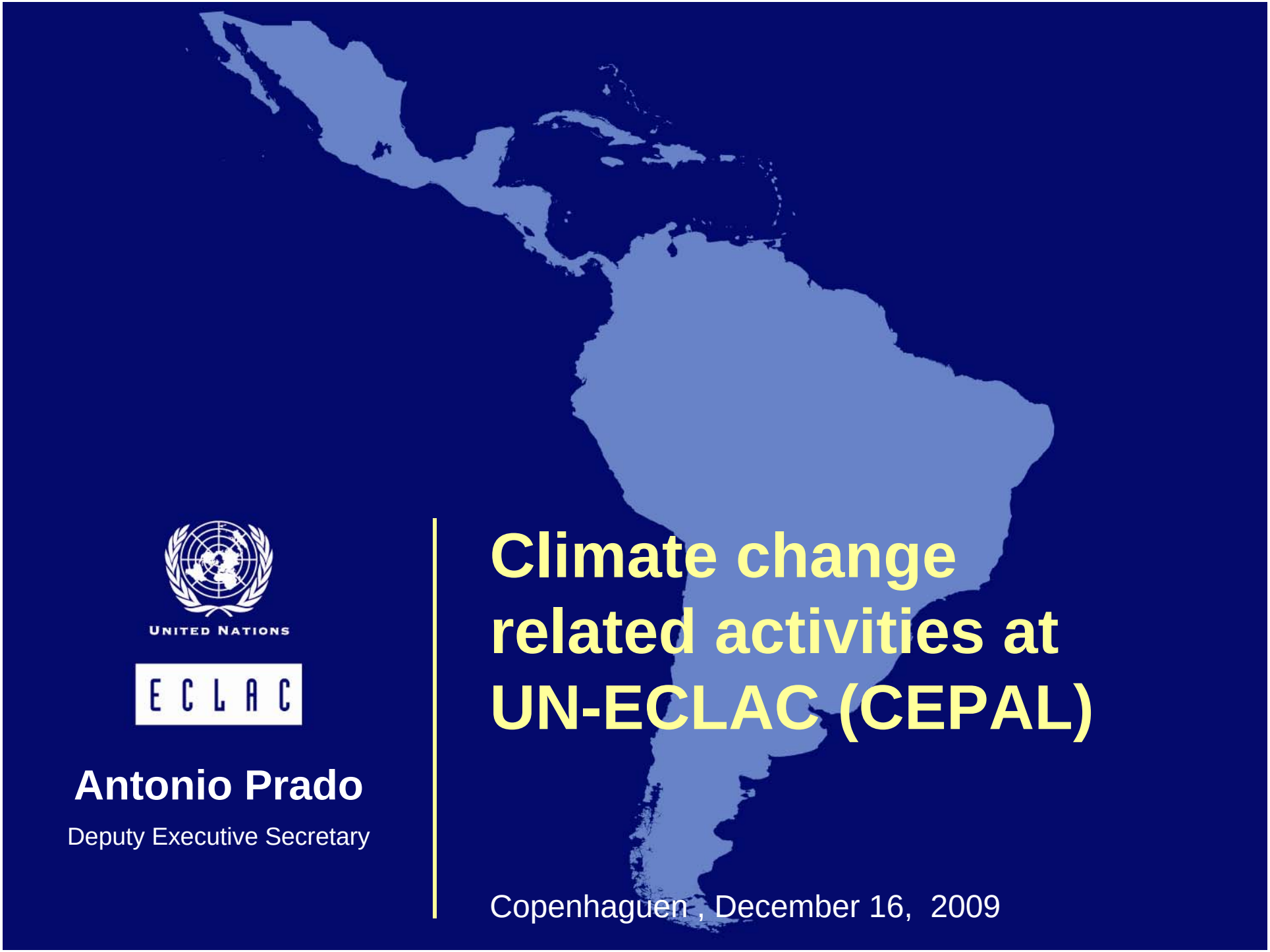


UNITED NATIONS

ECLAC

Antonio Prado

Deputy Executive Secretary

Climate change related activities at UN-ECLAC (CEPAL)

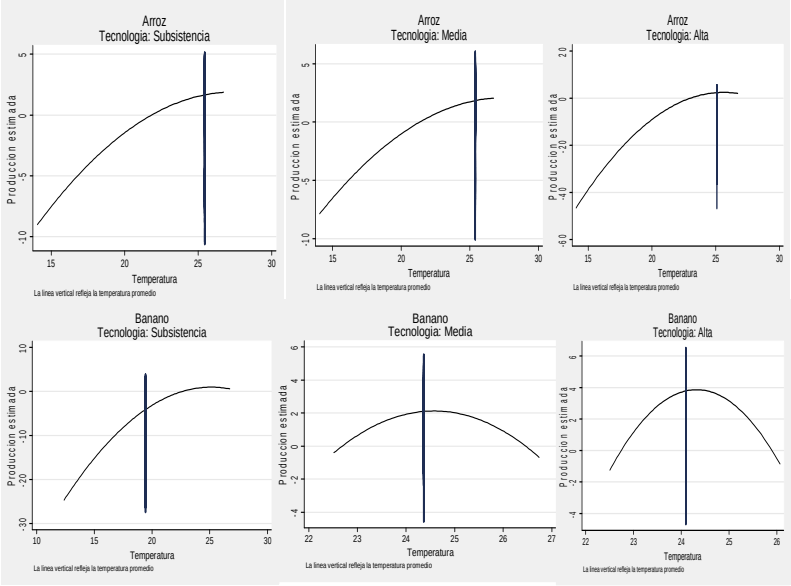
Copenhaguen , December 16, 2009

1. Assessing Economic Impacts

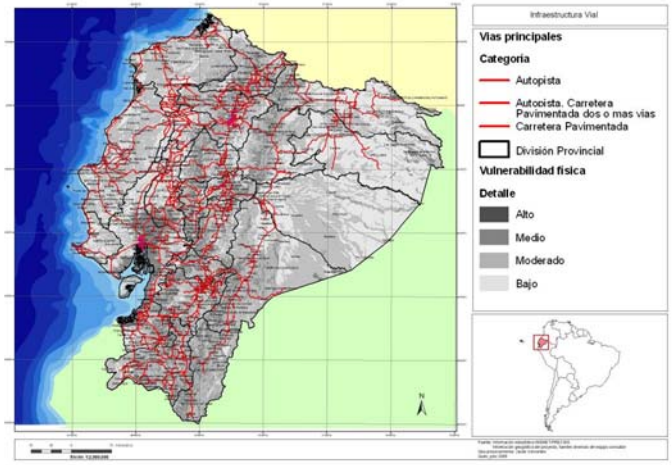
- Issued of **"Climate Change in Latin America and the Caribbean: a review",** compiling scientific information published in recent years, analysis of economic impacts from various sources, including aspects related to carbon footprinting in trade, production vs consumption of carbon, carbon leakage through Foreign Direct Investment and analyzing some possible routes for an international agreement)
- **Regional Economics of Climate Change Studies (RECCs),** with DFID, IADB, the Danish, and the Spanish Governments and the European Commission. Analyze climate change impacts on sectors and mitigation potentials based on costs and benefits. Subregional studies in Central America, the Caribbean and 8 national studies in South America to integrate a regional LAC.

