecological dimension (IOM, 2014), as the environment can be impacted by, as well as be a driver of, human mobility (IOM, 2009).

Latin America and the Caribbean is one of the most unequal regions in the world (Income and social inequalities are discussed in SDG 1 and SDG 2). Market pressures are some of the main causes exacerbating environmental inequalities. Resource-rich countries- the case of many of the countries in the region- usually overuse natural capital, resulting in negative environmental externalities such as pollution. This is a consequence of the economic reliance on and global demand for these goods, and the capacity of high-income nations to isolate themselves from negative environmental impacts and transfer environmental exploitation to other countries. This scenario underscores a clear trend in inequality where people from richer nations have higher material footprints, while the environmental consequences are experienced in poorer nations.

On the other hand, richer countries are better able to manage and cope with negative environmental impacts related to economic growth. For example, Europe, Central Asia and North America were the only regions with more pronounced decreasing death rates due to air pollution in the last three decades. Disaggregated data shows that poor and disadvantaged groups have a greater exposure to air pollution and a higher prevalence of respiratory and other illnesses (Kan et al., 2008). Evidence indicates that a 1% increase in air pollution-related damages is associated with a Gini coefficient increase of 0.03 units (UNESCAP, 2018).

SDG 1, SDG 3 and SDG 12 present comprehensive data on the vulnerability of the poor to natural risks, health inequalities and on production and consumption rates linked to natural resource depletion.

ENVIRONMENTAL IMPACTS OF MIGRATIONS

Migratory movements have steadily increased in the region in recent years (mostly in Central America) for environmental, socioeconomic and political reasons. Natural threats, fragile environments and regions with high climate change vulnerability influence human mobility, including displacement and migration (BMZ/GIZ, 2017). However, specific data on the environmental causes of migration is still limited. The region has increased its efforts in the last years in studying and understanding the connections between migration and the environment, natural disasters and climate change.

Migrants often live in inadequate settlements, both in their transit and when forced to set up temporary shelters in peripheries of urban areas. These places often lack basic sanitation or cooking infrastructure, which causes serious local environmental problems like water and soil pollution, desertification and deforestation. Furthermore, people unfamiliar with local livelihoods can cause further ecological imbalances, such as from the introduction of invasive species or inappropriate agricultural practices. Another concern is the environmental impacts associated with conflict-motivated migrations, where residual conflicts remain long after the conflicts end. In 2015, some 750,000 people were displaced across the Northern Triangle countries (Guatemala, El

Salvador and Honduras) (OCHA, 2016), which, in tandem with accelerated and uncontrolled urbanization, led to significant environmental impacts like water stress, waste pollution and deforestation in the area.

Additionally, when migrants reach a destination, the movement of people from low-carbon to high-carbon footprint societies tends to increase migrants' consumption patterns, in accordance with host country lifestyles (UNEP, 2019c).

ENVIRONMENTAL DIMENSIONS OF MIGRATION

Sand and dust storms, fires, hurricanes and land degradation, as well as resource scarcity and depletion (especially water, energy, food and biodiversity) represent some of the main causes of human displacement (UNEP, 2019c). However, it is not only environmental conditions that impact migrant´s decisions, as they are usually part of a broader framework of concerns involving individual and household economic, social and even political circumstances (IOM, 2014). Rapid population growth and the lack of economic opportunities and policy actions also accelerate this phenomenon.

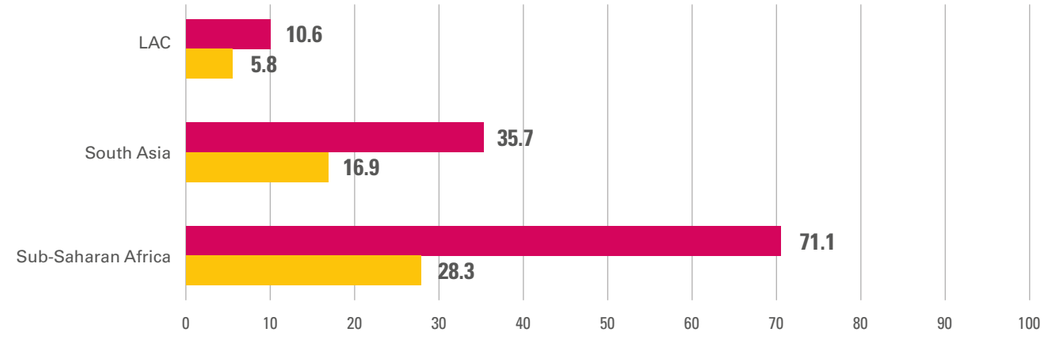
The reality of climate change adds further complexities to the environment-migration nexus. As early as 1990, the Intergovernmental Panel on Climate Change warned that "the greatest single impact of climate change could be on human migration" (IOM, 2009). Today, climate issues like greater frequency or intensity of weather-related natural disasters, heat impacts on people's livelihoods, rising sea levels and greater scarcity of natural resources, underscore the seriousness of the problem. (IPCC, 2019).

Table 10.1 Estimated number of displaced individuals due to natural disasters in LAC countries, 2018

Brazil	**Colombia**	**Cuba**	**Venezuela**	**Paraguay**
86,000	67,000	52,000	32,000	30,000
Dominican Rep	**Guatemala**	**Mexico**	**Honduras**	**Argentina**
27,000	27,000	20,000	17,000	16,000
Haiti	**Peru**	**Nicaragua**	**Costa Rica**	**El Salvador**
8,800	8,600	6,900	5,800	4,700
Ecuador	**Chile**	**Bolivia**	**Trin & Tobago**	**Dominica**
4,200	2,500	2,400	860	350
Uruguay	**Bahamas**	**Guyana**	**Grenada**	**Jamaica**
300	230	170	27	7

Source: IDMC (2019)

Graph 10.1 Projected internal climate migration in three global regions, under two scenarios by 2050 (millions of migrants)



Source: Rigaud et al. (2018)

An estimated 227.6 million people worldwide were displaced by sudden-onset disasters between 2008 and 2016, with the Caribbean being one of the most affected regions in the World.

Source: GMDAC/IOM (2018)

Even more acute is the Caribbean situation, where climate migration is expected to increase with rising sea levels and the greater frequency and intensity of storms and hurricanes (Thomas and Benjamin, 2017). Current analysis indicates that stronger political engagement of governments is needed to comprehensively address these risks in the region (ibid.). Some countries have demonstrated advances in conciliating their climate policies with migration issues. For example, Brazil, Chile and Colombia take human mobility into consideration in their National Adaptation Plans to Climate Change (NAP).

Table 10.2 LAC countries that address human mobility and/or environmental/climate migration in their climate change strategies

Bahamas	Costa Rica*	Haiti
Belize*	Dominican Republic	Honduras
Brazil	Ecuador	Mexico
Chile*	El Salvador	Panama
Colombia	Guatemala	St Vinc. & the Grenadines

* Limited or tangential mentions.

Source: GMDAC/IOM (2018)

Related international agreements referring to environmental issues:

- The New Urban Agenda
- Sendai Framework for Disaster Risk Reduction

SDG 11 focuses on making human settlements and cities sustainable, resilient, inclusive and safe for all. It addresses topics such as climate change resilience, sustainable transport, air pollution and sustainable urbanization. The environmental dimension is central to successfully achieving SDG 11, recognizing the need for an urban infrastructure that is low-emission, resource-efficient and resilient. This is especially important for the LAC region as 80% of the population lives in urban areas.

Eight SDG 11 targets have a direct relation to the environment: 11.2 sustainable transport; 11.3 sustainable urbanization; 11. 4 protection of the world's cultural and natural heritage; 11.5 disaster avoidance and protection; 11.6 reduction of adverse environmental impacts on cities; 11.7 universal access to green and open spaces; 11.b enforcement of Sendai Framework policies; and 11.c support for sustainable and resilient buildings in Least Developed Countries (LDCs).

SDG 11 ENVIRONMENTAL INDICATORS	
11.2.1	**Access to public transportation.** Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities
11.3.1	**Land consumption.** Ratio of land consumption rate to population growth rate
11.3.2	**Urban planning.** Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically
11.4.1	**Investment in cultural and natural heritage.** Total per capita expenditure on the preservation, protection and conservation of all cultural and natural heritage, by source of funding (public, private), type of heritage (cultural, natural) and level of government (national, regional, and local/municipal)
11.5.1	**Disasters: persons affected.** Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population
11.5.2	**Disasters: economic loss.** Direct economic loss in relation to global GDP, damage to critical infrastructure and number of disruptions to basic services, attributed to disasters
11.6.1	**Urban solid waste management.** Proportion of municipal solid waste collected and managed in controlled facilities out of total municipal waste generated, by cities
11.6.2	**Ambient air pollution.** Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities
11.7.1	**Public land in cities.** Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities
11.b.1	**Disaster risk reduction by local governments.** Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030
11.b.2	**Disaster risk reduction strategies.** Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies

Change in a positive direction · Change in a negative direction · Little negative or positive change · Insufficient data · No data

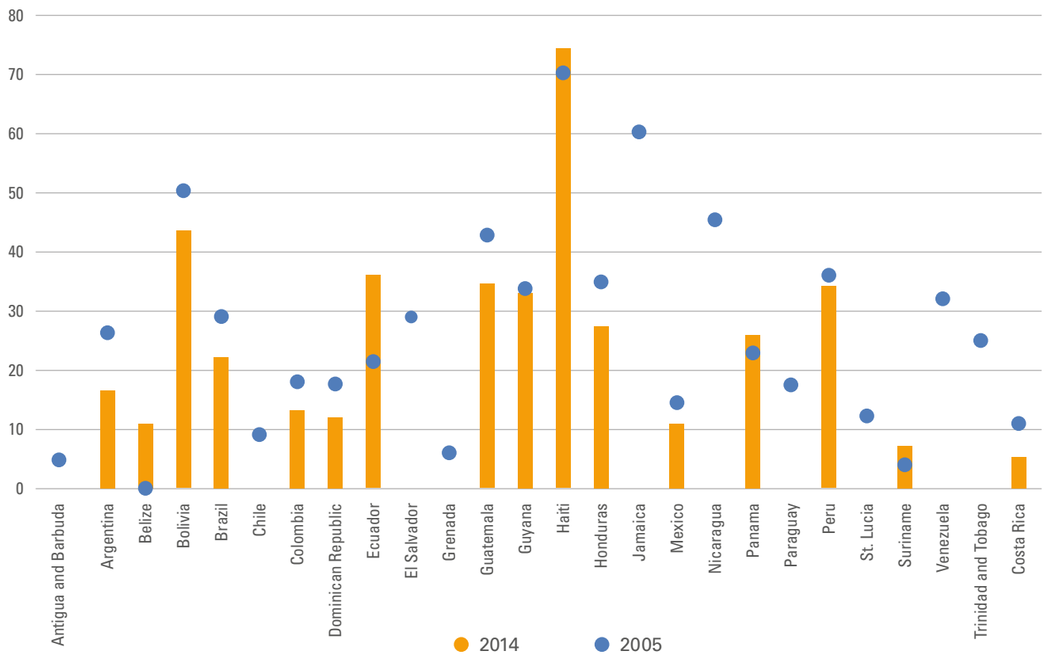
Source: UNEP (2019e)

URBAN LAND CONSUMPTION

The urban population in LAC countries has increased in both relative and absolute numbers. Between 2010 and 2015, population in urban centers increased by 35 million people, and estimates suggest that 567 million will be living in these areas by 2025 (UNEP/Cepei, 2018). Good urban planning is the foundation of sustainable and safe cities. This includes accountability, transparency, participation and inclusion.

One of the SDG indicators used for this is *"ratio of land consumption rate to population growth rate"* which can be calculated with several metrics, including Slum Proportion and Openness Index. The region presents a positive trend with respect to the population living in sub-optimal homes, with about 30 million people having exited slums since 1990. However, one fifth of the population in the region (more than 125 million people) still live in sub-optimal conditions. These also pose a threat to the local ecological balance of surrounding ecosystems. In fact, the areas that are most prone to urban expansion in LAC also present the highest risks of zoonosis (Allen et al., 2017) (please refer to SDG 3 for more information on drivers of zoonosis).

Graph 11.1 Urban population living in slums in LAC countries, 2005-2014 (%)



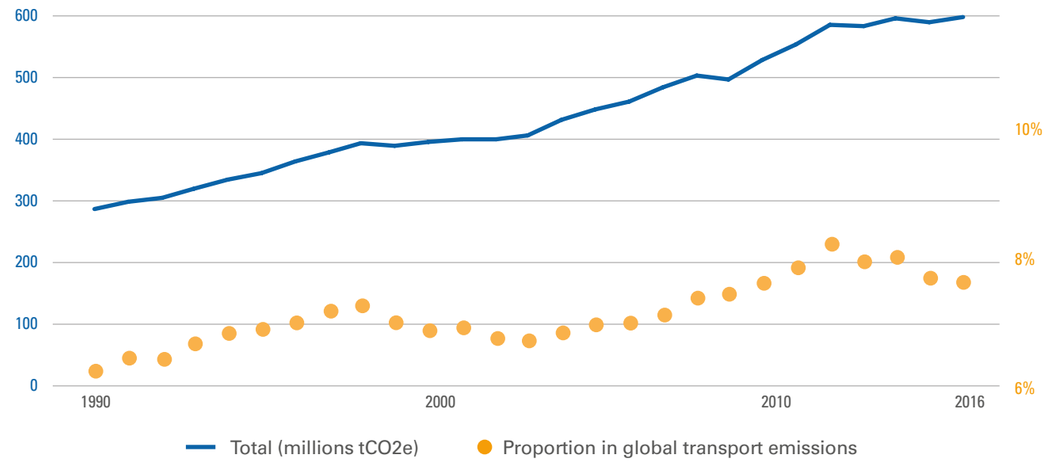
Note: Plots with no bars mean a lack of data. **Source**: World Bank (2020)

SUSTAINABLE TRANSPORT

SDG target 11.2 addresses safe and sustainable public transport and has a direct impact on both people and the environment. Investing in sustainable public transport implies a direct reduction in GHG emissions and air pollution. Moreover, it has direct links to the reduction of social exclusion, poverty and lack of economic opportunities (UNEP, 2019e). Several LAC cities have begun investing in 'green' public transport, including the use of electric busses and trains in public transportation systems.

In 2010, the transport sector was responsible for about 27% of total energy demand in the region. Roadway transport was by far the largest emitter, accounting for almost 75% of emissions. Moreover, according to the fuel share, national and international transport was responsible for 14.5% of GHG emissions in the region in 2012 (more on sustainable transport can be found in SDG 3 and SDG 7).

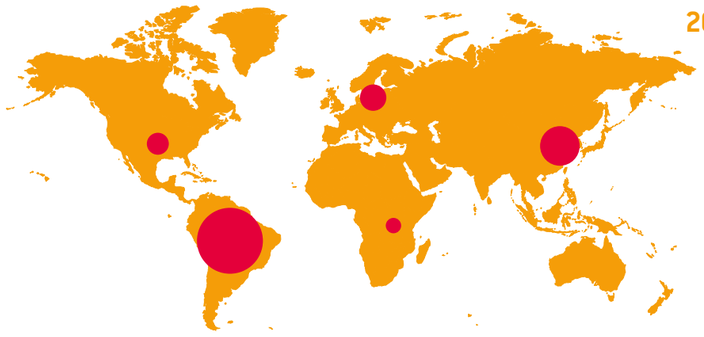
Graph 11.2 Greenhouse gas emissions from transport sector in LAC, 1990 - 2016



Source: Climate Watch (2018)

Bus Rapid Transit (BRT) is a solution that has been used in cities to improve the public transportation system since the 70´s. It is based on designated special lanes in conjunction with specific services like pre-boarding payment and special stations. It provides efficiencies for both users and the environment. The LAC region is the biggest user of this kind of transport in the world (Graph 11.3).

Graph 11.3 Bus Rapid Transit (BRT) in LAC



BRT transport daily demand, 2019 (millions of passengers)

Latin America	Asia	Europe	North America	Africa	Oceania
20.9	9.5	1.6	0.9	0.5	0.4

BRT in LAC, 2019	Countries	Cities	Corridors	Lenght
	13	55	171	1,816 km

Source: BRT Data (2019)

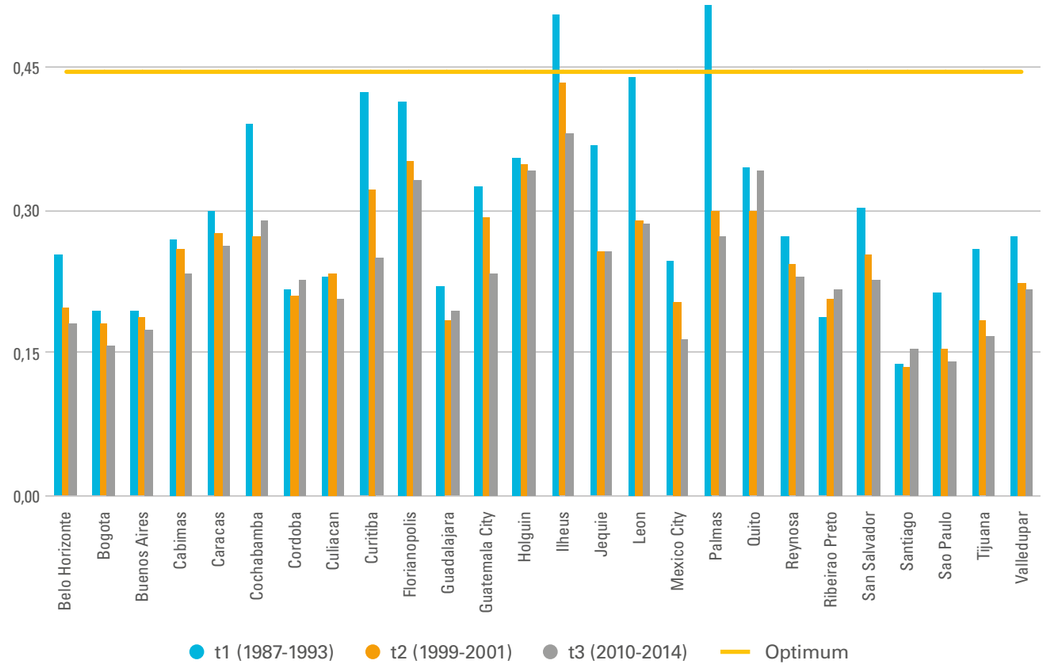
URBAN OPEN SPACE AND GREEN AREAS

Open and public spaces are important for sustainable urban development, the well-being of people, and for ensuring ecosystem services. The ratio of open spaces in urban areas is measured with the Openness Index: the average ratio of open space pixels in a walking distance circle around each built-up pixel in a city.

There is no established optimum value for this indicator. As a parameter, Angel et al. (2012) defined a mean value of 0.47±0.02 and 0.42±0.02 between 1990 and 2000, based on a 200-city sample in the Atlas of Urban Expansion Program. From such study, we stipulate, a value of 0.44 as a proxy for the ideal Openness Index. Based on this, LAC cities lack urban open spaces, aggravated by an overall negative trend over the last decades (Graph 11.4).

Furthermore, human settlement growth has resulted in a greater demand for land, with green/open spaces often being turned into building and infrastructure areas. Although there is evidence that open public spaces improve the social and economic value of cities, there is a lack of data on the amount of available and recommended public space, the distance between people and public spaces, and public space per capita.

Graph 11.4 Openness Index in LAC Cities, 1987 - 2014



Source: Angel et al. (2016)

CULTURAL AND NATURAL HERITAGE

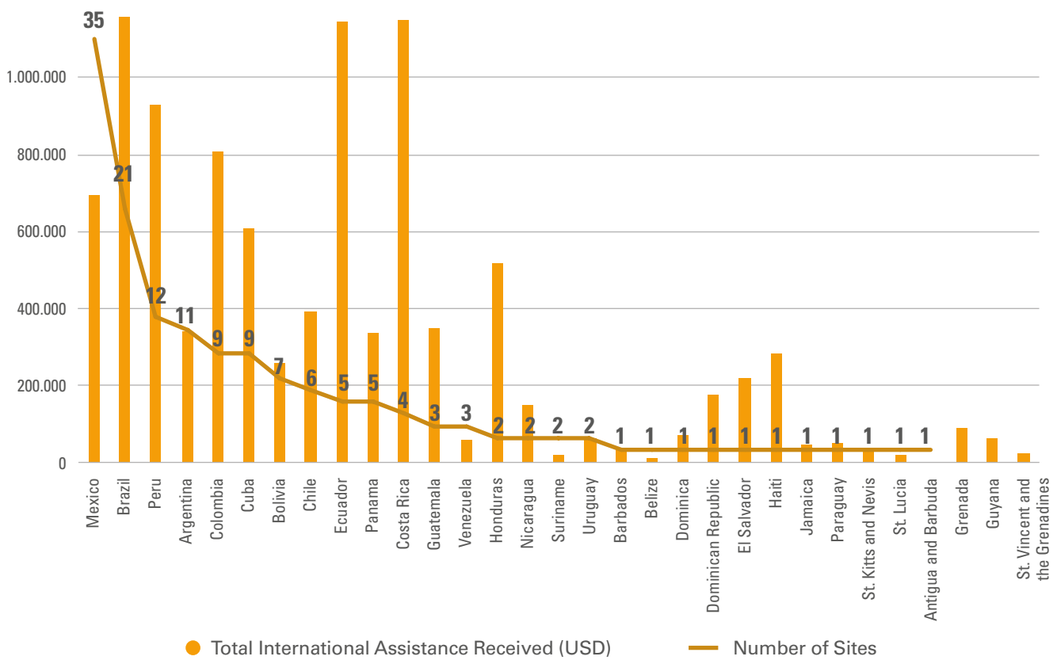
Culture is the basis of how people and communities live and interact with their environment. Cultural and natural heritage not only strengthens the bonds within a community, but it also provides a foundation for citizen engagement in development and the conservation of the natural environment. The SDG indicator measures public and private expenditures for the protection and conservation of cultural and natural heritage.

Table 11.1 World Heritage Sites in LAC and in the world

	Cultural	Natural	Mixed	Total
World	845	209	38	1,902
LAC	96	38	7	141

Source: UNESCO (2019a)

Graph 11.5 World heritage sites in LAC countries and international funding received, since 1978



Source: UNESCO (2019a)

The LAC region has 13% of UNESCO world heritage sites, with Mexico having the most (35). Only five LAC countries have no World Heritage Sites: the Bahamas, Grenada, Guyana, Trinidad and Tobago and St. Vincent and the Grenadines. UNESCO also has an International Assistance framework where countries can apply for grants to protect their natural and cultural heritage sites on the World Heritage List or on the List of World Heritage in Danger. The fund was created in 1978 and has mobilized over USD 44 million for 2,170 approved projects; 469 of these projects are in the LAC region.

DISASTERS RISKS

Large urban populations face the greatest risks during disasters. Cities are not 'disaster prone' by nature, however, socioeconomic processes that accelerate agglomeration can increase vulnerability, particularly among low-income and marginal communities (UNEP, 2007). Natural disasters have social, cultural, institutional and technical implications that determine the impacts that natural hazards have on the population (discussed in SDG 13).

REDUCING THE ENVIRONMENTAL IMPACT OF CITIES

With rising population growth and growing urbanization, the production of waste in cities has grown exponentially. Sustainable consumption and production (SCP) patterns are largely determined by efforts to reduce waste generation and ensure its safe and appropriate disposal and management. The region generates approximately 10% of global waste (UNEP, 2018d) and has reached a relatively high rate of waste collection (84%) (World Bank, 2018). More information can be found in SDG 12.

Additionally, indicator 11.6.2 addresses ambient air pollution, an important issue in urban areas, which is addressed in more detail in SDG 3.

Despite having good waste collection rates, the region still has great disparities: while having 100% collection in nine cities in Brazil, Costa Rica, Venezuela, Cuba, Uruguay and Mexico, some cities have collection rates just over 10%, like Jutiapa in Guatemala and Port au Prince in Haiti (Kaza et al., 2018).

URBAN PLANNING

Sustainable Land Management Plans are necessary to reduce urban inequalities and segregation stemming from socioeconomic factors as well as racial and gender characteristics. These plans also promote rational land use and the sustainable use of natural resources.

