

APRIL
2023

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Geopolitical, energy, and social challenges in Latin America and the Caribbean (LAC)

Segundo Congreso de Investigadores
Webinar

Asunción, Paraguay
Mayo 24, 2023

Mauricio Cardenas

Professor of Professional Practice and
Director of the MPA in Global Leadership

— The confluence of calamities unlocks opportunities

Global Problem

- ▶ Energy crisis
- ▶ Climate crisis
- ▶ Food crisis
- ▶ Conflicts and wars
- ▶ Geopolitical tensions

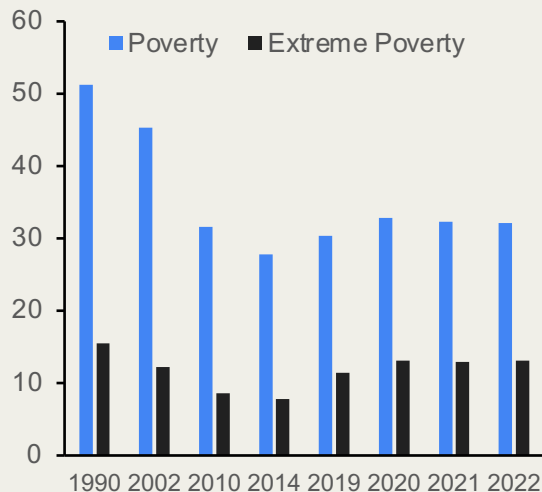
LAC's Opportunity

- ▶ Oil potential in Brazil and Guyana
- ▶ Biodiversity
- ▶ Land, soil, and water
- ▶ Peaceful history / external aggression
- ▶ Friend-shoring

The three major challenges in LAC

1. Social tensions

Poverty rates in Latin America and the Caribbean



Source: CEPAL

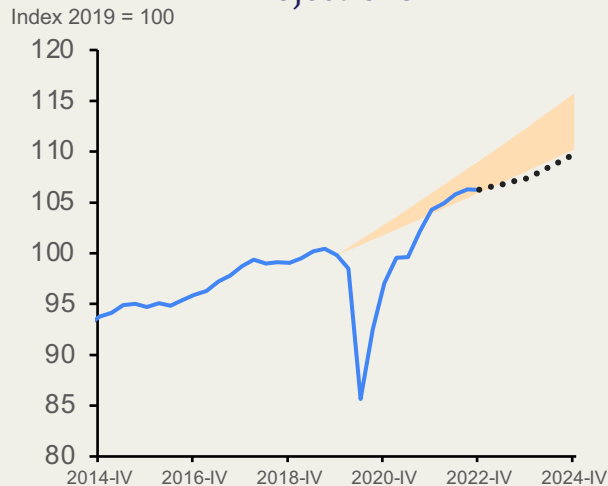
Note: The figure is the weighted average of 18 countries.



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2. Low growth

LATAM Economic Growth Projections

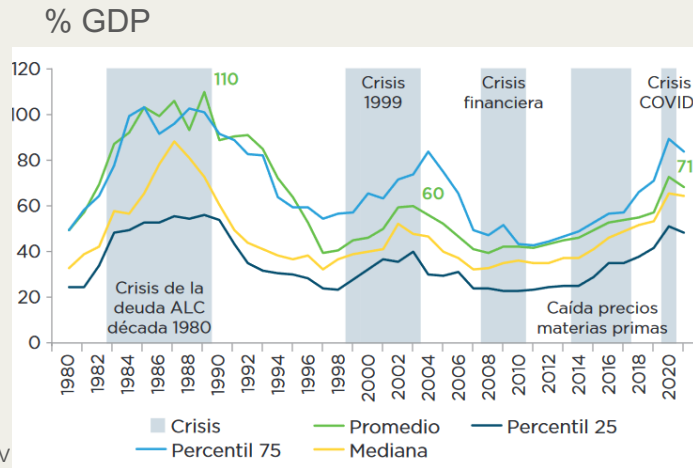


Source: OECD

Note: Shaded area represents the real GDP growth path between 2%-3% annual growth. Dotted lines represent the OECD's growth forecast

3. High Debt

Gross general government debt in LAC



Source: IABD

A Clear Shift to the Left

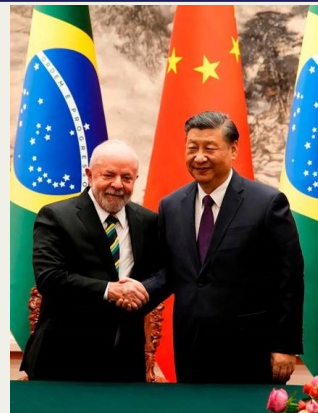
- Left-leaning countries
- Right-leaning countries
- Center

PERU – 2021 elections:
Castillo: 50,13%
Fujimori: 49,87%

CHILE – 2021 elections:
Boric: 55,87%
Kast: 44,13%

COLOMBIA – 2022 elections:
Petro: 50,44%
Hernández: 47,31%

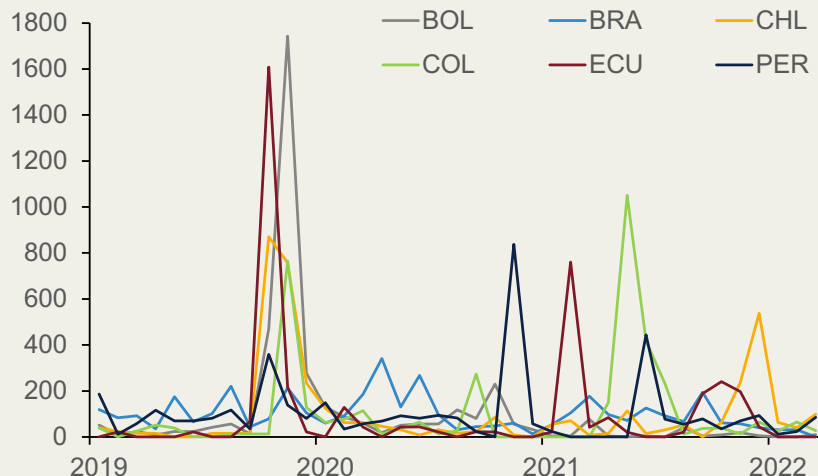
BRAZIL – 2022 elections:
Lula: 50,90%
Bolsonaro: 49,10%