The costs of climate-related disasters will climb fast

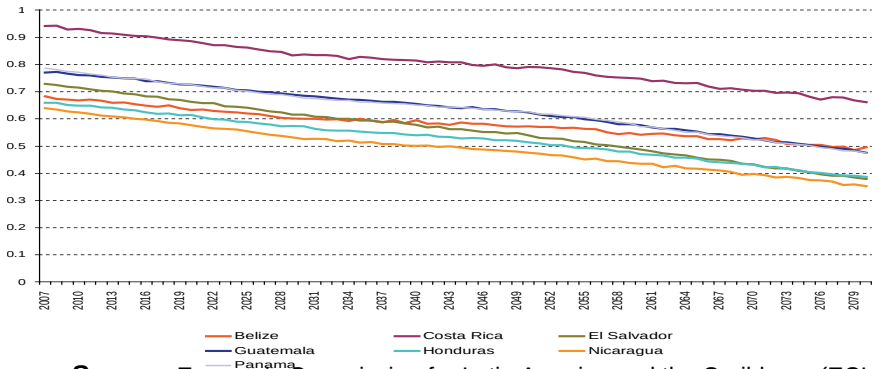
AGRICULTURE IN ECUADOR: INCREASING TEMPERATURE AND PRECIPITATION DO NOT INDUCE TO AN APPROPIATE ADAPTATION.



SYSTEMIC RISK IN ECUADOR: VULNERABILITY

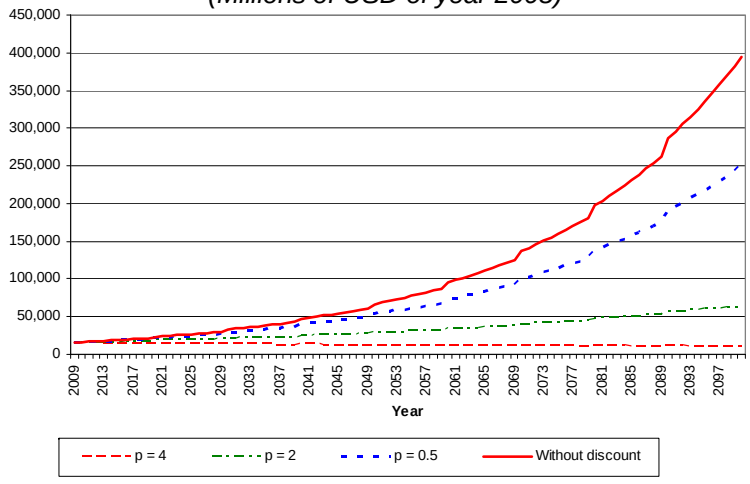


CENTRAL AMERICA (7 COUNTRIES): EVOLUTION OF THE POTENTIAL BIODIVERSITY INDEX, BASED ON SCENARIO A1B



LATIN AMERICA AND THE CARIBBEAN: COSTS OF CLIMATE-RELATED DISASTERS UP TO THE YEAR 2100

(Millions of USD of year 2008)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official data.

1. Assessing Economic Impacts

- ECLAC is coordinating a **multiagency report** on regional progress on the **MDG 7**, which includes CO2 emissions trends, deforestation, the potential impacts of Climate Change on the evolution of other MDGs.

- 12th Annual Conference on **Global Economic Analysis**, organized by ECLAC, GTAP and IDB, held on past June 2009 in Santiago, Chile, to discuss global innovations in modeling techniques plus annual regional workshops on CGE modeling

2. Capacity building

• 2009, **Dialogues for negotiators** to exchange views on progress in the COP15 negotiation in March and September. Further Dialogues upon request of countries.

• On **Mitigation** (Reducing Emissions from Deforestation and Degradation):

1. workshops on technical, financial and institutional issues related to REDD for forest experts, with OECC (Spain), InWent (Germany), Office National des Forêts, France) and GTZ . Studies on the costs of forest conservation to appraise the value of the environmental service of carbon retention.

2. Capacity building

- On **Adaptation**
  1. With support of the Iberoamerican Network of Offices of Climate Change (RIOCC/Spain) south-south courses in 2008-2009, two provided by CPTEC (Brazilian Center for Climate Prediction and Weather Forecast of the Brazilian Institute of Space Science (INPE), on **climate modeling** at national level and two **integrating climate change adaptation projects**.
  2. 35 year experience in **economic valuation of disasters** (*Damage and Loss Assessment Methodology)* tested to evaluate costs of expected impacts of climate change to assess potential adaptation costs and promote risk reduction policy changes.

3. Other Activities

a) Examine Climate Change related variables for **statistical consistency** in fora like the Statistical Conference of the Americas Working Group, or the Regional Course of Methodologies for Calculation of ILAC/MDG7 environmental indicators.

b) Workshops on the recent developments in methodologies in developed countries to label carbon footprint in the agricultural sector related markets.

3. Other Activities

c) Promoting awareness on the **link between water and climate change** and the regulatory frameworks and on **energy efficiency** with publications (“Situation and perspectives of Energetic Efficiency in Latin America and the Caribbean”) and meetings (Regional Intergovernmental Meeting on Energy Efficiency, the Solar International Seminar 2009 with the participation of Physics’ Nobel Prize, Dr. Carlo Rubbia, Special counselor for the Executive Secretary of ECLAC on energy and climate change matters; Access to Energy and Reduction of Poverty to reach the Millennium Development Goals, First Geothermic Conference on the Caribbean).