All LAC countries have policies for land planning and/or development, usually associated with land zoning, at the local, regional or national level (please refer to Appendix 1 for a complete list). Environmental management is the second most common focus area of these policies in LAC countries. Other environmental issues, such as disaster risk management, resilience and rural development are also priorities (ECLAC, 2019c).

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Related international agreements referring to environmental issues:

- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal
- ILO's Chemicals Convention concerning Safety in the Use of Chemicals at Work
- Minamata Convention on Mercury
- Montreal Protocol on Substances that Deplete the Ozone Layer
- Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade
- Strategic Approach to International Chemicals Management (SAICM)
- Stockholm Convention on Persistent Organic Pollutants (POPs)
- United Nations Framework Convention on Climate Change

Sustainable consumption and production (SCP) patterns are a recurrent issue in the 2030 Agenda, recognizing their enabling role in the balanced integration of environmental, social and economic priorities. Unsustainable economic practices have led to social inequality and a myriad of severe environmental consequences, including biodiversity loss, pollution, degradation of water and soil resources and deforestation.

All SDG 12 targets have a direct association with environmental issues; the major areas being: SCP (targets 12.1 and 12.2), food waste (12.3), chemicals and hazardous waste (12.4), waste prevention, reduction, recycling and reuse (12.5), corporate engagement (12.6), sustainable public procurement (SPP) and citizen education (12.7 and 12.8), and fossil fuel subsidies (12.c). (Note: material consumption (12.2) and sustainable tourism (12.b) are addressed in SDG 8).

SDG 12 ENVIRONMENTAL INDICATORS	
12.1.1	**Action plans for sustainability.** Number of countries developing, adopting or implementing policy instruments aimed at supporting the shift to sustainable consumption and production
12.2.1	**Material footprint.** Material footprint, material footprint per capita, and material footprint per unit of GDP
12.2.2	**Domestic material consumption.** Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP
12.3.1	**Food loss and food waste.** (a) Food loss index and (b) food waste index
12.4.1	**Information Transmitted under Chemicals and Waste Conventions.** Number of parties to international multilateral environmental agreements on hazardous waste and other chemicals that meet their commitments and obligations in transmitting information as required by each relevant agreement
12.4.2	**Hazardous waste generation.** Hazardous waste generated, per capita, and proportion of hazardous waste treated, by type of treatment
12.5.1	**Recycling.** National recycling rate, tons of material recycled
12.6.1	**Corporate sustainability reporting.** Number of companies publishing sustainability reports
12.7.1	**Sustainable public procurement.** Degree of sustainable public procurement policies and action plan implementation
12.8.1	**Education for sustainable lifestyles.** Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment
12.a.1	**Renewable energy.** Installed renewable energy-generating capacity in developing countries (in watts per capita)
12.b.1	**Sustainable tourism strategies.** Implementation of standard accounting tools to monitor the economic and environmental aspects of tourism sustainability
12.c.1	**Fossil fuel subsidies.** Amount of fossil fuel subsidies per unit of GDP (production and consumption)

Change in a positive direction · Change in a negative direction · Little negative or positive change · Insufficient data · No data

Source: UNEP (2019e)

The promotion of sustainable development in the region dates from the United Nations Conference on the Human Environment (1972). After the conference, countries began a process of institutionalization and/ or a revision of environmental management that brought about important changes in public policies and national legal systems. These changes were not only aimed at protecting the environment, but also at promoting a broader sustainable development agenda. However, the region also faces challenges in terms of ensuring a sustainable development path, including high rates of material consumption, food waste and carbon-intensive economies. These structural issues, as well as others related to SDG 12, have serious ecological and social implications in the short and long term.

The LAC region's strategic positioning and commitment to address SDG 12 issues is reflected in the adoption by the regional Forum of Ministers of Environment in 2016 of decisions related to SCP, recognizing the importance of advancing in the following areas: i) Sustainable, Efficient, Resilient and Inclusive Cities; ii) Innovative and Sustainable Businesses; iii) Sustainable Public Procurement and Eco-labeling; and iv) Sustainable Lifestyles.

SUSTAINABLE CONSUMPTION AND PRODUCTION

Most of the countries in the region are engaged in promoting SCP. Under the premises of the Forum of Ministers of Environment, the region has developed and approved a Regional Strategy on SCP aligned with the 10 Year Framework of Programmes on Sustainable Consumption and Production Patterns (10YFP). This Strategy contains three thematic priorities, in addition to the six established globally by the 10 YFP. With respect to national policy advances (Graph 12.1), action plans are the most common institutional tools to establish a national agenda to address these issues.

The **Environmental Alliance of America**, the first regional initiative to develop a common program for eco-labeling, that can ensure we consumers select products and services according to specific environmental and social criteria.
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Graph 12.1 Sustainable consumption and production policies in LAC countries (15 countries)

	Macro policy	Policy instrum.	Action plan	Coordination mechanisms
Antigua & Barbuda	✓	✓	✓	✓
Argentina		✓	✓	✓
Brazil			✓	
Belize				✓
Chile	✓		✓	
Colombia	✓		✓	
Costa Rica	✓	✓	✓	
Cuba	✓	✓	✓	
Dominican Republic	✓		✓	✓
Ecuador		✓	✓	
Honduras	✓	✓	✓	
Jamaica	✓		✓	
Mexico			✓	✓
Peru	✓	✓	✓	✓
Saint Lucia	✓	✓	✓	

Source: UNSD (2020)

All LAC countries, together with civil society representatives, are engaged in the Regional Strategy on SCP, with nine thematic priorities:

1. National SCP Policies, programmes and strategies*
2. Sustainable public procurement
3. Sustainable lifestyles and education
4. Consumer information
5. Sustainable tourism, including ecotourism
6. Sustainable buildings and construction
7. Sustainable food systems
8. Small and Medium Enterprises (SME)*
9. Integrated waste management*

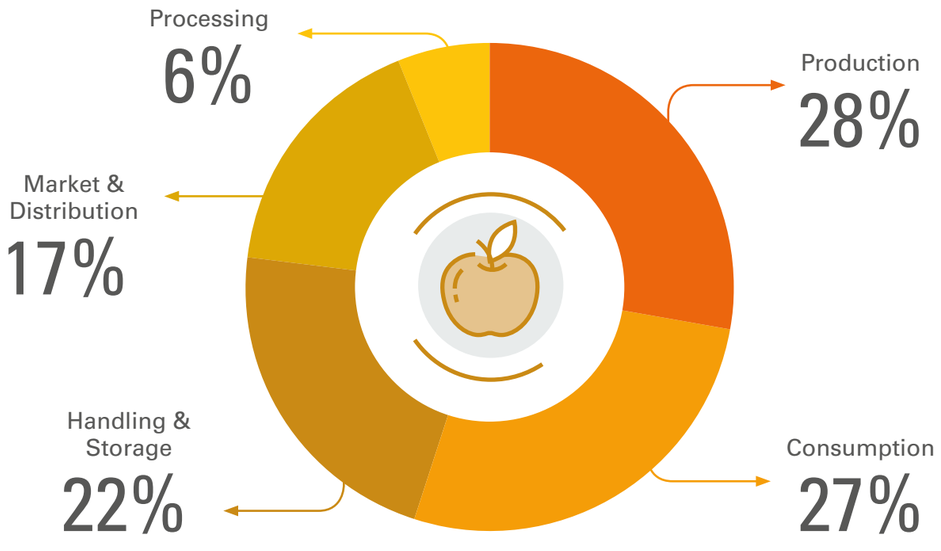
* Additional regional priorities regarding the six global 10YPF areas. **Source:** UNEP (2015a)

FOOD WASTE

Every day, LAC generates 350 metric tonnes of food waste (FAO, 2016d). Actions to improve harvesting, processing, storage and marketing methods, as well as a profound change in food consumption behaviour, are necessary for the region to eliminate these losses. In the region, production (28%), consumption (27%) and handling and storage (22%) account for approximately 77% of food loss and waste in the food chain. Measures to reduce food waste are crucial to accomplish the pioneering proposal of zero hunger by 2025 in the region, in addition to avoiding 4 billion metric tonnes of CO_2 per year.

Eliminating food waste means a more efficient use of natural resources. In 2009, food waste losses in LAC required an area equivalent to the state of Mexico to be produced, besides contributing approximately 4 billion metric tonnes of CO_2 emissions and using 28 million metric tonnes of fertilizers (UNEP, 2018d).

Graph 12.2 Food loss & wastage in LAC, by stage (2014)



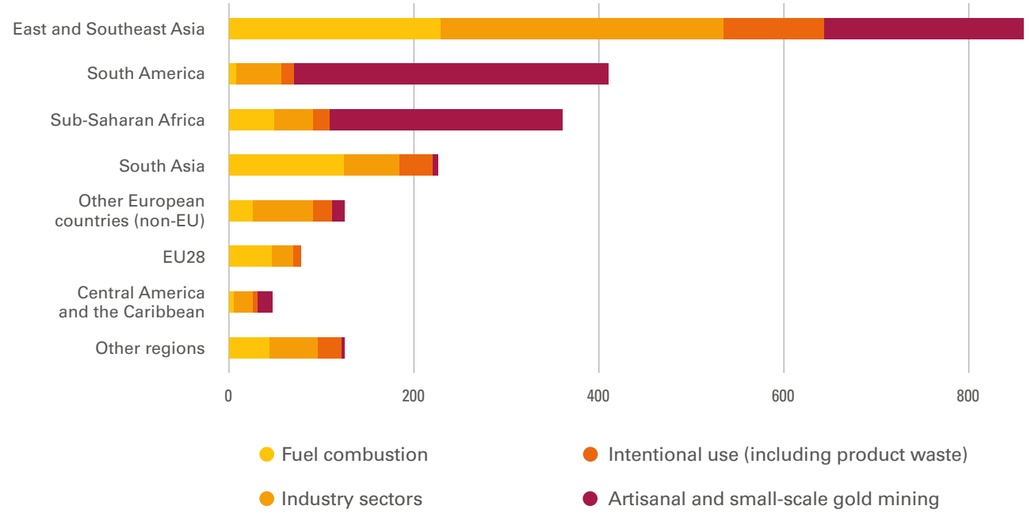
Source: UNEP (2018d)

Food waste also has a direct relation to Greenhouse Gas (GHG) emissions. It generates large amounts of methane, mainly when disposed of in landfills. The regional carbon footprint of food waste is estimated at 525 kg of CO2e per capita, slightly above the global average, with meat being responsible for almost half of this amount. On the other hand, fruit waste has the biggest water footprint (FAO, 2013).

CHEMICAL AND HAZARDOUS WASTE

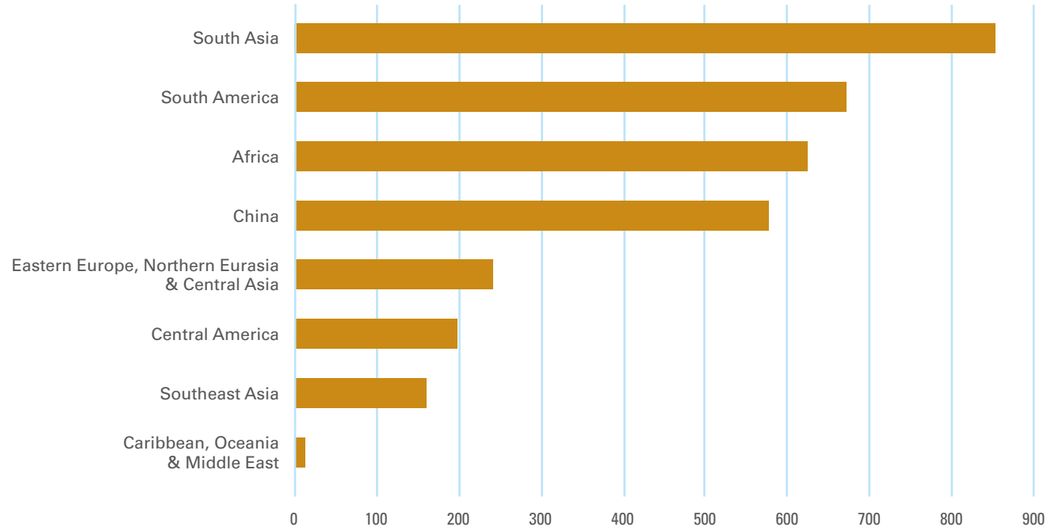
Chemicals play a role in nearly every economic and industrial sector (UNEP, 2019b). In the same way, threats to the environment from these substances are widespread, especially at the time of their disposal. Chemical and hazardous waste can restrict and interfere in ecosystems. For instance, neonicotinoids used in agricultural insecticides can seriously impair the ability of bees to pollinate and return to hives (UNEP, 2018a). In the region, critical areas are central Mexico and southern parts of Ecuador and Brazil. In the same line, mercury can cause serious and irreversible damage if it enters the food chain of organisms and is particularly harmful to unborn children and infants (UNEP, 2017e). The main contamination sites are found in South America and are usually related to mining activities (Graph 12.3).

Graph 12.3 Global breakdown of mercury emissions to air from anthropogenic sources, 2015 (tonnes)



Source: UNEP (2019d)

Graph 12.4 Industrially contaminated sites* in low- and middle-income regions (no. sites)



* With potential human health impact.

Source: TSIP Database (2019)

Keeping the environment and people safe from these substances goes beyond just management. It means working to avoid danger by eliminating them wherever possible (UNEP, 2010). While most of the LAC countries have plans to control the release and transfer of pollutants, lead paint regulations and policies to control hazardous waste, they demonstrate heterogeneous advances in the region.

Since 1987, multilateral environmental agreements have defined goals for the sound management and elimination of hazardous substances. Two thirds of the countries in the region have adopted and put into force the five boldest international instruments. Furthermore, the region´s engagement in the Strategic Approach to Internationals Chemicals Management (SAICM), a global voluntary policy framework, has produced good results with respect to funds raised for national capacity building (UNEP, 2019b).

Table 12.1 Five main conventions/protocols on hazardous and chemical waste and their status in LAC countries

	Basel	Minamata	Montreal	Rotterdam	Stocholm
Ant & Barbuda	●	●	●	●	●
Argentina	●	●	●	●	●
Bahamas	●	●	●	●	●
Barbados	●	●	●	●	●
Belize	●	●	●	●	●
Bolivia	●	●	●	●	●
Brazil	●	●	●	●	●
Chile	●	●	●	●	●
Colombia	●	●	●	●	●
Costa Rica	●	●	●	●	●
Cuba	●	●	●	●	●
Dominica	●	●	●	●	●
Dominican Rep.	●	●	●	●	●
Ecuador	●	●	●	●	●
El Salvador	●	●	●	●	●
Grenada	●	●	●	●	●
Guatemala	●	●	●	●	●
Guyana	●	●	●	●	●
Haiti	●	●	●	●	●
Honduras	●	●	●	●	●
Jamaica	●	●	●	●	●
Mexico	●	●	●	●	●
Nicaragua	●	●	●	●	●
Panama	●	●	●	●	●
Paraguay	●	●	●	●	●
Peru	●	●	●	●	●
St Kitts y Nevis	●	●	●	●	●
St V. & the Grenad	●	●	●	●	●
St Lucia	●	●	●	●	●
Suriname	●	●	●	●	●
Trin &Tobago	●	●	●	●	●
Uruguay	●	●	●	●	●
Venezuela (B.R.)	●	●	●	●	●

● Signed, in force ● Signed, not in force ● Not signed

Source: UNSD (2020) and Official websites (accessed on Feb/20)

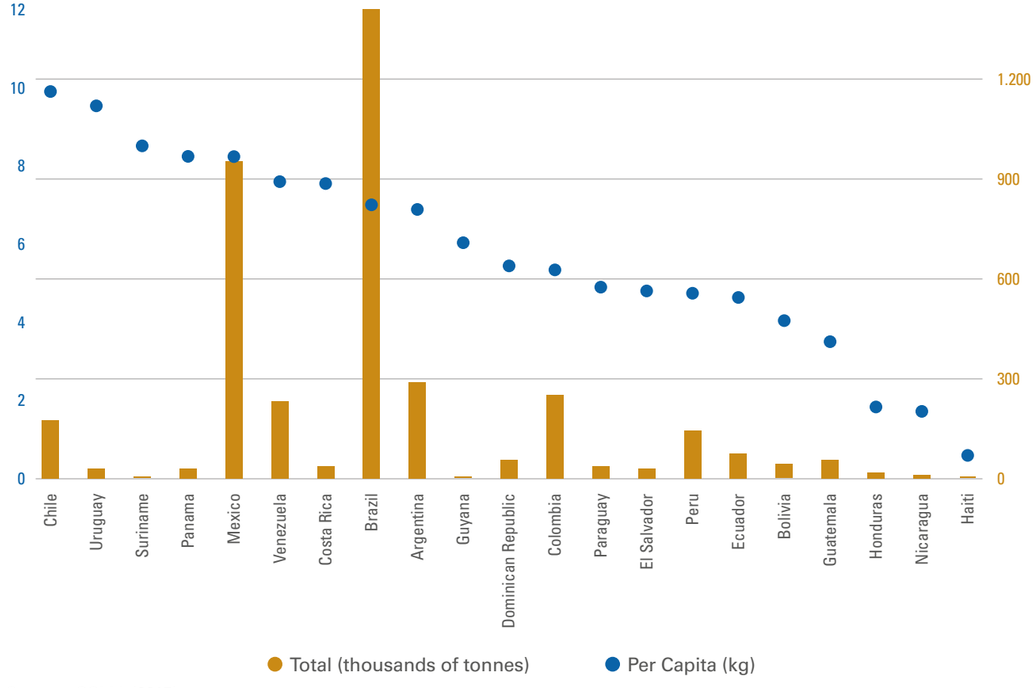
Electronic devices, disposed of inadequately, also represent a hazard to the environment. This e-waste becomes even more worrisome with current aggravating parallel factors. The annual rate of electronic device consumption is growing significantly, especially among emerging economies (Baldé et al., 2017). Moreover, the e-waste problem is further exacerbated by faster replacement rates and lower prices for electronic devices, leading to a 'throwaway society," not to mention other issues like planned obsolescence and the transboundary movement of e-waste (ibid).

In 2016, Latin America generated 4.2 Mt of e-waste, with the highest absolute numbers coming from Brazil and Mexico, while Uruguay, Chile and Argentina show the highest per capita e-waste generation rates in the region.

In 2014, LAC discarded 0.3 mobile phones per person, which represents roughly only 1% of total e-waste generated in the region. (GSMA, 2015; IDB/GSMA/South Pole, 2018)

The lack of regulations and formal recycling systems for e-waste is a serious problem in the region. Even when laws or recycling centers exist, they are often in an initial phase and produce weak outcomes (Baldé et al., 2017). Despite this, Central America is the sub-region presenting the highest coverage of e-waste legislation.

Graph 12.5 E-Waste in LAC countries, 2014



Source: GSMA (2015)

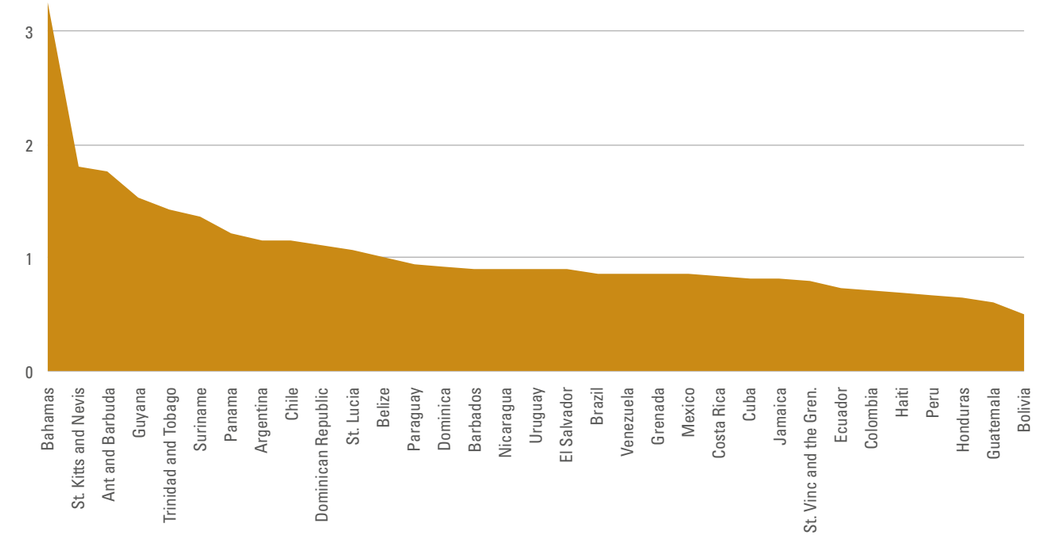
WASTE PREVENTION, REDUCTION, RECYCLING AND REUSE

Despite quantitative and qualitative improvements in waste collection, waste is still a challenge in the region. There are heterogeneous patterns in the generation and collection of waste in the region. The Caribbean generates more waste per capita, and collection rates are over 90% in approximately half of LAC countries. Only four countries have an integral waste collection system, and only one quarter of waste goes to dumpsites. The LAC region has 13 of the world´s 50 largest dumpsites (D-Waste, 2014).

Open dumps are a hazard to the air, soil, water, flora, fauna and human populations; not only on site, but also for the surrounding area. In the region, organic waste is a substantial part of this waste (50%), quite higher than the percentage in high-income countries (36%) (UNEP, 2018d). This kind of waste generates GHG and leachates, in addition to reducing the effectiveness of recycling processes.

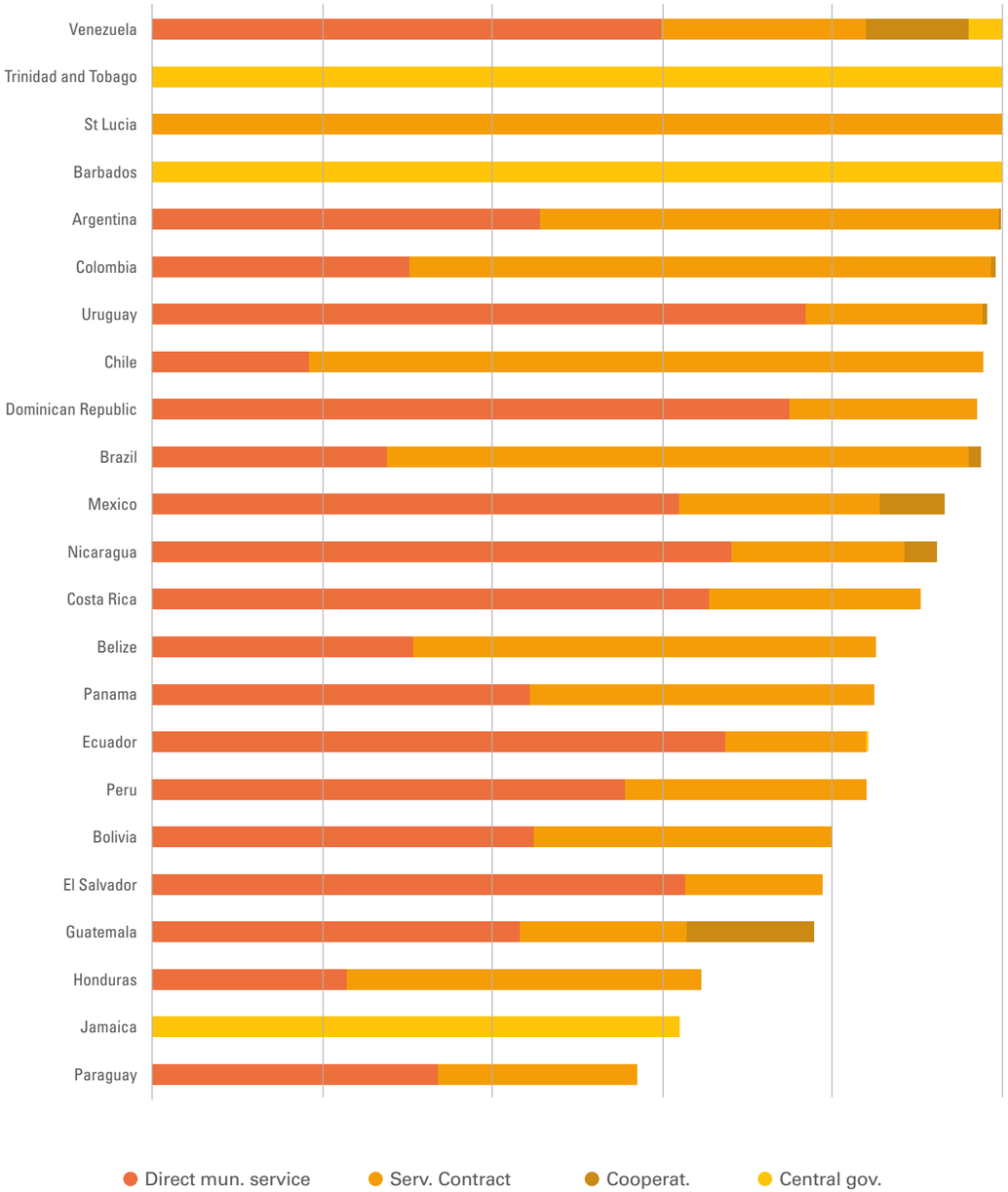
Low recycling rates and inadequate disposal are exacerbated by population growth, unsustainable consumption patterns and one of the highest projected increases in waste generation in the world (UNEP, 2018d). SDG 12 promotes a circular economy in which waste is a resource for continuing, or restarting, the economic flow. In the recycling chain, waste pickers play a central role, usually in the informal sector (ibid.). Formalizing this activity is a way to improve the working and living conditions of vulnerable populations, while also improving waste management.