Growing Social Tensions

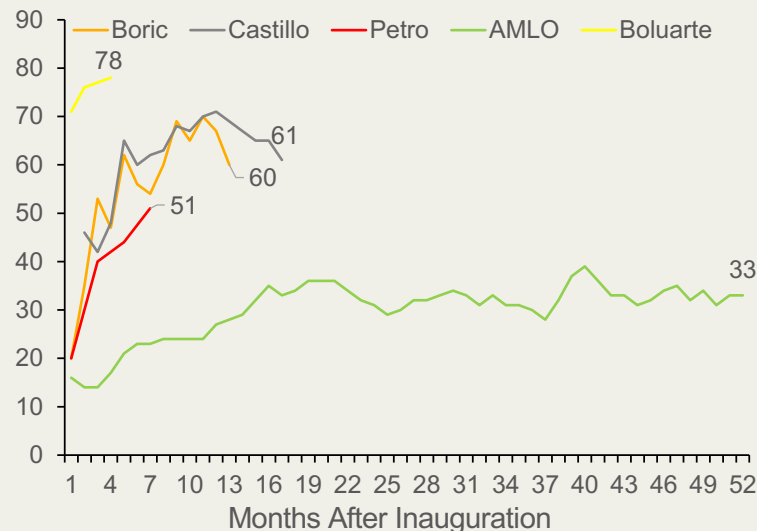
Evolution of RSUI

Report on Social Unrest Index (RSUI) (Avg. =100)



Note: The Report on Social Unrest Index (RSUI) measures the prevalence of reports in the media about protest events or social mobilizations. The base is the average of the index between January 2019 and March 2022.

Disapproval Rate of LAC Presidents (%)



Source: Cadem, Invamer, IPE, Oraculus

Which Story Will Prevail?

Bloomberg Markets, April /May 2023



El País, March 15, 2023

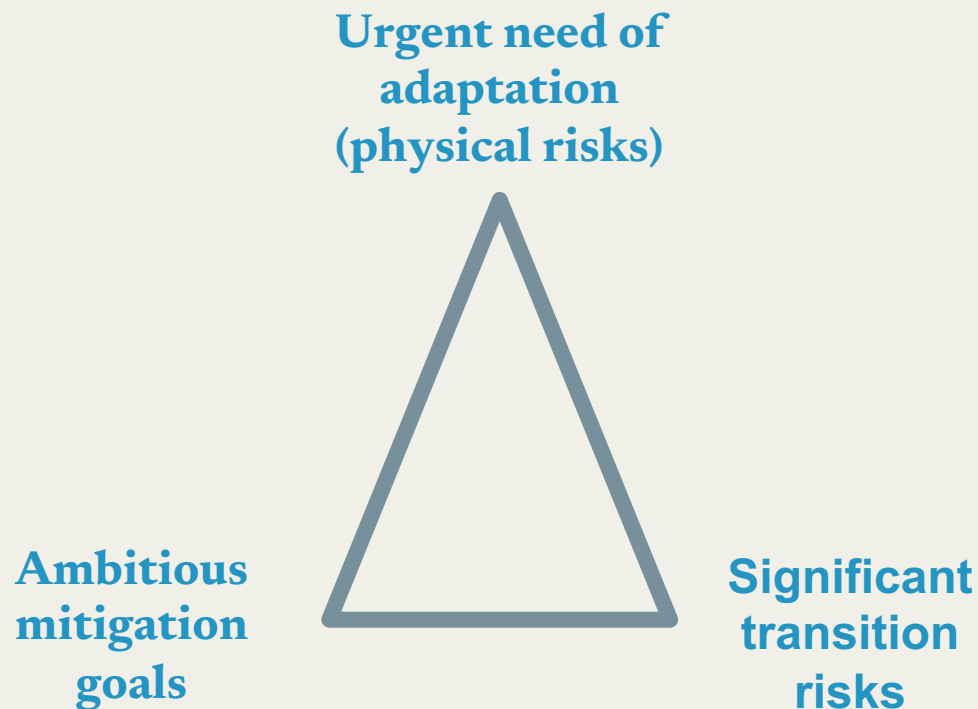
Economy And Business

FILM INDUSTRY >

The other 'nearshoring': film and TV production stands out in Mexico

More than \$5 billion flowed into Mexico as foreign direct investment in 2022 in the film and video industry alone

Latin America's climate challenges



The evidence on the need for greater investment in adaptation is overwhelming

- ▶ According to the United Nations Office for Disaster Risk Reduction (2021), between 1997 and 2017, 1 out of every 4 disasters in the world took place in LAC.
- ▶ Globally, 9 out of 10 people impacted by these disasters were affected by climatic events (mostly floods).
- ▶ Between 1998 and 2017, 53% of global economic losses from climate-related disasters occurred in LAC.
- ▶ Further analysis of these numbers would be useful (e.g., UNDRR-LAC reports)

