

# The climate emergency in Latin America and the Caribbean

The path ahead – resignation or action?

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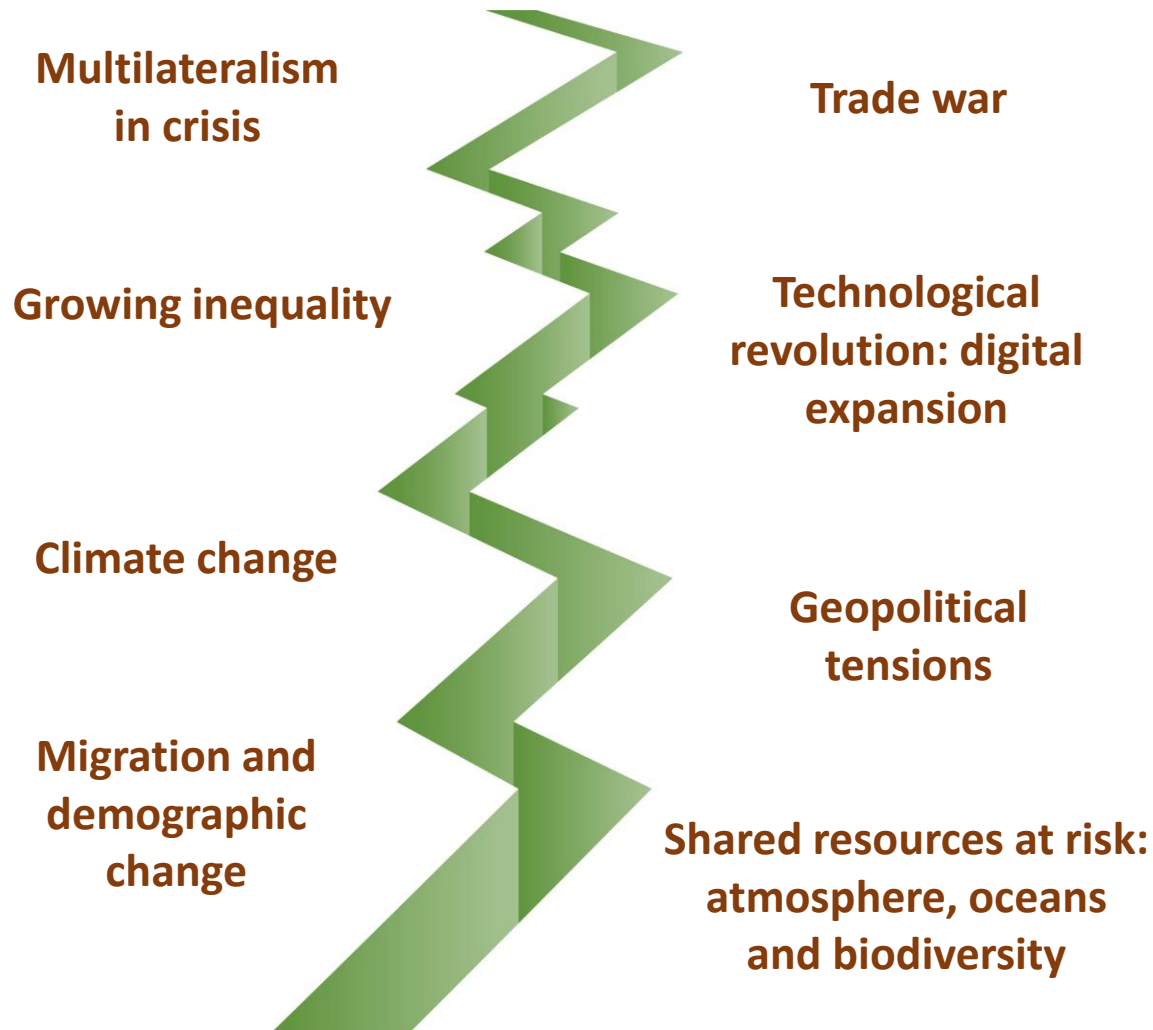


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# Why this book is important

- It offers a comprehensive review of the effects of the climate emergency in our region and policies for addressing it.
- It sets forth proposals for action to achieve a new, more sustainable and more egalitarian development model, in keeping with ECLAC long-term thinking and the 2030 Agenda for Sustainable Development.
- It contains essential guidelines for reactivating the economies with equality and sustainability.

# The health and climate crisis are part of an unsustainable development model



- A model associated with a **falling rate of production and trade growth** (recessionary bias) and decoupling from the financial system
- ... linked to **great inequality** with predominance of élites (culture of privilege)
- ... based on **large negative externalities** such as emissions associated with climate change
- ...that **exceed** global environmental thresholds
- ...and with **systemic vulnerabilities** laid bare by COVID-19

# Main themes of the book

- **Approach: progressive structural change with three efficiencies:**
  - Schumpeterian: innovation-intensive activities
  - Keynesian: increase in demand, production and employment
  - Environmental: decoupling of growth from carbon emissions
- **Climate change, biodiversity, the water challenge and rising sea level.**
- **Aggregate and sectoral impacts in the region.**
- **Extreme vulnerability of Central America and the Caribbean.**
- **Policies for mitigation and adaptation with participation by society (Escazú Agreement).**

# Messages

- 1. Climate change is the outcome of an unequal development pattern that is unsustainable and imposes heavy negative externalities.**
- 2. International negotiations and national climate policy are the way forward in the struggle to divide, transfer, minimize, avoid and measure the burden of the externality.**
- 3. Latin America and the Caribbean is highly vulnerable despite its small contribution to global emissions.**
- 4. Adaptation is inevitable and has benefits.**
- 5. Climate action proposals identify policies for strategic sectors that reduce emissions, create jobs and boost investment.**
- 6. The proposed policies are more relevant than ever and can address the reactivation with equity and sustainability, to move towards a new development pattern.**

**Message 1. Climate change is the outcome of an unequal development pattern that is unsustainable and imposes heavy negative externalities**



# The COVID-19 crisis foreshadows the impact of the climate emergency

- **Both are global public bads:**
  - They arise from the abuse of nature
  - Inaction is having irreversible costs
  - They show the strategic value of public goods
  - They require collective, simultaneous action and international cooperation
- **The State has an essential role to play.**
- **Decisions must be based on science backed by multilateral scientific organizations.**
- **Whereas in the COVID-19 crisis there is a trade-off with economic activity, the response to the climate crisis has synergies with economic activity.**
- **Very different responses:**
  - **The COVID-19 crisis is marked by a sense of urgency and political will.**
  - **By contrast, sense of urgency and political will are still lacking with regard to the climate crisis.**

# 4 of 9 ecological boundaries have been breached

Dimension	Limit
1. Climate change	Atmospheric concentration of carbon dioxide not to exceed 350 ppm. <b>We have reached 413 ppm.</b>
2. Extinction of species and biodiversity loss	Maintain 90% of biodiversity. <b>84% in Africa today.</b>
3. Addition of phosphorus and nitrogen (and other elements) to ecosystems	Use per year of approximately 11 teragrams (Tg) of phosphorus and 62 Tg of nitrogen. <b>Today 22 Tg and 150 Tg.</b>
4. Deforestation and land-use change	Maintain 75% of native forests. <b>Now 62%.</b>
5. Atmospheric aerosol loading affecting the climate and living organisms	Unknown global boundary, but regional effects (such as the South Asian monsoon) occur at optical depths exceeding 0.25.
6. Stratospheric ozone depletion	Less than 5% below the pre-industrial level of around 290 Dobson Units (DU).
7. Ocean acidification	Aragonite dissolution.
8. The water challenge	We can use up to 4,000 km <sup>3</sup> of fresh water per year.
9. Release of organic and inorganic pollutants (radioactive materials and other new and anthropogenic substances)	More plastic than marine species and other unknown effects.

Fuente: Steffen *et al.* (2015), Planetary Boundaries: Guiding human development on a changing planet, Science, 347(6223).



# The evidence on global warming is unmistakable: the greatest market failure of all time

- Current climate change is caused by human activity.
- The temperature has already risen by 1° C over the pre-industrial era (1750)
  - Rise in average sea levels
  - Reduction of the cryosphere
  - Heightened patterns of extreme weather events
- Insufficient commitment from major emitter countries
- Action committed is not enough to reach either the 1.5°C or the 2°C target
- Limited progress in fiscal affairs and financing (the Green Climate Fund is insufficient and has been turned into a credit, i.e. the cost is borne by the affected party).