Graph 12.6 Per capita municipal solid waste generation in LAC countries, 2014 (kg/hab/day)



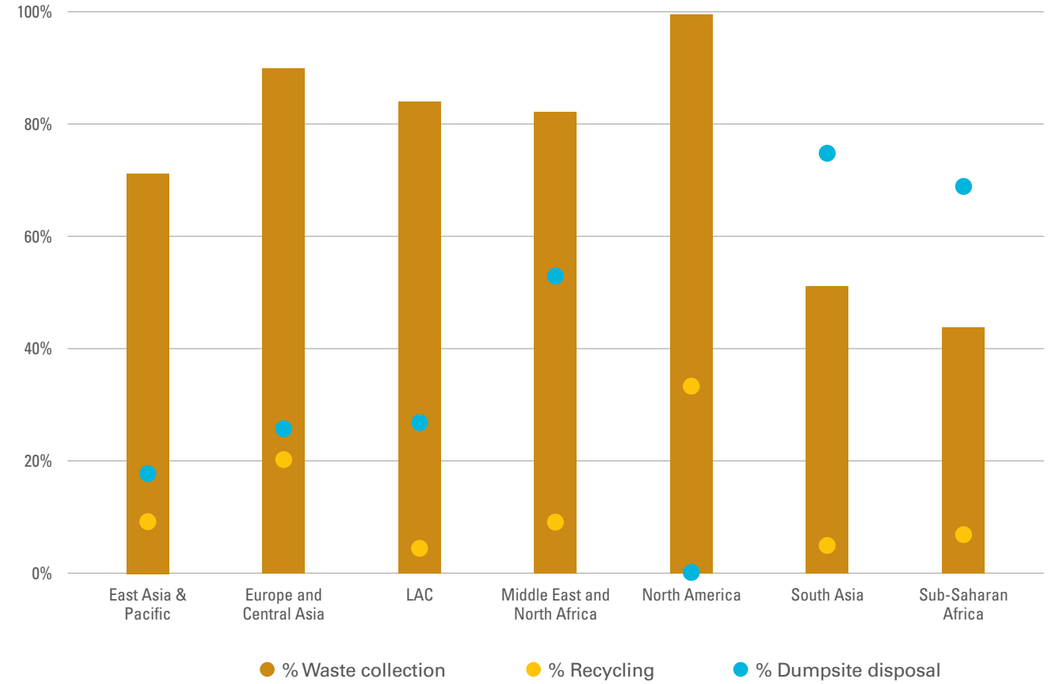
Source: UNEP (2018d)

Graph 12.7 Modes and rates of waste collection in LAC countries, 2018



Source: UNEP (2018d)

Graph 12.8 Regional rates of waste collection, recycling and dumpsite disposal, 2016



Source: Kaza et al. (2018)

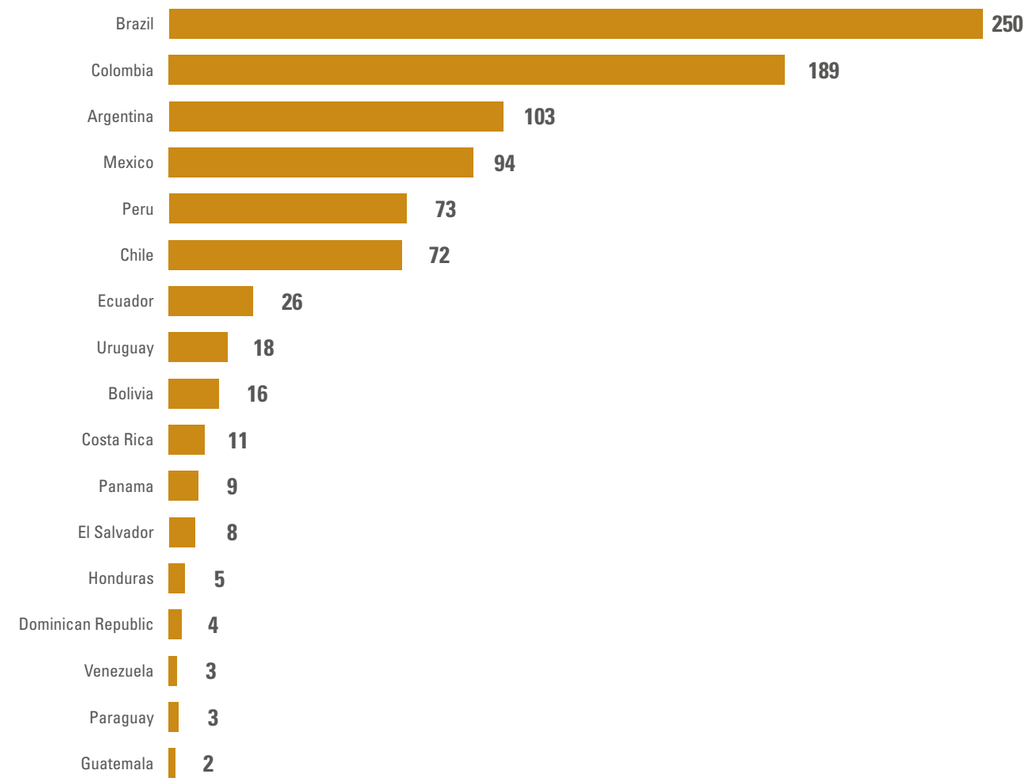
Integrated solid waste management also supports **sustainable and inclusive development in Peru**, by working with informal waste pickers that became promoters of a recycling culture in their communities.

© UNDP/UNEP Poverty and Environment Initiative, Peru

CORPORATE SUSTAINABILITY

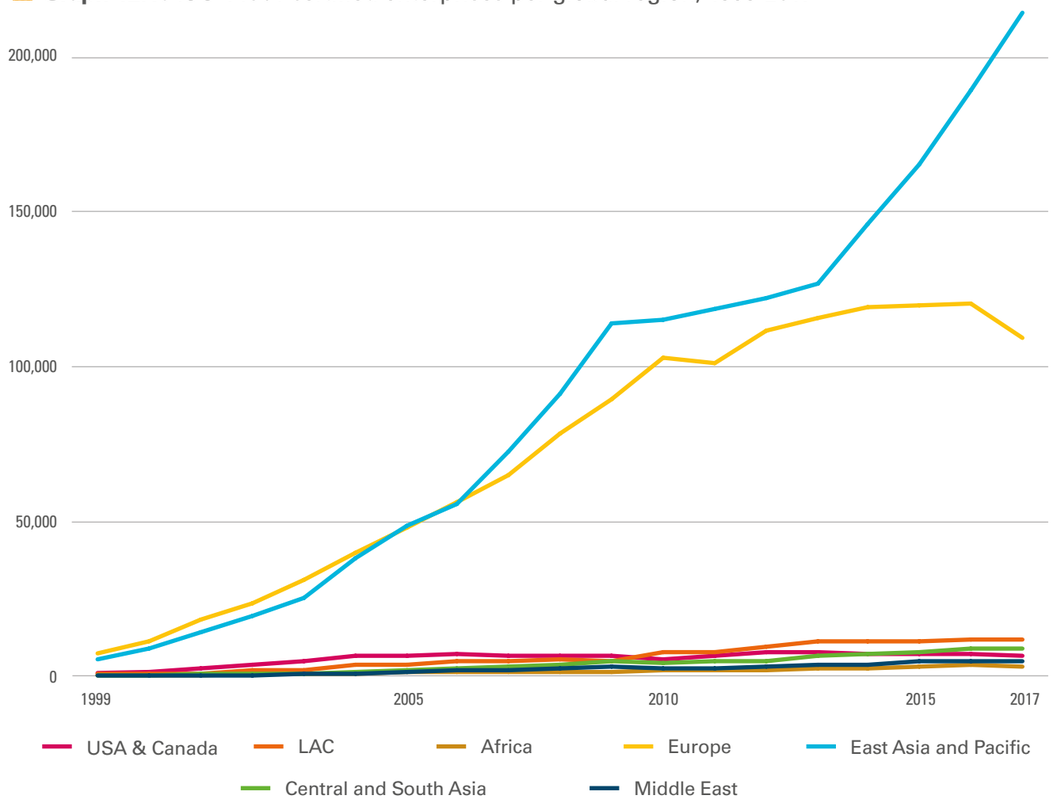
Encouraging companies to adopt more sustainable practices has been a growing concern in the region. In 2017, companies and institutions in the region submitted almost 900 sustainability reports, with three quarters of them coming from Argentina, Brazil, Colombia and Mexico (Graph 12.9). Furthermore, over the last 20 years, the number of companies certified under the environmental standard ISO 14001 grew from less than 400 to almost 12,000. However, this positive trend is far from the figures in Europe, East Asia and the Pacific (the latter with over 200,000 certified companies).

Graph 12.9 Companies´ sustainability reports in LAC countries, 2017



Source: GRI Database (2019)

Graph 12.10 ISO 14001 certified enterprises per global region, 1999-2017



Source: GRI Database (2019)

Companies that support sustainable development must ensure that practices in and out of their plants are environmentally friendly. In the picture, the first electric bus to operate at the **mining sector of Peru**.

© Javier Peón, AEDiVE Perú

SUSTAINABLE PUBLIC PROCUREMENT AND CITIZEN EDUCATION

Governmental budgets account for up to a third of the Gross Domestic Product (GDP) in some LAC countries (IDRC, 2015). Given their importance, sustainable public procurement has the potential to promote by example SDG 12 principles and engage other stakeholders, such as service providers, suppliers and civil society. To effectively contribute to the transition to more sustainable consumption patterns, it must be done in tandem with the inclusion of sustainable lifestyle curricula in education systems.

Table 12.2 Sustainable public procurement in 16 LAC countries

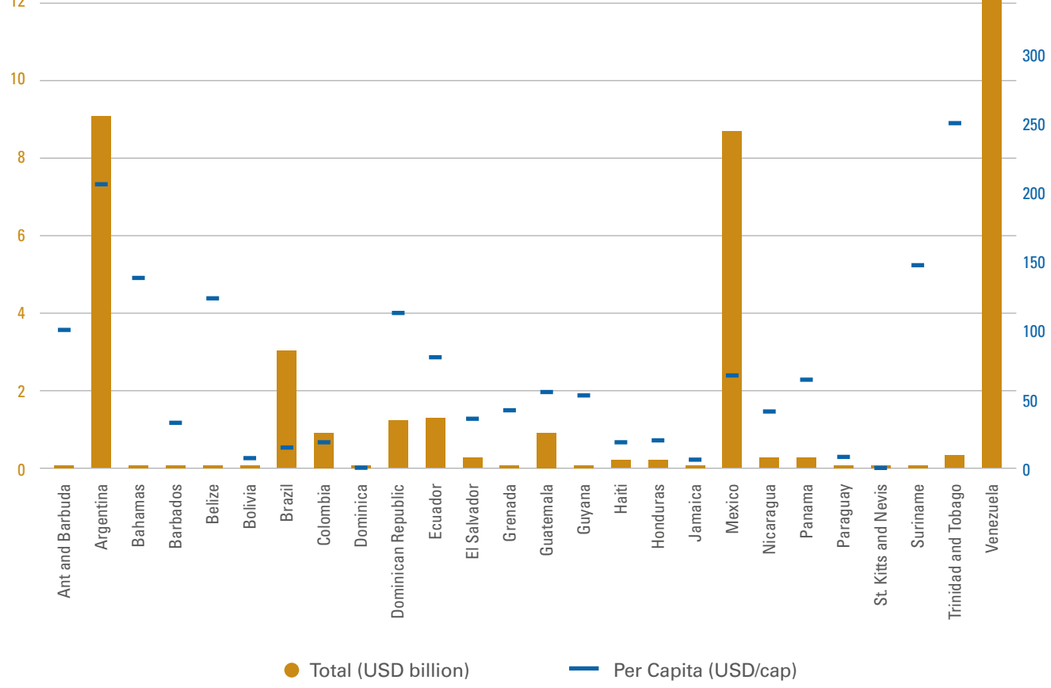
	SPP in overarching policy(ies)	SPP Regulations	Dedicated Platform	Dedicated Policy(ies) (year of the earliest)
Antigua & Barbuda	Yes			
Argentina	Yes	Yes	Yes	2012
Bolívia	Yes			
Brazil	Yes	Yes	Yes	2010
Chile	Yes	Yes	Yes	
Colombia	Yes	Yes	Yes	
Costa Rica			Yes	
Dominican Rep.	Yes	Yes		
Ecuador	Yes		Yes	
El Salvador	Yes			
Mexico	Yes	Yes		2013
Nicaragua	Yes		Yes	
Paraguay		Yes	Yes	2010
Peru		Yes	Yes	
Uruguay	Yes	Yes	Yes	
Venezuela (B.R.)	Yes			

Source: UNEP (2017b), One Planet Database (2019) and OAS (2015)

FOSSIL FUEL SUBSIDIES

The last SDG 12 indicator to be discussed here regards the rationalization of the fossil fuel industry, especially the subsidies that distort markets and result in negative environmental impacts. LAC has a great opportunity to promote environmental benefits by eliminating fossil fuel subsidies. In spite of this, the region still directs most of its energy subsidies to the oil and gas sectors (Coady et al., 2019).

Graph 12.11 Fossil fuel pre-tax subsidies in LAC countries, 2017 (consumption and production)



Source: UNSD (2020)

Related international agreements referring to environmental issues:

- Sendai Framework for Disaster Risk Reduction
- United Nations Framework Convention on Climate Change and related Paris Agreement

SDG 13 addresses one of the most daring challenges of our times. Increasing climate variability and climate change are already affecting human well-being, economies and, inevitably, ecosystem services in the region. An increasing number of disasters, coupled with poor land-use planning, poverty, and uncontrolled urbanization, exacerbate the effects and losses from climate change. Moreover, natural resources are at point where competing and increasing uses may lead to disputes, leading to more migration and displacement. Finally, the environment per se is suffering the effects of climate change with bushfires, the impacts of disasters and ecological imbalances and losses, with detrimental consequences for biodiversity and the availability of ecosystem services (water, carbon capture, protection from risks and productive soil, among others).

Four SDG 13 targets have a direct relation to the environment, addressing resilience and adaptation to climate hazards (target 13.1), climate change governance (13.2), climate change awareness (13.3) and financial support to developing countries (13.a).

SDG 13 ENVIRONMENTAL INDICATORS	
13.1.1	**Disasters: persons affected.** Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population
13.1.2	**Disaster risk reduction strategies.** Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030
13.1.3	**Disaster risk reduction for local government.** Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies
13.2.1	**Climate change action plans.** Number of countries with nationally determined contributions, long-term strategies, national adaptation plans, strategies as reported in adaptation communications and national communications
13.3.1	**Climate change education.** Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessmen
13.a.1	**Resources mobilized for climate action.** Amounts provided and mobilized in United States dollars per year in relation to the continued existing collective mobilization goal of the $100billion commitment through to 2025
13.b.1	**Climate action support for LDCs.** Number of least developed countries and small island developing States with nationally determined contributions,long-term strategies, national adaptation plans, strategies as reported in adaptation communications and national communications

● Change in a positive direction ● Change in a negative direction ● Little negative or positive change

● Insufficient data ● No data

Source: UNEP (2019e)

LAC is responsible for approximately one tenth of the global carbon footprint, roughly proportional to its global population share (UNEP – IRP, 2020). The region is expected to experience higher temperatures, drastic changes in precipitation patters and rising sea levels, as well as more frequent extreme weather events such as hurricanes and droughts. These climatic variations are predicted to affect human health, as well as national and regional economies, ecosystems and, inevitably, natural resource availability (IPCC, 2019). Moreover, the already occurring rise in sea levels will lead to more floods, coastal erosion and increased vulnerability to storms, particularly among Caribbean nations.

The region has been ranked among the most vulnerable to climate change in the world, with geographical exposure to climate variability and extreme weather events among the main contributing factors. About half of the population is estimated to reside in 'high' or 'extreme' risk areas, with most of these areas located in large cities and capitals. Caribbean and Mesoamerican countries, for instance, are located in the hurricane belt, with millions of people directly at risk (UNEP, 2016c). These subregions have the highest risks in the region due to geographical factors as well as socioeconomic variables that result in both exposure and vulnerability. In fact, **poverty and high inequality are the main variables** affecting populations´ level of risk as they influence social, physical and livelihood circumstances, such as household conditions, location and economic activities (CAF, 2014).

There has been significant progress made throughout the region in prioritizing and planning actions aimed at reducing GHG emissions and strengthening adaptation to climate change. All countries in the region have submitted their Nationally Determined Contributions (NDCs) to the UNFCCC. **In addition to their commitment to reduce GHG emissions, all NDCs in the region include sector priorities for adaptation to climate change.** Despite a decrease over the last 15 years in the LAC region, GHG emissions from deforestation and land use change continue to be a significant contributing factor to global warming (CEPALSTAT, 2020), worsened by forest fires, like those in the Amazon.

Ecosystem-based Adaptation initiatives strengthen climate change adaptation in zones like the Nor Yauyos Cochas Landscape Reserve, in Peru, by enhancing hydrological regulation and improving the quality of grasslands, for example.

© Mountain EbA (IUCN, UNDP, UNEP)

HYDROMETEOROLOGICAL DISASTERS

Data from the region indicates that the average number of disasters has increased over the last 20 years. Correspondingly, the number of victims has also increased, suggesting a rising trend in LAC vulnerability (Graph 13.1). Additionally, systematic information on the occurrence of small and medium-scale disasters is available for Latin American countries thanks to the Social Studies Network on Disaster Prevention in Latin America that, since 1994, has provided a Disaster Inventory System (DesInventar) with databases of losses, damages or impacts caused by emergencies or disasters.

Graph 13.1 Natural climate change related extreme events and disasters in LAC, 1990-2019

Source: CEPALSTAT (2020)

DISASTER RISK MANAGEMENT AND CLIMATE CHANGE GOVERNANCE

Measuring climate change and disaster risk management governance is a challenge. The United Nations Office for Disaster Risk Reduction (UNDRR) provides two separate approaches for the later. One determines if countries have a plan or policy in accordance with the Sendai Framework, while the other evaluates the existence of a National Platform or National Focal Points dealing directly with the Sendai Framework.

Apart from these national level efforts, the **Caribbean Disaster Emergency Management Agency** (CDEMA) is a regional intergovernmental agency for disaster management in the Caribbean Community (CARICOM) aimed at advancing Comprehensive Disaster Management (CDM) to reduce the risk and losses associated with natural and technological hazards and the effects of climate change to enhance regional sustainable development.

Graph 13.2 Disaster Risk Reduction governance in LAC countries, 2019

	NP	FP	NP SF
Antigua and Barbuda	✗	✓	✗
Argentina	✗	✓	✓
Bahamas, The	✗	✗	✗
Barbados	✗	✗	✗
Belize	✗	✗	✗
Bolivia	✗	✓	✓
Brazil	✗	✓	✗
Chile	✗	✗	✓
Colombia	✗	✓	✓
Costa Rica	✗	✓	✓
Cuba	✗	✗	✗
Dominica	✗	✗	✗
Dominican Republic	✗	✓	✓
Ecuador	✓	✓	✗
El Salvador	✗	✗	✗
Grenada	✗	✓	✗
Guatemala	✗	✗	✗
Guyana	✗	✓	✓
Haiti	✗	✗	✗
Honduras	✗	✓	✗
Jamaica	✗	✗	✓
Mexico	✗	✓	✗
Nicaragua	✓	✗	✗
Panama	✓	✗	✗
Paraguay	✓	✓	✓
Peru	✓	✓	✓
St Kitts y Nevis	✗	✓	✗
St Vincent and the Grenadines	✗	✗	✗
St Lucia	✗	✗	✗
Suriname	✗	✗	✗
Trinidad and Tobago	✗	✓	✗
Uruguay	✗	✗	✗
Venezuela (B.R.)	✗	✓	✗

NP: National Platforms for Disaster Risk Reduction; **FP:** National Focal Points to support the Sendai Framework implementation;
NP SF: National Plans in accordance with the Sendai Framework
Source: Internal consults with UNDRR

With respect to climate governance, many countries in the region have advanced different policy options to address this issue (refer to Appendix 1 for a complete list). Twenty-three States currently have an instrument to regulate and/or manage climate change. More than half (16) have approved a national plan, while seven have issued national laws on this matter, and two more countries are preparing regulations.

VULNERABILITY

Vulnerability to climate change is not one of the SDG indicators agreed upon globally. However, due to its importance for the region, it was prioritized by the **Latin America and the Caribbean Initiative for Sustainable Development** (ILAC). A country's or region's vulnerability to climate impacts depends on several factors that can influence the effects and outcomes of such changes. The **Climate Change Vulnerability Index** (CCVI) evaluates the risk of exposure to climate change or extreme weather events. In the region, the Caribbean and Central America have the highest levels of exposure.

Table 13.1 Climate Change Vulnerability Index by country*

		INDEX			INDEX
1	Haiti	0,58	18	Peru	4,98
2	Guatemala	0,75	19	Panama	5,57
3	El Salvador	0,79	20	Antigua and Barbuda	5,64
4	Honduras	0,92	21	Brazil	5,77
5	Dominican Republic	1,01	22	Suriname	5,85
6	Nicaragua	1,19	23	St Kitts and Nevis	6,24
7	Jamaica	1,50	24	Argentina	6,66
8	Paraguay	1,58	25	Trinidad and Tobago	7,22
9	Belize	2,25	26	Costa Rica	7,70
10	Bolivia	2,48	27	St Lucia	8,25
11	Venezuela (B.R.)	3,64	28	Uruguay	8,33
12	Ecuador	3,76	29	Bahamas, The	8,68
13	Dominica	3,85	30	Chile	9,54
14	Cuba	3,90	31	Grenada	9,58
15	Guyana	4,23	32	St Vincent and the Grenadines	9,63
16	Colombia	4,30	33	Barbados	9,77
17	Mexico	4,47			

* Scale of 0 to 10, where values closer to 0 represent higher risk
Source: CAF (2014)

FINANCING MECHANISMS

Climate financing offers the **best opportunity** for vulnerable LAC countries to build resilience and reduce emissions. The climate crisis is not only an environmental or social issue; it is indeed a financial risk for the whole economy (KCL/UNEP, 2019). Funds are accessible through several mechanisms, like blend investments, international cooperation or fintech and mobile banking platforms.