Mitigation

Second iteration of LAC's NDCs

Argentina

UNCONDITIONED GOAL

359 MtCO₂ eq.

EMISSION REDUCTION
Compared to 2016

1.5%

KEY SECTORS



SUBMISSION DATE
Nov. 2021

Brazil

UNCONDITIONED GOAL

1200 MtCO₂ eq.

EMISSION REDUCTION
Compared to 2016

14.3%

KEY SECTORS



SUBMISSION DATE
Oct. 2021

Chile

UNCONDITIONED GOAL

95 MtCO₂ eq.

EMISSION REDUCTION
Compared to 2016

14.9%

KEY SECTORS



SUBMISSION DATE
Apr. 2021

Colombia

UNCONDITIONED GOAL

169 MtCO₂ eq.

EMISSION REDUCTION
Compared to 2016

34.5%

KEY SECTORS



SUBMISSION DATE
Dec. 2020

Mexico

UNCONDITIONED GOAL

781 MtCO₂ eq.

CONDITIONED

644

EMISSION REDUCTION
Compared to 2016

0% — 9.2%

KEY SECTORS



SUBMISSION DATE
Dec. 2021

Peru

UNCONDITIONED GOAL

209 MtCO₂ eq.

CONDITIONED

179

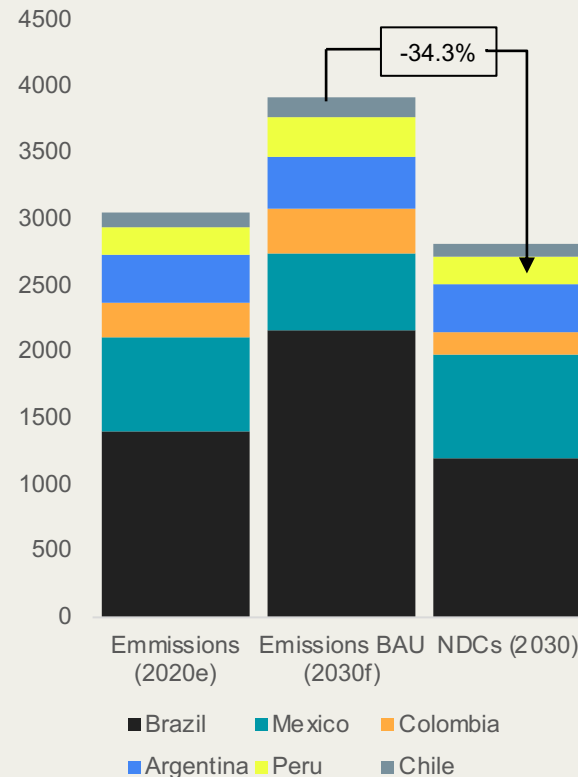
EMISSION REDUCTION
Compared to 2016

1.7% — 12.8%

KEY SECTORS

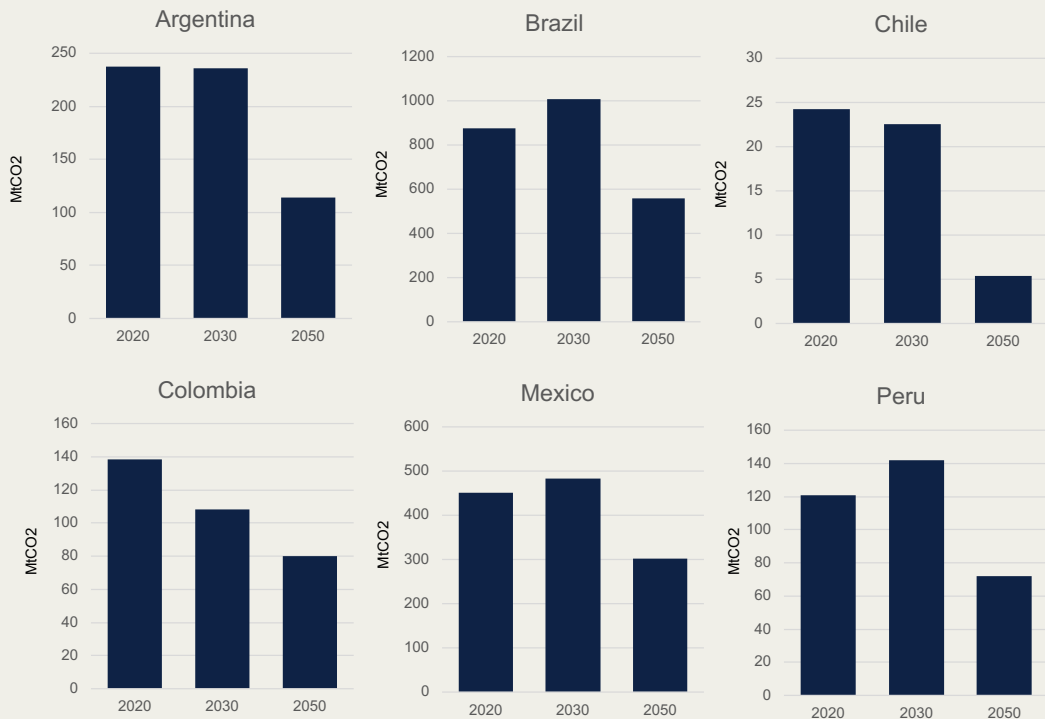


SUBMISSION DATE
Dec. 2021



The largest six economies of the region updated their NDCs in 2021-2022.
Most countries increased their ambition, except Mexico and Brazil

Absolute level of emissions implicit in the NDCs



- The trajectories show that Colombia and Chile have the steepest expected decline in emissions, which is consistent with their more ambitious pledges.
- These scenarios show that only COL and CHL plan to achieve absolute reductions by 2030.
- Mexico has the lowest foreseeable reduction in emissions within the region.