**Message 2. International negotiations and national climate policy are the way forward in the struggle to divide, transfer, minimize, avoid and measure the burden of the externality**



# The Paris Agreement

- Defined the planet's carrying capacity for carbon.
- Created voluntary national carbon budgets through slightly more ambitious —though still insufficient — nationally determined contributions.
- Laid bare the opportunity cost between activities linked to unproductive discretionary consumption and those that are inclusive, sustainable and job-creating (it matters who produces emissions and for what purpose).
- Signified a setback in differentiation of responsibilities between countries, which heightens centre-periphery tensions. The carbon budget remaining for the peripheral countries may not be enough for development needs.

# Global tension over the carbon budget

- The more the centre grows, the less the space will be available for the growth of the periphery.
- The faster the technical progress made towards less polluting products and processes in the centre, the more space for growth there will be on the periphery.
- The faster these innovations are spread to the periphery, and the faster the rate of environmental innovation on the periphery, the more space for growth the periphery will have.
- Changes in consumption patterns towards less goods less intensive in carbon and in natural resources increase the space for environmentally balanced growth on the periphery.

# Global carbon budget

Carbon budget	Limit on temperature increase
1 070 gigatons of CO <sub>2</sub>	less than 2 °C above pre-industrial levels
320 gigatons of CO <sub>2</sub>	less than 1.5 °C above pre-industrial levels

***Currently, 50 gigatons of CO<sub>2</sub> are emitted per year: if this flow continues, the budget for an increase of less than 2 °C will run out in around two decades and for an increase of less than 1.5 °C within a single decade.***

***Without more ambitious action, the temperature will rise by 4 °C by the end of the century.***

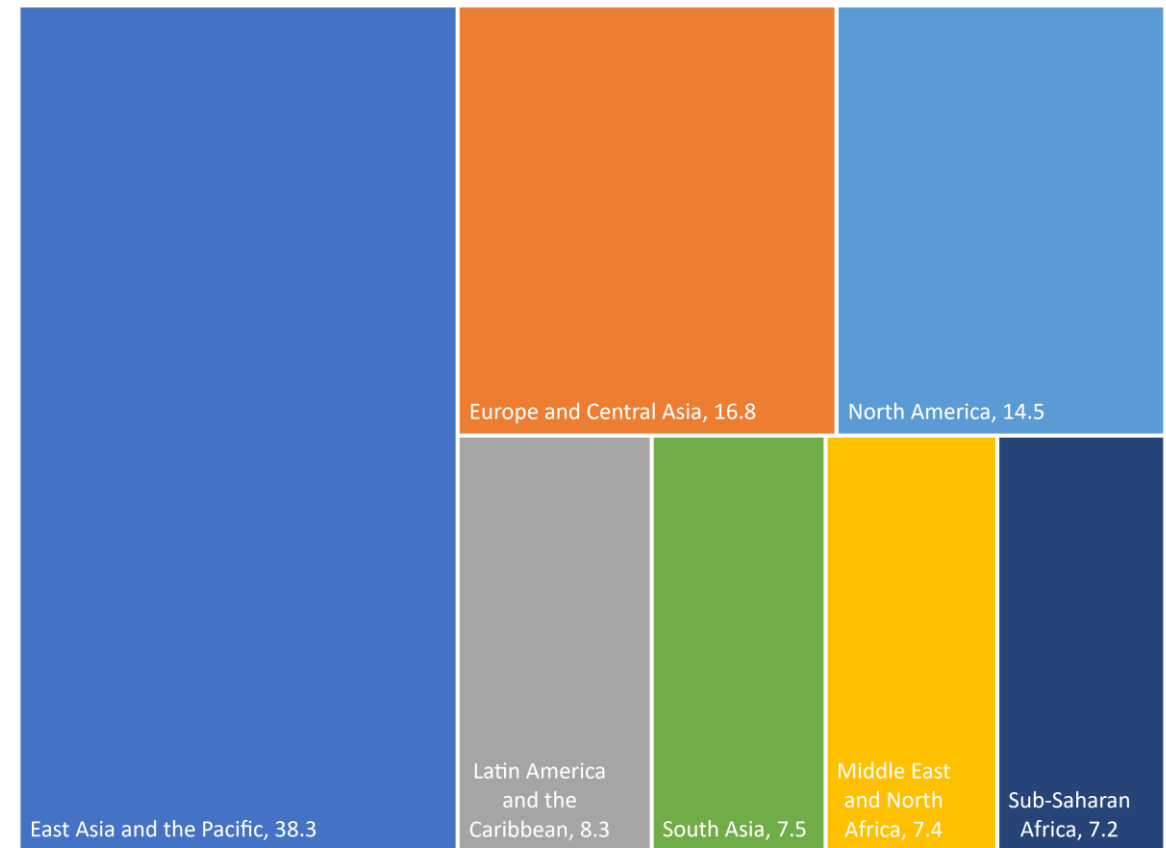
**Message 3. Latin America and the Caribbean  
is highly vulnerable despite its small  
contribution to global emissions:  
twofold inequality**



# The Latin American and Caribbean region has a small share in the responsibility for global emissions...

- Global GHG emissions were 50 GtCO<sub>2</sub>e and the region emitted 4.2 GtCO<sub>2</sub>e
- Inertial growth in the region would leave it with 11 years compatible with a 1.5°C temperature rise, and 23 years for the 2°C limit
- The structure of the region's emissions: 45% from the energy sector, 23% from agriculture and livestock and 19% from land-use change

Distribution of greenhouse gas emissions by region, 2016  
(Percentages)



Source: Figure 3 in A. Bárcena and others, *The climate emergency in Latin America and the Caribbean: The path ahead – resignation or action?*, ECLAC Books, No. 160 (LC/PUB.2019/23-P), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2020.

## ...but is highly vulnerable

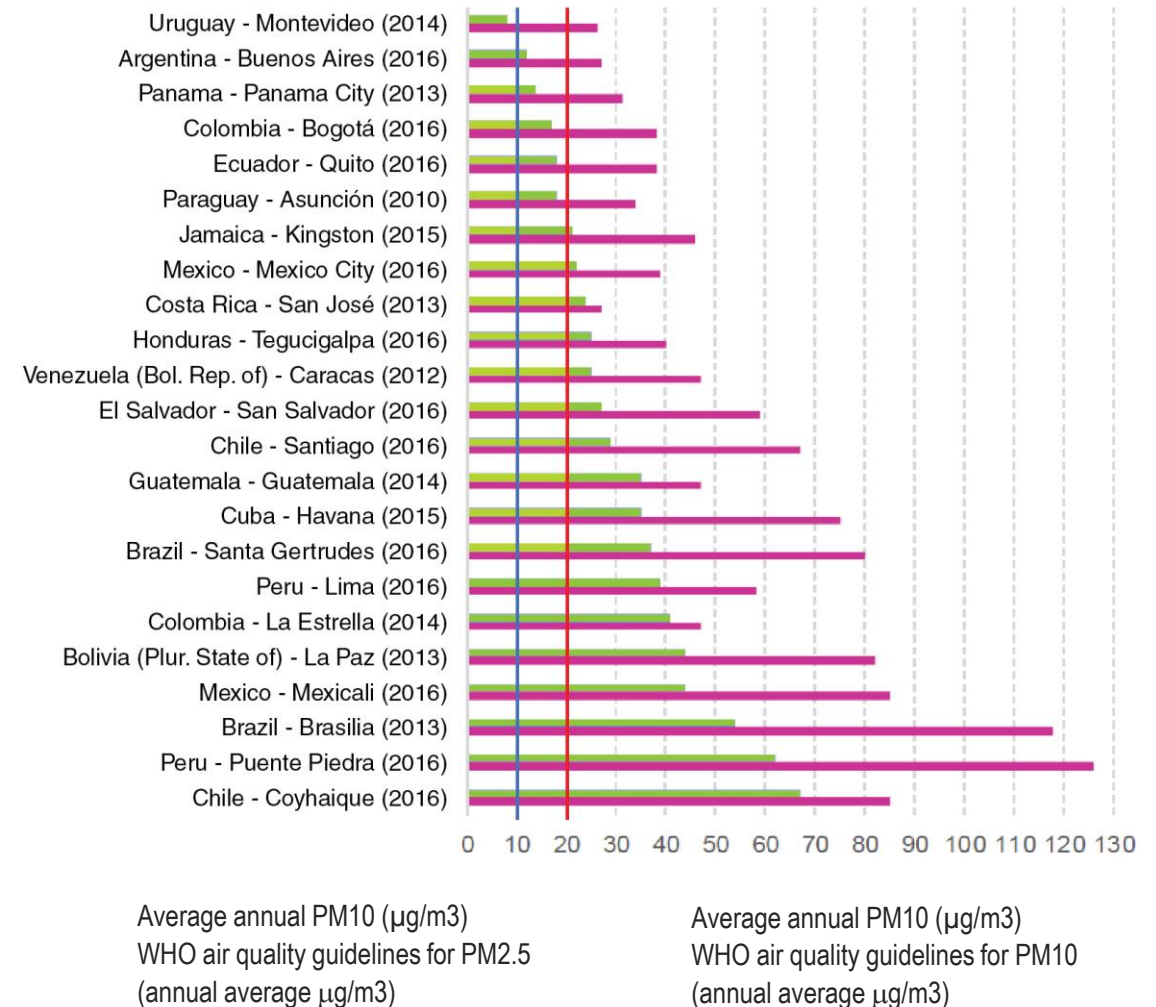
- Fragility vis-à-vis natural disasters.
- Between 1970 and 2019, Latin America and the Caribbean was hit by 2,309 disasters, according to figures from CRED. These events caused 510,204 deaths, and losses and damages affecting 297 million people and costing over US\$ 437 billion.
- The estimated costs associated with the main physical impacts of a 2.5 °C temperature rise range between 1% and 5% of the region's GDP.
- Highly sensitive sectors include agriculture (6% of regional GDP), in addition to the water challenge due to increased droughts, health effects and a high impact in coastal areas.
- High vulnerability of Central America and the Caribbean.