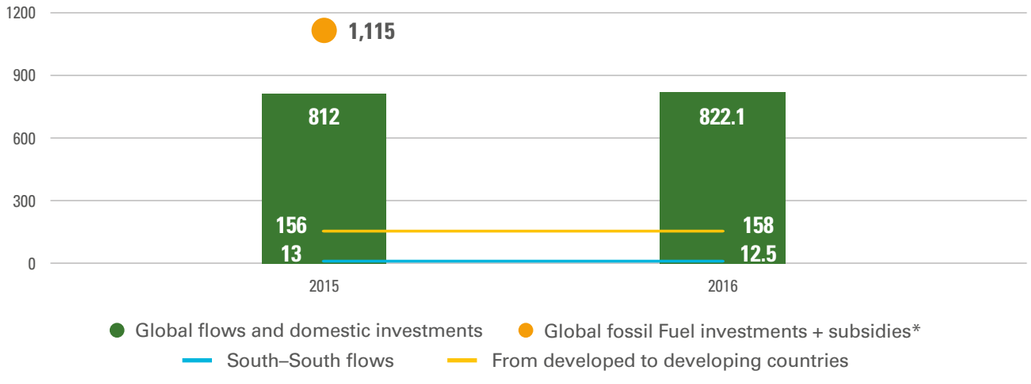
Global agreements and negotiations highlight the importance of financial coping strategies. There are several international mechanisms, including: the **Global Environmental Facility** (GEF), the **Green Climate Fund** (GCF), the **Special Climate Change Fund** (GCF), the Least Developed Countries Fund (LDCF) and the Adaptation Fund (AF). While the Green Climate Fund has over 22 projects in the region, allocations are still being defined as the Fund achieves its replenishment goals. GEF is now in its 7th cycle of implementation, where all countries of the region can count on at least one approved project related to climate change related issues.

Table 13.2 LAC climate-aligned bond issuances, by country (2014 - 2017)

	No. issuances	Amount (USD million)	% of amount issued
Brazil	8	3,154	37%
Mexico	8	2,997	35%
Argentina	2	550	7%
Chile	1	500	6%
Costa Rica	1	500	6%
Colombia	3	332	4%
Supranational	2	210	3%
Peru	1	204	2%
TOTAL	26	8,447	

Source: ECLAC, 2017c

Graph 13.3 Climate change finance flows, 2015/16 (USD billion)

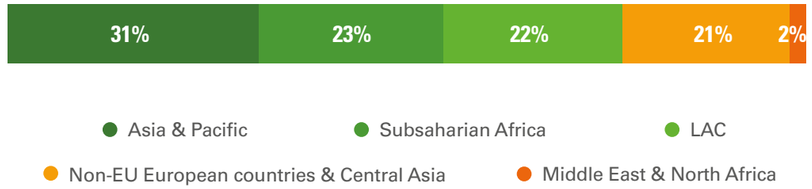


Note: values are estimatives, based on medium bonds when applicable. *Investments in 2016 & subsidies in 2015

Source: UNFCCC (2018)

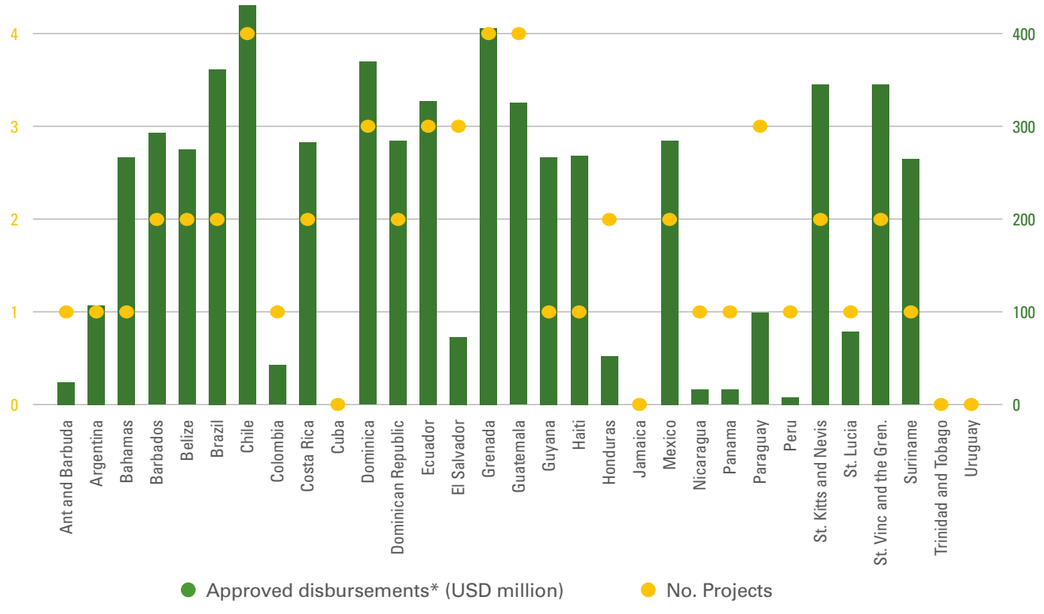
In its **2018 Biennial Assessment Report, the UNFCCC** shared consolidated numbers for climate finance in the world. Global flows for climate change projects remained basically the same in 2015 and 2016. Notwithstanding, financial support from developed to developing nations still represents only 20% of global climate financial flows and LAC receives approximately 10% of these disbursements. These figures consider disbursements from **Annex II (24) to non-Annex I (154)** countries, through bilateral, regional and other channels.

Graph 13.4 Public climate finance from multilateral climate funds, per global region (2015-16)



Source: UNFCCC (2018)

Graph 13.5 Panorama of LAC countries on Green Climate Fund portfolio (as of Mar/20)



* Including financing of projects and readiness support. Some projects involve more than one state, so values may be ovelapped

Source: GCF Website (2020)

Related international agreements referring to environmental issues:

- Agreement for the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks
- Antigua Convention for the Strengthening of the Inter-American Tropical Tuna Commission
- Cartagena Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region
- Lima Convention for the Protection of the Marine Environment and Coastal Area of the South-East Pacific
- The RAMSAR Convention on Wetlands

Despite covering 70% of our planet, we still do not fully appreciate the importance of oceans for human life. Without the services and benefits provided by marine ecosystems, human survival would be at risk, as they are a platform for food production, transportation, leisure and cultural activities. Despite such importance, there are serious threats to marine resources. For example, around 80% of global fish stocks are either diminishing or currently fully exploited (FAO, 2018f).

The sustainable management of our oceans is an important goal in the 2030 Agenda. SDG 14 offers a pathway to improve the way we use our marine resources, addressing themes like pollution, fishing, governance and ecosystem management in a broad approach that includes protecting coastal areas that can be integrated within broader fisheries management frameworks for the sustainable use of marine resources, especially for small-scale fisheries (FAO, 2018f).

All SDG 14 targets have a direct relation to the environment, addressing the following areas: combating marine pollution (target 14.1), protection of marine and coastal ecosystems (14.2), minimizing ocean acidification (14.3), encouraging sustainable fishing to preserve fish stocks (14.4), conservation of at least 10 per cent of coastal and marine areas (14.5), elimination of harmful fisheries subsidies (14.6), increasing the economic benefits from marine resources among SIDS and Least Developed Countries (LDCs) (14.7), increasing scientific knowledge on marine affairs (14.a), improving market access for small-scale fisheries (14.b) and providing a sound global legal framework for the sustainable use of oceans (14.c).

SDG 14 ENVIRONMENTAL INDICATORS	
14.1.1	**Marine pollution and coastal eutrophication.** (a) Index of coastal eutrophication; and (b)plastic debris density
14.2.1	**Management of marine areas.** Number of countries using ecosystem-based approaches to managing marine areas
14.3.1	**Ocean acidification.** Average marine acidity (pH) measured at agreed suite of representative sampling stations
14.4.1	**Sustainable fish stocks.** Proportion of fish stocks within biologically sustainable levels
14.5.1	**Marine protected areas.** Coverage of protected areas in relation to marine areas
14.6.1	**Fishing regulations.** Degree of implementation of international instruments aiming to combat illegal, unreported and unregulated fishing
14.7.1	**Fisheries subsidy economic benefits for SIDS and LDCs.** Sustainable fisheries as a proportion of GDP in small island developing States (SIDS), Least Developed Countries (LDC) and all countries
14.a.1	**Scientific knowledge, research capacity and transfer of marine technology.** Proportion of total research budget allocated to research in the field of marine technology
14.c.1	**Instruments for conservation and sustainable use of oceans and their resources.** Number of countries making progress in ratifying, accepting and implementing through legal, policy and institutional frameworks, ocean-related instruments that implement international law, as reflected in the United Nations Convention on the Law of the Sea, for the conservation and sustainable use of the oceans and their resources

Change in a positive direction · Change in a negative direction · Little negative or positive change · Insufficient data · No data

Source: UNEP (2019e)

Marine environments are very important in the LAC region, since 31 of the 33 LAC countries have ocean coastlines. The level of importance is even higher in the case of Small Island Developing States (SIDS), as marine resources make fundamental economic and social contributions. The Caribbean, for instance, is the most tourism-dependent region in the world (World Bank, 2019a).

Ecological imbalances are at the core of marine environmental challenges. Coral reef degradation, acidification and eutrophication imply, among other things, losses in biodiversity and an increase in marine pollution. Population growth, urbanization and climate change are factors that affect the region´s oceans and seas, mainly in countries highly dependent on their resources. Moreover, oceans also represent a challenge for governance, since most marine challenges involve dominion over international waters, the control of overfishing pressures and the global trade of marine products.

Large Marine Ecosystems (LMEs) provide an opportunity for enabling transnational ecosystem-based management as a collaborative approach for the sustainable use of marine resources. LMEs are ocean regions encompassing coastal areas from river basins and estuaries to the boundaries of continental shelves. Three of the world's LMEs are found on South American coasts (IPS, 2015). This is important not only from an environmental perspective, but also from a socioeconomic one, as marine resources provide at least USD 450 billion in revenues from direct services each year in the region (TWAP Portal, 2019).

MARINE POLLUTION AND COASTAL EUTROPHICATION

Marine pollution is the result of the deliberate or accidental discharge of untreated wastewater and solid waste and contaminated runoff from a variety of land-based and marine activities (UNEP, 2017d). There is a direct relationship between the amount of pollution entering the region's oceans and how many people live along the coasts (World Bank, 2019a). In LAC, challenges are significant since the proportion of coastal population is quite high, and there are large cities located on the coast. The proportion can be nearly 100% on some Caribbean Islands (IDB, 2018a), where sewage systems are insufficient.

Today, plastic pollution is an important issue, and three of the world's main areas for plastic waste concentration are near LAC shorelines. Just 5% of the world's plastic is produced in LAC, but the region imports billions of tonnes annually, some of which ends up in the sea as garbage (IPS, 2018). The largest concentration of plastic waste in national marine waters in the region is found close to the United States of America and the Gulf of Mexico (Graph 14.1).

Three-quarters of the LAC population lives within 200 kilometers of the coast (Ayyam et al., 2019).

Graph 14.1 Floating plastic distribution in LAC, c. 2008 (model output)

Source: TWAP Portal (2019)

More than 80% of the untreated Caribbean sewage enters the Caribbean Sea, making it the primary source of land-based marine pollution (UNEP, 2017d).

70% to 85% of the garbage in the Caribbean Sea comes from land sources, and most of it consists of plastics (UNEP, 2019f).

Abandoned, lost or otherwise discarded fishing gear (ALDFG) is also a main source of marine garbage. It has become a common source of marine pollution with the increasing use of plastic and nylon gear. ALDFG can kill seabirds, marine mammals, shellfish and fish by entanglement or ingestion, as lost fishing gear continues to function while unattended, with negative environmental impacts. ALDFG can also damage seabeds and coral reefs and, when washed ashore, pollute beaches and shorelines. Based on primary data, the Caribbean is the LAC subregion where almost all the ALFDG is encountered (GGGI, 2020). A Caribbean study reported that the majority of ALDFG was found underwater (60%), and traps were the most common type of gear (World Bank, 2019a); while another study demonstrates that 85% of people engaged in fishing activities in the Caribbean region recognize ALDFG as a serious local problem (GCFI, 2009).

Annually, approximately half of the 40,000 traps in the Caribbean and one quarter of the 1 million commercial fishing traps in the Gulf of Mexico are estimated to be lost (World Animal Protection, 2014).

Other impacts of plastics on fauna have to do with particles under 5mm in size (microplastics) ingested by marine life and plastics that entangle animals. These are being increasingly reported and the trend is growing (FAO, 2017b). Plastics contain a mixture of chemicals that represent a serious hazard in the marine environment since they enter the food chain, sometimes even reaching humans. A number of LAC countries are banning single-use plastics, as well as adopting a combination of policy and infrastructure measures to deal with this issue.

Table 14.1 The nineteen LAC countries engaged in the global Clean Seas Campaign

Ant & Barbuda	Ecuador
Argentina	Grenada
Barbados	Guyana
Belize	Honduras
Brazil	Panama
Chile	Paraguay
Colombia	Peru
Costa Rica	St Lucia
Dominican Republic	Trinidad & Tobago
	Uruguay

Source: Clean Seas website (as of Feb/2020).

Blue Economy Strategies in the Caribbean, promote sustainable consumption and production, as well as the conservation and sustainable use of natural capital, recognizing the interdependence of productive sectors (tourism, fisheries, transport, agriculture, energy).

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Another environmental pollution concern is eutrophication. This process is the result of chemical pollution, usually from human activities, such as the discharge of untreated sewage, agricultural fertilizer runoff and industrial effluents. Eutrophication raises the level of nutrients in the water and makes it difficult for seabed plants to carry out photosynthesis, which, in consequence, lowers the oxygen levels of the ocean, killing other marine species. Moreover, the phenomenon also results in bad smells and turbid marine waters, impacting leisure and tourism economic activities. Projections have shown that by 2050, eutrophication will continue to rise in Latin America, with agriculture continuing to be one of the main contributing sources (Flachsbarth et al., 2015).

A "sargassum invasion" has been occurring frequently on Caribbean beaches over the last decade, resulting in huge economic losses in the fishing and, especially, the tourism sector. The causes are still uncertain, but it is likely a combination of climate change, cleanup efforts from the Gulf of Mexico oil spill, high concentrations of nutrients from South American rivers, sargassum bloom and land-based nutrients and pollutants from fertilizers and sewage. The sargassum cleanup in Caribbean could cost as much as USD 120 million (UNEP, 2015b).

OCEAN ACIDIFICATION

Oceans have a great capacity for absorbing CO_2, and due to the increase in CO_2 emissions, there is about 60 times more concentration in the ocean than in the atmosphere. Small changes in CO^2 concentration have resulted in ocean acidification and significant alterations in marine ecosystems, with massive environmental impacts. Changes in pH levels can make it impossible for certain animals to build their shells or skeletons with calcium.

Caribbean islands have observed decreasing pH levels for the last 20 years, and calcium carbonate saturation of seawater has declined by approximately 3% per decade.

In the colder waters of northern Chile, reduced shell calcification has been observed in conjunction with a 25% reduction in the growth rate of cultured scallops.

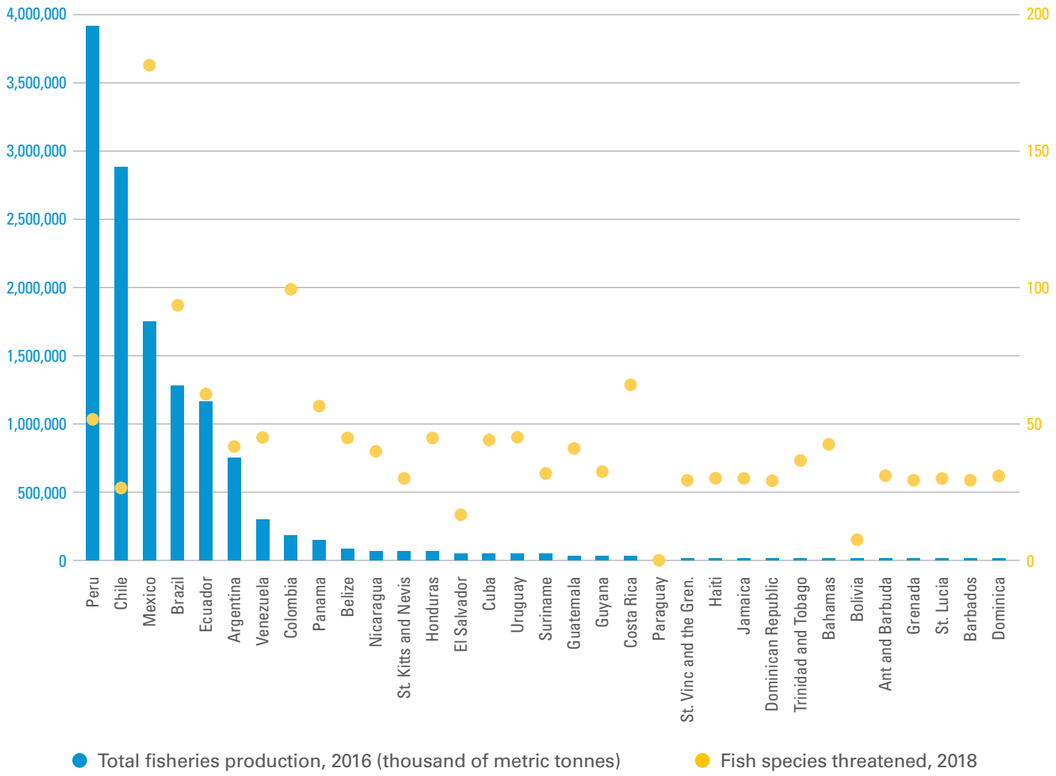
In Patagonian waters, studies indicate that ocean acidification will reduce biomass production of mussel aquaculture by between 20% and 30%.

Source: IUCN (2018)

MARINE FISH STOCKS

Marine and inland fisheries, together with aquaculture, are a source of income for approximately 2.5 million people in LAC. The sector contributes to food security and nutrition, economic growth and poverty alleviation. Nonetheless, it also has important environmental consequences. Between 1990 and 2000, fishery production grew at a rate of approximately 20% per year in LAC, and more recently the trend has followed a bumpy trajectory (FAO, 2016f). Currently, the main regional cultures include salmonids, marine shrimp and tilapia (FAO, 2019c). By 2030, contrasting with the still weak participation in the global fisheries global chains, the LAC region is expected to have one of the highest production growth rates: 33 % (FAO, 2018b).

Graph 14.2 Fisheries production and threatened fish species in LAC countries, 2016/2018

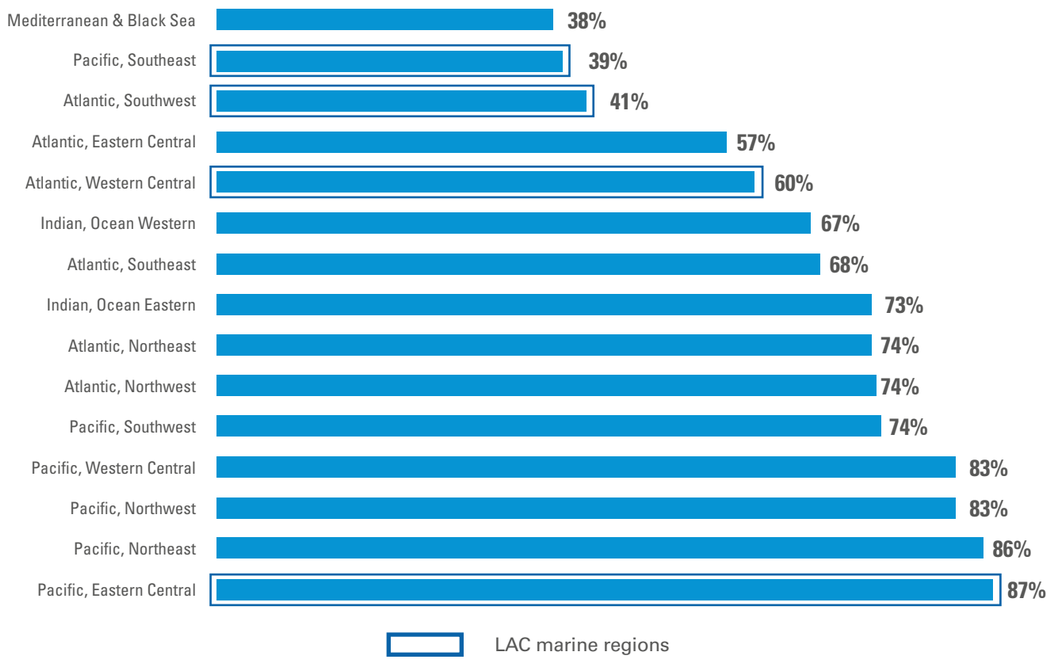


Source: World Bank (2020)

Despite the growing number of aquaculture sites, the reliance on wild natural resources is still greater than 90% in the region. With the advent of concepts like LMEs and Maximum Sustainable Yield (MSY), societies are striving to keep the fish capture levels within sustainable limits.

Small and artisanal fishermen are often part of communities identified as vulnerable. When small scale fishing uses unsustainable practices, it can also pose a threat to ecosystems and marine species stocks (Salas et al., 2019). However, big fishing companies are one of the main pressures on small scale and sustainable fishing. In contrast to large industries, the artisanal sector has very limited access to subsidies and usually use traditional practices that are more respectful of the environment.

Graph 14.3 Proportion of fish stocks within biologically sustainable levels, by marine region (2015)



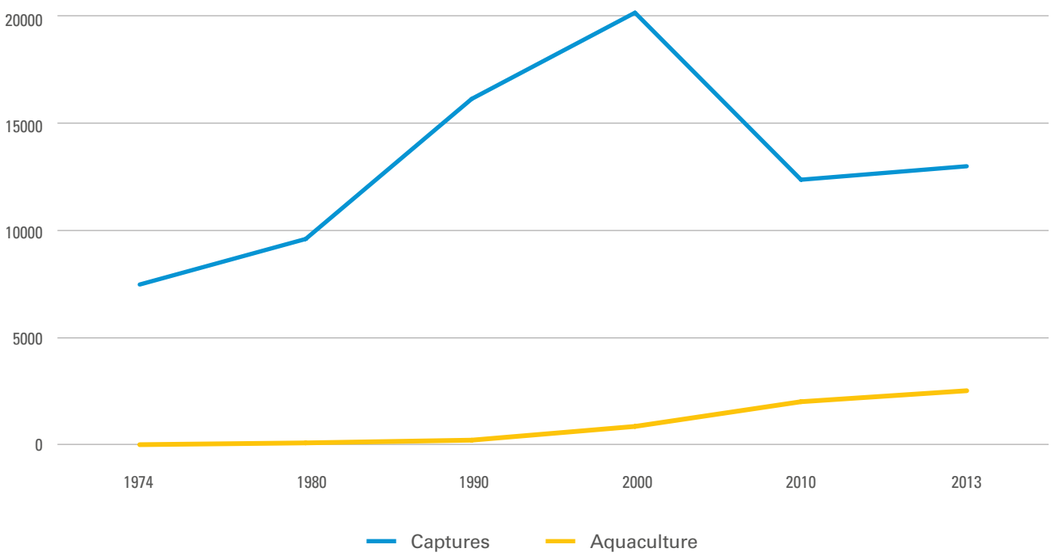
Source: UN (2019)

Almost 90% of all motorized fishing vessels in LAC are considered small scale
(Salas et al., 2019).

In order to meet the growing demand, the practice of aquaculture has been increasing over the last decades. By 2030, aquaculture production is projected to expand on all continents, with major increases expected in Latin America, where it is expected to grow by 49%, from 2.7 million to over 4 million metric tonnes (FAO, 2018b).

Limited resource aquaculture (equivalent to family agriculture) is practiced by more than 100,000 families in the region (FAO, 2019c).

Graph 14.4 Fishing by capture and aquaculture in LAC, 1974-2013 (thousand of tonnes)



Source: FAO (2016c)

The use of more intensive production systems has raised ecological concerns, especially with respect to the application of environmental standards, as well as genetic and pathogenic issues. The weather has a strong impact on these cultures, particularly in coastal areas, where climate change and El Niño events represent a significant risk to aquaculture enterprises. The culture of shrimp, among the top three aquaculture outputs, has raised great environmental concerns over mangrove destruction, water pollution, culture periods and the salinity of agricultural land, among others. Despite the complexity of aquaculture environmental regulation, it is important to implement mechanisms to control the quantity and quality of effluents and sediments generated by these systems. These concerns have become the limiting factor for the expansion of the shrimp industry in Latin America (NACA/FAO, 2001).