Countries' Long-Term Strategies (LTS)

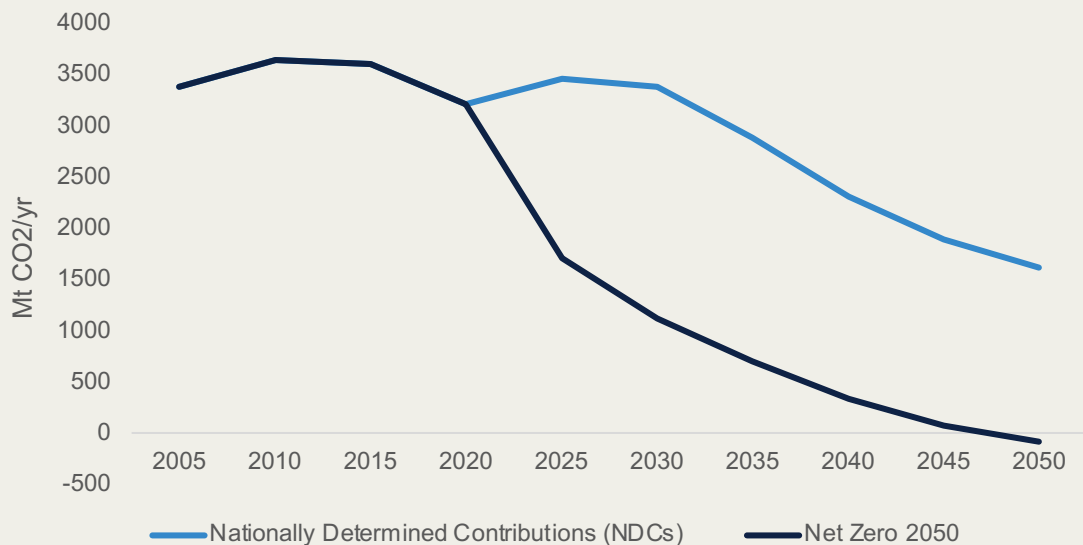
Most of the LAC-6 countries have designed strategies to achieve NDC goals:

- ▶ The high-impact initiatives are associated primarily with the AFOLU sector. Several countries are committed to reforestation, restoring, and better managing native forests and implementing programs under the REDD+ framework.
- ▶ The energy sector is another focus of LAC-6 NDCs. All countries identify the need to increase the share of non-hydro renewable energy and promote energy efficiency measures in commercial and residential sectors.

However, there is a general lack of specific financial plans to support the delivery of these strategies:

- ▶ The lack of financial plans casts doubt on the feasibility of implementing LAC NDCs.
- ▶ Only Chile, Colombia, and Peru mention they are working on climate change financing plans.
- ▶ Few countries have been explicit about the fiscal impact of the energy transition, both in terms of revenues and expenditures.
- ▶ Only Colombia mentioned using carbon taxes to finance these policies.

Transition Scenarios to a low-carbon economy



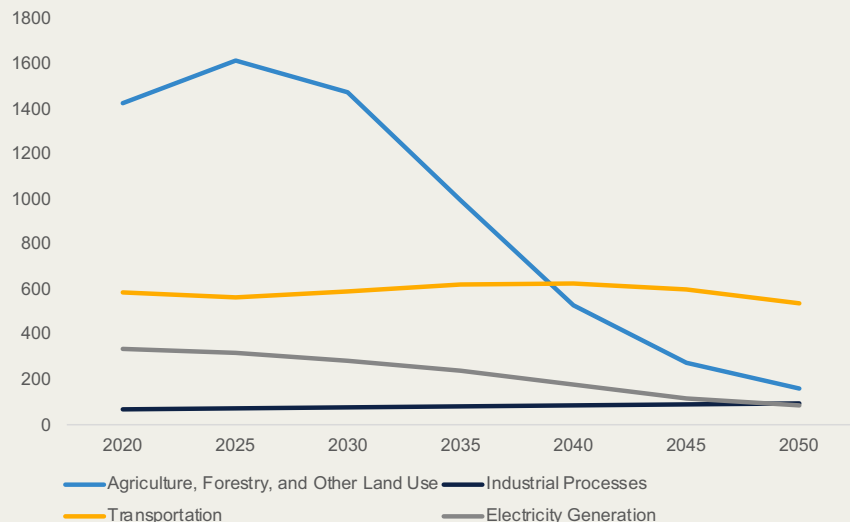
Two scenarios:

- ▶ **NDC scenario:** Assumes currently pledged NDCs are fully implemented, and 2030 targets are met. From 2030 onwards, the climate policy ambition remains comparable to the levels implied by the NDCs.
- ▶ **Net-Zero scenario:** Assumes the world reaches net-zero CO2 emissions in 2050, in an orderly transition as a result of a global welfare optimization. LAC becomes net-negative by 2050.

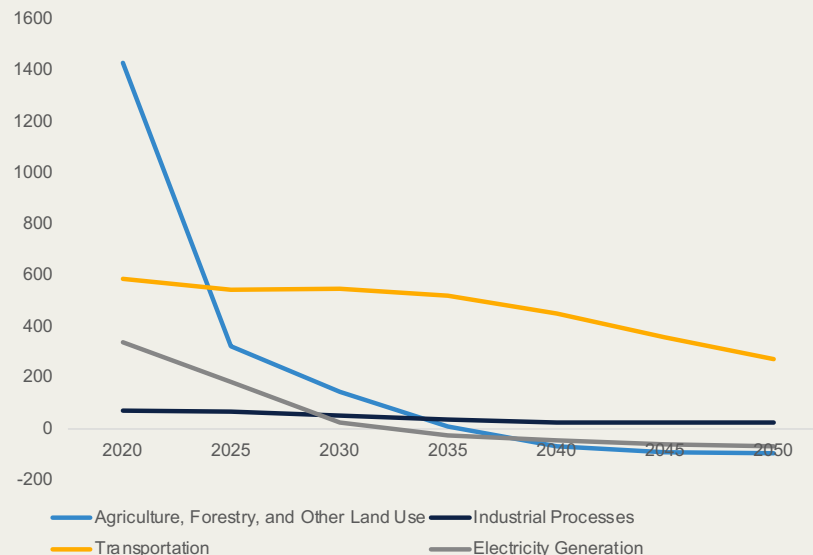
The transition to Net-Zero is front-loaded, and reaches net-negative emissions in LAC, while the NDC trajectory is slower and concentrated towards the 2030-2050 period