# Emissions are already damaging health

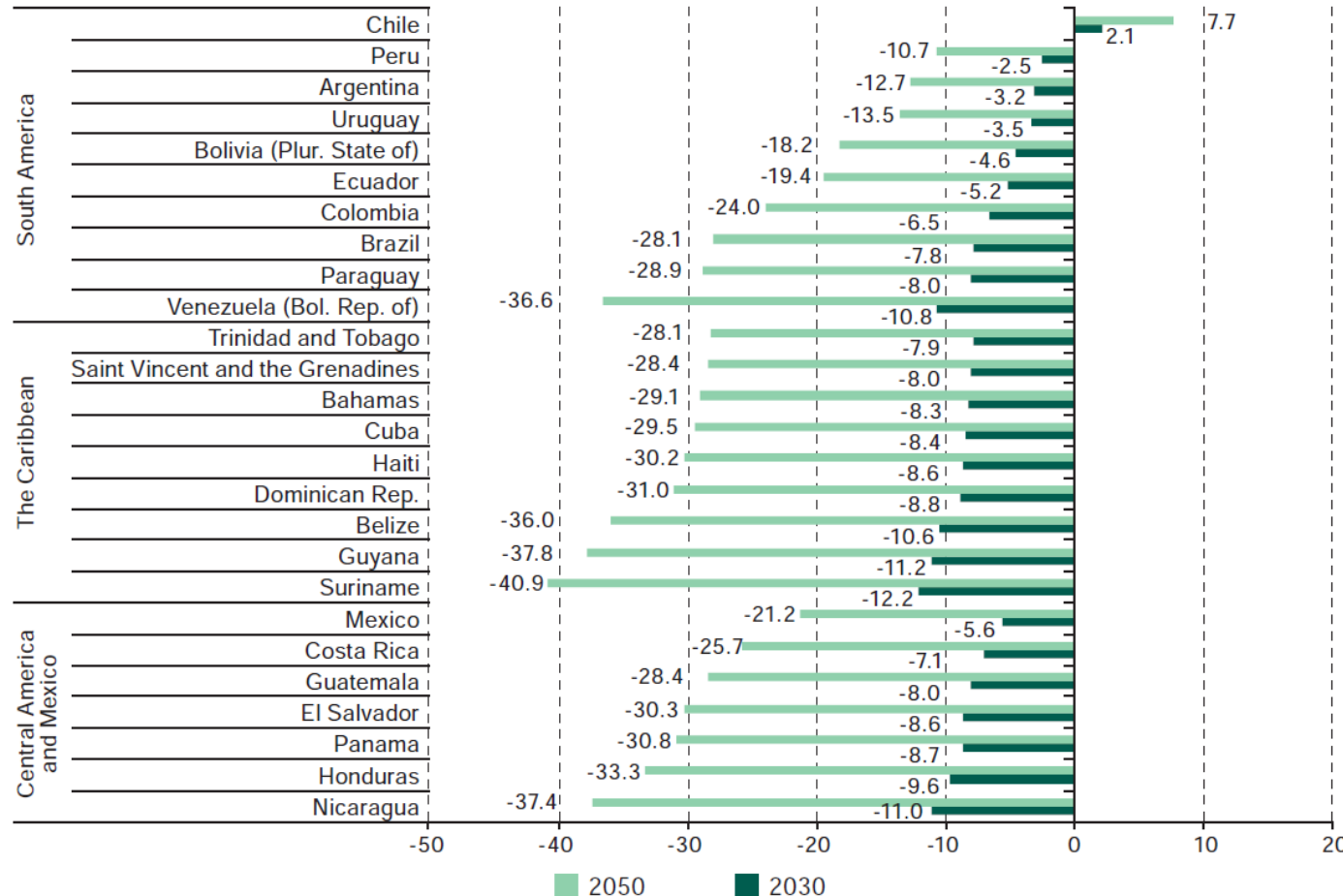
- Even with only 8.3% of global GHG emissions, there is a serious impact on local health in the region, exceeding health standards several times over.
- The urban development model has gone hand in hand with increased demand for transport, public services, inputs and products and, in general, greater pressure on natural resources and environmental goods and services.

Latin America and the Caribbean: concentration of fine (PM2.5) and coarse (PM10) particulate matter in 23 cities, latest year available



# The adverse effects of climate change on the economy may occur within less than 10 years

Latin America and the Caribbean (26 countries): projected variation in per capita GDP due to temperature rise, not including the cost of natural disasters, 2030 and 2050 (Percentages)

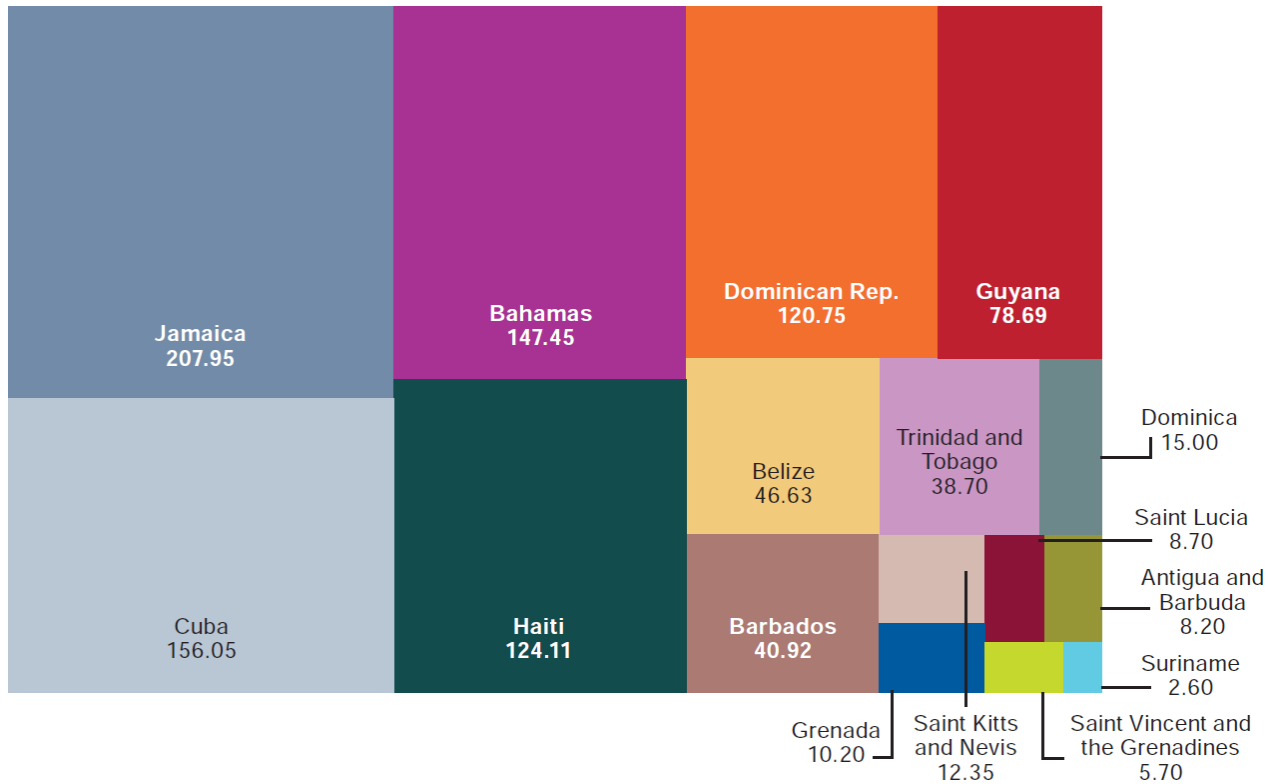


**Per capita GDP loss comparing inertial per capita GDP with the most pessimistic scenario for temperature rise by the end of the century (4°C)**