FISHERIES SUBSIDIES AND FISHING REGULATIONS

For the other side, harmful fishing subsidies enable industrial fishing fleets to travel to the coastal waters of developing countries and out-compete artisanal fishermen. Without subsidies and/or labour compensation, more than half of the currently fished offshore fishing grounds would be unprofitable at present exploitation rates (Sala et al., 2018).

Illegal, Unreported and Unregulated (IUU) fishing also represents a threat to environmentally sound fishing activities, either in the short, medium or long term (The Fish Site, 2016). IUU fishing impedes the reliable assessment of fish stocks and quantities of species captured. With three out of the four LAC marine regions presenting over 40% of fishing overexploitation rates (FAO, 2018f), if we take into account IUU fishing, this figure is likely to be much higher.

The Agreement on Port State Measures (PSMA) seeks to combat illegal fishing both through practical measures and inspection to ensure the legal origin of fish products. Fourteen LAC countries have ratified the agreement: The Bahamas, Barbados, Chile, Costa Rica, Cuba, Dominica, Ecuador, Grenada, Guyana, Panama, Peru, Saint Kitts and Nevis, Saint Vincent And The Grenadines and Uruguay.

Table 14.2 LAC countries backing the UNCTAD - FAO - UNEP Initiative on Fishery Subsidies: regulating fisheries subsidies must be an integral part of the implementation of the 2030 agenda (2016)

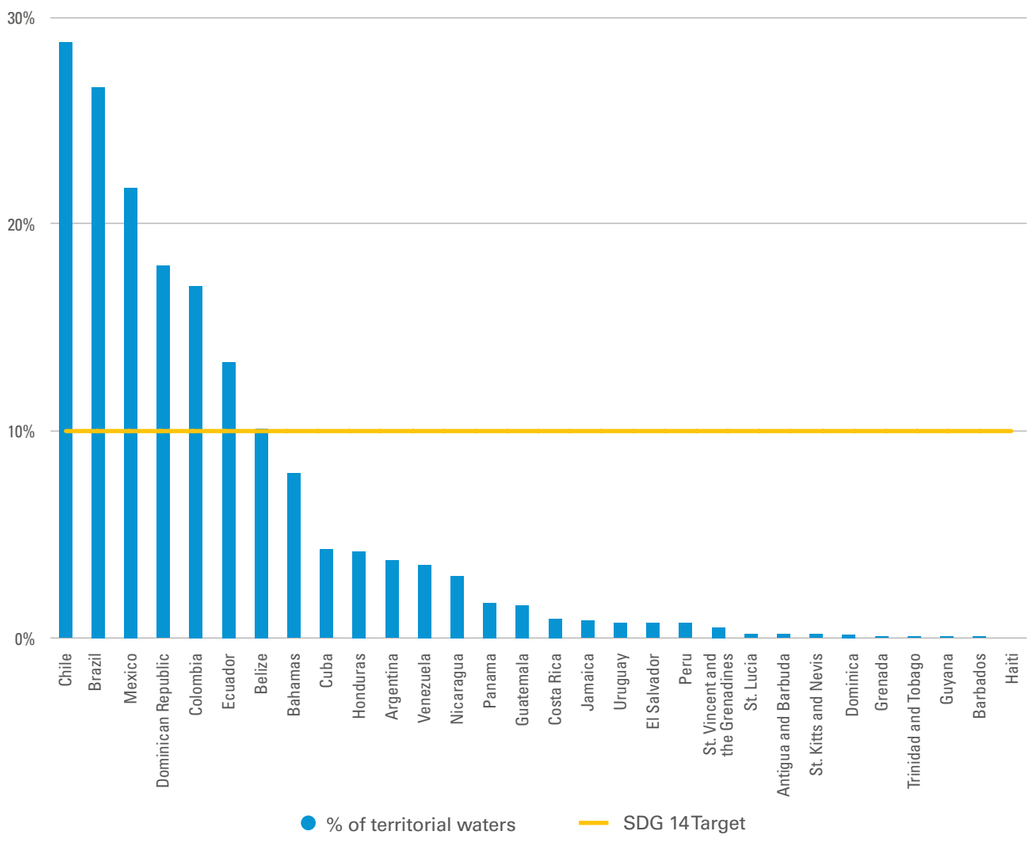
Antigua and Barbuda	Guyana
Argentina	Haiti
Bahamas	Jamaica
Barbados	Panama
Belize	Paraguay
Chile	Peru
Cuba	St. Kitts and Nevis
Dominica	St. Lucia
Dominican Republic	St. Vincent and the Grenadines
Ecuador	Suriname
Grenada	Trinidad and Tobago

Source: UNCTAD/FAO/UNEP (2016)

MARINE MANAGEMENT

Latin America and the Caribbean have 746 marine protected areas covering 300,000 square kilometers, and several countries have committed to expanding them (UNDP, 2017). In the region, only seven countries have met the target of having a minimum of 10% of protected coastal areas. Marine management requires a broader approach, beyond a mere governmental administrative perspective; it must also consider other issues like international guidance, research investments, new sustainable economic systems and protection of in-shore and off-shore waters.

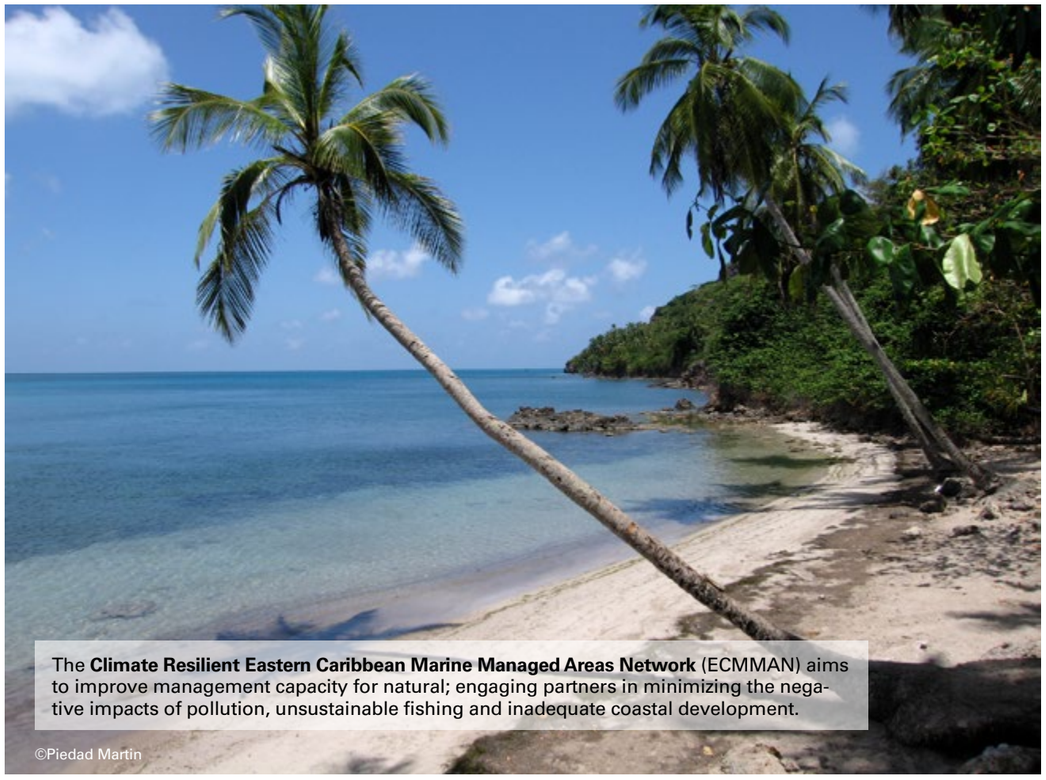
Graph 14.5 Marine protected areas in LAC countries, 2017



Source: World Bank (2020)

Given their transboundary nature, marine resources depend highly on international cooperation to ensure their environmental quality and sustainable exploitation. The growing human demand for marine resources increases pressures, and countries in the region must undertake collective and coordinated actions to ensure the protection of marine systems. Regional agreements are needed for both the conservation of resources as well as legal frameworks for an environmentally sustainable and fair global trade.

An outstanding approach to integrated and sustainable ocean management is the Sustainable Ocean Based Economy/Blue Economy, which is based on ecological foundations and promotes marine resource capital. The approach focuses on the five biggest sectors that use marine resources: fishing, aquaculture, tourism, marine transportation and energy. Recently, marine mining has also been included, due to the growing demand for mineral resources found on the seabed. The blue economy encourages countries to adopt an integrated approach at the macroeconomic level, where harmful subsidies need to be ended. Moreover, social and environmental aspects must be considered, not only in quantitative assessments, but also in qualitative ones, considering, for instance, not only fish stocks, but also the ecosystem balance. The Blue Economy also takes into consideration the importance of oceans to SIDS and LDCs and seeks to use this new development pathway to reduce differences between developed and developing nations.



The **Climate Resilient Eastern Caribbean Marine Managed Areas Network** (ECMMAN) aims to improve management capacity for natural; engaging partners in minimizing the negative impacts of pollution, unsustainable fishing and inadequate coastal development.

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Related international agreements referring to environmental issues:

- Convention on Biological Diversity (CBD)
- The Cartagena Protocol on Biosafety
- The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization
- Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)
- Convention on the Conservation of Migratory Species of Wild Animals
- International Plant Protection Convention
- International Treaty on Plant Genetic Resources for Food and Agriculture
- The Ramsar Convention on Wetlands
- United Nations Convention to Combat Desertification
- United Nations Framework Convention on Climate Change

Human survival has always depended on biodiversity and ecosystem services. Nature provides a wide range of goods and services; clean air, food, water and energy are just a few of them. It also enables other activities, like providing the raw materials for production and manufacturing, supporting cultural and recreational activities and providing substances for medicinal purposes. There are still other ecosystem services, not so widely known, but of equal importance, like carbon capture (essential to combat climate change), protection from disaster risks (by controlling water flows and erosion), regulating temperature and the natural control of animal-related diseases that may be transmitted to humans.

SDG 15 recognizes the responsibility to ensure that nature's essential goods and services are available for the following generations and aims to protect and restore this ecological wealth for sustainable use. All of the 12 targets are related to the environment, addressing: terrestrial and inland freshwater ecosystems (target 15.1), forest management (15.2), combating land degradation (15.3), mountain ecosystem conservation (15.4), protection of biodiversity (15.5), fair sharing of benefits from genetic resources (15.6), combating flora and fauna poaching and/or illegal trafficking (15.7), reduction of invasive species cases (15.8), inclusion of ecosystem and biodiversity values in public planning (15.9), increasing of financial resources for ecosystem and biodiversity conservation (15.a), financing for sustainable forest management (15.b) and more global support to combat wildlife poaching and illegal trafficking (15.c).

With the participation of 11 indigenous associations and more than 200 community forest organizations, the **National Indigenous Forestry Association** ensures the sound management of over 2 million hectares of forests in Bolivia.

© Asociación Forestal Indígena Nacional de Bolivia

SDG 15 ENVIRONMENTAL INDICATORS	
15.1.1	**Forest area.** Forest area as a proportion of total land area
15.1.2	**Protection of key biodiversity areas.** Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type
15.2.1	**Forest area annual net change rate.** Progress towards sustainable forest management
15.3.1	**Land degradation.** Proportion of land that is degraded over total land area
15.4.1	**Mountain protected areas.** Coverage by protected areas of important sites for mountain biodiversity
15.4.2	**Mountain green cover.** Mountain Green Cover Index
15.5.1	**Endangered species.** Red List Index
15.6.1	**Strategies for sharing biodiversity benefits.** Number of countries that have adopted legislative, administrative and policy frameworks to ensure the fair and equitable sharing of benefits
15.7.1	**Trade in poached or illicitly trafficked wildlife.** Proportion of traded wildlife that was poached or illicitly trafficked
15.8.1	**Strategies for preventing alien species invasions.** Proportion of countries adopting relevant national legislation and adequately resourcing the prevention or control of invasive alien species
15.9.1	**Progress towards Aichi Biodiversity Target 2.** (a) Number of countries that have established national targets in accordance with or similar to Aichi Biodiversity Target 2 of the Strategic Plan for Biodiversity 2011–2020 in their national biodiversity strategy and action plans and the progress reported towards these targets; and (b) integration of biodiversity into national accounting and reporting systems,defined as implementation of the System of Environmental-Economic Accounting
15.a.1	**Investment in biodiversity and ecosystems.** (a) Official development assistance on conservation and sustainable use of biodiversity; and (b) revenue generated and finance mobilized from biodiversity-relevant economic instruments
15.b.1	**Investment in sustainable forests.** (a) Official development assistance on conservation and sustainable use of biodiversity; and (b) revenue generated and finance mobilized from biodiversity-relevant economic instruments
15.c.1	**Protection against poaching, trafficking and trade.** Proportion of traded wildlife that was poached or illicitly trafficked

● Change in a positive direction ● Change in a negative direction ● Little negative or positive change
● Insufficient data ● No data

Source: UNEP (2019e)

SDG 15 is of special importance for the LAC region, as it contains 40% of global biodiversity and several megadiverse countries. LAC is the most biologically diverse region in the world (IPBES, 2018) and home to the largest tropical forest and one of the biggest mountain ranges. Mountains are a notable part of the landscape even in the Caribbean oceanic region, due to its common volcanic origins. Demographic trends, economic growth and weak governance in the region represent the main threats to these natural assets (ibid.) that also sustain economic and social welfare. Parallel issues like ecosystem degradation, traffic of wildlife, biological imbalances and desertification explain why this SDG is of great importance for the people of the region.

ECOSYSTEMS AND BIODIVERSITY

Ecosystems have been very much affected by human activities since the Industrial Revolution (IUCN, 2019a), and biodiversity suffers the most from these impacts. Biological species and populations are the crucial pillar to ecosystem balance (IPBES, 2018). Ecosystem and biodiversity losses can have serious consequences for human wellbeing and survival, as well as economic viability (Tsioumani, 2019). The LAC region has eleven of Earth's fourteen terrestrial biomes, with tropical and subtropical ones covering almost half of the region. Indigenous peoples, with strong historical and territorial ties, have had a crucial role in protecting most of these ecosystems (Campbell, 2019).

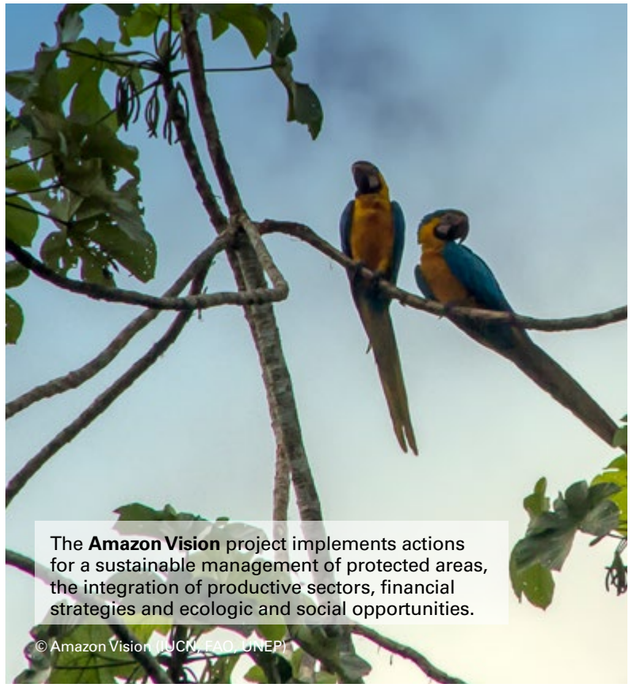
The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) released a Regional Assessment Report on Biodiversity and Ecosystem Services for the Americas demonstrating that the environment contributes more to human wellbeing in the Americas than in other regions, and that the economic value of this contribution is estimated as being over USD 24 trillion per year - equivalent to the GDP of the United States. The IPBES adds that human activities to satisfy increasing demands is leading to natural resource overexploitation, above sound ecological limits. This generates imbalances between social, economic and environmental needs. Overexploitation is also leading to a decline in biodiversity and ecosystems, making it difficult to attain the Aichi Biodiversity Targets and 2030 Agenda goals. The International Union for Conservation of Nature's "Red List of Threatened Species" is the most comprehensive information source to measure the global conservation status of animal, fungi and plant species. The 2030 Agenda uses this well-established tool to measure changes in biodiversity extinction risk in countries, ranging from 1 (all species are categorized as 'Least Concern') to 0 (all species are categorized as 'Extinct').

Unfortunately, all LAC countries have worse rates today than 25 years ago, with the worst rates currently found in Mesoamerica and the Caribbean. To reverse this situation, SDG 15 also evaluates the proportion of key biodiversity areas (KBAs) under protected status. The number of protected KBAs rose 17% in the 1970-2010 period, but still less than one fifth of these zones are protected (IPBES, 2018).

Table 15.1 LAC countries Red List Index

	2019	Variation (1993-2019)
Cuba	0.65	-4%
Dominica	0.67	-10%
Mexico	0.67	-8%
Ecuador	0.67	-15%
Bahamas	0.70	-4%
Guatemala	0.72	-5%
Haiti	0.72	-6%
Jamaica	0.72	-5%
Peru	0.72	-1%
St Kitts and Nevis	0.73	-4%
Panama	0.73	-7%
Dominican Rep.	0.73	-5%
Colombia	0.73	-6%
Belize	0.74	-7%
Honduras	0.74	-5%
Chile	0.75	-11%
Grenada	0.76	-1%
St V & the Grenad.	0.77	-2%
Trin & Tobago	0.81	-3%
Costa Rica	0.82	-4%
Venezuela (B.R.)	0.82	-5%
El Salvador	0.82	-4%
Uruguay	0.83	-1%
Saint Lucia	0.84	-6%
Nicaragua	0.85	-4%
Argentina	0.86	-1%
Bolivia	0.87	-1%
Ant & Barbuda	0.89	-6%
Brazil	0.90	-2%
Barbados	0.91	-1%
Guyana	0.92	0%
Paraguay	0.95	0%
Suriname	0.98	-1%

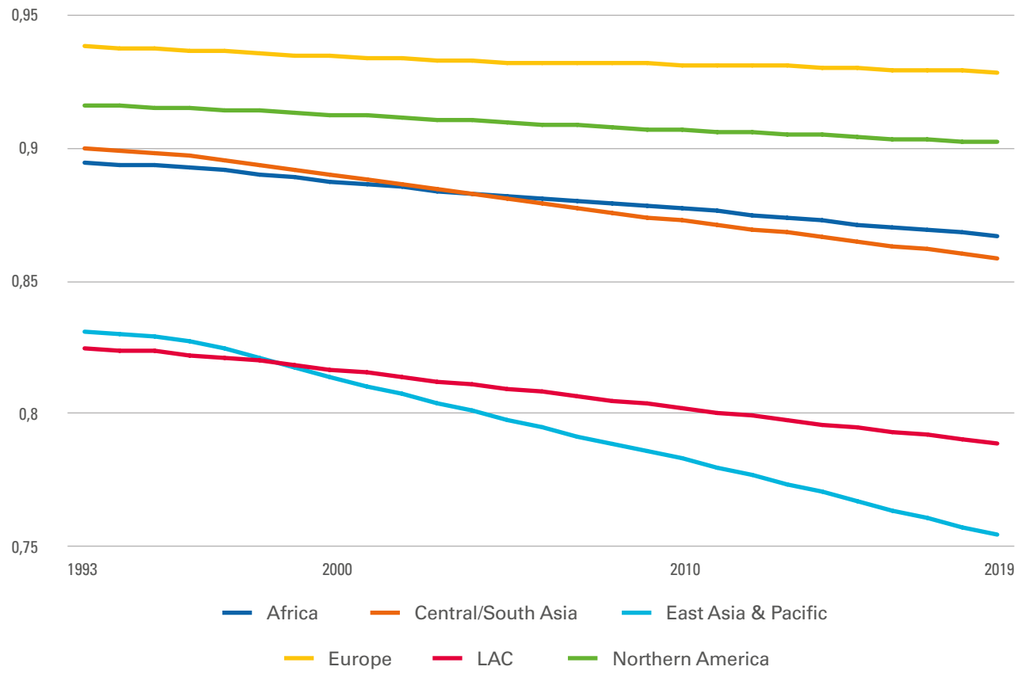
Source: UNSD (2020)



The **Amazon Vision** project implements actions for a sustainable management of protected areas, the integration of productive sectors, financial strategies and ecologic and social opportunities.

© Amazon Vision (IUCN, FAO, UNEP)

Graph 15.1 Red List Index per region*, 1993-2019



* Based in simple mean of countries' figures

Source: UNSD (2020)

The IUCN is developing a tool to assess the conservation status of ecosystems. The Red List of Ecosystems is expected to provide a global panorama by 2025. As of today, three LAC ecosystems have been assessed:

Ecosystem	Region	Status
Meso-American Reef	Mexico, Belize, Guatemala, Honduras	Critically endangered
Caribbean coral reefs	Caribbean Sea	Endangered
Tepui shrublands	Venezuela	Least Concern

Note: The 8 status categories are: Collapsed, Critically Endangered, Endangered, Vulnerable, Near Threatened, Least Concern, Data Deficient and Not Evaluated. **Source:** IUCN RLE (2019)

Table 15.2 Percentage of Key Biodiversity Areas (KBAs) within land and freshwater protected areas and variation

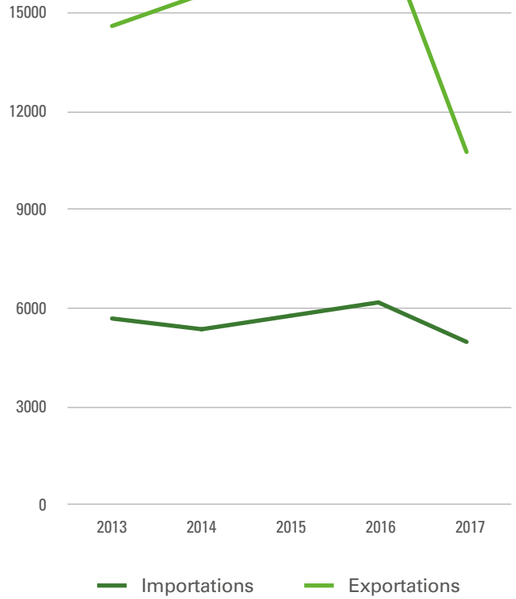
	Land		Freshwater	
	2018	Variation (2000-2018)	2017	Variation (2000-2017)
Ant & Barbuda	15%	1,763%	-	-
Argentina	32%	39%	40%	52%
Bahamas	24%	392%	-	-
Barbados	3%	0%	-	-
Belize	46%	3%	18%	0%
Bolivia	50%	14%	49%	60%
Brazil	42%	26%	13%	12%
Chile	35%	20%	33%	23%
Colombia	41%	78%	39%	239%
Costa Rica	42%	4%	0%	-
Cuba	56%	2,229%	16%	*
Dominica	30%	0%	0%	0%
Dominican Rep.	74%	1,107%	99%	*
Ecuador	30%	58%	71%	0%
El Salvador	27%	2,318%	82%	*
Grenada	35%	0%	-	-
Guatemala	30%	46%	25%	33%
Haiti	11%	0%	0%	-
Honduras	65%	12%	-	-
Jamaica	20%	1%	-	-
Mexico	32%	81%	15%	180%
Nicaragua	74%	2%	66%	0%
Panama	38%	9%	-	-
Paraguay	36%	102%	39%	646%
Peru	19%	38%	49%	7%
St K & Nevis	29%	0%	-	-
St V & the Grenadines	43%	0%	-	-
Saint Lucia	46%	98%	-	-
Suriname	51%	0%	-	-
Trin & Tobago	41%	48%	-	-
Uruguay	21%	104%	2%	*
Venezuela (B.R.)	67%	0%	86%	0%

*Countries with no protected area in 2000.

