COLUMBIA | SIPA
Center on Global Energy Policy

# Climate Action in Latin-America and the Caribbean: Challenges and Opportunities

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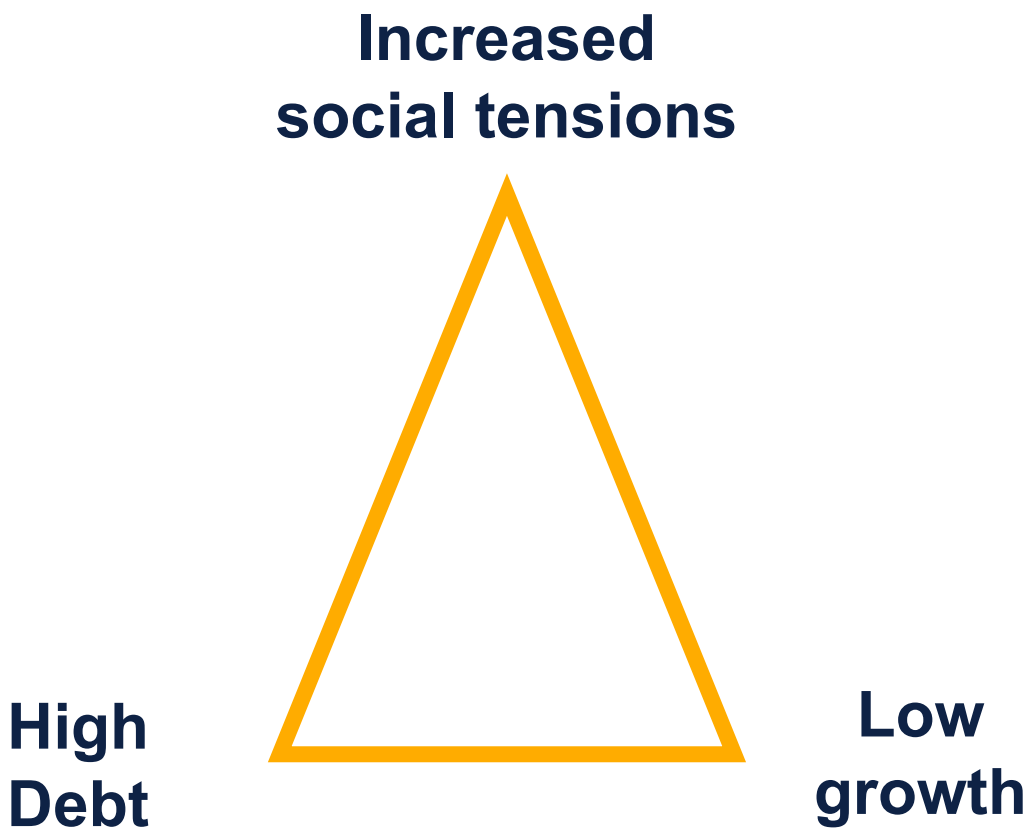
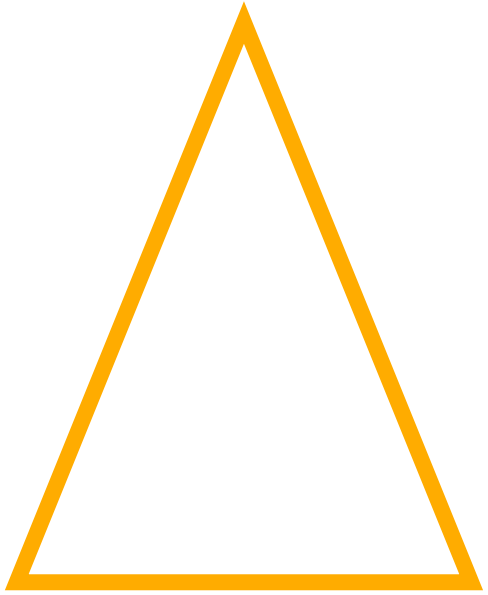
Meeting with the office of the Chief Economist LAC
April 13, 2023

# Latin America's conundrum



# Latin America's climate challenges

Urgent need of adaptation (physical risks)



Ambitious mitigation goals

Significant transition risks

# A very complex set of challenges

- 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 CVID-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**

# Topic 1. Mitigation
# Second iteration of LAC's NDCs

### Argentina
UNCONDITIONED GOAL
**359** $MtCO_2$ eq.

EMISSION REDUCTION
Compared to 2016
**1.5%**

KEY SECTORS

SUBMISSION DATE
**Nov. 2021**

### Brazil
UNCONDITIONED GOAL
**1200** $MtCO_2$ eq.

EMISSION REDUCTION
Compared to 2016
**14.3%**

KEY SECTORS

SUBMISSION DATE
**Oct. 2021**

### Chile
UNCONDITIONED GOAL
**95** $MtCO_2$ eq.

EMISSION REDUCTION
Compared to 2016
**14.9%**

KEY SECTORS

SUBMISSION DATE
**Apr. 2021**

### Colombia
UNCONDITIONED GOAL
**169** $MtCO_2$ eq.

EMISSION REDUCTION
Compared to 2016
**34.5%**

KEY SECTORS

SUBMISSION DATE
**Dec. 2020**

### Mexico
UNCONDITIONED GOAL
**781** $MtCO_2$ eq.

CONDITIONED
**644**

EMISSION REDUCTION
Compared to 2016
**0% — 9.2%**

KEY SECTORS

SUBMISSION DATE
**Dec. 2021**

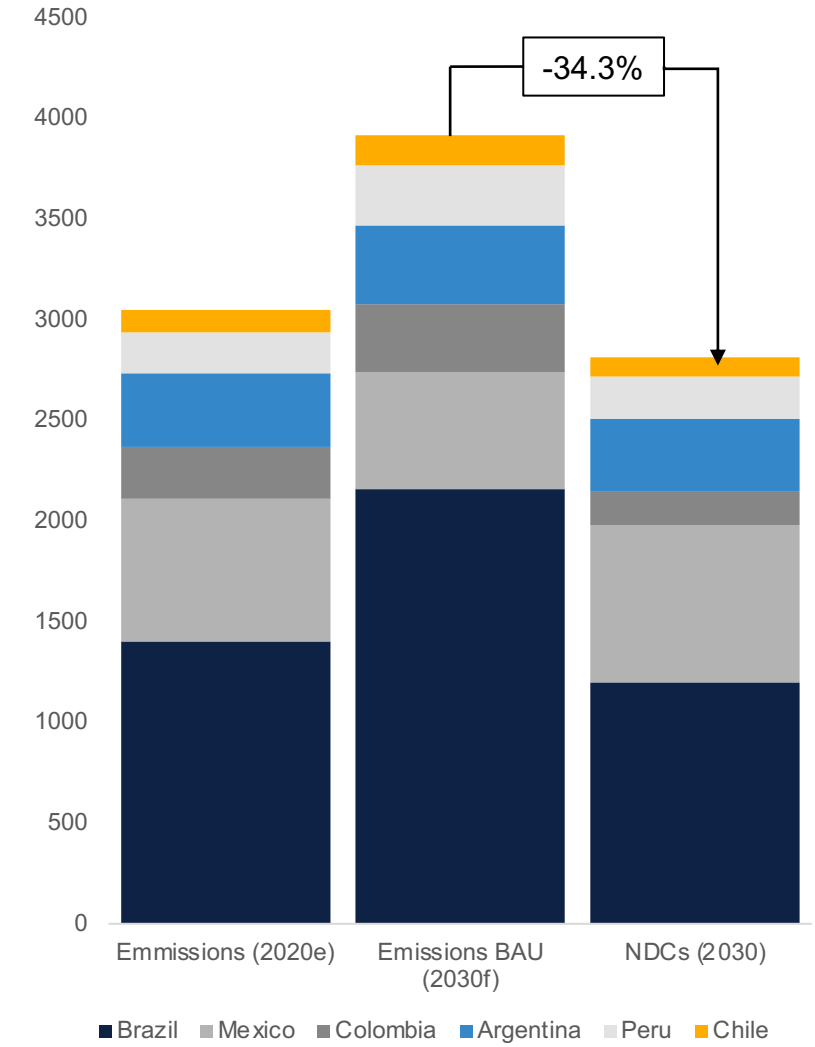
### Peru
UNCONDITIONED GOAL
**209** $MtCO_2$ eq.