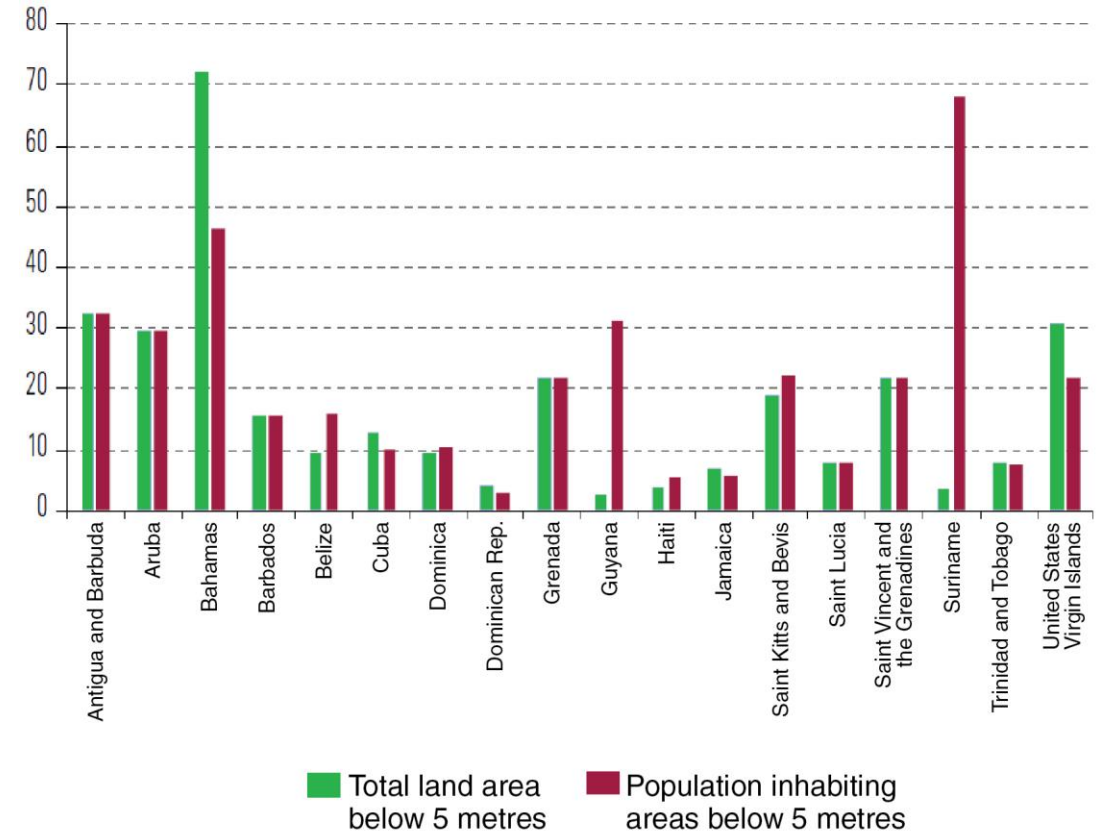
Source: Figure II.5 in A. Bárcena and others, *The climate emergency in Latin America and the Caribbean: The path ahead – resignation or action?*, ECLAC Books, No. 160 (LC/PUB.2019/23-P), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2020.

# Caribbean cities: close to the sea in most cases, with a large proportion of the population living at elevations of below 5 metres

The Caribbean: urban coastline  
(Kilometres)



The Caribbean: land area below 5 metres, and percentage of population inhabiting areas below 5 metres  
(Percentages)



Source: M. Mycoo y M. Donovan, A Blue Urban Agenda: Adapting to Climate Change in the Coastal Cities of Caribbean and Pacific Small Island Developing States, Washington. D.C., Banco Interamericano de Desarrollo (BID), 2017.

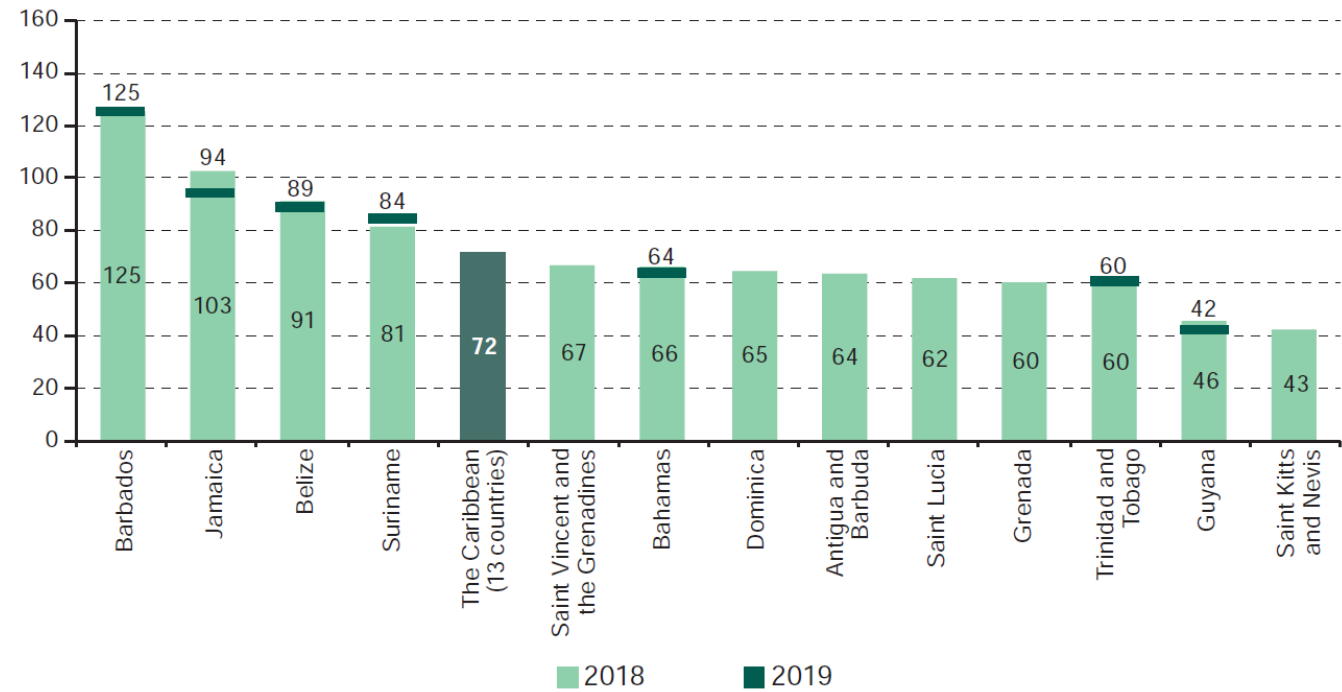
Source: United Nations Human Settlements Programmes (UN-Habitat), *Urbanization and Climate Change in Small Island Developing States*, Nairobi, 2015.

## In the Caribbean, the situation is exacerbated by the external debt problem and vulnerability to extreme hydrometeorological events

The proposal is debt relief for resilience:

1. Prevail upon creditors to acquire multilateral and bilateral debt at negotiated discount rates.
2. In the case of private creditors, a repurchase and debt swap mechanism would be applied.
3. The savings would be put into an investment for resilience fund.
4. The debt is rooted in external shocks exacerbated by extreme vulnerability to natural disasters.

The Caribbean (13 countries): gross central government public debt, 2018–2019  
(Percentages of GDP)



Source: Figure III.25 in A. Bárcena and others, *The climate emergency in Latin America and the Caribbean: The path ahead resignation or action?*, ECLAC Books, No. 160 (LC/PUB.2019/23-P), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2020.