3. Other Activities

d) Initial efforts to address the link between **infrastructure and lower carbon economies** through improved construction and operation: sustainable ports; Urban mobility polices and infrastructure transport services; International and regional tendencies in logistics and land transport (energy efficiency, carbon footprint); infrastructure strategic multimodal planning.

Lines in progress

1. More RECCs: sectors, sea level, mitigation, MACs, fiscal policies and other financing for development/ climate change / CGE+other models/biofuels.

2. Observatory for public policies.

3. Economic impacts of CC at urban level (mega-cities) including Urban infrastructure and eco-efficiency.

5. EUROCLIMA, SPAIN.

6. Energy security, efficiency and bioenergy? Projects?.

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UNITED NATIONS

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The post-crisis world in a nutshell

- **Climate change will demand the adoption of new, low-carbon production and trade patterns, which will require substantial investment.**

Climate change: which model have we been using?

The model we inherited

- **The intensive use of fossil fuels increases living standards with neglegible externalities.**
- **Neither energy efficiency programmes nor renewable energies are competitive paradigms and hence remain marginal.**
- **Relative prices, due to expenditure, investment and taxation, favor the consumption of fossil fuels.**
- **Concerns about the degradation of the local environment gradually rise.**
- **Changes in soil use are promoted to incorporate nature into the economic system.**
- **There is no coordination between planning in the areas of land use, natural resources, infrastructure and transportation.**

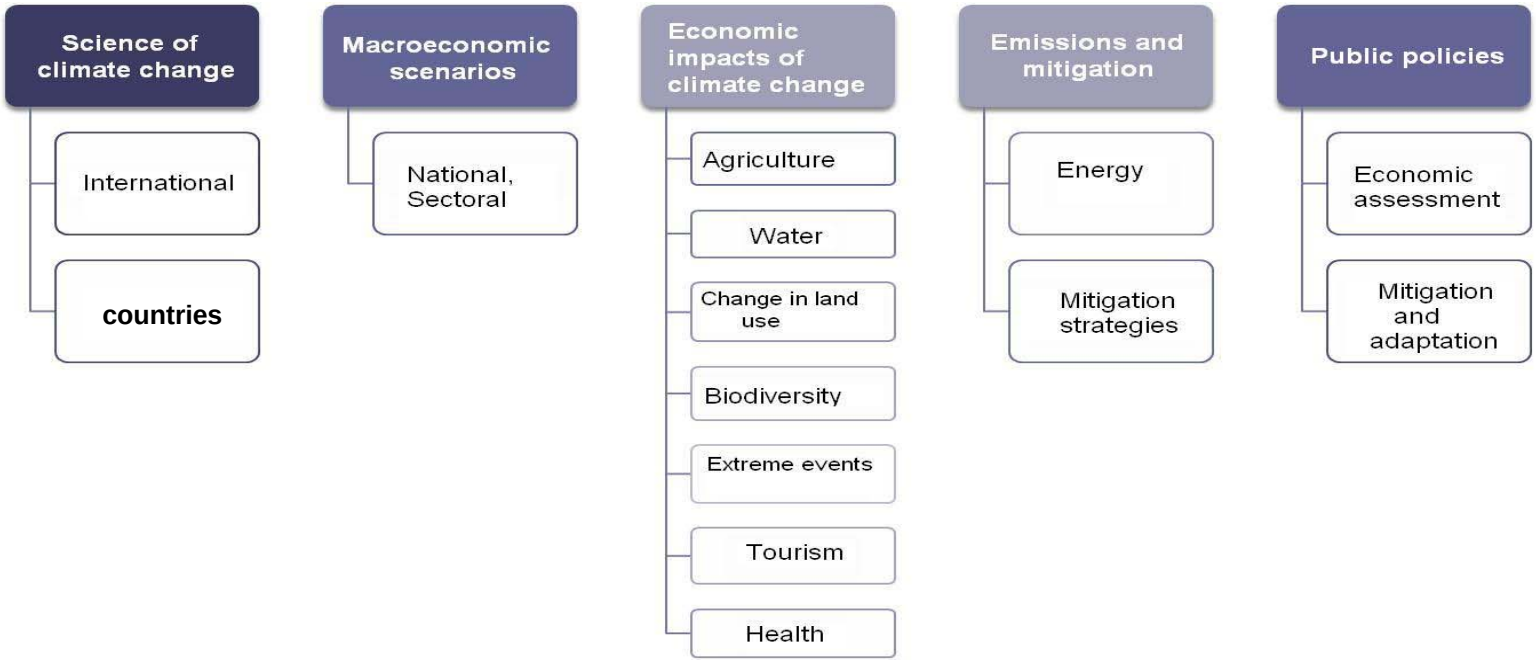
Central objectives of RECCs

- To identify the (physical and economic) baseline for adaptation and mitigation and thus be in a position to compare change scenarios between the two processes and among countries;
- To build consensus processes and capacity within the countries (technical teams per country-subregion);
- to draw the attention of government economic agencies in the region to these issues and their relationship with development (government panels in countries);
- To design low-carbon (double or triple dividend) development strategies;
- To foresee changes in the international environment in which the region will be immersed in order to adjust trade and investment policy as appropriate.

Role of ECLAC in the Reviews of the Economics of Climate Change (RECCs) and structure of the Reviews

Partner in Mexico (UK, IDB, World Bank), Promotor in Central America (UK), Caribbean (UK) and South America (UK, German, Spanish and Danish Cooperation Agencies, European Union, IDB): Argentina, Chile, Colombia, Bolivia, Ecuador, Paraguay, Peru and Uruguay

Methodological Approach



The scientific evidence is a call for action: the global situation will require the concerted response of most countries in the world

Scenarios for GHG emissions from 2000 to 2100 (in the absence of additional climate policies) and projections of surface temperatures