CONDITIONED
**179**

EMISSION REDUCTION
Compared to 2016
**1.7% — 12.8%**

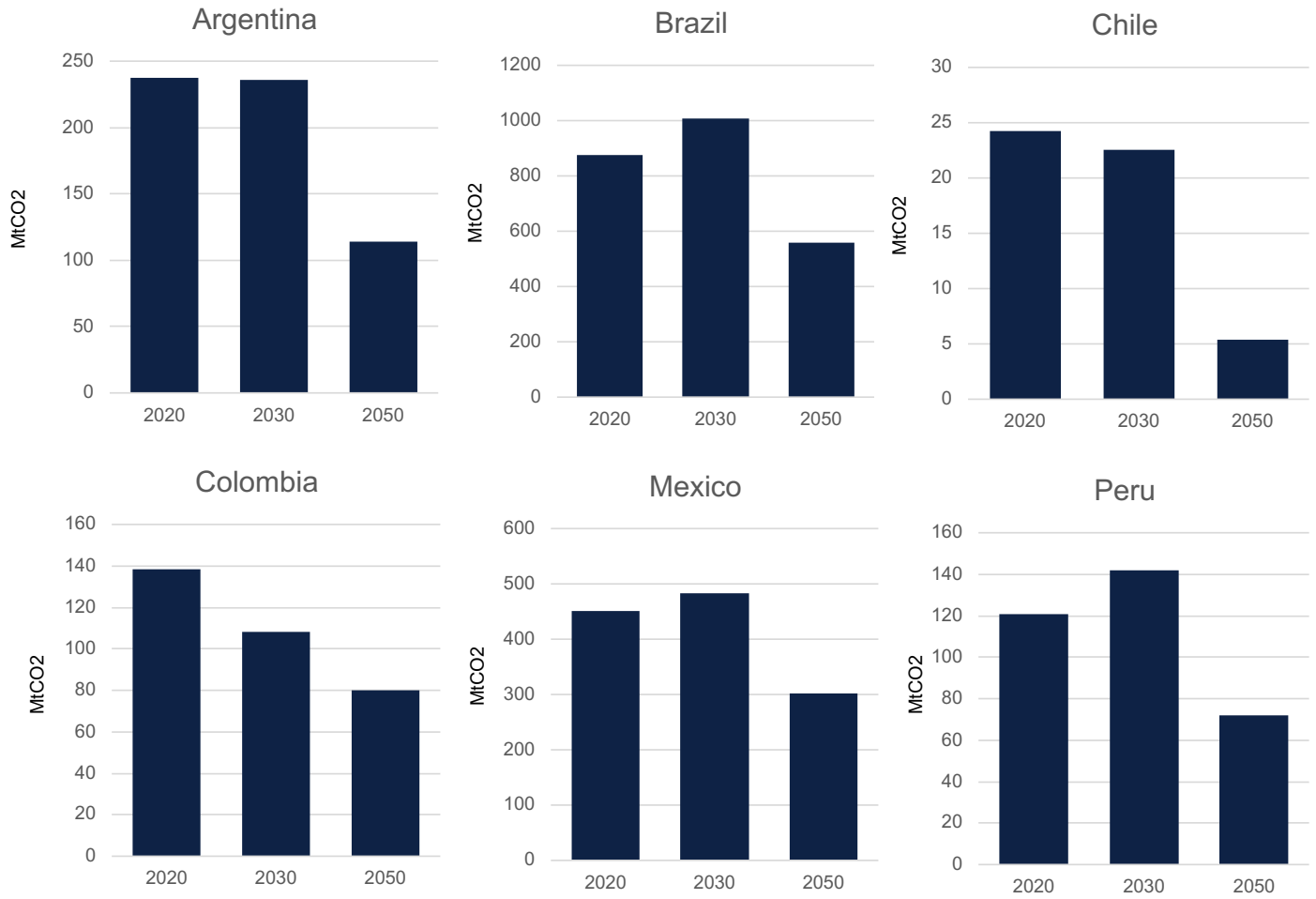
KEY SECTORS

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)

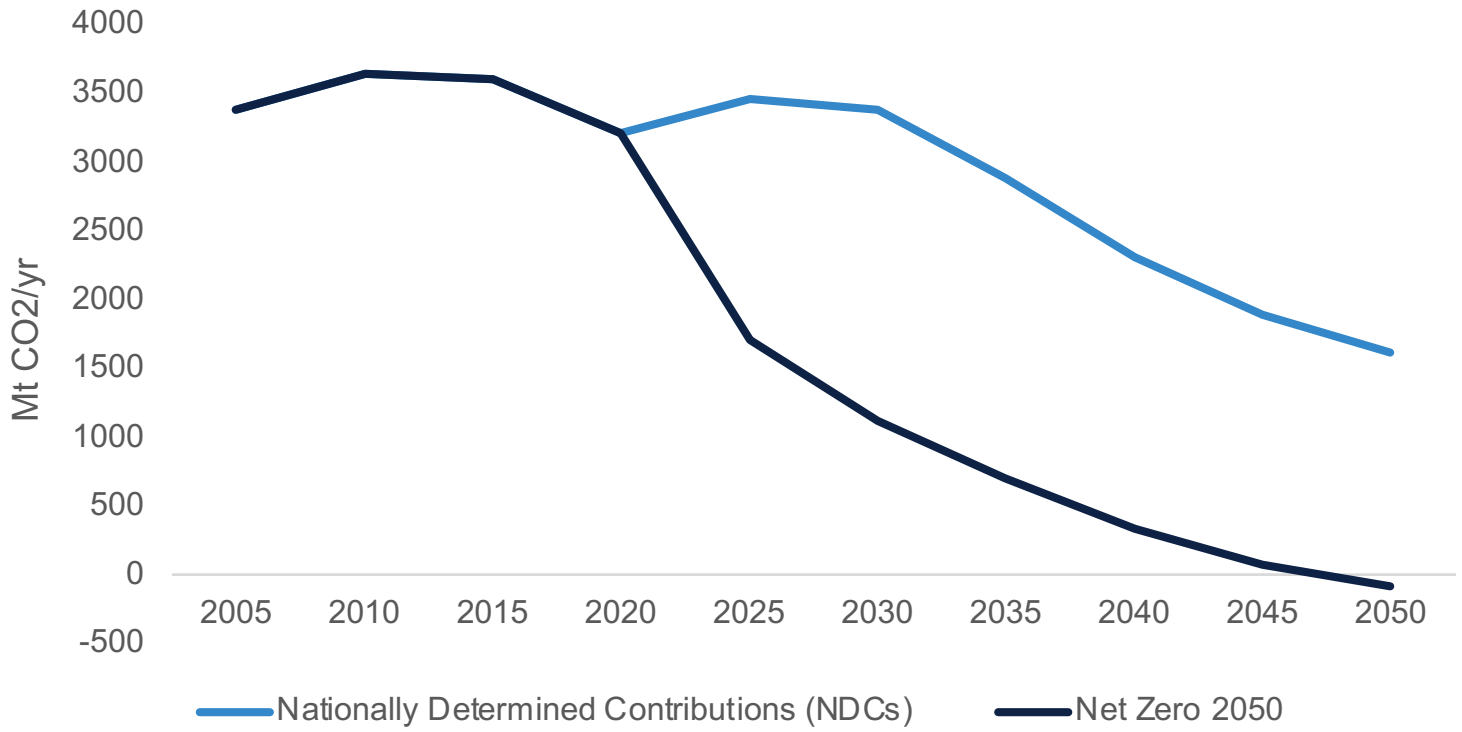
**Most of the LAC-6 countries have designed strategies to achieve NDC goals:**