Transition trajectories by sector

NDC

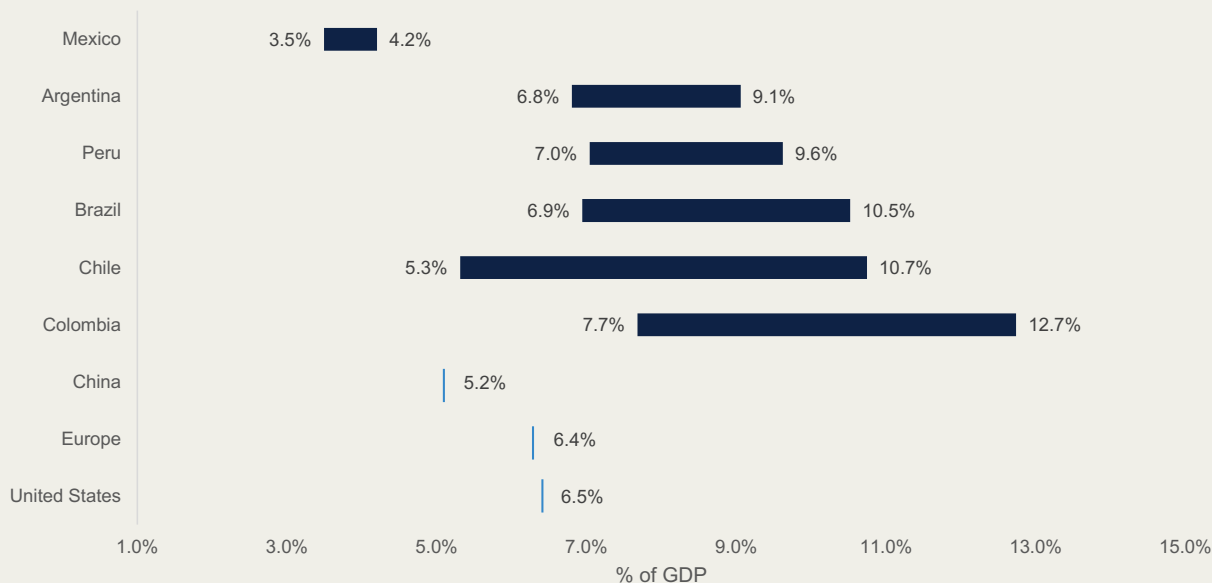


Net-Zero



The AFOLU sector will be the primary driver of LAC's emission reduction. Reductions under the Global Net-Zero scenario seem unrealistic given current policies.

Investment required to achieve the NDCs



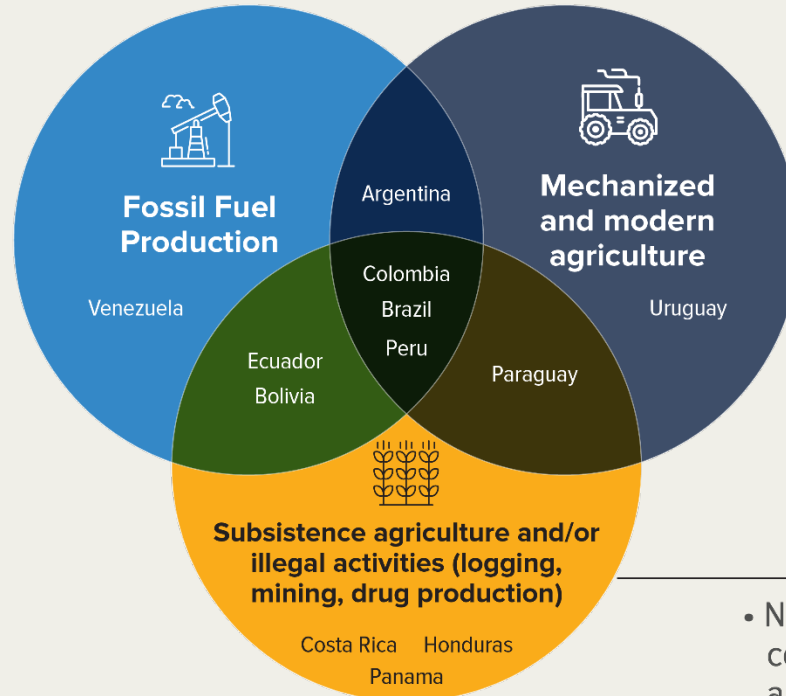
Own estimates based on the NGFS NDC 2050 scenario using REMIND-MAGPIE and McKinsey (2022)

- ▶ Even though the abatement cost for LAC countries is 25-40 percent lower than in North America and Europe, the transition is more costly for LAC economies.
- ▶ Countries with higher ambitions and lower GDP, such as those in Central America and the Caribbean, will face higher transition costs.
- ▶ Three drivers:
 1. Amount of spending relative to the size of the economy
 1. Higher projected rates of economic growth
 2. Reallocation of spending from high to low-emissions assets.