**Message 4. Adaptation  
is inevitable  
and has benefits**

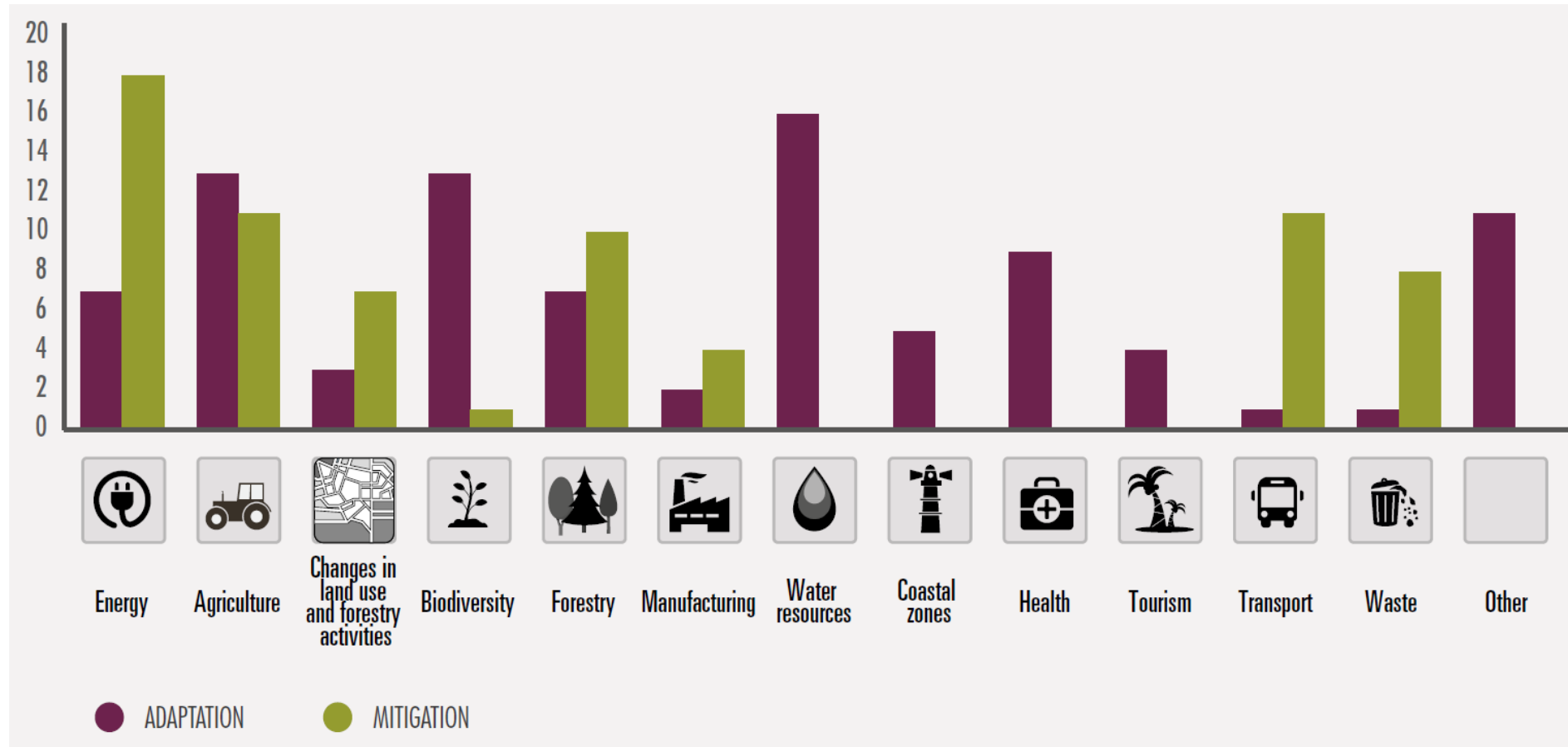


# Challenges of adaptation to climate change

- 1** Insufficient global mitigation augments the local adaptation effort needed.
- 2** Agriculture is the most sensitive sector and its structure, yields and crop cycles will change.
- 3** Vulnerability of power generation systems, particularly hydroelectricity.
- 4** Cities are key actors in sustainable development.
- 5** The water challenge: the availability of water for human consumption, agriculture and industry will be affected.
- 6** **Loss of biodiversity is underestimated.**
- 7** **Coastal areas and infrastructure under threat.**

# Adaptation reduces risks, benefits the most vulnerable and drives development

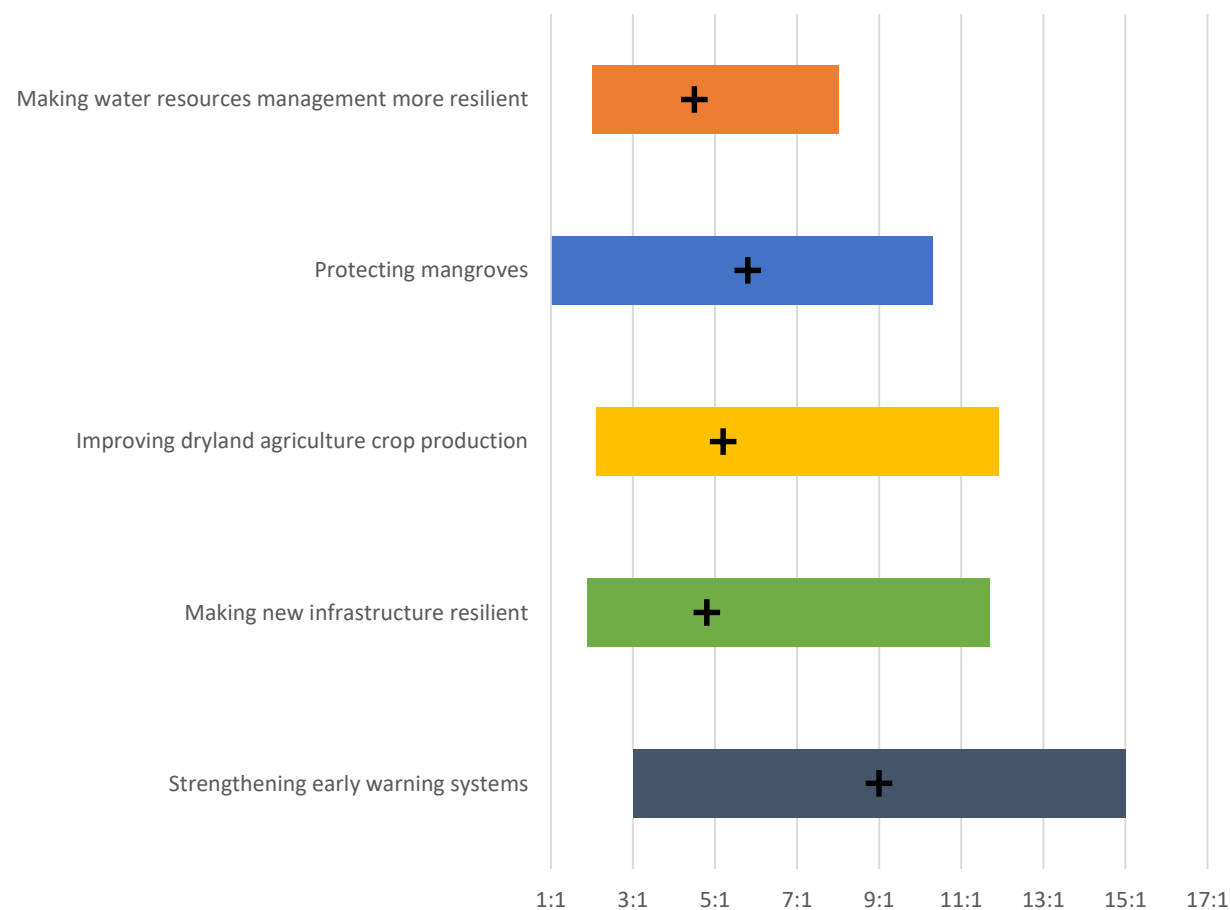
**Latin America and the Caribbean: high-priority sectors for mitigation and adaptation, 2016**  
*(Number of countries that name the following sector in their national climate change plans or communications)*



Source: ECLAC, on the basis of official data.

# Adaptation can produce significant benefits

## Costs and benefits of investments in adaptation (Cost-benefit ratios)



- The ranges are broad owing to uncertainty and the variability of each case.
- Nature-based solutions display synergies between adaptation and mitigation.
- Investment portfolios in strategic sectors: spatial planning, food and water security, reforestation, health, water use, urban gardening, infrastructure in coastal regions and protection of biodiversity.

**Source:** Figure IV.3 in A. Bárcena and others, *The climate emergency in Latin America and the Caribbean: The path ahead – resignation or action?*, ECLAC Books, No. 160 (LC/PUB.2019/23-P), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2020.