Source: CEPALSTAT (2020)

The region´s rich biodiversity offers opportunities for economic gains and better quality of life. However, it also provides opportunities for wildlife poaching and illegal trade activities. Although the data is not systematic, there are remarkable figures for nations in the Northwest of South America. Birds and reptiles are among the most common local traded species (UNODC, 2016). Wildlife is exported more than imported, and while Europe and North America used to be the largest market for smuggled animals, today it is the growing Asian demand that is putting pressures on the LAC region's biodiversity (Reuter et al., 2018).

Graph 15.2 Illegal wildlife trade in LAC, 2013-2017 (no. occurrences)



Note: Possibly, data from recent years tend to be incomplete, as it is yet under updating.

Source: CITES Trade Database (2019)

Table 15.3 Illegal wildlife trade exportations in LAC countries, 2013-2018 (no. occurrences)

Ecuador	32963
Colombia	11405
Peru	7942
Brazil	7266
Mexico	5245
Guyana	1850
Suriname	1660
Panama	1642
Argentina	1388
Costa Rica	879
Jamaica	792
Belize	640
Guatemala	551
Venezuela (B.R.)	516
Bolivia	497
Dominican Rep.	473
Uruguay	456
Paraguay	352
Chile	286
St Kitts and Nevis	257
Honduras	185
Barbados	166
Haiti	105
Trin & Tobago	65
St V & the Grenad.	46
Dominica	44
Ant & Barbuda	25
Grenada	22
St Lucia	21

Source: CITES Trade Database (2019)

FORESTS

Forests are of great importance for two important reasons. First, they remove and store GHG: they were responsible for 30% of CO_2 carbon capture in the 2005-2014 period (FAO, 2016e). Secondly, they are home to 80% of all terrestrial animal, plant and insect species (UN, 2016). Additionally, forests have climate and water regulation functions. Uncontrolled deforestation reduces nature's ability to contribute to human quality of life and can result in environmental problems with severe economic impacts. It is imperative that forests are exploited in a sustainable manner to ensure positive outcomes, like the recent expansion of forest in Caribbean countries (IPBES, 2018).

Regrettably, forests are steadily declining around the world, with the highest deforestation rates found in Latin America and Sub-Saharan Africa, mainly due to the expansion of agriculture (UN, 2019). SDG 15 addresses sustainable forest management aimed at ensuring that forest exploitation respects natural limits and protected areas. Eight countries in the region have at least one third of their forest area under protected status, although the number of countries with no (or few) forest management plans is still high.

Graph 15.3 Status and positive and negative drivers of forests in LAC countries, 1990-2016

COUNTRIES & FOREST AREA (% of lands)		VARIATION (1990-2016) -100% -50% 0 50% 100%	TCL	PD	FAP	MP
Ant & Barbuda	22%		●	●	-	●
Argentina	10%		●	●	●	-
Bahamas	51%		●	●	-	-
Barbados	15%		●	●	-	-
Belize	60%		●	●	-	-
Bolivia	50%		●	●	●	●
Brazil	59%		●	●	●	●
Chile	24%		●	●	●	●
Colombia	53%		●	●	●	●
Costa Rica	55%		●	●	●	●
Cuba	31%		●	●	●	●
Dominica	57%		●	●	-	-
Dominican Rep.	42%		●	●	-	-
Ecuador	50%		●	●	●	●
El Salvador	13%		●	●	●	●
Grenada	50%		●	●	●	●
Guatemala	33%		●	●	●	●
Guyana	84%		●	●	●	●
Haiti	3%		●	●	●	●
Honduras	40%		●	●	●	●
Jamaica	31%		●	●	●	●
Mexico	34%		●	●	●	●

COUNTRIES & FOREST AREA (% of lands)		VARIATION (1990-2016) -100% -50% 0 50% 100%	TCL	PD	FAP	MP
Nicaragua	26%		●	●	●	●
Panama	62%		●	●	●	●
Paraguay	38%		●	●	●	●
Peru	58%		●	●	●	●
St K & Nevis	42%		●	●	●	●
Saint Lucia	33%		●	●	●	●
St V & the Gren.	69%		●	●	-	-
Suriname	98%		●	●	●	●
Trin & Tobago	46%		●	●	●	●
Uruguay	11%		●	●	●	●
Venezuela (B.R.)	53%		●	●	●	●

● Negative drivers: Proportion of Tree Cover Loss (TCL) with proportion driven by Permanent Deforestation Activities (PD)*

● Positive drivers: Proportion of Forest Areas Protected (FAP) and with Management Plans (MP)

Note: Circles' color scale is divided in the values of 5% and 25%, with red color to higher values in negative drivers, and vice versa

*Drivers considered: shifting agriculture, managed forestry, wildfire, commodity-driven and urbanization. Only the last two represent permanent deforestation. Tree cover affected by the other causes often regrow. Estimates do not take tree cover gain into account.

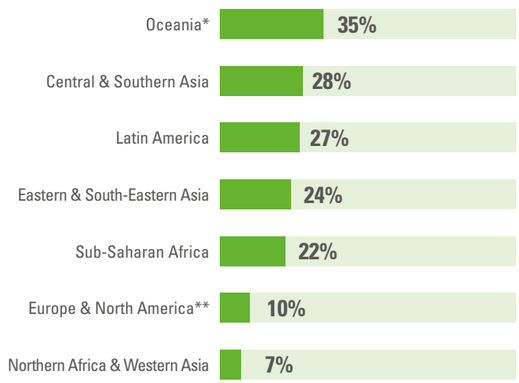
Source: Global Forest Watch (2019); UNSD (2020).

DESERTIFICATION AND LAND DEGRADATION

Land is the basic source of human livelihoods and plays an important role in climate balance and water and energy natural cycles (FAO/ITPS, 2015). Currently, about three quarters of global ice-free lands suffer direct anthropogenic interventions, including induced degradation (Arneth et al., 2019). In the region, about one third of new agricultural exploitations occur in natural ecosystems. Much of the converted land suffers degradation processes, leading to problems like erosion, loss of resilience and more vulnerable human settlements (FAO/ITPS, 2015).

In the 2000-2015 period, LAC ranked third among regions with the highest percentage of degraded land, affecting one quarter of the region´s land. At a country level, Belize has the highest degraded land area compared to total land area (81%), followed by Paraguay (52%) and Mexico (47%).

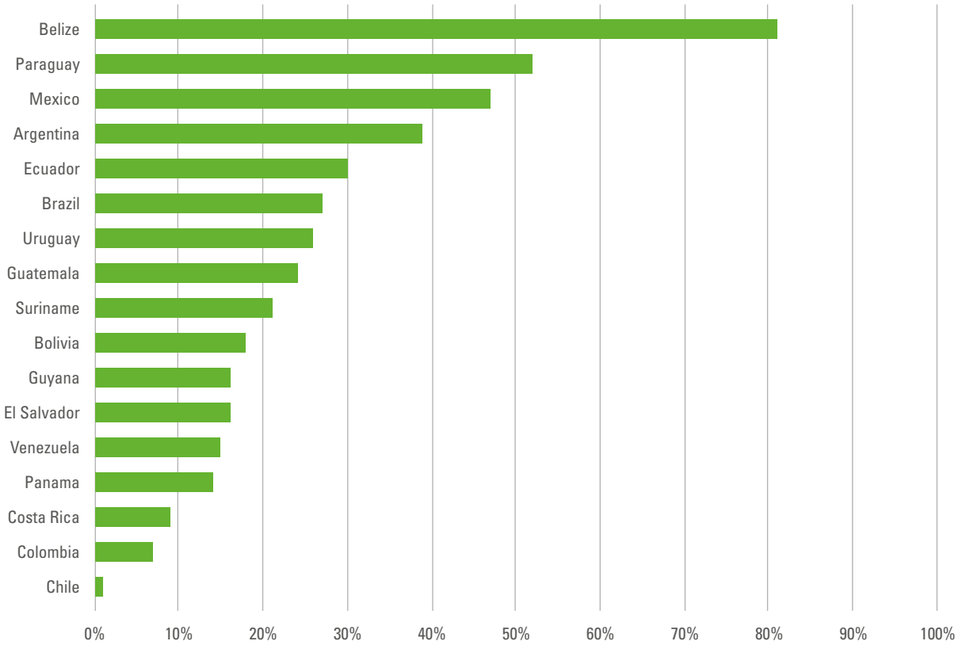
Graph 15.4 Proportion of degraded land in global regions, 2000-2015



*Excluding Pacific small islands. **Excluding Switzerland and USA

Source: UNSD (2019a)

Graph 15.5 Degraded land area in LAC countries, 2015 (% over total land)



Source: UNSD (2020)

MOUNTAIN ECOSYSTEMS

Covering one quarter of the surface of the globe and 15% of the LAC region (FAO, 2015a), mountain ecosystems provide important ecosystem services, especially water for drinking, irrigation and energy production (Mountain Partnership, n.d.). In South America, approximately 160 million people live in these mountainous areas, with roughly half of them in the Andes mountain range (FAO, 2015a). In Mesoamerica and the Caribbean, mountains are also an important source of freshwater and natural resources, such as coal and gas. In this region, most of the countries are in volcanic basins and have important biomes for global biodiversity (FAO, 2015b).

Mountains are a fragile environment and their protection and sustainable management are crucial to protect them. The Mountain Green Cover Index provides data on changes in vegetation, where 100 means no change (with reference to the 2000-2015 baseline). In the region, eight countries have at least two thirds of their mountainous area under protection and nine have a score of 100 in the Mountain Green Cover Index.

Table 15.4 Percentage of Mountain Key Biodiversity Areas (MKBA) under protection and Mountain Green Cover Index (MGCI) in LAC countries

	MKBA 2018	MKBA VARIATION (2000-18)	MGCI (2017)
Saint Lucia	90%	91%	-
Belize	87%	2%	100
Dominican Rep.	79%	*	97
Venezuela (B.R.)	77%	0%	98
Nicaragua	73%	0%	98
Cuba	70%	*	100
Honduras	68%	0%	99
Paraguay	67%	174%	100
St V. & the Grenad.	63%	0%	-
Grenada	63%	0%	100
Bolivia	51%	10%	73
Brazil	48%	26%	98
Costa Rica	46%	4%	97
Colombia	45%	76%	-
Trin & Tobago	45%	28%	100
Chile	45%	17%	47
Panama	42%	11%	99
Argentina	38%	31%	64
Suriname	35%	0%	100
Ecuador	28%	57%	95
Mexico	27%	60%	-
Guatemala	22%	37%	96
El Salvador	20%	1,229%	89
Haiti	18%	0%	100
Peru	17%	30%	-
Jamaica	13%	3%	86

*No protected area in 2000. **Note:** MGCI provides data on changes in vegetation, where 100 means no change (2015 baseline).

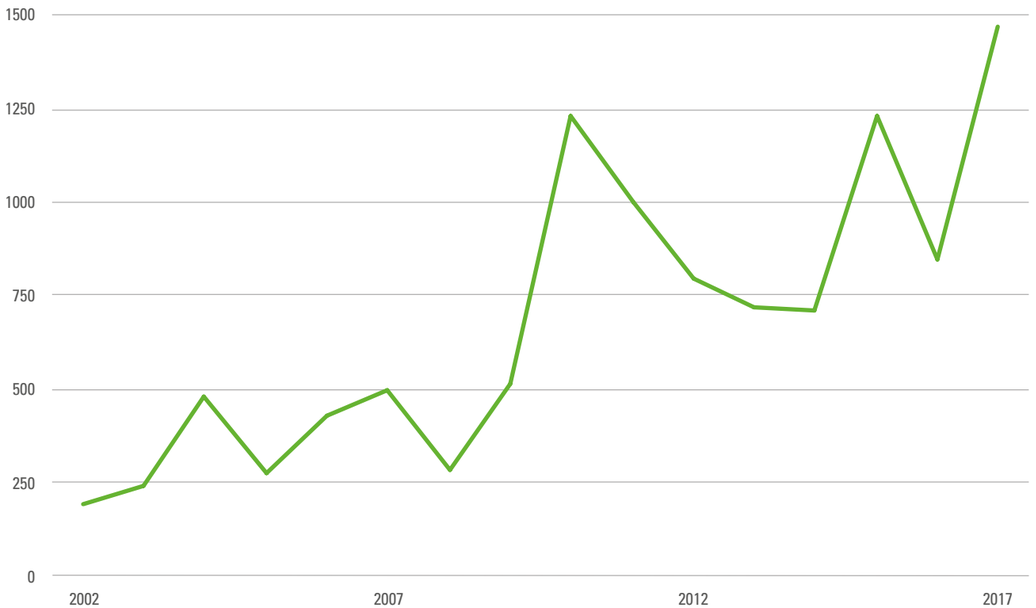
Source: UNSD (2020)

ECOSYSTEM MANAGEMENT

Despite their importance for human well-being and economic activities, biodiversity and ecosystems are not being adequately accounted for in current development and economic models (UNEP, 2019c). As science continues to improve our understanding of ecological interconnections, decision-making processes require more data to ensure actions are coherent and respectful of the need to preserve and sustainably use this wealth, reducing threats to human life and ecological balances (WHO/CBD, 2015). SDG 15 includes targets for improved management of land ecosystems and greater investments and financing to this end.

The Convention on Biological Diversity (CBD) is an international agreement that guides biodiversity policies. In 2010, the Parties adopted the Strategic Plan for Biodiversity 2011-2020, including its 20 Aichi Biodiversity Targets, to address biodiversity losses and foster the sustainable use of natural resources with equitable benefit sharing (UNEP-WCMC, IUCN and NGS, 2019). Several Aichi targets are part of the SDGs and correspond to some of the specific indicators in SDG 15.

Graph 15.6 Official development assistance for biodiversity received by LAC, 2002-2017 (USD million)



Note: ODA is defined as official financial administered flows for economic development and welfare of developing states as main purpose, with a grant share of at least 25%.
Source: UNSD (2020)

Graph 15.7 Status of biodiversity and ecosystems' convention, protocols and plans in LAC countries

	CBD	PGRFA	NAG	NBSAP
Ant & Barbuda	●	●	●	2015
Argentina	●	●	●	2017
Bahamas	●			
Barbados	●			
Belize	●			2016
Bolivia	●	●	●	2019
Brazil	●	●	○	2016
Chile	●	●		2018
Colombia	●	○	○	2017
Costa Rica	●	●	○	2017
Cuba	●	●	●	2016
Dominica	●		○	2014
Dominican Rep.	●	○	●	2012
Ecuador	●	●	●	2016
El Salvador	●	●	○	2014
Grenada	●		○	2016
Guatemala	●	●		2014

	CBD	PGRFA	NAG	NBSAP
Guyana	●	●	●	2015
Haiti	●	○	○	
Honduras	●	●	●	2017
Jamaica	●	●		2016
Mexico	●		●	2016
Nicaragua	●	●		2016
Panama	●	●	●	2018
Paraguay	●	●		2016
Peru	●	●	●	2015
St Kitts and Nevis	●		●	2016
St Lucia	●	●		
St V & the Grenad.	●			2018
Suriname	●			2013
Trin & Tobago	●	●		2018
Uruguay	●	●	●	2016
Venezuela (B.R.)	●	●	●	2011

● In force ○ Signed

CBD: Convention on Biological Diversity; **PGRFA**: International Treaty on Plant Genetic Resources for Food and Agriculture
NAG: Nagoya Protocol; **NBSAP:** National Biodiversity Strategies and Actions Plans (year of submission)
Source: CBD (2019) & FAO (2019b)

All countries in the region are signatories of the Convention on Biological Diversity (CBD), and all but one have legal instruments to protect wildlife and ecosystems (GIBOP, 2019) (refer to Appendix 1 for a complete list). Notwithstanding, protected areas under frameworks of effective management are still less than 30%. Thus, one can see a strong commitment to the preservation of nature in the region, but mechanisms still need to be mainstreamed into national policy frameworks and national development plans (IPBES, 2018).

Related international agreements referring to environmental issues:

- Convention on Biological Diversity
- Regional Agreement on Access to Information, Public Participation and Justice in Environmental Matters in Latin America and the Caribbean, Escazú Agreement

The link between SDG 16 and the environment is clear. Natural resources that are managed sustainably, transparently and based on environmental rights can be the engine for sustainable development, as well as a platform for peace and justice. On the other hand, violations of environmental laws undermine the chances of achieving sustainable development.

In the past 60 years, 40% of conflicts in the world have been over natural resources, and this number is expected to increase in the current context of climate change and environmental degradation. To counteract these trends, the Multilateral Environmental Agreements (MEAs) base their implementation on the strengthening of institutions, governments and organizations, aimed at achieving the internationally agreed upon global environmental goals in a functioning rule of law (UNEP, 2019a).

'Rule of Law' refers to a principle of governance where all actors and stakeholders, from civil society, governments and private institutions, are held accountable by laws and regulations that are equally enforced.

Environmental Rule of Law is understood as the legal framework of procedural and substantive rights and obligations that incorporates the principles of ecologically sustainable development in the rule of law. (IUCN, 2019b). Environmental Rule of Law provides a general framework to close the gap between existing environmental laws and their actual implementation. It outlines four pillars of sustainable development – economic, social, environmental and peace (UNEP, 2019a).

Achieving environmental rule of law and protecting environmental rights has become a priority in the region. However, many challenges remain, and protecting ecosystems and the sustainable use of natural resources from misuse and harm from criminal actions will require a cross-sectoral and long-term effort.

Target 16.8 is directly related to the environment and calls for the participation of developing countries in global governance. Additionally, all multilateral environmental agreements (MEAs) allude, in some form, to SDG 16, since they strengthen environmental governance and constitute internationally agreed upon goals for more inclusive and fair sustainable development.

SDG 16 ENVIRONMENTAL INDICATORS

16.8.1	**Participation in global governance.** Proportion of members and voting rights of developing countries in international organizations

● Change in a positive direction ● Change in a negative direction ● Little negative or positive change
● Insufficient data ● No data

Source: UNEP (2019e)

The **Escazú Agreement** seeks to ensure that all people have access to timely and reliable information and are able to access justice on environmental matters; it also includes the protection of environmental human rights defenders.

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The 1992 Rio de Janeiro Earth Summit provided an important impetus in the region for environmental protection, the development of new legislation and the establishment of related institutions. Today, most countries in the region have established independent environmental ministries, and environmental rights are included in constitutions, whereas environmental protection laws have been widely developed. Some national legal frameworks go further, attributing an ecological function to property rights (UNEP/Cepei, 2018).

The Rio Declaration was adopted at the 1992 UN Conference on Environment and Development and contains 27 principles. Principle 10 set out three fundamental rights: access to information, public participation in decision making and access to justice in environmental matters. These are considered the three pillars of comprehensive and inclusive environmental governance.

Building on the global guidelines on this matter adopted by the UNEP Governing Council in 2010 (Bali Guidelines), the region adopted the Regional Agreement on Access to Information, Public Participation and Justice in Environmental Matters in Latin America and the Caribbean, the Escazú Agreement of March 4, 2018. With the goal of guaranteeing the effective implementation of Principle 10 through the strengthening of institutions and promoting cooperation between actors and stakeholders, it comes to protect current and future generations' sustainable development (ECLAC, 2018a). It is the only agreement born out of Rio+20, and the first one of its kind in the region. Moreover, it is the only binding international agreement with a specific focus on the promotion and protection of human rights in the environmental context.

The Escazú Agreement addresses three dimensions: 1) access to information refers to an individual's or community's right to access environmental information in a timely and effective matter; 2) the participation dimension states that an individual or community has the right to participate in the decision-making processes concerning environmental matters or issues that will affect their surrounding environment; and 3) justice promotes the right to access independent bodies to protect environmental rights, access to information and participation in decision-making processes.

Table 16.1 Policy instruments* in LAC countries adhering to the "Principle 10" core pillars

	INF	PART	JUST
Antigua and Barbuda	5	4	4
Argentina	4	4	4
Bahamas, The	6	3	5
Barbados	4	4	4
Belize	5	4	4
Bolivia	6	8	8
Brazil	7	7	6
Chile	7	5	4
Colombia	6	6	5
Costa Rica	2	3	3
Cuba	2	2	2
Dominica	3	2	3
Dominican Rep.	3	2	3
Ecuador	6	7	7
El Salvador	4	3	4
Grenada	2	2	2
Guatemala	6	5	6
Guyana	3	3	4
Haiti	2	2	2
Honduras	4	6	7
Jamaica	7	3	4
Mexico	12	8	11
Nicaragua	3	3	4
Panama	4	3	4
Paraguay	4	4	5
Peru	6	8	6
St Kitts and Nevis	5	5	4
St V. and the Grenadines	5	2	4
St Lucia	5	4	4
Suriname	1	1	2
Trinidad and Tobago	5	4	5
Uruguay	4	4	3
Venezuela (B.R.)	2	3	4

Highest number in each pillar

*Laws, regulations, constitutional obligations and/or governmental plans/strategies/programmes **Note:** Some instruments may be repeated. **INF**: Information, **PART**: participation, **JUST**: justice
Source: ECLAC Observatory on Principle 10 (2019)

Access to information and public participation are two strongly interlinked areas. Open publication of environmental policy tools is necessary to ensure that communities are properly informed, allowing them to participate in processes of prior informed consent. Environmental Impact Assessments are one of the most important tools linked to the principles of information and participation in the Escazú Agreement.

In this context, all LAC countries possess legal parameters that should ensure the comprehensive implementation of aspects regarding information and societal participation (refer to Appendix 1 for a complete list). Despite these frameworks, the region still has large gaps between these laws and their enforcement, as well as insufficient public involvement (UNEP, 2019a).

ENVIRONMENTAL COURTS AND RIGHTS

As of today, most countries have given constitutional status to environmental rights, as well as created mechanisms to ensure citizens' access to courts or independent bodies for the protection of environmental rights. Many countries have established specialized courts and tribunals for environmental matters, as these conflicts are often complex and require specialized knowledge. In addition, some countries in Latin America have environmental prosecutors responsible for these specific matters (ECLAC, 2018a).

Table 16.2 Judicial or administrative courts specializing in environmental matters in LAC countries

Antigua and Barbuda	One administrative environmental court
Bolivia	Agroenvironmental courts in nine cities
Brazil	Thirteen agroenvironmental courts in eight cities
Chile	Environmental courts in three cities
Costa Rica	One administrative environmental court, 16 agricultural courts
El Salvador	One environmental court (four more under implementation)
Guatemala	Criminal courts of first instance for drug and environmental offences in different municipalities
Guyana	One administrative environmental court (one administrative appeals court under implementation)
Jamaica	One administrative environmental court
Nicaragua	One environmental court
Paraguay	Environmental courts in two cities
Peru	Four environmental courts: the Environmental Audit Court with three specialized divisions
Trinidad and Tobago	Environmental Commission

Source: ECLAC (2018a)

Despite advances at institutional and legislative levels, the greatest challenge continues to be compliance and enforcement. The region has been very active in promoting the enforcement of environmental laws, resulting in the creation of institutional organizations and international cooperation. For instance, there is the International Advisory Council for the Advancement of Justice, Governance and Law for Environmental Sustainability that provides the international community with strategic guidance to strengthen legal foundations to achieve international environmental goals and sustainable development. Moreover, the Global Judicial Institute on the Environment (GJIE) aims to ensure judicial independence, transparency and integrity to effectively handle cases related to the environment. Finally, the Latin American Environmental Prosecutor´s Network seeks to facilitate communication and the sharing of experiences among member prosecutors to strengthen the international framework to fight crime and enforce the law. UNEP has actively supported these initiatives.

Some countries have moved from anthropocentrism toward more 'ecocentric' ways of thinking about the environment, including innovative concepts in their legal frameworks such as "Buen Vivir" or Rights of Mother Earth, in Bolivia and Ecuador. Other instances, such as the case of Rio Atrata in Colombia, have created judicial precedents, granting rights to natural resources.

Environmental rights refer to substantive and procedural rights related to the environment. These include the right to a healthy environment, as well as the access rights mentioned earlier. In the region, many countries have provisions for environmental rights in their Constitutions (Table 16.3).