The transition will require, on average, 8% of GDP per year for LAC-6. Colombia and Chile will face the highest cost as a share of their GDP

A taxonomy of exposures: physical and transition risks

- Reduction in global demand
- Loss in government revenue
- Early retirement/stranded assets (e.g. refineries)

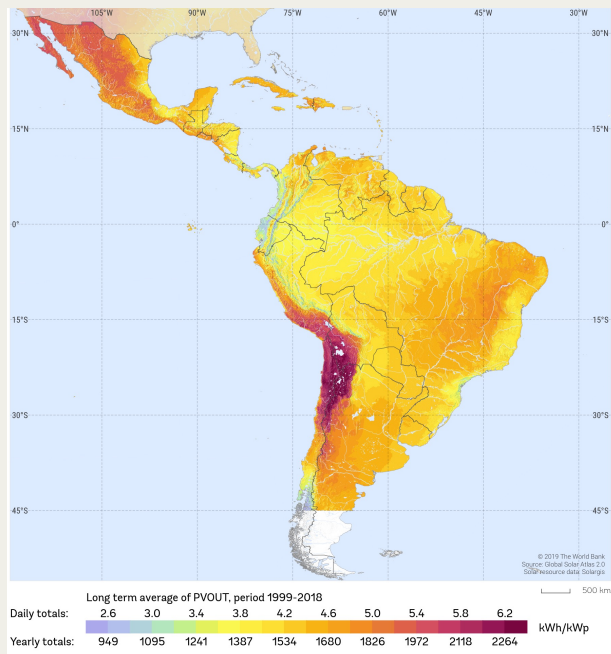


- Changes in production due to climate change
- Changes in preferences and consumption patterns (e.g. beef)
- Carbon border adjustment mechanisms

- Need to support communities with alternative sources of income

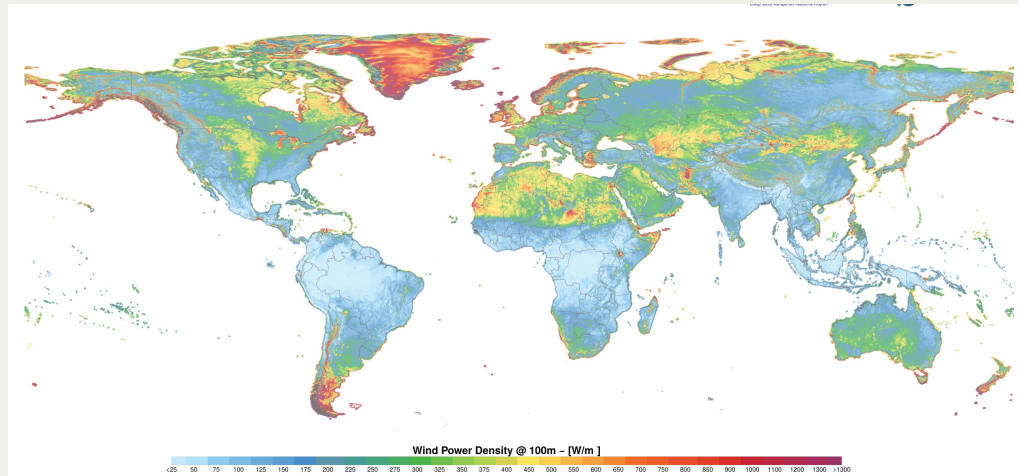
But there are opportunities

Solar energy potential in LAC



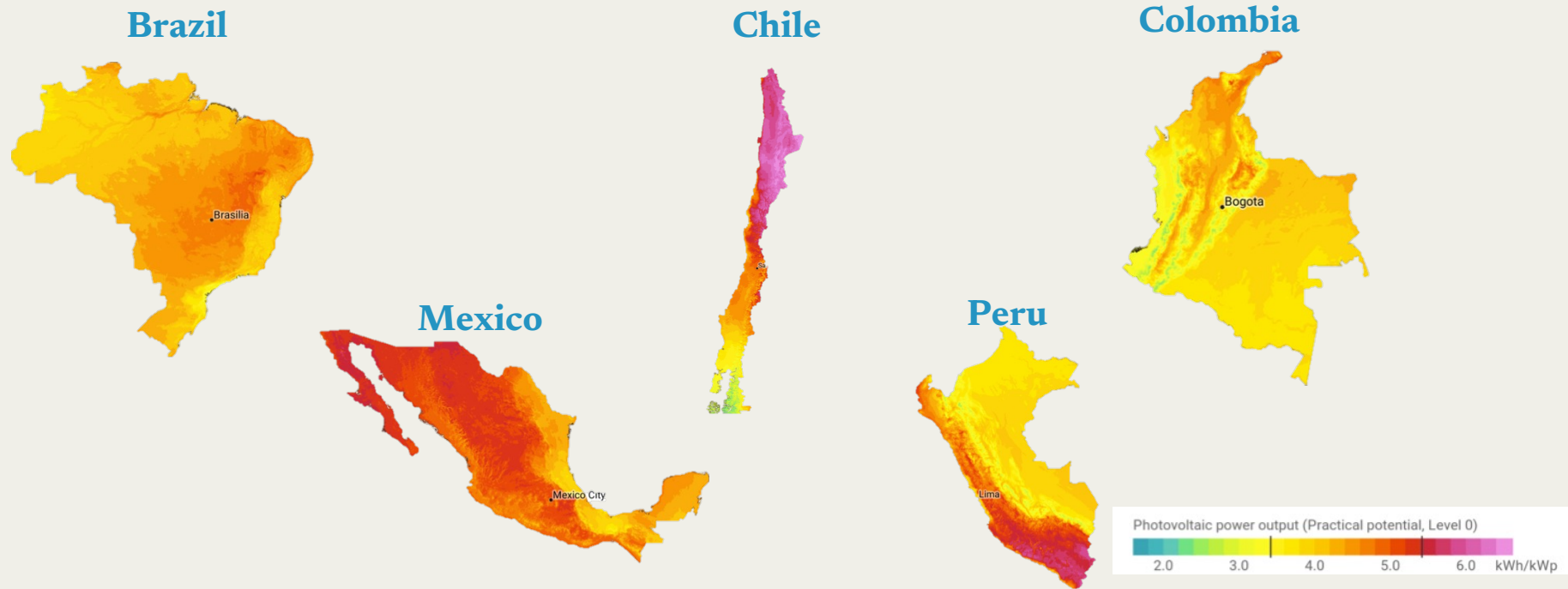
Source: Global Solar Atlas

Wind energy potential



Source: Global Wind Atlas

Zooming in solar potential



Note: Practical PhotoVoltaic potential power output (PVOUT) represents the power output achievable by a typical configuration of the utility scale PV system, considering the theoretical potential subjected to practical constraints. PVOUT represents the amount of power generated per unit of the installed PV capacity over the long-term, and it is measured in kilowatthours per installed kilowatt-peak of the system capacity (kWh/kWp).