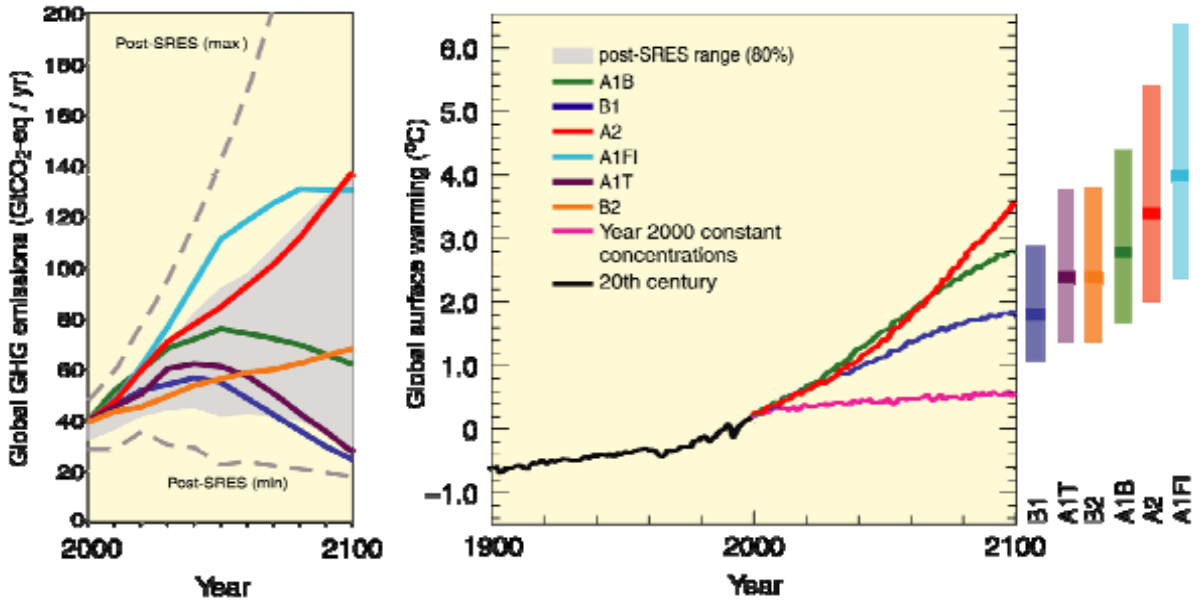
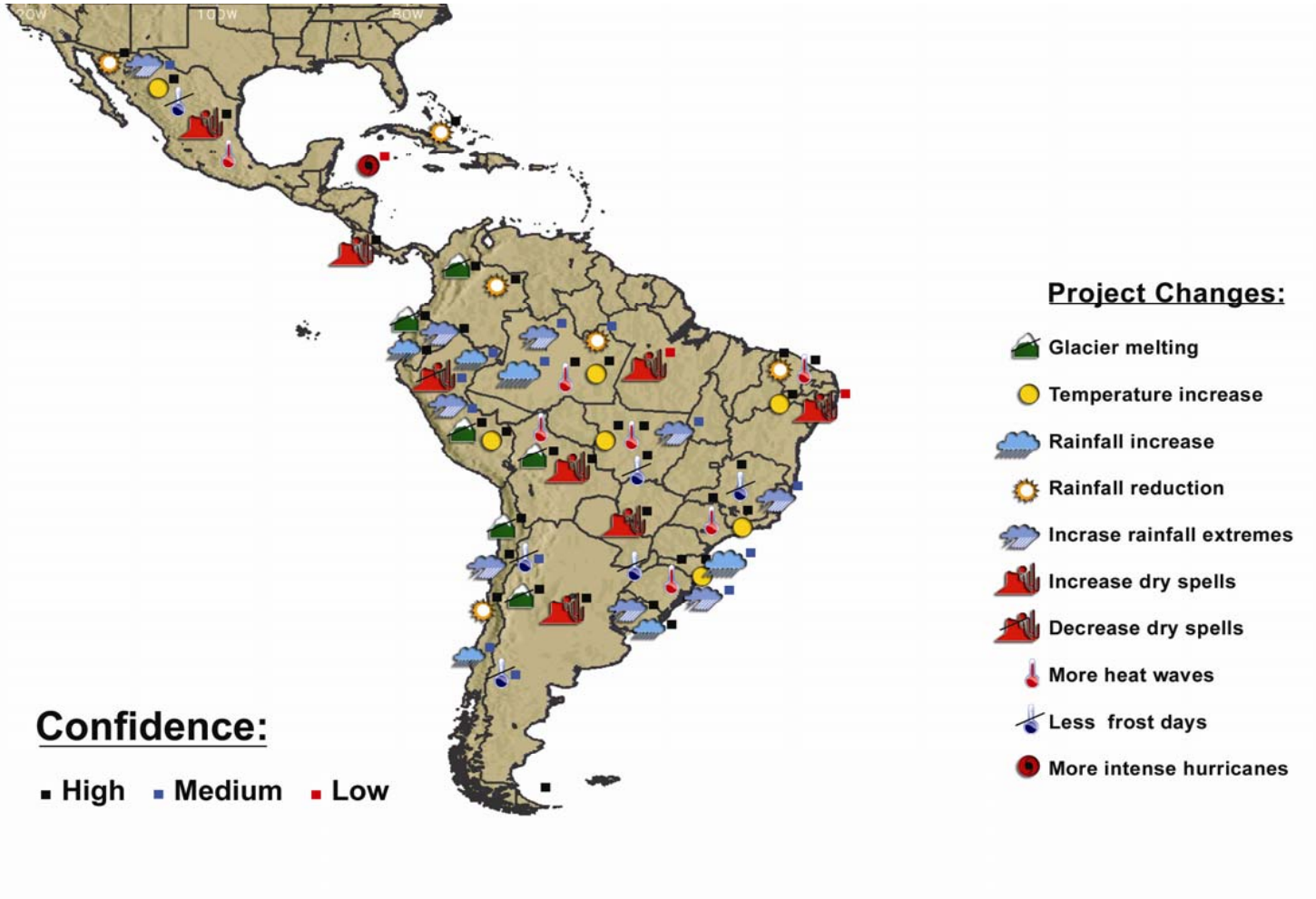


Figure SPM.5. Left Panel: Global GHG emissions (in CO_2-eq) in the absence of climate policies: six illustrative SRES marker scenarios (coloured lines) and the 80th percentile range of recent scenarios published since SRES (post-SRES) (gray shaded area). Dashed lines show the full range of post-SRES scenarios. The emissions cover CO_2, CH_4, N_2O, and F-gases. Right Panel: Solid lines are multi-model global averages of surface warming for scenarios A2, A1B and B1, shown as continuations of the 20th-century simulations. These projections also take into account emissions of short-lived GHGs and aerosols. The pink line is not a scenario, but is for Atmosphere-Ocean General Circulation Model (AOGCM) simulations where atmospheric concentrations are held constant at year 2000 values. The bars at the right of the figure indicate the best estimate (solid line within each bar) and the *likely* range assessed for the six SRES marker scenarios at 2090-2099. All temperatures are relative to the period 1980-1999. {Figures 3.1 and 3.2}