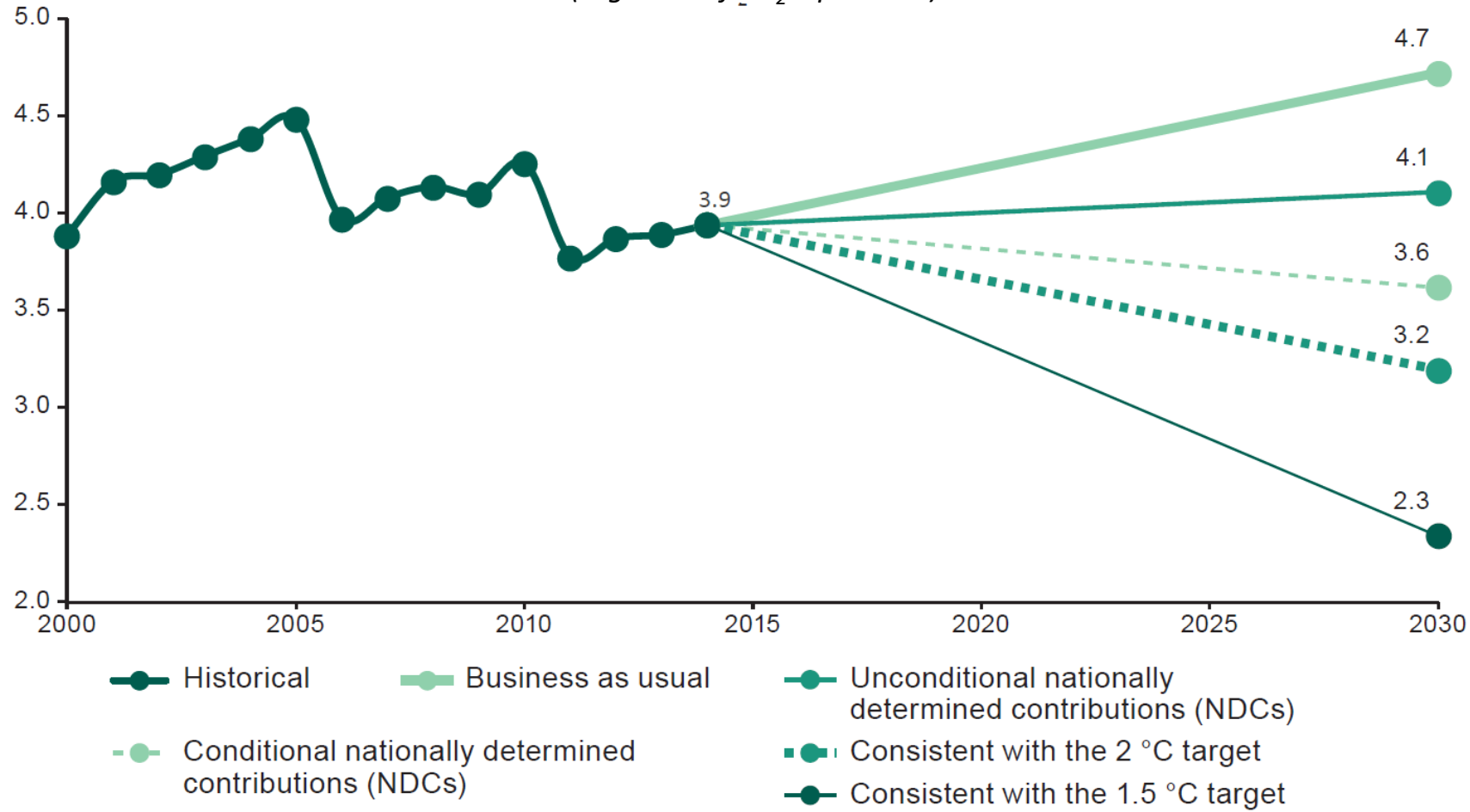


**Message 5. Climate action proposals  
identify policies for strategic sectors  
that reduce emissions, create jobs  
and boost investment**



# The extent of the challenge: without structural change, pledges are unattainable

Latin America and the Caribbean: emissions scenarios, 2014–2030  
(Gigatons of CO<sub>2</sub> equivalent)

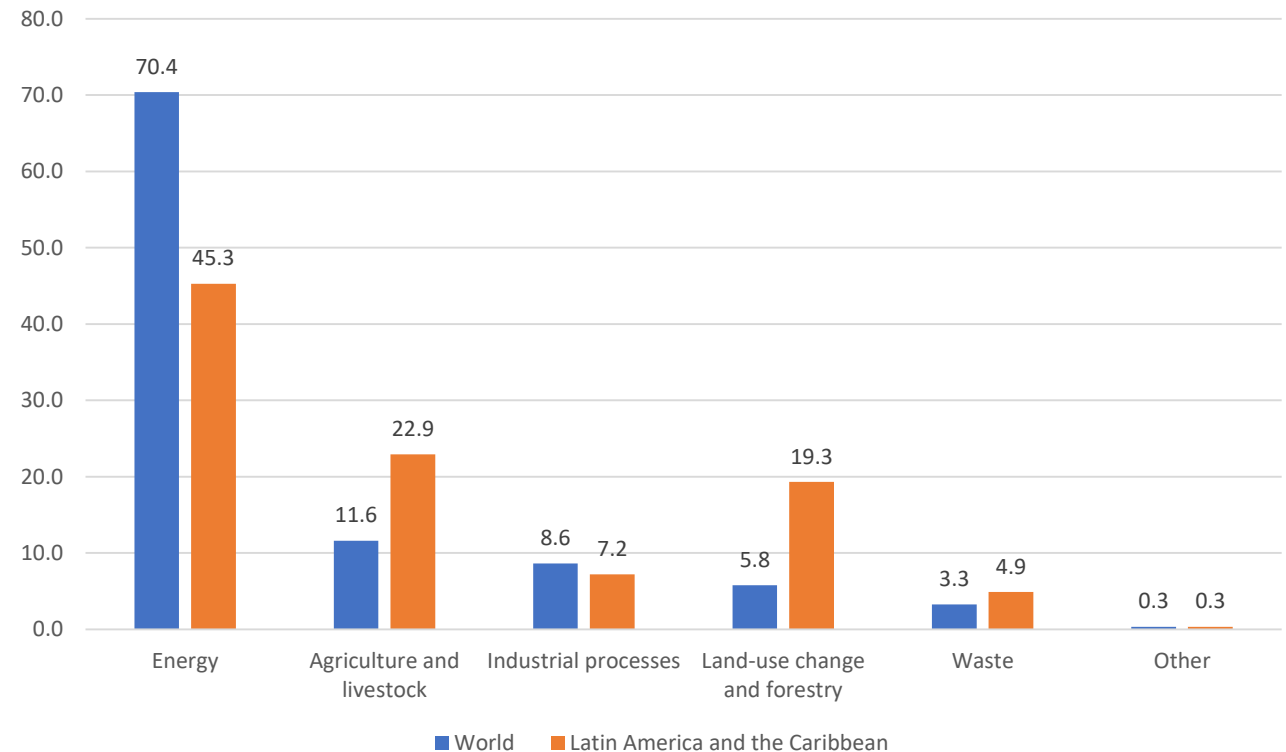


Source: Figure V.4 A. Bárcena and others, *The climate emergency in Latin America and the Caribbean: The path ahead – resignation or action?*, ECLAC Books, No. 160 (LC/PUB.2019/23-P), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2020.

# Sector drivers of structural change

- Non-conventional renewable energy
- Nature-based solutions
- Circular economy and recycling
- Smart cities: digitization, sustainable buildings and e-mobility
- Sustainable, resilient infrastructure: basic amenities
- Less polluting consumption
- Care economy