Source: *Global Photovoltaic Power Potential by Country*. Energy Sector Management Assistance Program (ESMAP) World Bank

Zooming in wind potential

Brazil



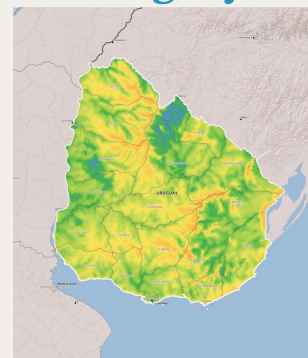
Chile



Colombia



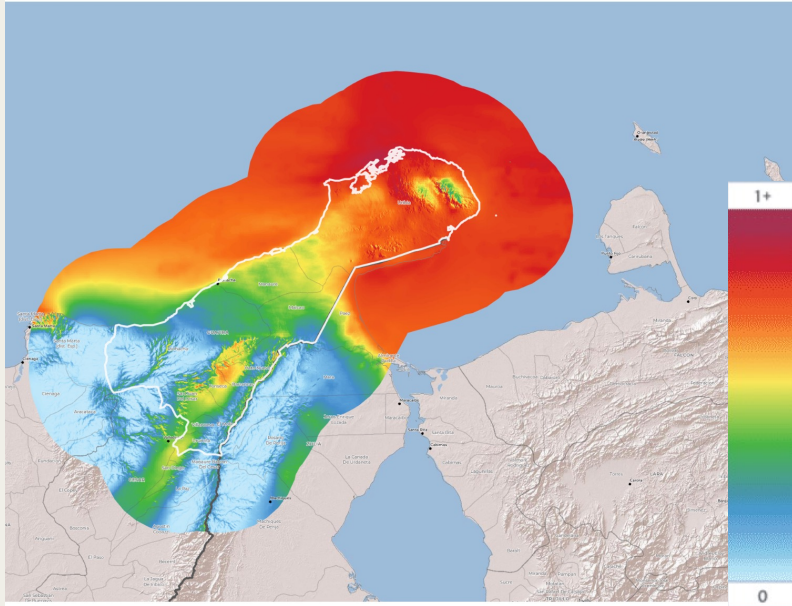
Uruguay



Note: Capacity Factor IEC Class III. Capacity factor is a measure of the annual energy yield of a wind turbine.
Source: *Global Wind Atlas by Country*. Energy Sector Management Assistance Program (ESMAP) World Bank

Guajira Peninsula is exceptional

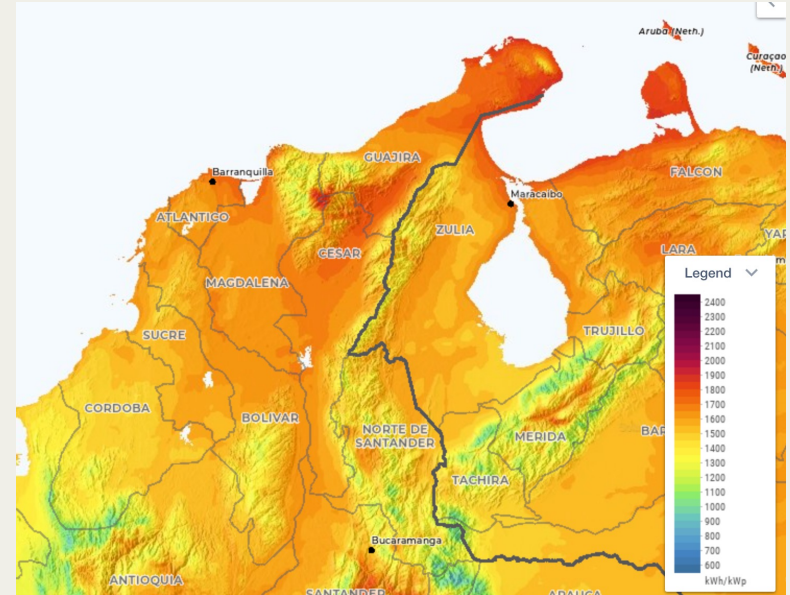
Wind energy Capacity Factor



Note: Capacity Factor IEC Class III. Capacity factor is a measure of the annual energy yield of a wind turbine.

Source: *Global Wind Atlas by Country*.

Solar Practical Potential Power Output



Note: Practical PhotoVoltaic potential power output (PVOUT) represents the power output achievable by a configuration of the utility scale PV system, considering the theoretical potential subjected to practical constraints. PVOUT represents the amount of power generated per unit of the installed PV capacity over the long-term

Source: *Global Solar Atlas by Country*.