The regional situation will also require the concerted response of most countries in the world

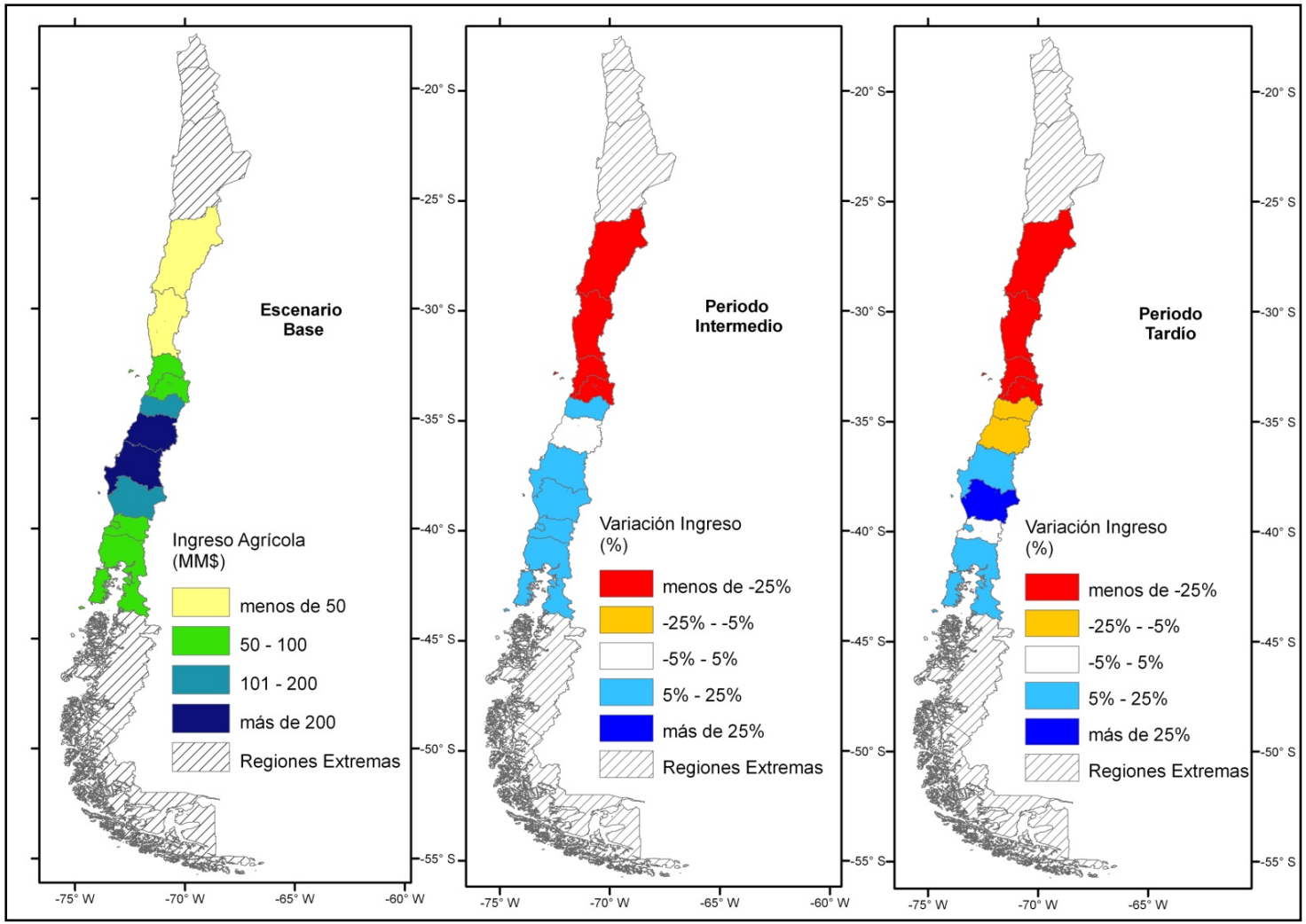


Climate change: which one are we heading?

The model for the future

- **Carbon-emissions limits will be set in order to reduce the carbon footprint on account of its negative impact on the world climate and on welfare.**
- **The carbon footprint will be key to competitiveness, and decarbonization targets, incentives, penalties or taxes will be established in the international economy.**
- **Environmental restrictions, which have still not been touched on in the current talks, will be necessary for almost all countries in the coming decades.**
- **The transition will be either negotiated or unilateral, and the voice of the more powerful nations will be the loudest. Latin America and the Caribbean must pursue multilateral agreements and stand by the principle of common but differentiated responsibilities.**
- **Adaptation and mitigation policies require long-term planning in infrastructure, transport, land use, trade and investment, and energy production.**

Chile: Changes in agricultural output in the twenty-first century



Montevideo, Uruguay: impact on urban zones of the flooding of coastal areas up to 2100