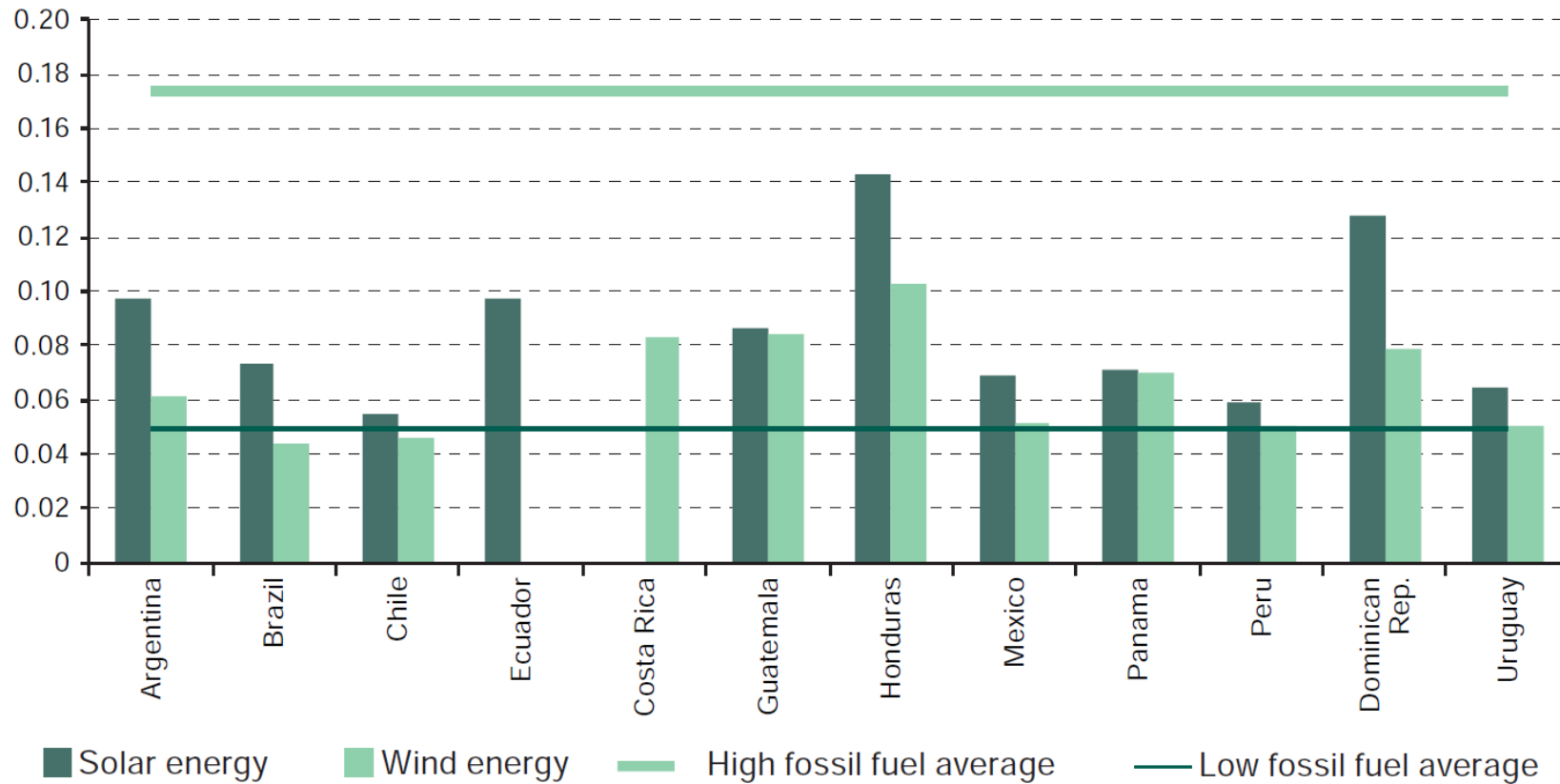
Latin America and the Caribbean and the world: sectoral shares of greenhouse gas emissions, 2016  
(Percentages)



Source: Figure I.5 in A. Bárcena and others, *The climate emergency in Latin America and the Caribbean: The path ahead – resignation or action?*, ECLAC Books, No. 160 (LC/PUB.2019/23-P), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2020.

# Technological innovation makes renewable energy more economical, despite the undue advantages still enjoyed by fossil fuels

Latin America and the Caribbean (12 countries): average normalized cost of solar and wind energy, 2018  
(Dollars per kWh)

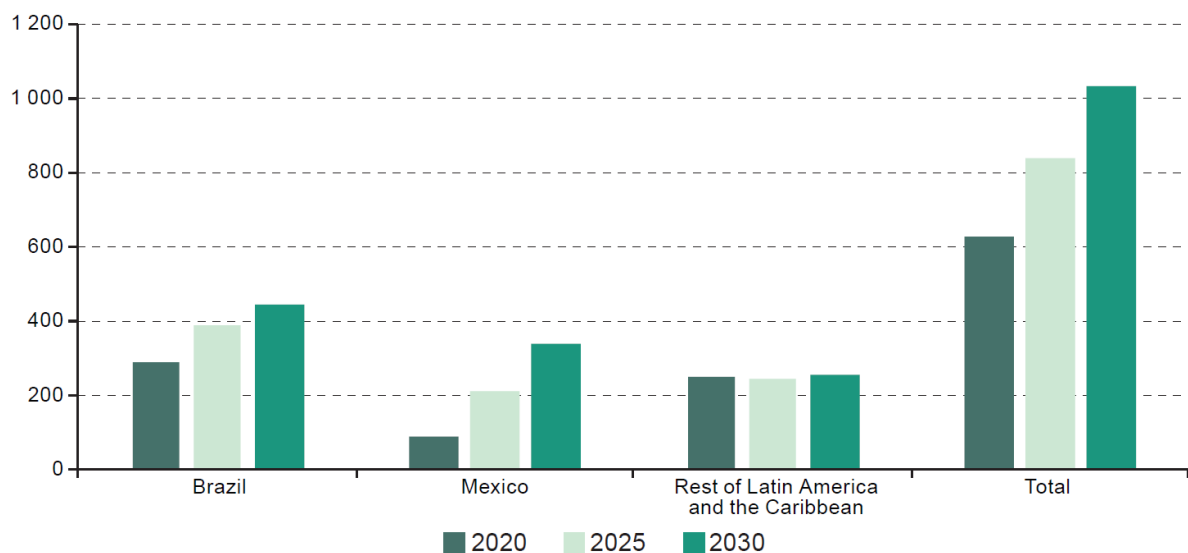


Source: Figure V.17 in A. Bárcena and others, *The climate emergency in Latin America and the Caribbean: The path ahead – resignation or action?*, ECLAC Books, No. 160 (LC/PUB.2019/23-P), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2020.

# Generation of clean energy: growth and employment

## Brazil, Mexico and rest of Latin America and the Caribbean: net job creation in an energy transition scenario, 2020–2030

(Thousands of jobs created)



## Chile: contribution of each GWh generated to GDP, by technology, 2016

		Generating technology						
		Total	Fossil	Total renewable	Hydroelectric	Biomass	Solar	Wind
Generation	GWh	73 877	47 281	26 595	19 208	2 955	2 216	2 216
Value added	Millions of dollars	4 009	1 882	2 127	1 581	180	183	183
Value added/generation	Thousands of dollars per GWh	54	40	80	82	61	83	83

**Source:** Figure V.19 and Table V.17 in A. Bárcena and others, *The climate emergency in Latin America and the Caribbean: The path ahead – resignation or action?*, ECLAC Books, No. 160 (LC/PUB.2019/23-P), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2020.

**Message 6. The proposed policies are more relevant than ever and can address the reactivation with equity and sustainability, to move towards a new development pattern**