Table 16.3 LAC countries with constitutions that include the right to a sound environment

Argentina	Dominican Rep.	Nicaragua
Bolivia	Ecuador	Panama
Brazil	El Salvador	Paraguay
Chile	Guyana	Peru
Colombia	Honduras	Venezuela (B.R.)
Costa Rica	Jamaica	
Cuba	Mexico	

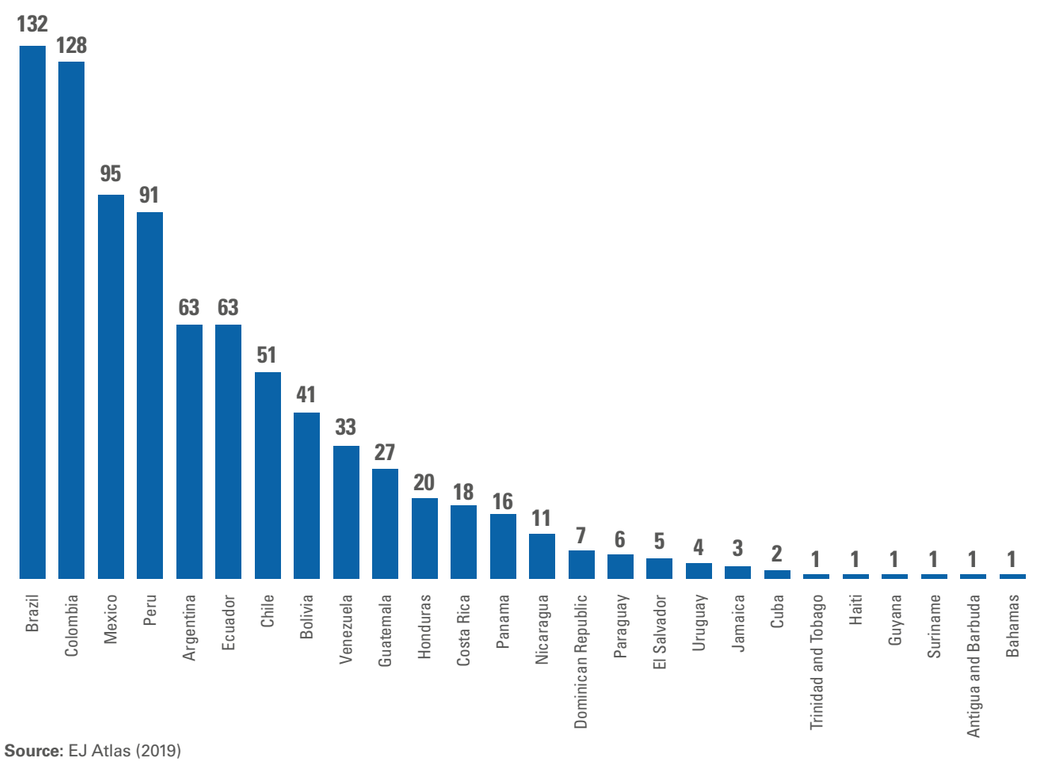
Source: ECLAC (2018a)

ENVIRONMENTAL CONFLICTS

Environmental conflicts are often the result of systemic and structural unequal exchanges of power and income. Vulnerable and marginalized communities are the most affected, often stripped of their rights to participate in decision-making processes and burdened with environmental pollution and resource degradation. Community and activist actions may include boycotts, strikes, protests, legal actions or even collective violence in the attempt to reclaim their access to resources and a healthy environment (EJ Atlas, 2019).

Of the 'Top 7' countries with most environmental conflicts in the world, four are in LAC. Such conflicts often lead to broader social crises, affecting the most vulnerable populations. Preventing such disputes is a way of leaving no one behind. (Global Witness / The Guardian, 2019)

Graph 16.1 Ongoing environmental conflicts in LAC Countries, 2019



Source: EJ Atlas (2019)

ENVIRONMENTAL DEFENDERS

LAC has been deemed the most dangerous region for environmental rights defenders by Global Witness. In 2017, a record number of 207 environmental defenders were killed while protecting their land, wildlife and natural resources in the region. Countries such as Brazil, Colombia and Peru rank high in environmentalist murders and the vast majority of them occur in the Amazon region (Global Witness, 2018). These conflicts often arise from a lack of compliance with customary and collective land rights and the exclusion of communities from decision-making processes (Global Witness, 2018).

However, international milestones have been achieved. The Escazú Agreement is the first environmental treaty that contains specific provisions for the protection of defenders of human rights in environmental matters. Additionally, in March of 2019, the UN Human Rights Council passed a resolution recognizing Environmental Defenders as Human Rights Defenders. At the national level, governments and civil society organizations have also begun taking action to protect environmental defenders.

Table 16.4 LAC countries' policy instruments for environmental defenders

Source: ECLAC (2019), SPDA (2019)

Table 16.5 LAC women's networks defending environmental and social rights

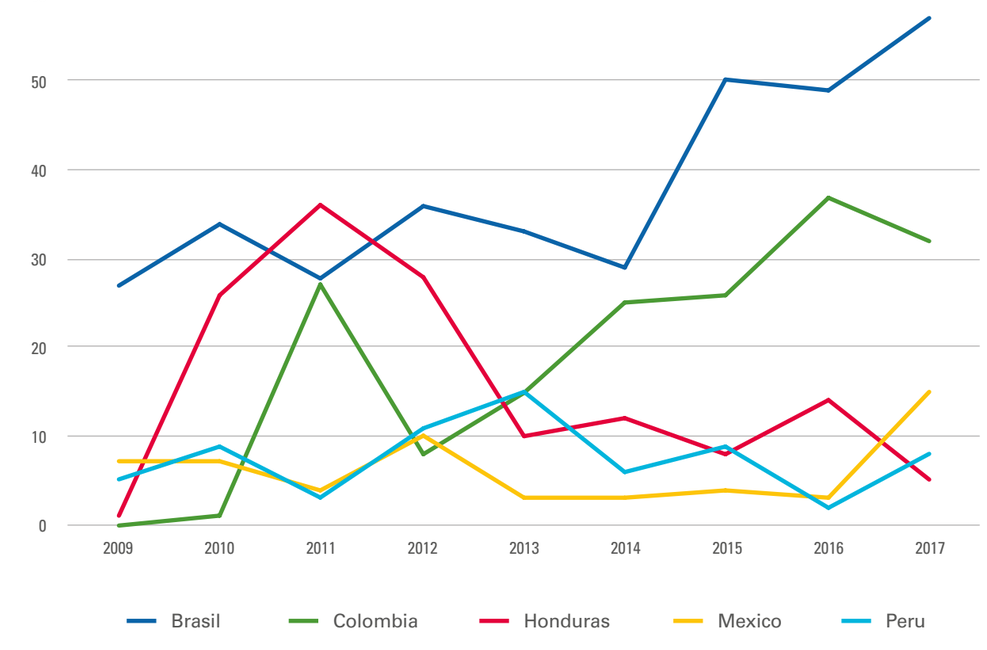
Country	Institutions/ Participants
Mexico	REMA (Red Mexicana de Afectadas por la Minería)
Honduras	Renacamih (Red Nacional de Comunidades Afectadas por la Minería en Honduras)
El Salvador	ADES (Asociación de Desarrollo Económico y Social)
Colombia	Censat Agua Viva Amigos de la Tierra
Ecuador	Acción Ecológica
Peru	Decoin (Defensa y Conservación Ecológica de Intag) Grufides (Grupo de Intervención y Formación para el Desarrollo Sostenible)
Bolivia	Tejiendo Saberes-PDTG (Programa Democracia y Transformación Global) Colectivo CASA (Colectivo de Coordinación de Acciones Socio Ambientales)
Chile	OLCA (Observatorio Latinoamericano de Conflictos Ambientales)
Uruguay	Otras voces por la tierra Dafnias

Source: Red Latinoamericana de Mujeres Defensoras de Derechos Sociales y Ambientales, 2018

In Colombia, a tribute honors the environmental defender shot in 2017, after creating his own "biodiversity zone" to stand against palm oil and banana plantations. UNEP´s **Environmental Rights Initiative** assists state and non-state actors to mainstream, protect and comply with environmental rights.

©Thom Pierce (thompierce.com)

Graph 16.2 Deaths of environmental defenders in the 5 most dangerous LAC countries, 2009-2017



Source: Global Witness /The Guardian (2019)

17 PARTNERSHIPS FOR THE GOALS

Related international agreements referring to environmental issues:

- Convention on Biological Diversity
- Regional Agreement on Access to Information, Public Participation and Justice in Environmental Matters in Latin America and the Caribbean, Escazú Agreement
- The Paris Agreement under the United Nations Convention on Climate Change

The 2030 Agenda recognizes that governments, people, institutions, the private sector and every part of our society must be a partner to achieve sustainable development, and the success of the environmental objectives of the SDGs relies on effective partnerships. SDG 17 addresses the means to implement the 2030 Agenda, and this includes not only partnerships, but also financing, capacities, technology and data.

Four SDG 17 targets are directly linked to the environment, addressing: international cooperation for science, technology and innovation (17.6); development and diffusion of environmentally sound technologies (17.7); support for national sustainable development plans in developing countries (17.9); and policy coherence for sustainable development (17.14).

SDG 17 ENVIRONMENTAL INDICATORS	
17.6.1	**Internet Access.** Fixed Internet broadband subscriptions per 100 inhabitants, by speed
17.7.1	**Funding for environmentally sound technologies.** Total amount of funding for developing countries to promote the development, transfer, dissemination and diffusion of environmentally sound technologies
17.9.1	**Funding for capacity building.** Dollar value of financial and technical assistance (including through North-South, South-South and triangular cooperation) committed to developing countries
17.14.1	**Mechanisms enhancing policy coherence.** Number of countries with mechanisms in place to enhance policy coherence for sustainable development

Change in a positive direction · Change in a negative direction · Little negative or positive change · Insufficient data · No data

Source: UNEP (2019e)

The **Clean Seas campaign** engages governments, general public and private sector in the fight against marine plastic pollution, addressing its root-causes. At least nineteen LAC countries have already joined the campaign.

© UNEP Haiti

Some of the main obstacles in the region to achieving the SDGs are related to the principle means to implement SDG 17: financing, technology, capacity-building, trade and systemic issues. The region´s future is in the hands of the whole society - citizens, civil society, academia, the private sector and governments- to ensure positive social and economic advances and the sustainable use of natural resources.

FINANCE

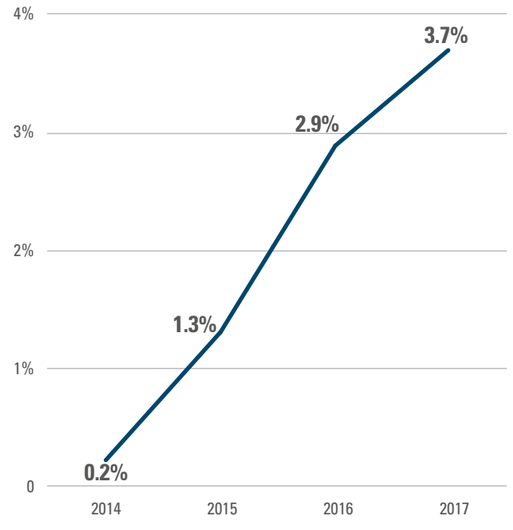
The implementation of the 2030 Agenda clearly **depends on financing**. To this end, not only will international cooperation be crucial, but also domestic resources and private investments. Investments are a great tool to stimulate an "environmental big push," combining the creation of high-quality jobs with the transition to more sustainable production and consumption patterns and the reduction of environmental impacts (ECLAC, 2019b).

The region faces **several challenges** in this regard. The first is widespread public budget cuts and political instabilities due to consecutive recessions. The second is restricted access to bilateral development cooperation as most countries are already high and middle income (SEI, 2017). Lastly, there is the high rate of tax evasion, indirect taxes and low levels of transparency (ECLAC, 2018d).

It is important for the region to promote long-term planning and well-designed complementary investments to put the region on the trajectory to self-sustained growth and development (ECLAC, 2019b). To do this, the region needs technical and financial capacity to deal with environmental issues now and in the future.

Green bonds are an important tool for environmentally sound investments. They have seen an exponential growth since 2013, representing an important tool today for financing long-term solutions for structural challenges and for stimulating economic growth, and they play a fundamental role in addressing the region's development issues (ECLAC, 2017c). Most of these investments are directed to the energy and transport sectors, as well as agricultural and forestry projects. In 2016, there were approximately USD 700 billion in total bonds in the world. Despite receiving a minuscule fraction of this flow (Graph 17.1), the region has shown promising growth trends in recent years (more information on climate finance can be found in SDG 13).

Graph 17.1 Share of bonds with green focus within LAC total bond issuance in international markets, 2014-2017 (%)



Source: ECLAC (2017c)

TECHNOLOGY

Technology can have positive and negative impacts on the environment (UNEP, 2019a). Some of the most **persistent environmental challenges today are due to 19th- and 20th-century technologies** (e.g. fossil fuels and agrochemicals). At the same time, technologies have played an important role in improving our lives, and innovation will be key to achieving many 2030 Agenda targets, such as the low-carbon revolution and integrated waste management (IDB/GSMA/South Pole, 2018).

LAC is taking **preliminary steps for a technology scale-up** (even when compared to other developing regions), depending heavily on technologies from developed nations. The region should recognize this opportunity and adapt technologies to local environmental contexts while, at the same time, acquiring knowledge to strengthen its own scientific capacity. Investments in green technology are crucial to avoid natural resource overexploitation and economic recessions and imbalances (ECLAC, 2019b).

Eco-innovation, agricultural productivity, machine learning, improvements in resource efficiency and clean energy technologies are some of the ways we can balance economic needs with sustainability. In particular, the latter represents a great opportunity for LAC. The region's total energy supply is still heavily dependent on hydrocarbons (ECLAC, 2019b). The region needs to develop its great potential for renewable energy to create an integrated grid using complementary energy sources, allowing for the energy transition required to achieve the SDGs. (More information is found in SDG 7 and 9, which address energy, green technologies and eco-innovations).

The region recognizes the central importance of the traditional knowledge management practices and knowledge systems of Indigenous Peoples and local communities that have contributed for generations to biodiversity conservation, ecosystem management and the sustainable use of natural resources. Policies that protect their land rights, territories and cultural and natural resources (which they have traditionally owned, occupied or used) enable indigenous peoples and local communities to apply the traditional knowledge and practices that are so essential for their livelihoods and for the conservation agenda. By fostering the use of traditional knowledge and practices to address resource depletion and ecosystem degradation, SDGs 13, 14 and 15 exhibit potential for improving the resilience of the most vulnerable populations and reducing inequality.

BanCO2 is a Colombian public-private partnership to offset the environmental footprint of companies and individuals, through the support of forest conservation actions performed by 20,000 rural families.

© Banco2

CAPACITY-BUILDING

Capacity-building is crucial for turning 2030 Agenda challenges into opportunities. Many of these new possibilities relate to the environment, like advances in automation and new mechanisms for green businesses. Knowledge and ideas have become more important in scenarios of economic uncertainty and growing environmental pressures (UN, 2019), and will certainly be crucial for dealing with local sustainability problems (UN DESA, 2019).

Six are the regional MEAs: the Escazú Agreement, the Cartagena Convention, the Land-Based Sources (LBS) Protocol, the Oil Spills Protocol, the Specially Protected Areas and Wildlife Protocol, and the Protocol concerning the Control of Emissions of Nitrogen Oxides.

Source: InforMEA Portal (2019)

To this end, the LAC region has received an average of USD 5 billion per year for technical cooperation projects and partnerships. In fact, LAC countries recognize the need for external support to improve structural and technical areas (UN, 2019), but this aid must go beyond just finance. Collective knowledge building and enhancing regional capacities to deal with challenges are also important. MEAs are a good example of international cooperation for capacity building. There are over 250 MEAs currently in force to address various environmental issues around the world (WTO, 2019), and six of them are exclusively for the LAC region.

Table 17.1 Official development assistance received by LAC countries, 2017 (USD million)

Mexico	1,620
Brazil	1,316
Colombia	953
Argentina	552
Bolivia	537
Panama	453
Nicaragua	242
Ecuador	231
Paraguay	200
Honduras	168
El Salvador	105
Haiti	101
Guatemala	91
Costa Rica	90
Peru	88
Chile	67
Uruguay	67
Dominican Rep.	63
Jamaica	49
Guyana	19
Cuba	19
Suriname	12
Belize	5.6
Grenada	3.5
Venezuela (B.R.)	2.7
Saint Lucia	2.4
St Vinc & the Grenad.	1.3
Antigua and Barbuda	1.0
Dominica	0.3

Note: ODA is defined as official financial administered flows for economic development and welfare of developing states as main purpose, with a grant share of at least 25%.

Source: UNSD (2020)

Table 17.2 MEAs by LAC countries (No. of MEAs in which countries are parties)

Ant & Barbuda, Costa Rica, Panama	20
Brazil, Colombia, Cuba, Dominican Republic, Mexico	19
Argentina, Bolivia, Ecuador, Guatemala, Honduras, Paraguay, Peru, Uruguay, Venezuela	18
Chile, Guyana, Jamaica, Nicaragua, St Kitts & Nevis, St Lucia	17
El Salvador, Suriname, Trinidad & Tobago	16
Barbados, Belize, St Vincent & the Grenadines	15
Bahamas, Dominica	14
Haiti	13

Note: as of Nov/2019.

Source: InforMEA Portal (2019).

A growing **Global Ecovillage Network** exists since 1995 in LAC. The Multiversidad Akapacha, one of these, is located in the Argentinian city of Chascomús and develops permaculture, sustainable energy, bioclimatic design, collaborative economy and organic cooking.

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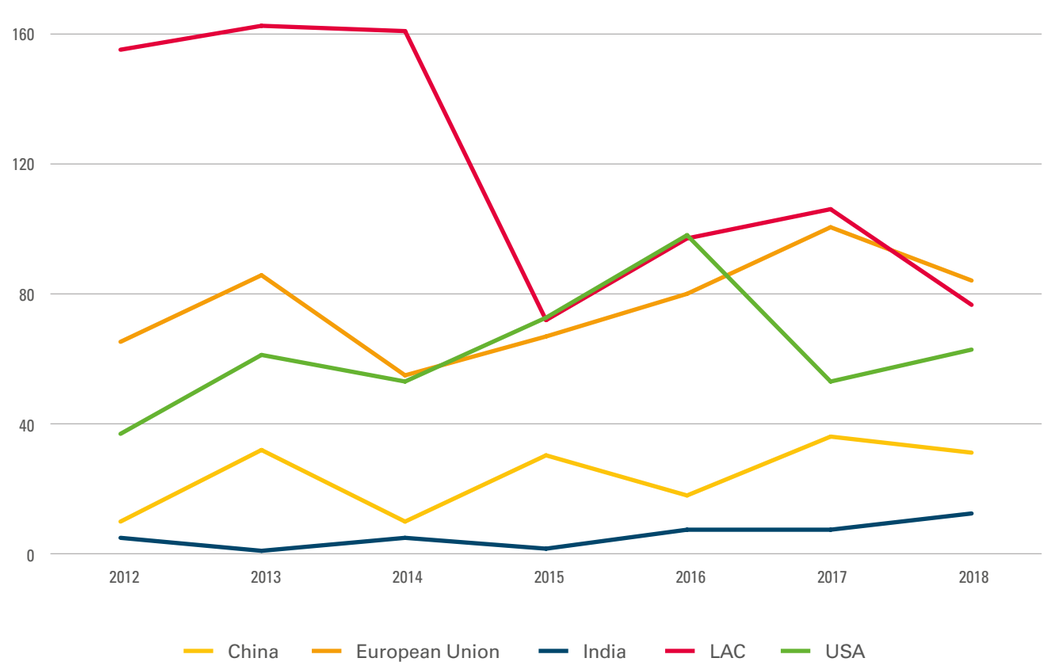
TRADE

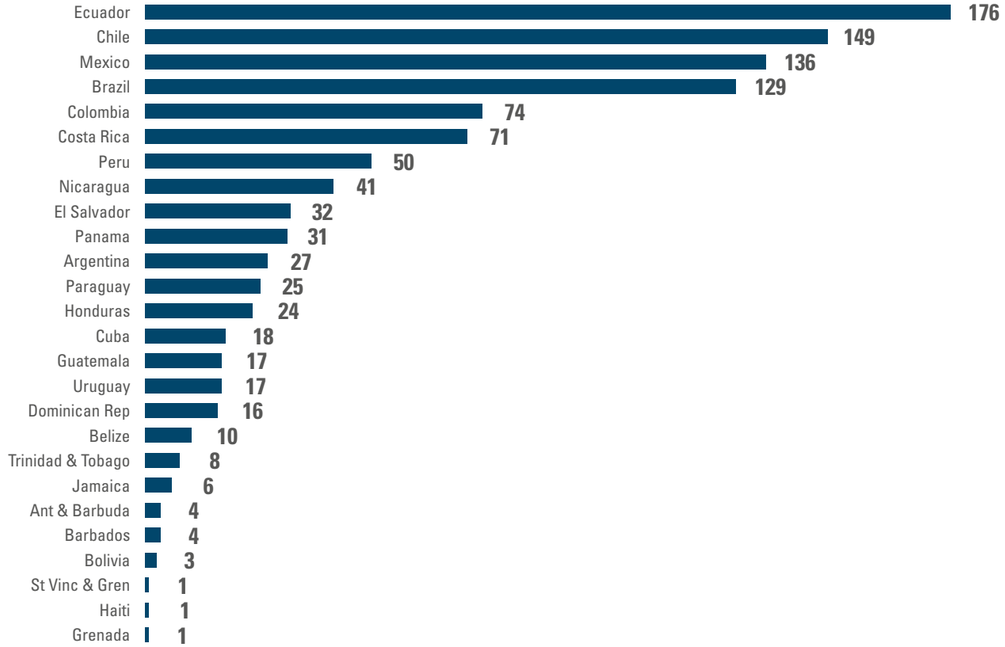
Trade between countries has direct implications for sustainable development and, specifically, for the environment (ECLAC, 2019b). Trade allows countries to achieve **gains in efficiency and scale**, supporting 2030 Agenda core issues like decoupling. It is also an important component in global GHG emissions, reflected in the commodities and goods exchanged. The growth in the number of environment-related measures (ERM) reported to the World Trade Organization (WTO) over the last two decades (an increase of more than 300%) makes it clear that there is a growing ecological awareness in these chains. Compared to some of the larger global trade players, LAC has one of the highest numbers of ERM cases, with Ecuador and Chile at the top of the list.

Graph 17.2 WTO environment-related notifications by global members, 2012-2018



Source: WTO - EDB (2019)

Graph 17.3 Total environment-related notifications in LAC countries, 2009-2018



Source: WTO - EDB (2019)

Since 2000, the share of LAC in international trade has been approximately 5.7%, with even lower numbers for services and high-tech goods, suggesting a strong dependency on material-intensive operations (discussed in SDG 8 and SDG 9).

There are three main environmental concerns related to this matter. First, there is the phenomenon of importing goods while exporting environmental impacts (ECLAC, 2019a). As seen in SDG 8, LAC extraction rates and material consumption have been increasing as GDP grows, meaning that the region is experiencing economic growth with low material productivity rates, and with environmental costs not properly internalized. Second, there is an opportunity for the region to improve economic integration for regional trade. While in Europe, North America and Asia intraregional trade represents more than 50% of the total, in LAC it is only 17% (ECLAC, 2018d). Finally, trade barriers -sometimes the result of protectionism- can lead to significant bottlenecks for environmentally sound products and commodities. The opposite is necessary: fewer trade restrictions to foster the trade of products with positive ecological impacts.

Currently, approximately 20 MEAs include provisions to regulate trade to prevent environmental damage (WTO, 2019). These tools, in conjunction with the inclusion of environmental issues in trade agreements, should be capable of fostering ecologically sound economic integration, however positive outcomes are still lagging in the region.

SYSTEMIC ISSUES: INSTITUTIONAL MECHANISMS AND DATA PRODUCTION

Policy coherence is important for integrating the three dimensions of sustainable development. This requires convergence between the various social actors and different levels of governance. The goals of bringing the environmental agenda to the attention of governments, increasing awareness and generating political momentum and action have been achieved most importantly through the establishment of partnerships (Nordic Council of Ministers, 2019). These alliances must not ignore the voices of the most vulnerable, including rural workers and indigenous and traditional communities, as well as the smallest and poorest countries.