ESTIMATES OF TOTAL IMPACT ON COASTAL RESOURCES ACCORDING TO PROPOSED SCENARIOS

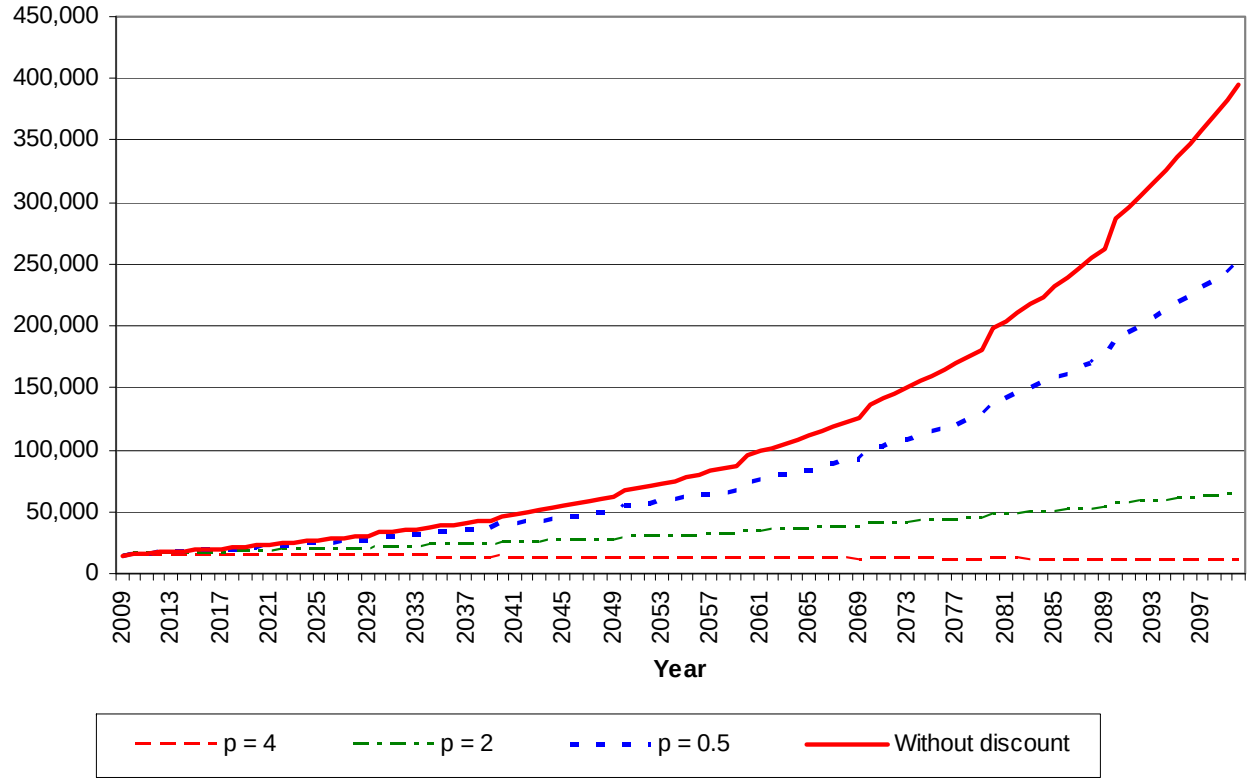
Coastal Resources - Total economic impact		
Scenarios	**Sea-level rise (metres)**	**US$ 2008**
A2		
2010	0.1	0
2030	0.2	37,569,236
2050	0.4	862,398,690
2070	0.6	1,310,906,102
2100	1.0	2,085,332,243
Total		**4,296,206,272**
B2		
2010	0.1	0
2030	0.2	24,954,063
2050	0.3	449,978,513
2070	0.5	1,553,509,040
2100	0.7	2,200,987,227
Total		**4,229,428,843**

1 meter rise in sea level
=
12% of 2008 GDP

The costs of climate-related disasters will climb fast

LATIN AMERICA AND THE CARIBBEAN: COSTS OF CLIMATE-RELATED DISASTERS UP TO THE YEAR 2100

(Millions of USD of year 2008)



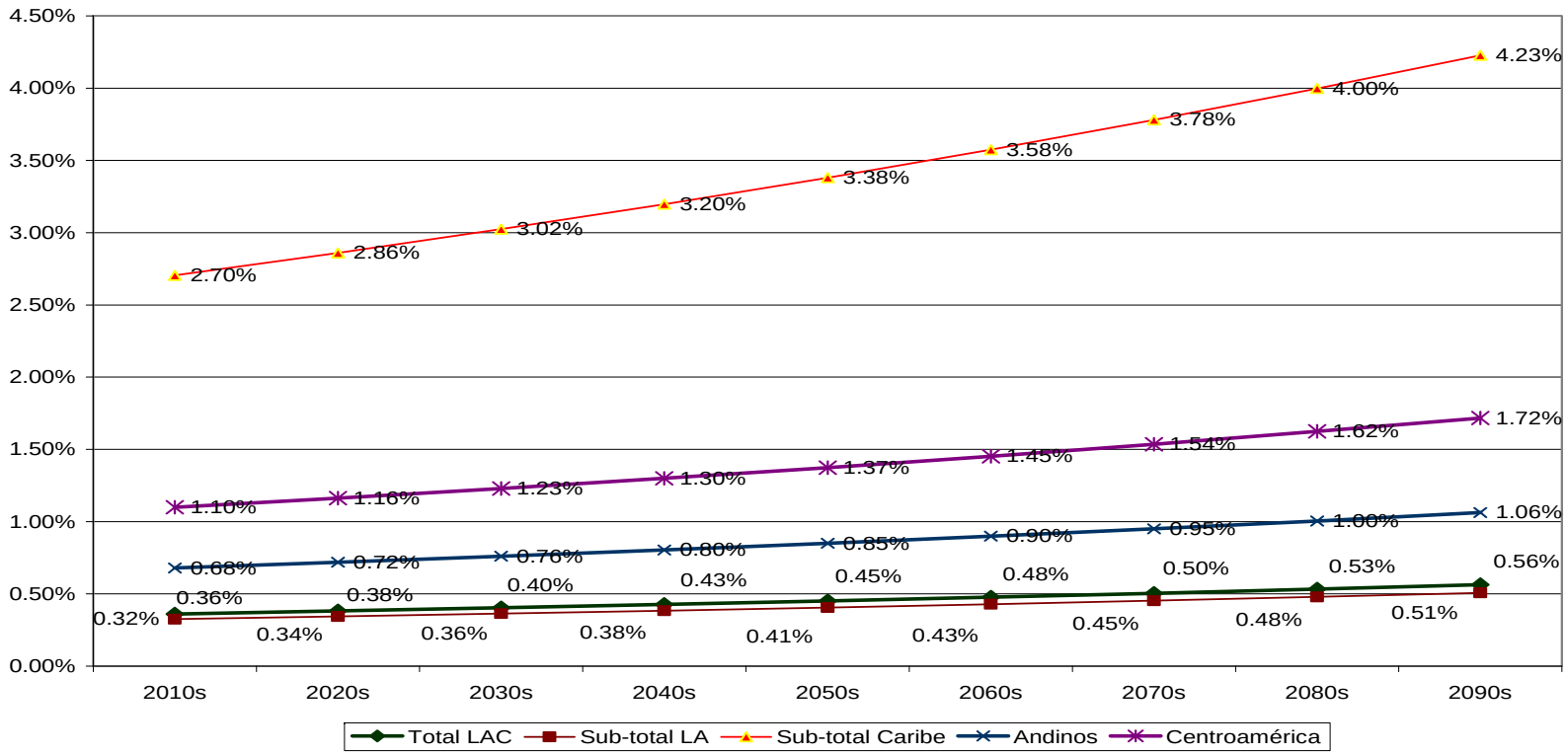
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official data.