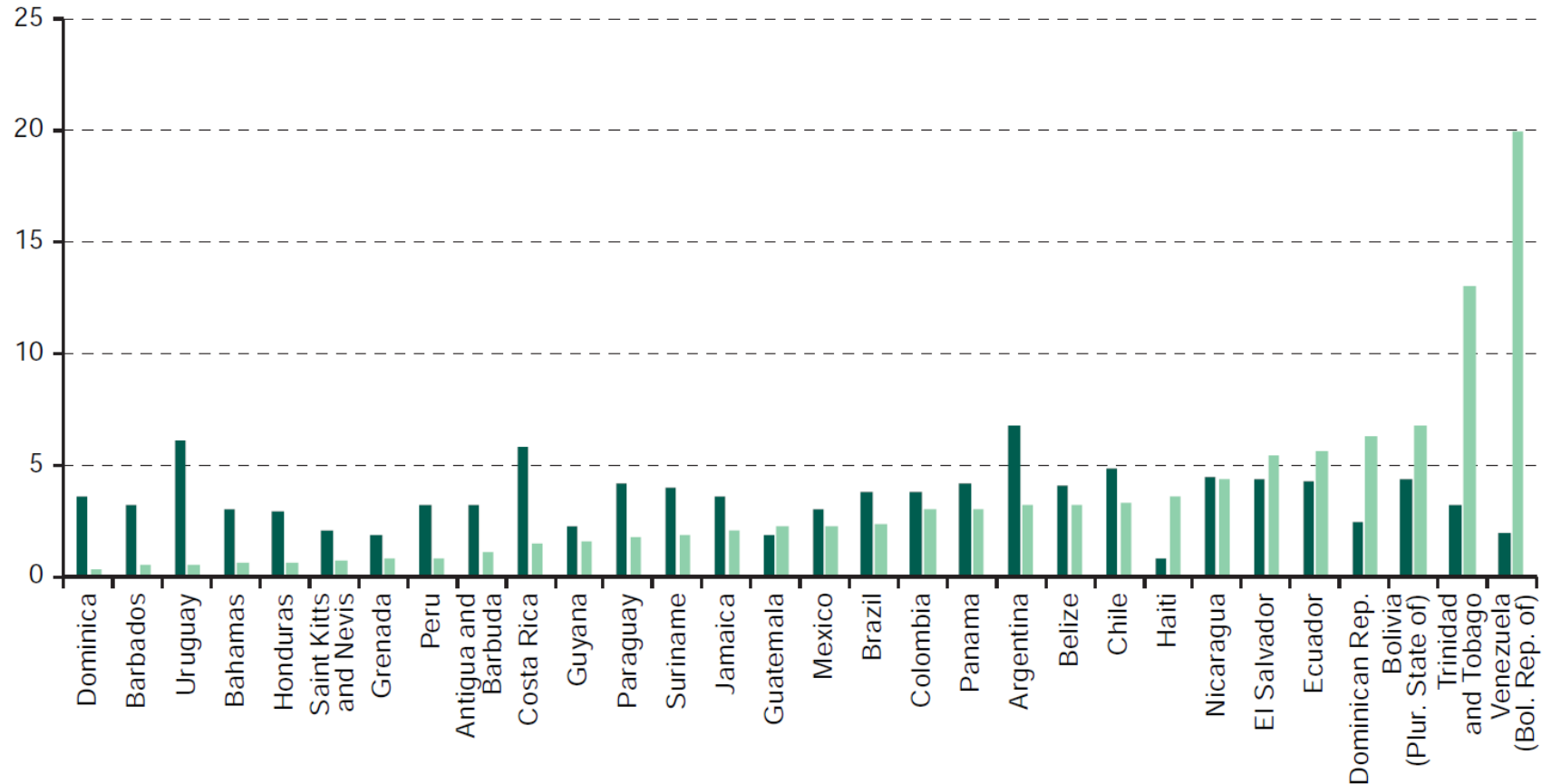


# Policies addressed

- 1. Normative measures and regulation**
- 2. Fiscal policies**
- 3. Climate financing**
- 4. Measuring climate expenditure**
- 5. Sectoral drivers**
- 6. Public participation**

# A policy example: there is space in the region to improve fiscal spending (health vs. hydrocarbons)

Latin America and the Caribbean: energy subsidies and general government health spending, 2015  
(Percentages of GDP)

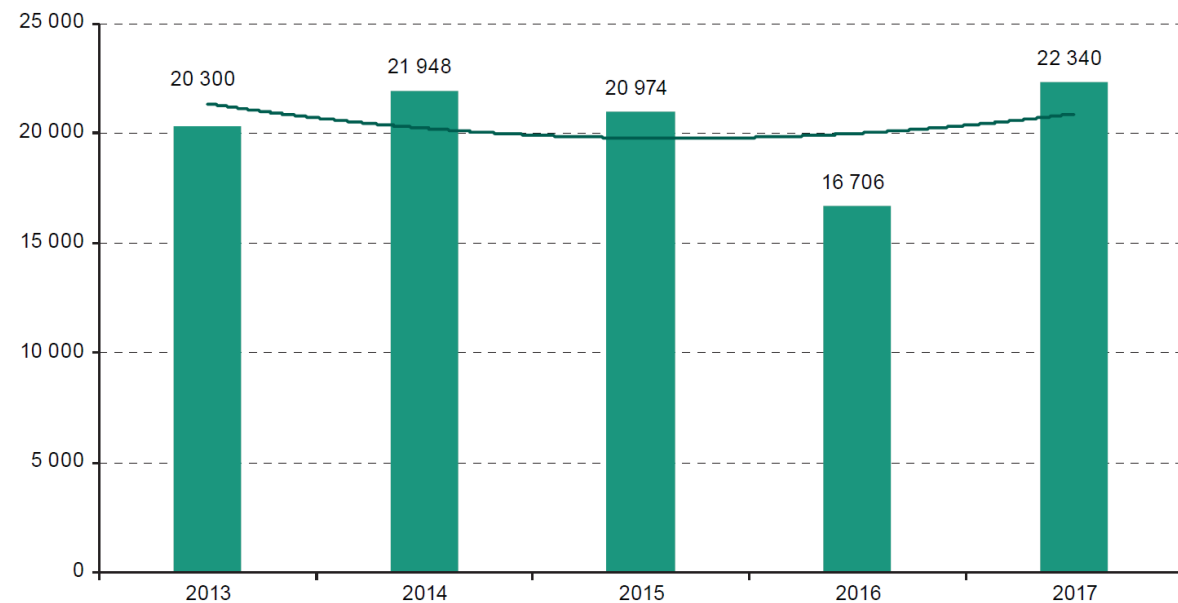


Source: Figure V.11 in A. Bárcena and others, *The climate emergency in Latin America and the Caribbean: The path ahead – resignation or action?*, ECLAC Books, No. 160 (LC/PUB.2019/23-P), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2020.

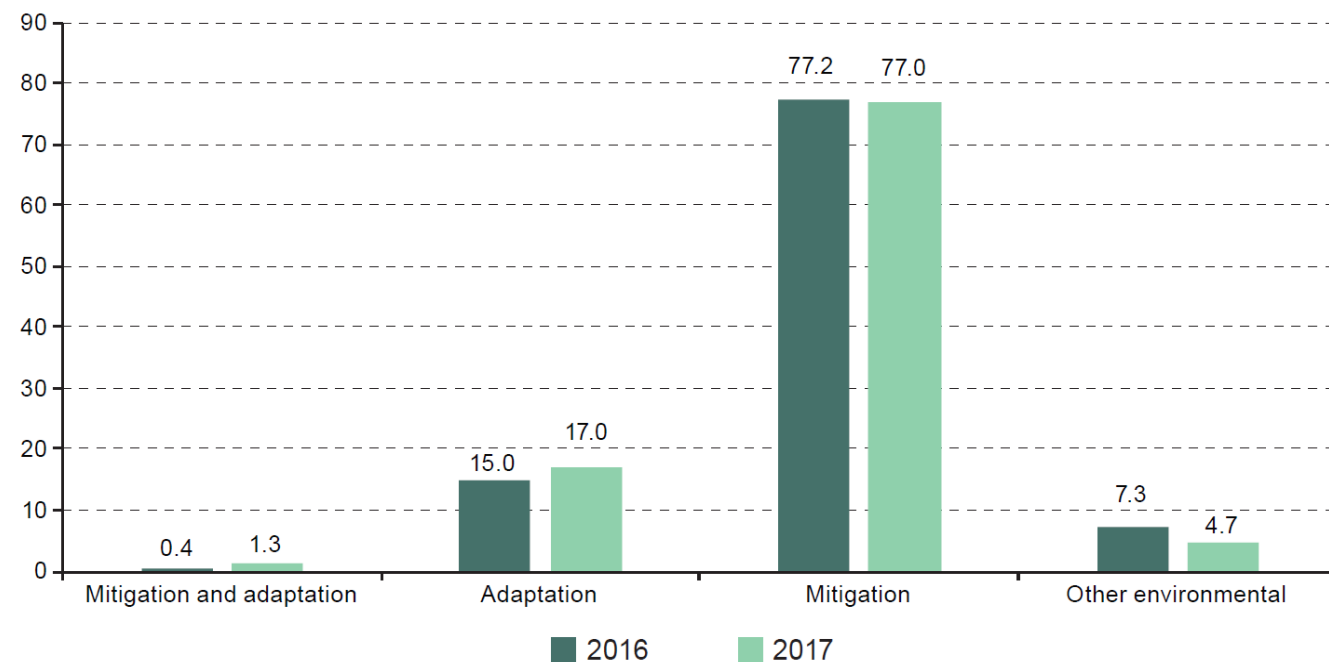


# International resources are limited and there is still a lack of financing for adaptation

Latin America and the Caribbean: total climate financing, 2013–2017  
(Millions of current dollars)



Latin America and the Caribbean: climate financing by destination, 2016 and 2017  
(Millions of current dollars)



Source: Figures V.13 and V.16 in A. Bárcena and others, *The climate emergency in Latin America and the Caribbean: The path ahead – resignation or action?*, ECLAC Books, No. 160 (LC/PUB.2019/23-P), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 2020.

# The response to the pandemic is an opportunity to move towards a big push for sustainability

- 🌍 A new pattern of development, aligned with the 2030 Agenda
- 🌍 Welfare state in a new equation with the market and society
- 🌍 Strategies that are sustained over time, with clear goals
- 🌍 This is a political undertaking, to make the technical proposal viable
- 🌍 Institutions and coalitions capable of formulating and implementing policies at the global, regional, national and local levels

*The horizon is equality, progressive structural change is the path, and politics, the instrument*

**Thank you**