- The high-impact initiatives are associated primarily with the AFOLU sector. Several countries are committed to reforesting, 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.

# Scenarios of the transition to a low carbon economy

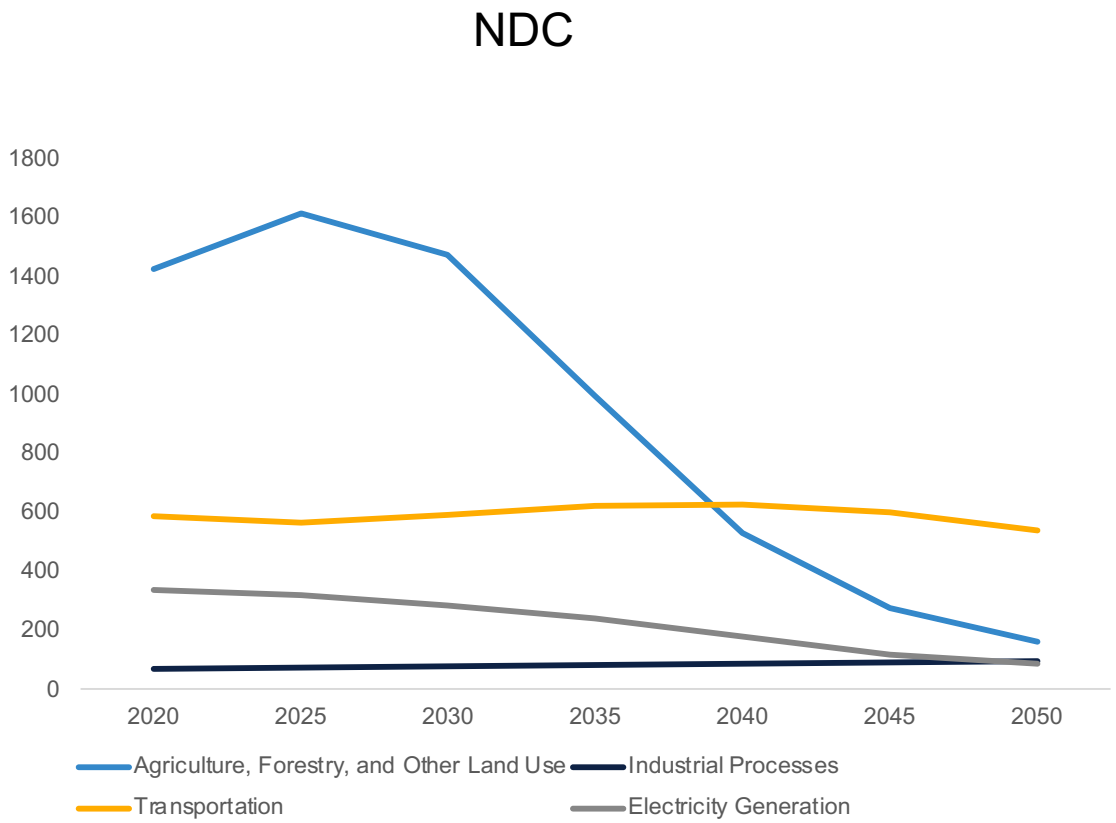


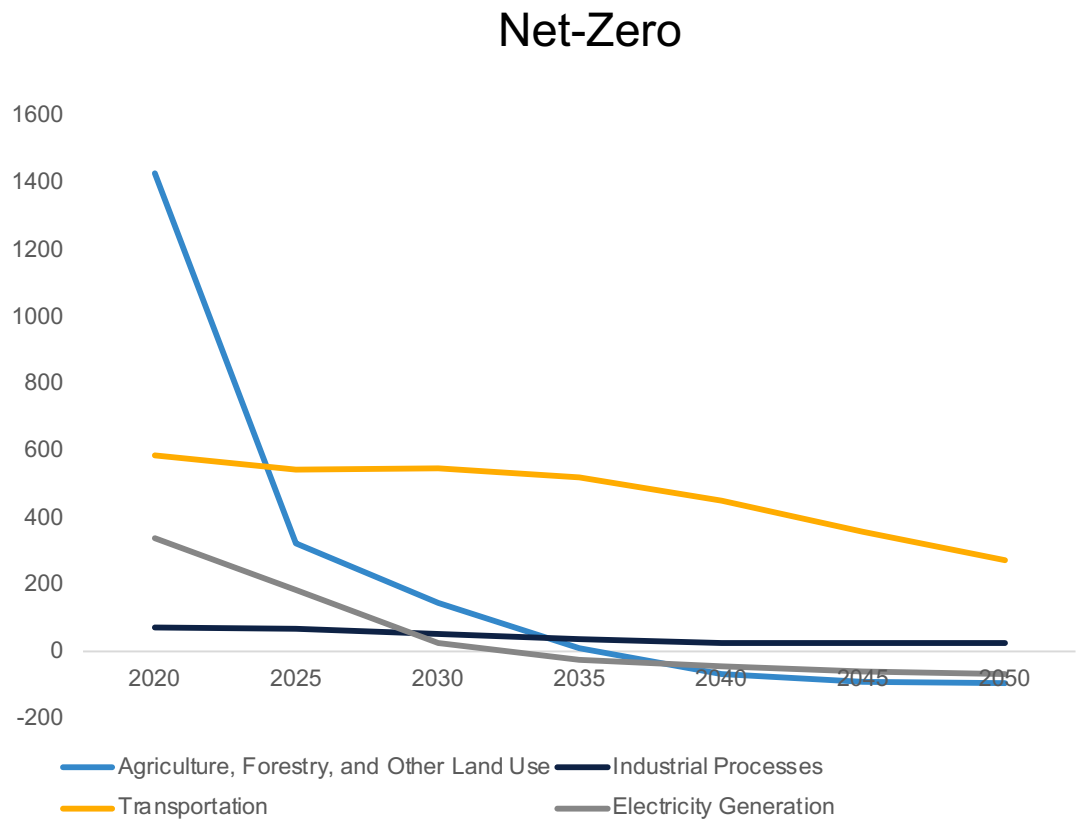

Two scenarios:

- **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**

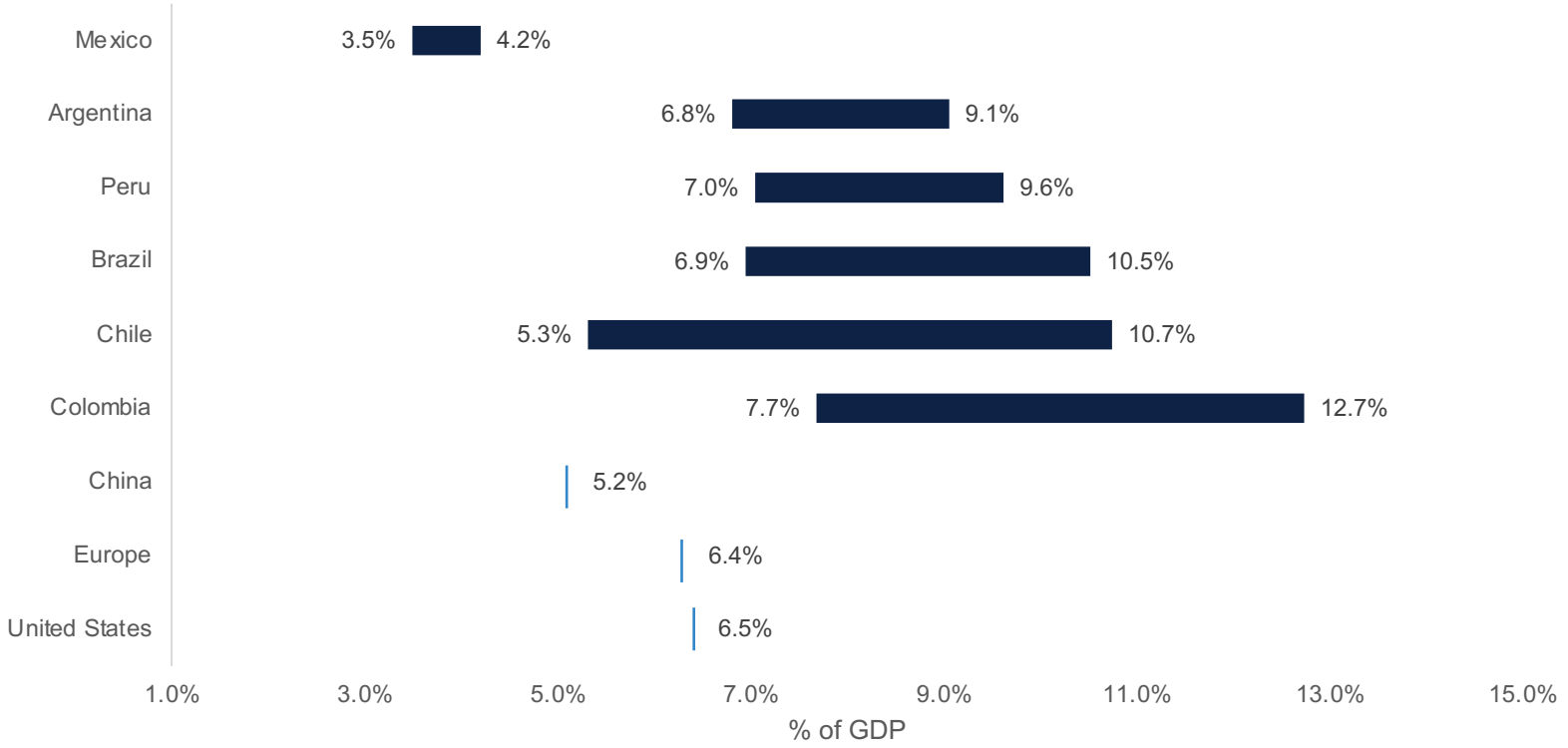
# Transition trajectories by sector




**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




- 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
  2. Higher projected rates of economic growth
  3. Reallocation of spending from high to low-emissions assets

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

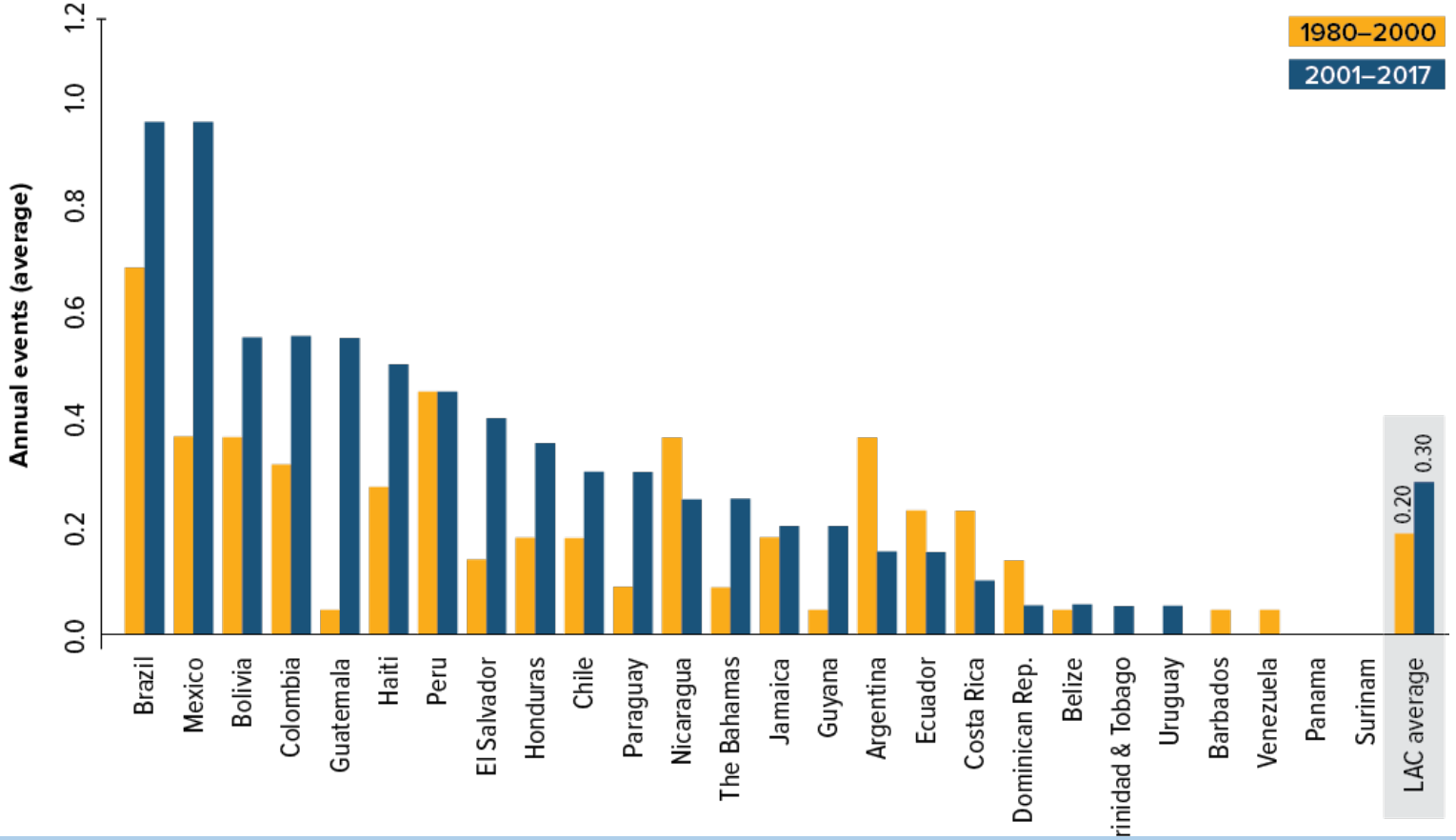
**The transition will require, on average, 8% of GDP per year for LAC-6. Colombia and Chile will face the highest cost as a share of their GDP**