Since the launch of the 2030 Agenda, LAC has achieved remarkable advances. Currently, most of the countries in the region have established national mechanisms to implement the 2030 Agenda (ECLAC, 2019b). This has allowed for significant advances in monitoring and reporting, such as the Voluntary National Reviews (VNRs). At the same time, environmental institutional bodies are directly linked with 2030 Agenda frameworks in at least one third of LAC countries (UNEP/Cepei, 2018).

Table 17.3 SDG 17 & LAC countries' national development plans convergence (No. of objectives under SDG 17 scope)

Ant & Barbuda	4
Argentina	6
Bahamas	7
Barbados	8
Belize	4
Bolivia	5
Brazil	4
Chile	9
Colombia	9
Costa Rica	14
Cuba	0
Dominica	3
Dominican Rep.	7
Ecuador	7
El Salvador	8
Guatemala	1
Guyana	4
Haiti	1
Honduras	4
Jamaica	3
Mexico	6
Nicaragua	12
Panama	6
Paraguay	10
Peru	5
St Lucia	0
St V & the Grenad.	12
Suriname	3
Trin. & Tobago	7
Uruguay	0
Venezuela (B.R.)	13

Source: ECLAC/ILPES (2019)

Table 17.4 - LAC countries mechanisms for 2030 Agenda enforcement & Voluntary National Review submissions (country and coordination mechanisms, and years of VNRs submissions)

	2016	2017	2018	2019	2020*
ANTIGUA & BARBUDA Working Group on the Sustainable Development Goals, Office of the Prime Minister					
ARGENTINA National Council for Social Policy Coordination		●			●
BAHAMAS Sustainable Development Goals Inter-Agency Technical Committee			●		
BARBADOS Ministry of Housing, Lands and the Environment					●
BELIZE Ministry of Economic Development, Petroleum, Investment, Trade and Commerce		●			
BOLIVIA Inter-Agency Commitee of the Social-Economic Development Plan and Sustainable Development Goals					●
BRAZIL National Commission for the Sustainable Development Goals, Government Secretariat of the Office of the President		●			
CHILE National Council for Implementation of the 2030 Agenda for Sustainable Development		●		●	
COLOMBIA High-level Inter-Agency Commission for the Preparation and Effective Implementation of the Post-2015 Development Agenda and its Sustainable Development Goals	●		●		
COSTA RICA High-Level National Coordinating Committee for the Sustainable Development Goals		●			●
CUBA Ministry of Economy and Planning					
DOMINICA SDG National Committee					
DOMINICAN REPUBLIC High-level Inter-Agency Commission for Sustainable Development			●		
ECUADOR National Secretariat of Planning and Development (SENPLADES)			●		●
EL SALVADOR Technical and Planning Secretariat of the Office of the President and Ministry of Foreign Affairs		●			
GRENADA Department of Economic and Technical Cooperation, Ministry of Finance, Planning, Economic Development and Physical Development					
GUATEMALA National Council for Urban and Rural Development (CONADUR)		●		●	
GUYANA Minister of Foreign Affairs				●	
HAITI Ministry of Planning and External Cooperation					

	2016	2017	2018	2019	2020*
HONDURAS General Coordination Secretariat of Government, High-level Commission and Technical Committee for the SDGs		●			●
JAMAICA National 2030 Agenda Oversight Committee; Thematic Working Groups of Vision 2030 & 2030 Agenda SDGs Core Group			●		
MEXICO National Council for the 2030 Agenda for Sustainable Development	●		●		
NICARAGUA National Council of Sustainable Development					
PANAMA Inter-Agency and Civil Society Commission for the Support and Follow-up of the Sustainable Development Goals		●			●
PARAGUAY Inter-Agency Coordinating Committee for the Implementation, Follow-up & Monitoring of the Interational Commitments Accepted by the Country in the Framework of the UN SDGs			●		
PERU Centre for Strategic Planning (CEPLAN)		●			●
ST KITTS & NEVIS Ministry of Sustainable Developmen					
ST LUCIA Sustainable Development Goals National Coordinating Committee				●	
ST VINCENT AND THE GRENADINES No coordination mechanism stated					●
SURINAME Ministry of Labour, Technological Development & Environment					
TRINIDAD & TOBAGO High Level Ministerial Sub-Committee of Cabinet on Vision 2030 and SDGs, Ministry of Planning and Development					●
URUGUAY Office of Planning and the Budget of the Office of the President		●	●		
VENEZUELA (B.R.) Inter-agency coordination group	●				

* Expressions of interest received by the secretariat of the high-level political forum

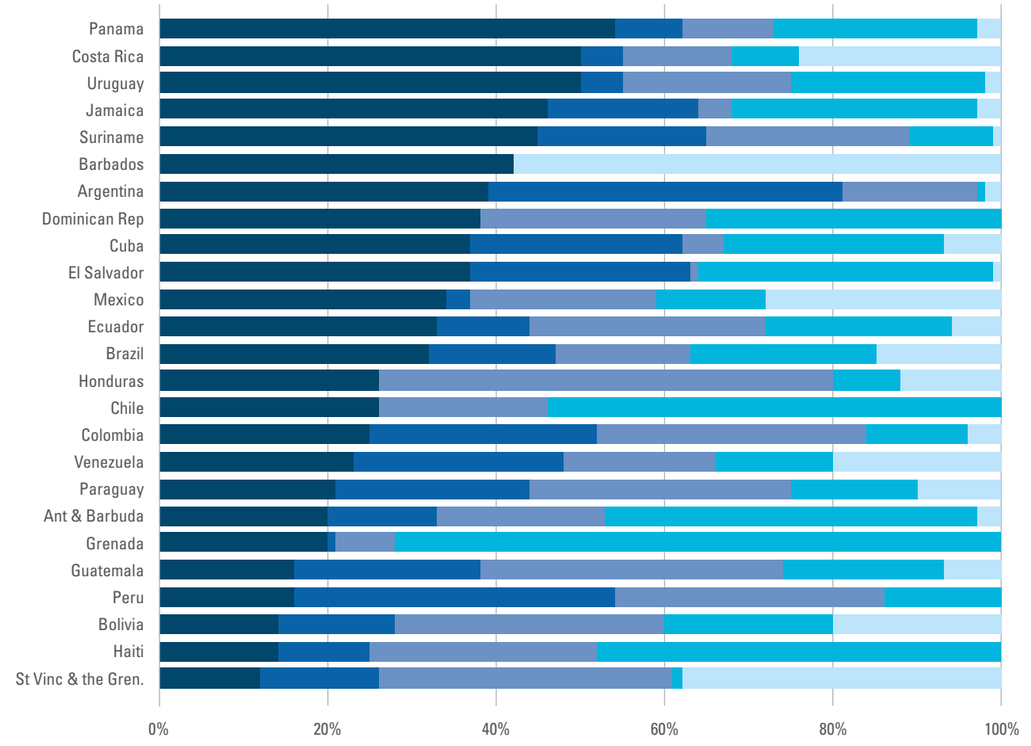
Source: ECLAC (2019b); UN DESA Website (2019).

Only three countries in the region (Costa Rica, Panama and Uruguay) report producing more than 50% of the 2030 Agenda indicators (ECLAC, 2019b). The most critical regional data gaps are related to SDG 11 (Cities and Communities), SDG 6 (Water), and SG 14 (Oceans) (ECLAC, 2019b).

A robust and reliable database is crucial to achieve 2030 Agenda ambitions. In the region, member state efforts are coordinated under the Statistical Conference of the Americas. Despite recent advances, the region still presents deficits in data production and management, as well as a lack of disaggregated data and environmental indicators (UNEP, 2019b). Less than two thirds of LAC countries have fully funded national statistical systems (UN, 2019). The region presents high levels of heterogeneity with respect to data capacities, in part due to a lack of resources and capacities in many countries. Even with the high number of countries submitting VNRs, the environmental dimension of the SDGs is still being assessed using insufficient or inadequate statistics (ibid.).

Countries in the region can produce, on average, 45% of SDG indicators (ECLAC, 2019b). Caribbean countries have the most data gaps. From another perspective, we can observe that SDGs 1, 3, 7 and 8 are the better addressed using local statistics. Countries in the region must continue improving regional integration and horizontal coordination to homogenize statistical capacities, while defining the most appropriate methodologies and targets, according to the specificities of national contexts.

Graph 17.4 Production of SDGs indicators in LAC countries, 2018 (%)



Source: ECLAC (2019b)

A LOOK FORWARD

This report shows how environmental considerations matter for the achievement of all the seventeen SDG. By compiling the information on how countries in the region are performing in each indicator, we can identify key issues that affect the implementation of the 2030 Agenda for Sustainable Development. This information will be helpful to guide LAC development pathways, where nature must be a core part of the region´s advances and a basis for its resilience.

Current trends in population growth, changing lifestyles, agricultural practices, urbanization, climate variability and economic activities are increasing pressures on natural systems. In this regard, the compilation of the SDG indicators related to the environment can raise awareness among decision makers and the general public, on the implications of unsustainable natural resource exploitation practices for the present and future of our societies.

In this respect, the crisis generated by the coronavirus pandemic is unavoidably affecting the societies and economies of the LAC region, hitting poor and vulnerable citizens the hardest. Consequently, the challenges to recover from these fractures should be aligned with addressing and mitigating the crises related to climate change and biodiversity loss, if the region is to adopt a sustainable development pathway.

The integration of environmental considerations in recovery plans and economic stimulus packages will ensure their long-term viability and their contribution to the achievement of the SDG. The benefits and co-benefits of respecting ecological boundaries and creating powerful synergies with the implementation of the Paris Agreement will advance social welfare, economic prosperity and sustainability.

APPENDIX 1

	Environmental Education	Integrated Water Resources Management	Science, Technology And Innovation	Land/Territorial Development	Climate Change	Biodiversity Offset And/Or Management	Environmental Impact Assessments Implementation
Ant & Barbuda		Sewerage management strategy (2011)	The Patents Act	Medium Term Strategic Development Plan of Antigua y Barbuda 2016-2020	Integrated planning and management (2002)	Environmental Protection and Management Act (2015)	Environmental Protection and Management Act, No. 11 (2015)
Argentina	Estrategia Nacional de Educación Ambiental (ENEA) (2019)	IWRM Roadmap - Sub-secretariat of Water Resources (2007)	Sistema Nacional de Ciencia, Tecnología e Innovación	Plan Estratégico Territorial de Argentina (2018)	Plan Nacional de Adaptación y Mitigación al Cambio Climático (2019)	General Environmental Law (2002)	Environment Act, No. 25675 (2002)
Bahamas		National IWRM Plan	Bahamas Roadmap for Science and Technology	Vision 2040, National Development Plan of the Bahamas (2016)	National Policy for Adaptation to Climate Change (2005)	The Planning and Subdivisions Act/ Draft Planning and Environmental Protection Bill (2001)	Conservation and Protection of the Physical Landscape Act, No. 12 (2000)
Barbados		National Water Resources Management and Development Policy	Science, Technology & Innovation for Sustainable Development - Caribbean Regional Policy Framework for Action	Barbados Physical Development Plan 2017	National Climate Change Policy (2012)		Town and Country Planning Act, n.14 (1968)
Belize		National integrated water resources management policy	Ministry of Energy, Science & Technology and Public Utilities Strategic Plan 2012-2017	Growth and Sustainable Development Strategy of Belize 2016-2019	National Climate Change Policy, Strategy and Action Plan (2014)	EIA Act/Environment Protection Act - 328/ Offset Framework (2000)	Environmental Protection Act, No. 22 (2009)
Bolivia		National River Basin Plan	Plan Nacional De Ciencia, Tecnología e Innovación Componente Sectorial Transformación Industrial y Manufacturera	Planes Territoriales de Desarrollo Integral Departamentales (PDTI) de Bolivia (2016)		Law The Mother Earth and Whole Development for Well-being (2012)	Environment Act, No. 1333 (1992)
Brazil	Ley para la educación ambiental y la Política Nacional de Educación Ambiental (1999)	National Water Resources Plan (2007)	Plano de Ação em Ciência, Tecnologia e Inovação em Extensão Tecnológica para Inclusão Social	Política National de Desenvolvimento Regional (2007)	Política Nacional sobre Cambio Climático (2009)	National Protected Areas System/The Forest Code/ Atlantic Rainforest Law (2000)	Act No. 6938 and Complementary Law No.140 (2011)
Chile	Política Nacional de Educación para el Desarrollo Sustentable (2009)	National Policy for Water Resources 2015	Ley N° 21.105 que crea el Ministerio de Ciencia, Tecnología, Conocimiento e Innovación	Planes Regionales de Ordenamiento Territorial de Chile (2011)	Plan de Acción Nacional de Cambio Climático (2017)	Law 19300 The Environmental Impact Assessment System/ Decreee no.40 Environmental Damages Compensation/Avoidance (2010)	Environmental Framework Law, No. 19300 (2010)
Colombia	Politica Nacional de Educación Ambiental (2002)	National Development Plan 2006-10 - National Planning Department (2006)/ Water Conservation Funds	Sistema Nacional de Ciencia, Tecnología e Innovación	Plan de Ordenamiento Departamental (POD) de Colombia + Plan de Ordenamiento Territorial de Colombia (2018)	Política Nacional de Cambio Climático (2017)	Manual of Compensation for Loss of Biodiversity/ General Environmental Law/ Environmental Impact Assessment Decree (2012)	Act No. 99 (1993)

	Environmental Education	Integrated Water Resources Management	Science, Technology And Innovation	Land/Territorial Development	Climate Change	Biodiversity Offset And/Or Management	Environmental Impact Assessments Implementation
Costa Rica		National Strategy for integrated Water Resources management/ National IWRM Action Plan/ National Water Law	Plan de Ciencia, Tecnología e Innovación	Plan Nacional de Ordenamiento Territorial de Costa Rica (2012)	Ley Marco de Cambio Climático (2014)	General Environmental Law/ Forestry Law/ General Regulations (Decree 31849)/ Biodiversity Law (2004)	Organic Law on the Environment, No. 7554 (1995)
Cuba	Estrategia Ambiental Nacional 2016 - 2020 (chapter 2)	National Water Policy (2000)	Marco legal de CTI	Esquema Nacional de Ordenamiento Territorial de Cuba (2018)	Plan de Estado para el enfrentamiento del Cambio Climático (2017)	Law of the Environment/ Law of Mines (1995)	Act No. 81 (1997)
Dominica		Hurricane Preparedness Plan for water supply services	Science, Technology & Innovation for Sustainable Development - Caribbean Regional Policy Framework for Action	National Physical Development Plan of Dominica (2002)	National Climate Change Adaptation Policy (2002)	Physical Planning Act (2002)	Environmental impact assessment guidelines (2009)
Dominican Rep.	Estrategia de Educación Ambiental para el desarrollo sustentable (2004)	Mesoamerican Strategy and Plan for IWRM	Plan Estratégico de Ciencia, Tecnología e Innovación 2008-2018	Plan Nacional de Ordenamiento Territorial (PNOT), 2015-2030	Política Nacional de Cambio Climático (2015)	General Law of Environment and Natural Resources/ Forest Code (1999)	Act No. 64 (2000)
Ecuador	Estrategia Nacional de Educación Ambiental para el Desarrollo Sostenible (2017)	Water Conservation Funds	Ley de Ciencia, tecnología y Innovación	Planes de Desarrollo y Ordenamiento Territorial de Ecuador (2014)	Estrategia Nacional de Cambio Climático (2012)	General Environmental Law/ Environmental Impact Assessment Regulation/ Energy and Mining Environmental Regulations (2002)	Environmental Management Act, No. 37 (1999)
El Salvador	Política Nacional de Educación Ambiental (2018)	National Plan for IWRM	Ley del Consejo Nacional de Ciencia y Tecnología	Plan National de Ordenamiento Territorial de El Salvador (2004)	Plan Nacional de Cambio Climático y Gestión de Riesgos Agroclimáticos para el Sector Agropecuario, Forestal, Pesquero y Acuícola (2017)	Special Regulation in Environmental Compensation (1998)	Environment Act, Decree No. 233 (1998)
Grenada		Road Map Toward IWRM Planning	Science, Technology & Innovation for Sustainable Development - Caribbean Regional Policy Framework for Action	Physical Plan of Grenada (2002)	Grenada Strategic Program for Climate Resilience (2011)	Environmental Protection Levy Act/ Soil and Water Conservation Act/ Physical Planning and Development Control Act/ Waste management Act (1997)	Physical Planning and Development Control Act, No. 25 (2008)
Guatemala	Política Nacional de Educación Ambiental (2017)	National Water Policy (2004)	Ley de Promocion del Desarrollo Científico y Tecnologico Nacional	Plan National de Desarrollo K'atun: nuestra Guatemala 2032 (2014)	Ley marco para regular la reducción de la vulnerabilidad, la adaptación obligatoria ante los efectos del cambio climático y la mitigación de gases de efecto invernadero (2013)	Environmental Law Framework (2007)	Environmental Protection and Improvement Act, No. 68 (1993)
Guyana		Water Safety Plan	Science, Technology & Innovation for Sustainable Development - Caribbean Regional Policy Framework for Action	Guyana National Land Use Plan (2013)	Climate Resilience Strategy and Action Plan (2020)	Act of Environmental Protection (1996)	Environmental Protection Act, No. 11 (2013)

	Environmental Education	Integrated Water Resources Management	Science, Technology And Innovation	Land/Territorial Development	Climate Change	Biodiversity Offset And/Or Management	Environmental Impact Assessments Implementation
Haiti		Haiti's Artibonite Valley Initiatives		Plan Stratégique de Developpement Haiti (2012)	National policy to combat climate change (2019)	Decree on Environmental Management (2005)	Environment Decree (2006)
Honduras	Ley Especial de Educación y Comunicación Ambiental (2009)	IWRM Action Plan - Honduran Water Platform (2006)	Ley Para la Promoción y Fomento del Desarrollo Científico, Tecnológico y la Innovación	Visión de País 2010–2038 y Plan de Nación 2010-2022	Ley de Cambio Climático (2014)	General Law of the Environment/ Environment Protection Fund/ Regulation of the National EIA System (2015)	Regulations of the National Environmental Impact Assessment System (2015)
Jamaica		National Water Policy, Strategy and Action Plan	Science and Technology for SocioEconomic Development	Vision 2030 Jamaica. National Development Plan (NDP) (2009)	Climate Change Policy Framework for Jamaica (2015)	Natural Resources Conservation Authority/ Natural Resources Conservation Regulations/ Guidelines for Environmental Impact Assessment/ General Guidelines for Permit and Licence Aplications (1991)	Guidelines for Conducting Environmental Impact Assessments (2007)
Mexico		National System of Water Information	Ley de Ciencia y Tecnología	Ley General de Asentamientos Humanos, Ordenamiento Territorial y Desarrollo Urbano (2016)	Ley general de cambio climático (2012)	General Law on Sustainable Forestry/ Agreement on Offsets Equivalency/The General Law on Ecological Balance and Environmental Protection (2003)	Environmental Impact Assessment (2014)
Nicaragua		General Law on National Waters (2007)	Plan Nacional de Ciencia, Tecnología e Innovación 2010-2013	Ley General de Ordenamiento y Desarrollo Territorial (2012)	Política nacional de mitigación y adaptación al cambio climático (2019)	General Law for the Environment and Natural Resources/ Decree 76 - Environmental Impact Assessment/ Environmental Assessment System/ National Environment Fund (1996)	Environment and Natural Resources Act, No. 217 (2008)
Panama	Ley para la enseñanza obligatoria de la educación ambiental y la gestión integral de riesgo de desastre (2014)	Programme for the Restoration of Priority Basins	Política Nacional de Ciencia, Tecnología e Innovación y Plan Nacional	Plan de Desarrollo Urbano de la Región Metropolitana Pacífico y Atlántico (2016)	Política nacional de cambio climático (2007)	General Environmental Law/ Environmental Impact Assessment Process (1998)	Environment Act, No. 41 (2015)
Paraguay		National Water Resources Plan	Ley General de Ciencia y Tecnología	Plan Marco National de Desarrollo y Ordenamiento Territorial de Paraguay + Plan de Ordenamiento Urbano y Territorial (2012)	Ley Nacional sobre Cambio Climático (2017)	Evaluation and Remuneration of Environmental Services/ Environmental Impact Assessment Regulation (2006)	Environmental Impact Assessment Act, No. 294 (1994)
Peru	Política Nacional de Educación Ambiental 2016-2021	Action Plan 'Lima 2040'	Plan Nacional Estratégico de Ciencia, Tecnología e Innovación para la Competitividad y el Desarrollo Humano 2006 – 2021	Plan de Ordenamiento Territorial (POT) de Perú (2016)	Ley marco sobre cambio climático (2018)	National System for Environmental Impact Assessment/ General Guidance for the Environmental Compensation Plan/ General Environmental Act (2014)	Environment Act, No. 28611 (2008)

	Environmental Education	Integrated Water Resources Management	Science, Technology And Innovation	Land/Territorial Development	Climate Change	Biodiversity Offset And/Or Management	Environmental Impact Assessments Implementation
St Kitts and Nevis		OECS Model Water Policy and Legislation		Development Control and Planning Act (2002)	Under development	National Conservation and Environmental protection Act (1987)	National Conservation and Environment Protection Act, No. 5 (1987)
St Lucia		Water Safety Plan	Science, Technology & Innovation for Sustainable Development - Caribbean Regional Policy Framework for Action	Under development	National climate change adaptation policy (2015)	Litter Act (1983)/Land Conservation and Improvement Act (1992)	Physical Planning and Development Act, No. 29 (2005)
St V & the Grenad.		Water Safety Plan	National Information and Communication Technology - Strategy and Action Plan 2010-2015	National Economic and Social Development Plan 2013-2025	Under development	Environmental Impact Assessment Regulation (draft)/ Environmental Management Act (draft) (2009)	Town and Country Planning Act, No. 45 (1992)
Suriname		Water Forum Suriname	Public policies to promote innovation in Suriname	Policy Development Plan 2017-2021	Final National Climate Change Policy, Strategy and Action Plan for Suriname 2014-2021 (2015)	Forest Management Act (1992)/ National Forest Policy (2006)	Manual on the environmental impact assessment process in Suriname (2009)
Trin & Tobago	National Biodiversity Strategy and Action Plan - Part 4 of the plan - Education and Awareness (2001)	National Integrated Water Resources Management Policy (2005)	Science, Technology and Innovation - Draft Policy Report	National Spatial Development Strategy (NSDS), 2013-2023	National Climate Change Policy (2011)	Environmental Management Act/ Certificate of Environmental Clearance Rules (2000)	Environmental Management Act, No. 3 (2000)
Uruguay	Plan Nacional de Educación Ambiental (2014)	National Water Policy Act (2009)	Sistema Nacional de Competitividad	Ordenamiento Territorial y Desarrollo Sostenible (2008)	Plan Nacional de Respuesta al Cambio Climático (2010)	General Law of Environmental Protection/ Environmental Impact Assessment Regulation (2005)	Environmental Protection Act, No. 17283 (2000)
Venezuela (B.R.)	Política y Estrategia Nacional de Educación Ambiental y Participación Popular (2012)	National Water Plan	Ley Organica de Ciencia, Tecnologia e Innovacion	Plan de la Patria: Segundo Plan de Desarrollo Económico y Social de la Nación 2013-2019	Under development	Norms for Environmental Assessments of Activities that are Susceptible of Degrading the Environment (1996)	Organic Law on the Environment (2006)

Note: Please note that this is not an exhaustive list and some policies' names may be abbreviated or with linguistic adaptations.

Specific Notes:

ENV. EDUC.: Policies with main purpose or a significant section regarding environmental/sustainable development education. **Source:** internal researches

INT WATER: Source: UNEP, 2016c

STI: Policies having, to some extent, components regarding environment and sustainability. **Source:** UNESCO GO-Spin, 2019 and ECLAC, 2007.

LAND/TERRIT: Year of implementation or last reform. **Source:** ECLAC/ILPES (2019) and internal researches

CLIM. CHANGE: Source: UNEP/CEPEI, 2018

BIOD.: Year of the earliset policy, there being more than one. **Source:** GIBOP, 2019

E.I.A.: Year of last reform. **Source:** ECLAC, 2018a

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