The costs of climate-related disasters will climb fast

LATIN AMERICA AND THE CARIBBEAN: COSTS OF CLIMATE-RELATED DISASTERS UP TO THE YEAR 2100

(Millions of USD of year 2008)

PESO DESASTRES A PIB, POR DECADAS 2010-2100



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official data.

Preliminary analysis of the accumulated costs of climate change in selected countries and sectors

Present value of the accumulated costs up to 2100 *(As a proportion of current GDP)*							Sectors evaluated
Country	Discount rate of 0.5% per year			Discount rate of 4% per year			
	B1/B2	A2	Average of scenarios	B2	A2	Average of scenarios	
Mexico	34%	43%	**39%**	7%	8%	**7%**	Crop farming, water, soil use, biodiversity, tourism, livestock farming (indirectly), biodiversity (indirectly)
Chile	-22%	271%	**125%**	13%	49%	**31%**	Crop farming, fruit farming, forestry, hydroelectricity, drinking water, indirect costs
Chile (annualized)	0.09	1.09		0.23	0.82		With a 0.5% discount, the loss under the A2 scenario is close or equivalent to the country's environmental spending.
Uruguay	56%	280%	**168%**	0%	50%	**25%**	Farming, energy, tourism, water, coastal resources, biodiversity, disasters, indirect costs
Bolivia (Plurinational State of)	507%	805%	**656%**	44%	70%	**57%**	Disasters (all=overestimate) in infrastructure and farming, biodiversity, energy, health, drinking water
Argentina	55%	54%	**55%**	14%	14%	**14%**	Farming, forestry, water, health, biodiversity (partial) , floods (partial) coastal edge (partial)

THE RIGHT TO THE FUTURE

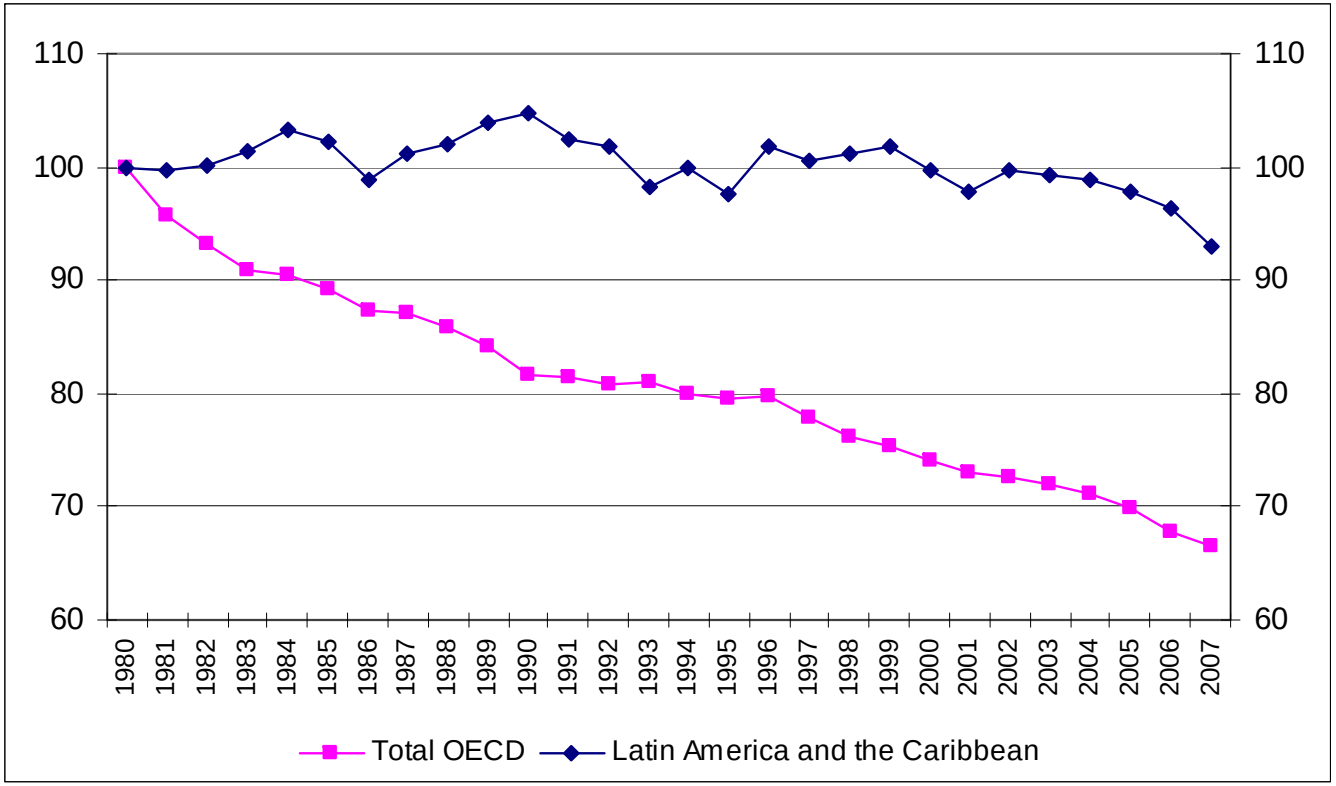
Climate change: opportunities

- **Climate change may act as a constraint on economic growth in the region just as fiscal deficits and the disequilibria of the external sector have done.**
- **It may also be an opportunity to overhaul existing infrastructure, improve production processes and create efficient transport systems with a lower carbon content.**
- **The recovery from the crisis should also be an opportunity to establish coherent public policies that promote investment in low-carbon processes that will be beneficial to the external sector, public finance, employment and mitigation.**
- **Competition strategies will motivate countries to assess changes in their emission levels on a comparative basis.**
- **The private sector may be slow to adapt and its adaptation effort may be insufficient. The State, as mediating agent of long-term intertemporal objectives, must therefore play a major role in adjusting relative prices, reshaping the preferences of the other agents, promoting cleaner production and consumption patterns and creating public goods that benefit society and boost investment.**
- **The change towards a more energy-efficient development path with a lower carbon content will also contribute to the formation of more equitable societies.**

But in Latin America and the Caribbean, energy intensity and the level of CO2 emissions are not following the desirable path or improving at the required rate (gaps)