# Topic 2. 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)

# Extreme Climate-Related Weather Event Frequency in LAC

1980–2017

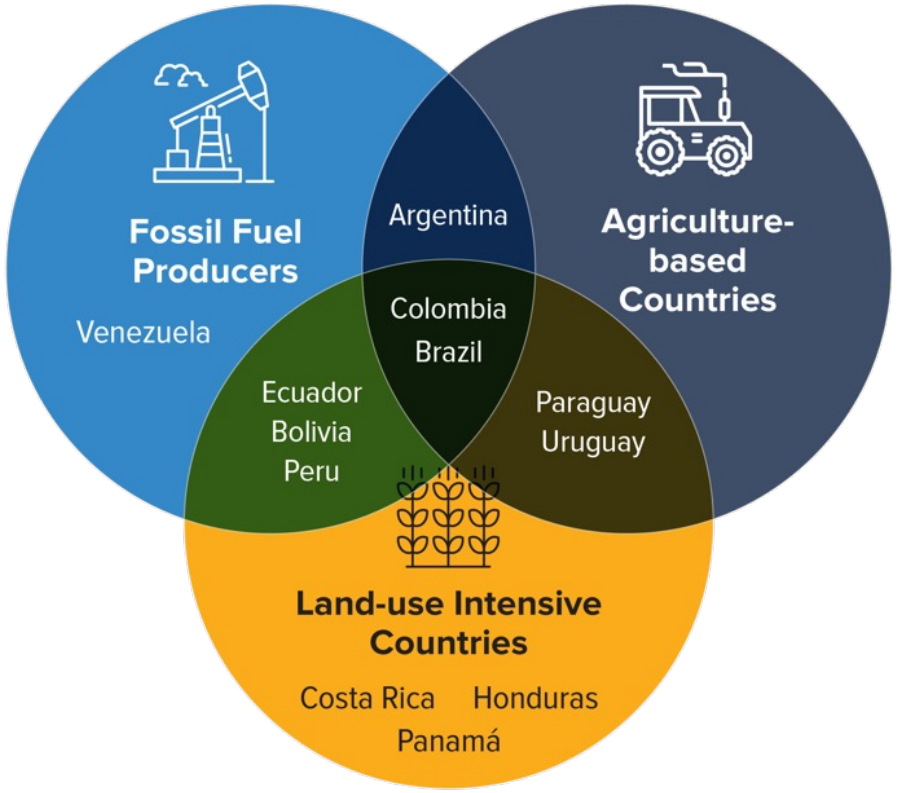



SOURCE: Estimating the Fiscal Impact of Extreme Weather Events by Alejos, L., 2018.

**Although the region is not a sizeable GHG emitter, it is one of the most vulnerable to climate change**

# Topic 3.
# A taxonomy of exposures: physical and transition risks

- Loss in government revenue.
- Carbon-intensity of heavier crudes
- Stranded assets

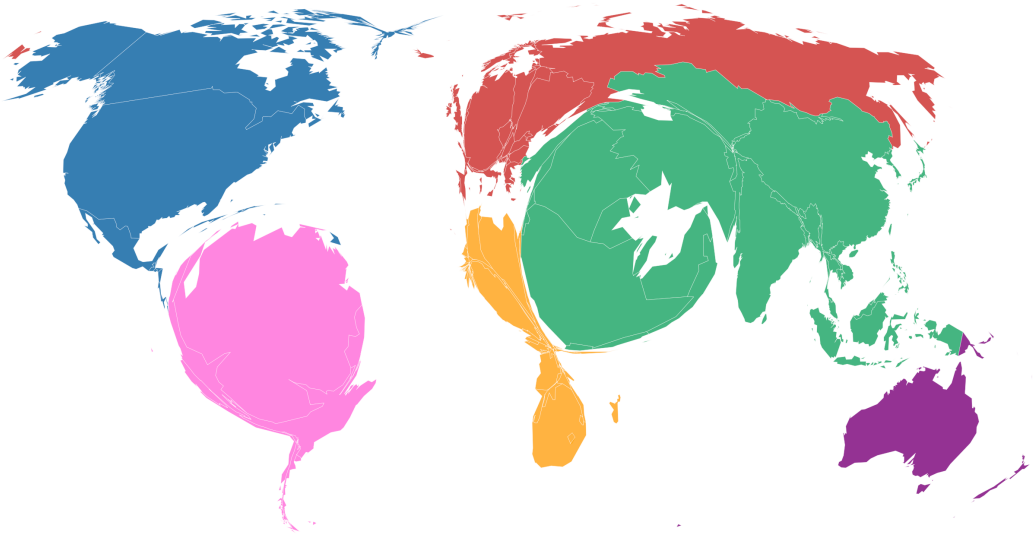



- Physical climate risk
- Change in consumption
- Carbon border adjustment

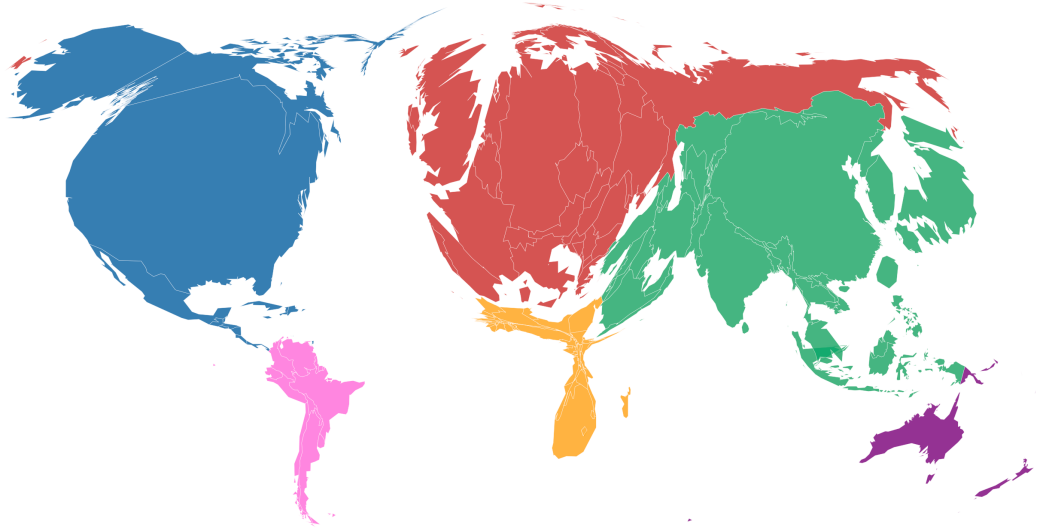
- Need to support communities with alternative sources of income