Using PDPs more actively to transform clean energy

Sectors with high GHG footprint where LAC can offer solutions

- Agriculture
 - Aviation
 - Steel
 - Cement
- Transportation of sea and land cargo
 - Chemicals
 - Aluminum

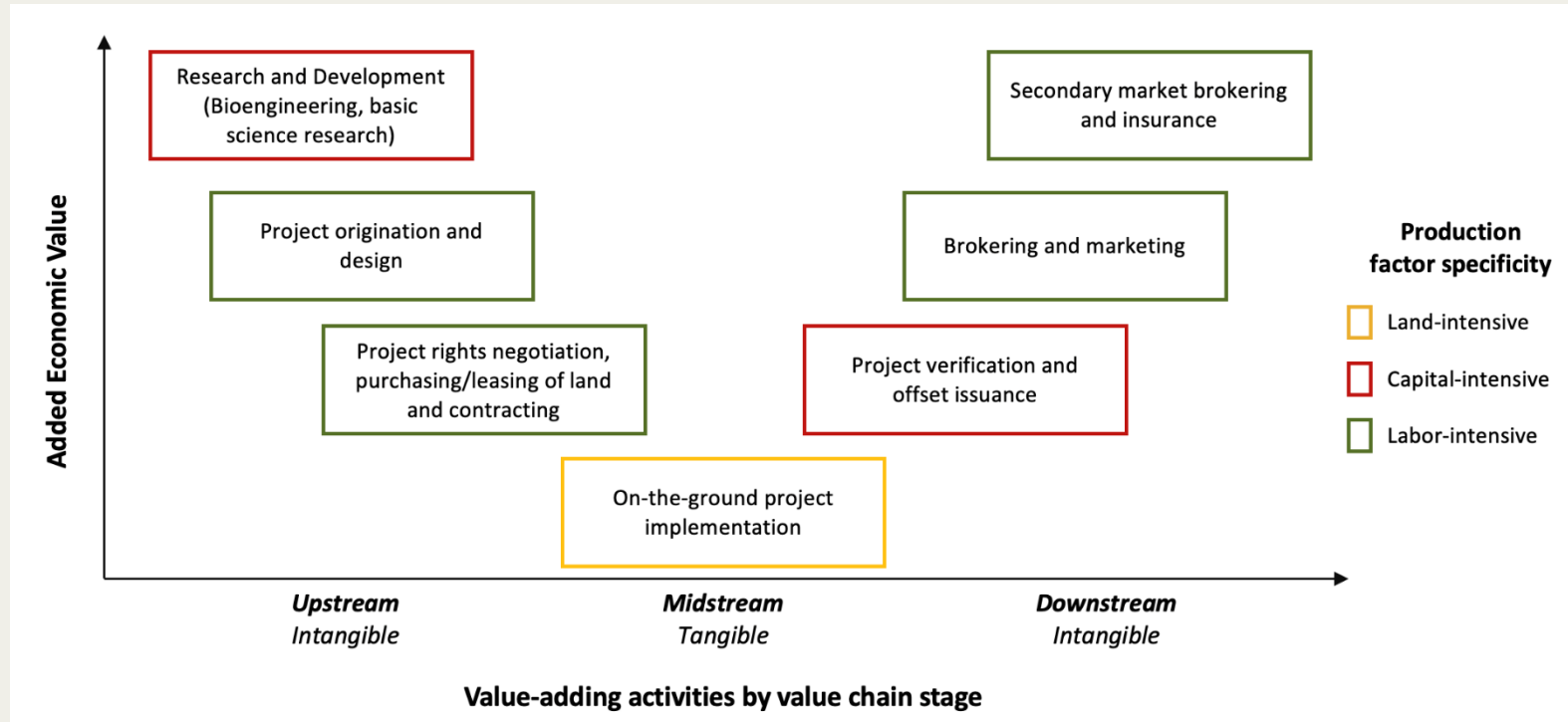
Innovations for a successful transition

- Regenerative agriculture
- CCUS (Carbon Capture and Storage)
 - Green hydrogen
 - Recycling
- Sustainable aviation fuels
- Bioenergy with direct carbon capture
 - Carbon removal with biomass
- Ammonia, methanol, and clean hydrogen

Develop a deep (and transparent) market for carbon credits

- ▶ Solve problems of additionality, permanence, and displacement in carbon capture.
- ▶ Market of great potential, but low development.
- ▶ Contrary to popular belief, the value chain favors capital over unskilled labor and land.
- ▶ Emphasize the concept of biodiversity and reduce the emphasis on reforestation (monocropping).
- ▶ Avoid the "carbon tunnel" (associated with using CO₂ emissions as the only lens).
- ▶ Counteract negative externalities (e.g., competition for land, rural labor markets, Dutch disease, etc.).

But developing a deep (and transparent) market for carbon credits requires many steps



Two Scenarios

Leverage relevance and autonomy

- ▶ Long-term public policies.
- ▶ Private investment and access to finance.
- ▶ Orderly energy transition:
 - Gradually replace fiscal and external revenues from fossil fuels.
 - Access to gas (fertilizers).
- ▶ Public-private partnerships to reduce logistics costs, key to near-shoring.

Weak governance and social unrest dominate

- ▶ Short-term public policies.
- ▶ Reduction of private investment and financing.
- ▶ Lost opportunities associated with fossil fuels.
- ▶ Ignoring strategic alliances with the private sector.
- ▶ Politics of populism: The good vs the bad.

Conclusions

- ▶ Greenhouse Gas (GHG) emissions are not high compared to the global average, but those related to land use change are very high.
- ▶ The effects of climate change are particularly severe.
- ▶ Potential growth in the region's economies is low, largely due to a productivity problem.
- ▶ Several countries in the region are among the most unequal in the world.
- ▶ Public debt has been increasing since the last decade and accelerated during the COVID-19 pandemic. Its current level is above the desirable level (sustainable or responsible).
- ▶ Therefore, GHG emission reduction and adaptation to climate change should promote:
 - Increased potential growth.
 - Reduction of inequality.
 - Reduction of poverty (including energy poverty).
 - Fiscal sustainability.

Prioritizing and understanding trade-offs is essential in order to achieve these multiple goals