# Transition risks also involve an opportunity cost: Forgone income from unexploited fossil fuel reserves

**Potential Emissions From Fossil Fuel Reserves**



**Historical Emissions 1850-2011**



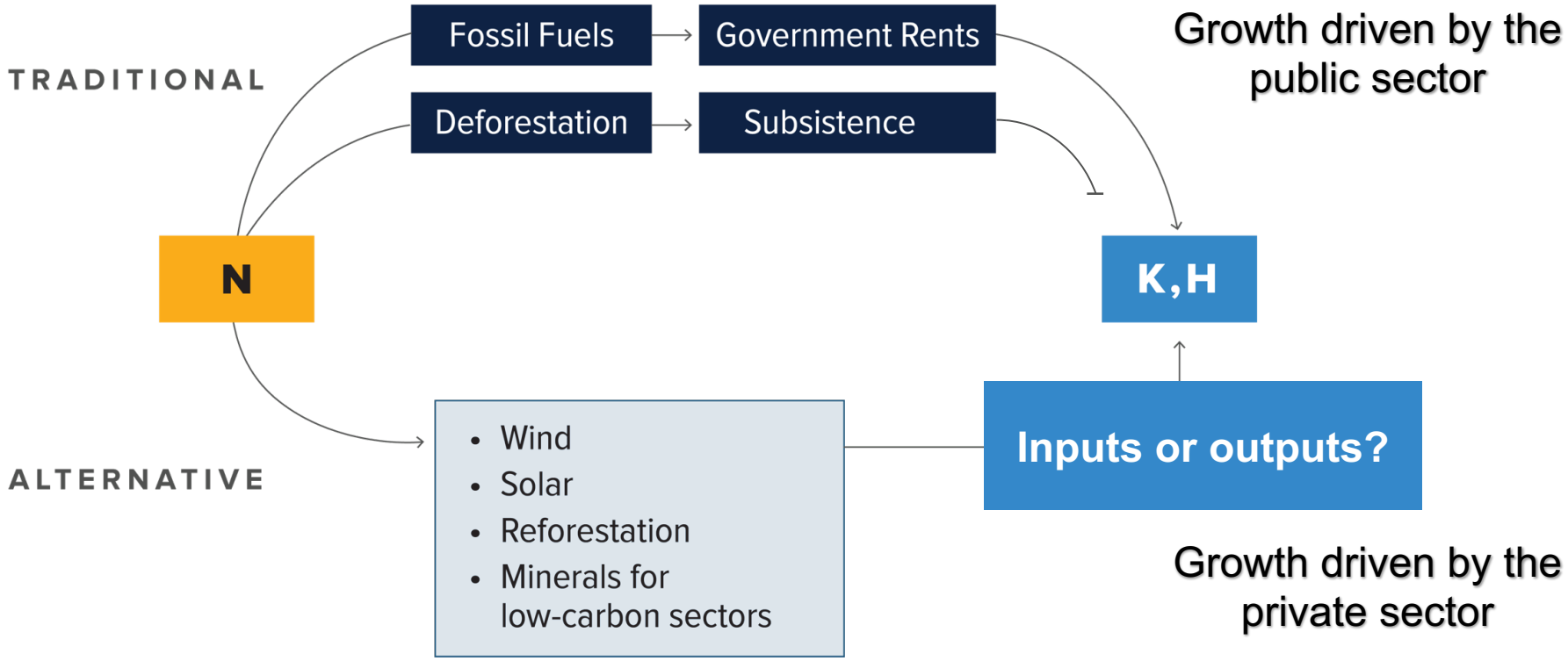
Source: https://www.carbonmap.org/

# Policy challenges and research agenda

# Idea 1. Implementing a new model of utilization of natural resources (N)

**Relevant Dimensions to analyze:**
**Fiscal policy**
**Political economy**
**Impact on TFP**

Two models of conversion of natural capital into physical and human capital



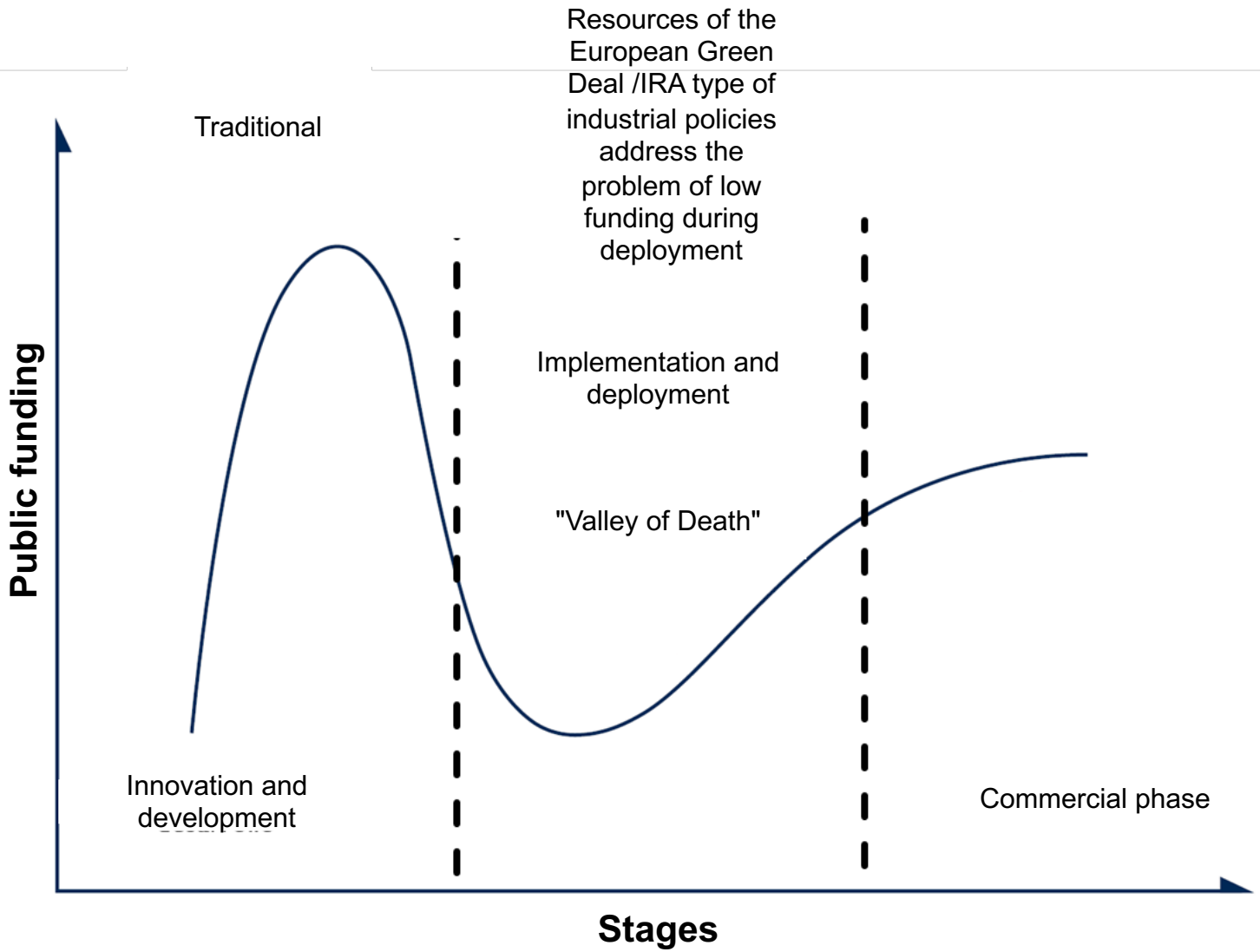
# Idea 2. Using PDPs more actively (IRA-type tax credits)

**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




# More public funding to implementors vs. innovators

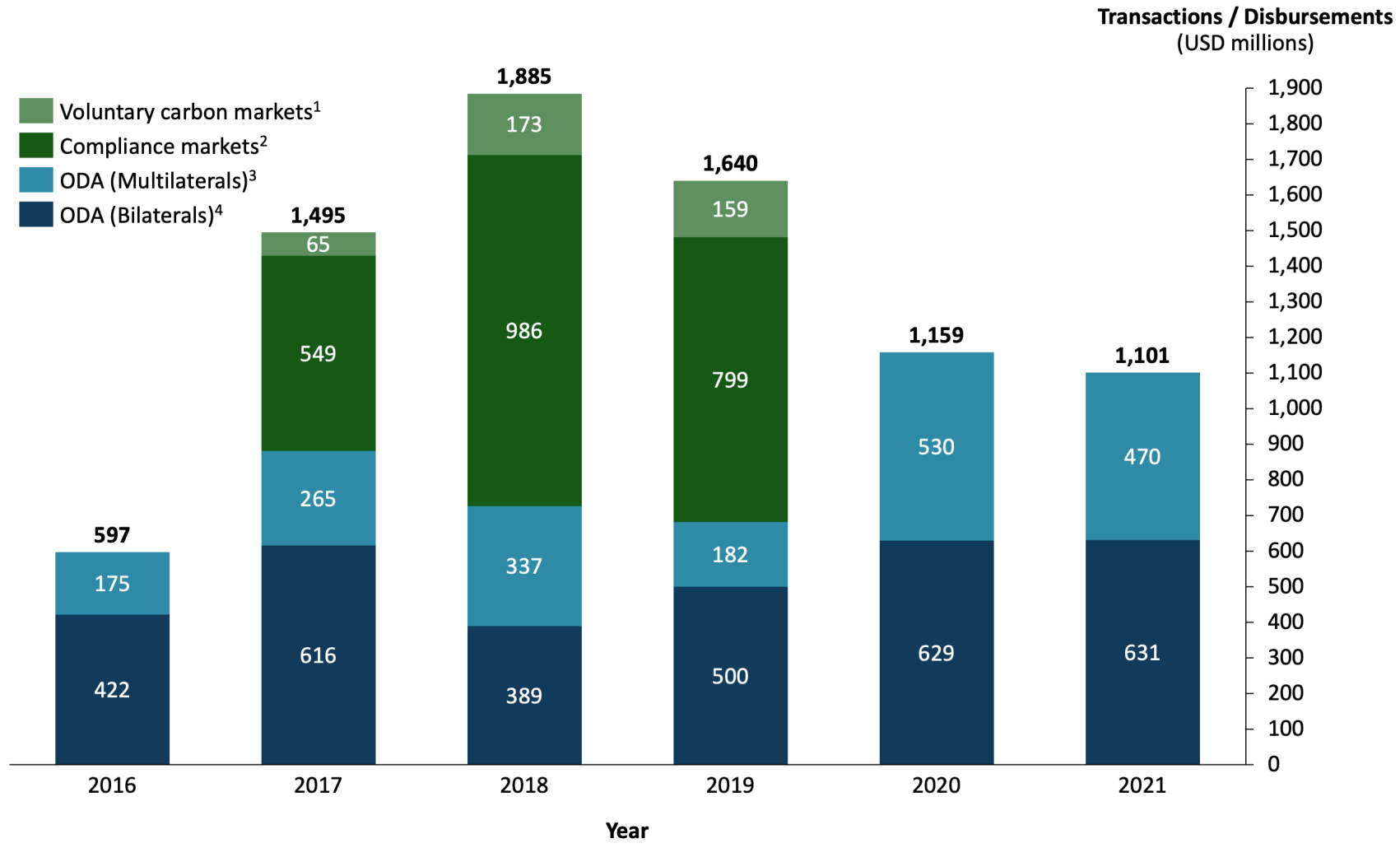
# What's IRA-type?

- Examples of tax credits available are:
  - 30% for manufacturing.
  - 10-20% depending on the location (e.g., Tribal Nations or disadvantaged communities).
  - 10% for using apprenticeship labor.
  - Total tax credits can go up to around 50%.
- The US does not want its supply chains to be dependent on countries with which they do not share values.
- But significant challenges remain: permitting, workforce, and supply chain.
- LAC should take note of two aspects:
  - Permitting reform bill in US Congress seeks to reduce development time for renewable energy projects.
  - Energy security is seen as necessary to accelerate the energy transition (need to grow the energy pie to ensure there is no backlash on the clean side and people have energy).

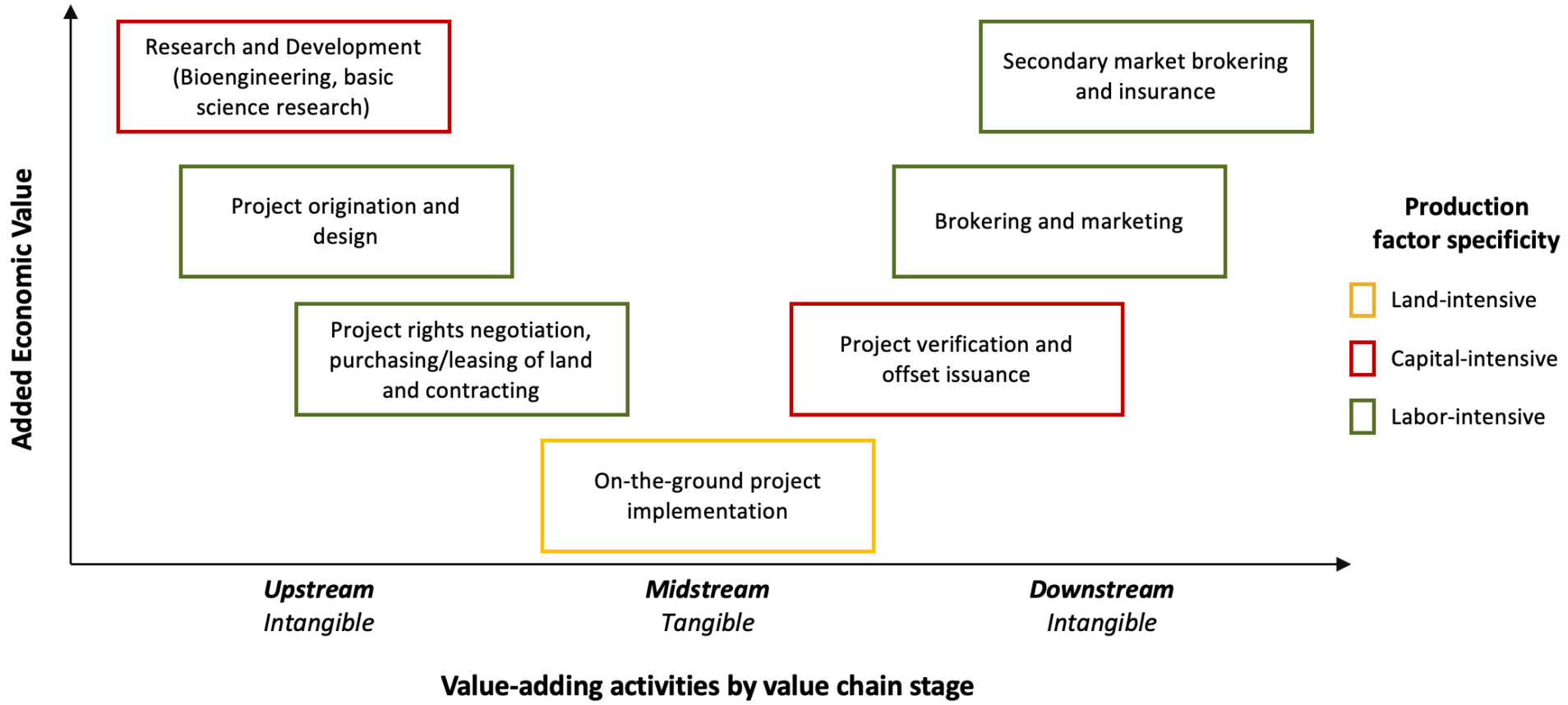
# Idea 3. Develop a deep (and transparent) market for carbon credits

- 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.).

# Forest-specific voluntary and compliance carbon market transactions are taking over ODA

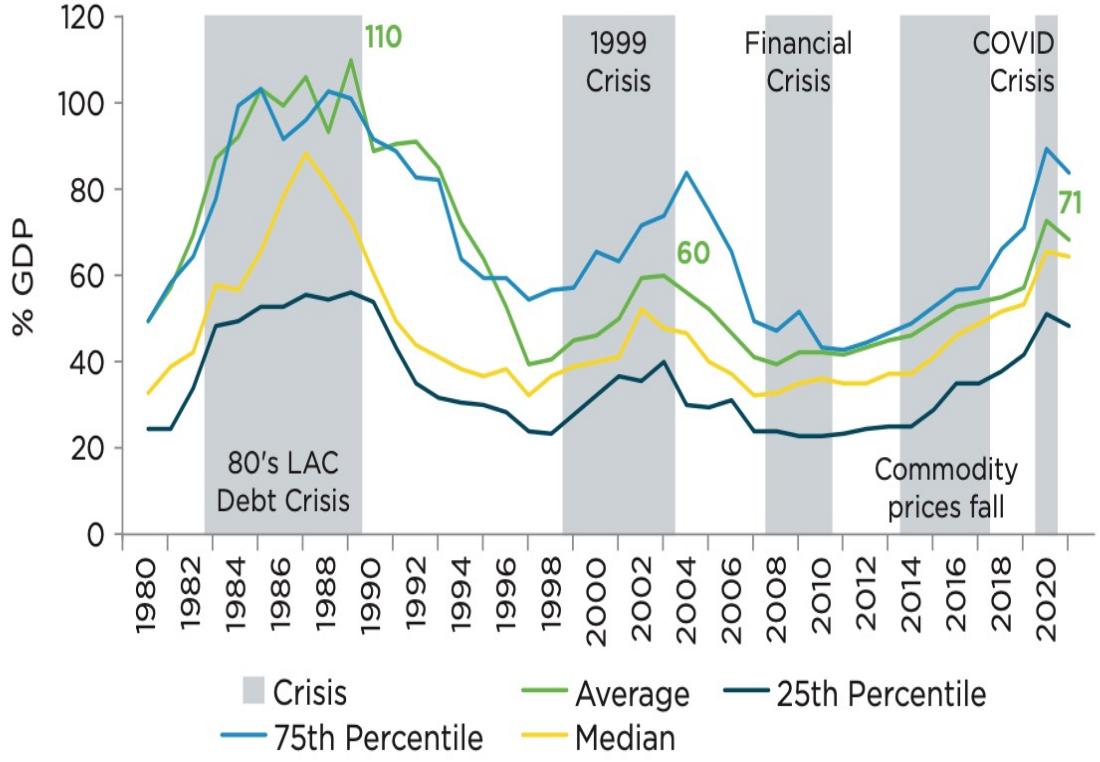


# But developing a deep (and transparent) market for carbon credits requires many steps



# Idea 4. Dealing with high initial levels of public debt

**Figure 4.2** General Government Gross Debt in Latin America and the Caribbean




*Source*: IDB staff calculations based on IMF (2022).
*Note*: Latin America and the Caribbean includes all IDB borrowing countries except Venezuela.

- Fiscal rules are completely silent when it comes to achieving NDCs or net-zero goals (carbon footprint of G or T is not a consideration). Opportunity to redesign rules.
- Incorporate environmental contingent liabilities into fiscal rules.
- Promote standard rules for debt-for-nature swaps.
- Expand technical capacity of Fiscal Councils.

# Idea 5. Negotiate new FTAs

- Carbon prices in Europe continue to increase.
- LAC realistically will not adopt high carbon process.
- Carbon Border Adjustment Mechanisms (CBAM) are very likely to be enacted, potentially affecting LAC exports.
- New FTAs most me adopted:
  - Promote the use of differentiated carbon intensity parameters.
  - Maintain commitment to open trade.
  - Avoid EU or US-based production or input requirements.

# Conclusions

1. LAC is not a sizeable emitter but is experiencing harsh consequences of climate change with extreme weather events doubling during the last two decades. Physical risks are already evident and help mobilize public opinion.
2. Some countries have made very ambitious emissions reduction pledges. There is, however, a disconnect between aspirations and action.
3. The investment required to meet climate goals is approximately 7-11 percent of GDP per year.
4. A fast reduction in emissions from deforestation is cost-effective and does not require technological breakthroughs. However, it requires a new institutional setting. A large number of market failures have to be fixed to develop a deep carbon credits market.
5. Changes in fiscal frameworks are needed (including those used by rating agencies), adding new layers to the concept of fiscal sustainability.