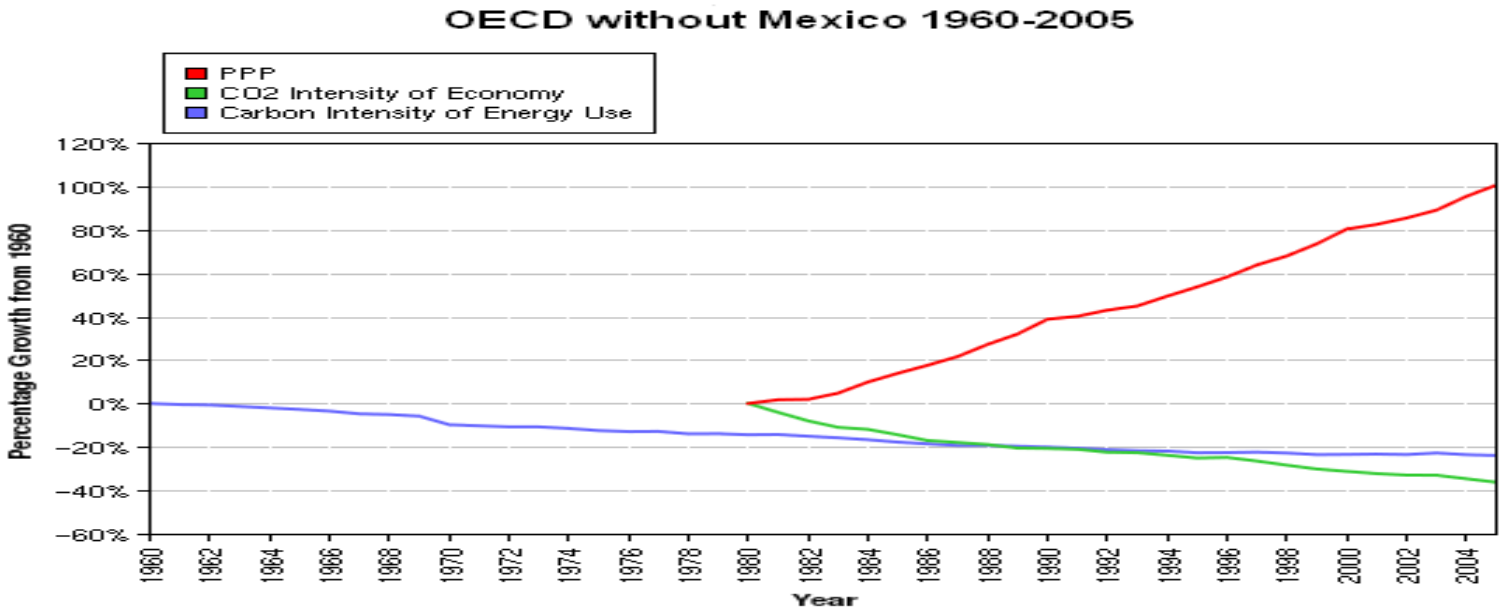
LATIN AMERICA AND THE CARIBBEAN: ENERGY INTENSITY

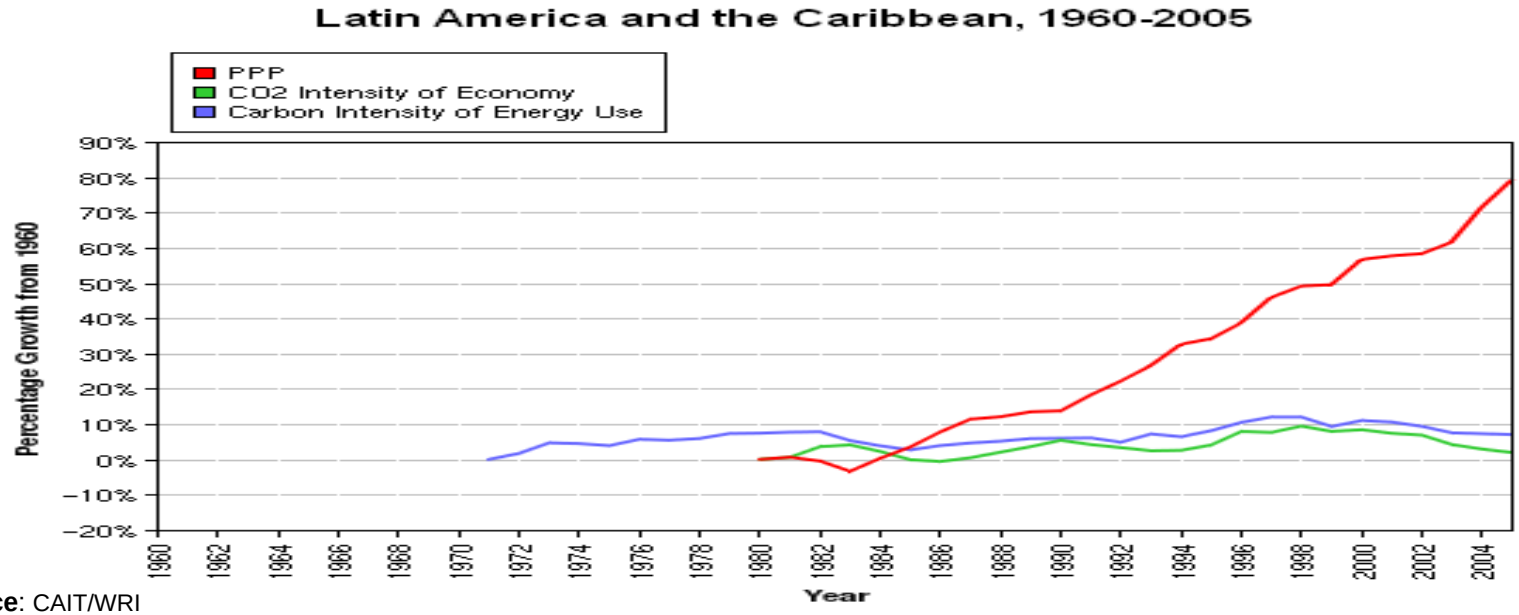
(Barrels of Oil Equivalent (BOE)/US$ 1000 in 2000 prices, index 1980=100)



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of OLADE, Energy-Economic Information System (SIEE) and International Energy Agency (IEA).

Growth with lower pollution is possible





Source: CAIT/WRI

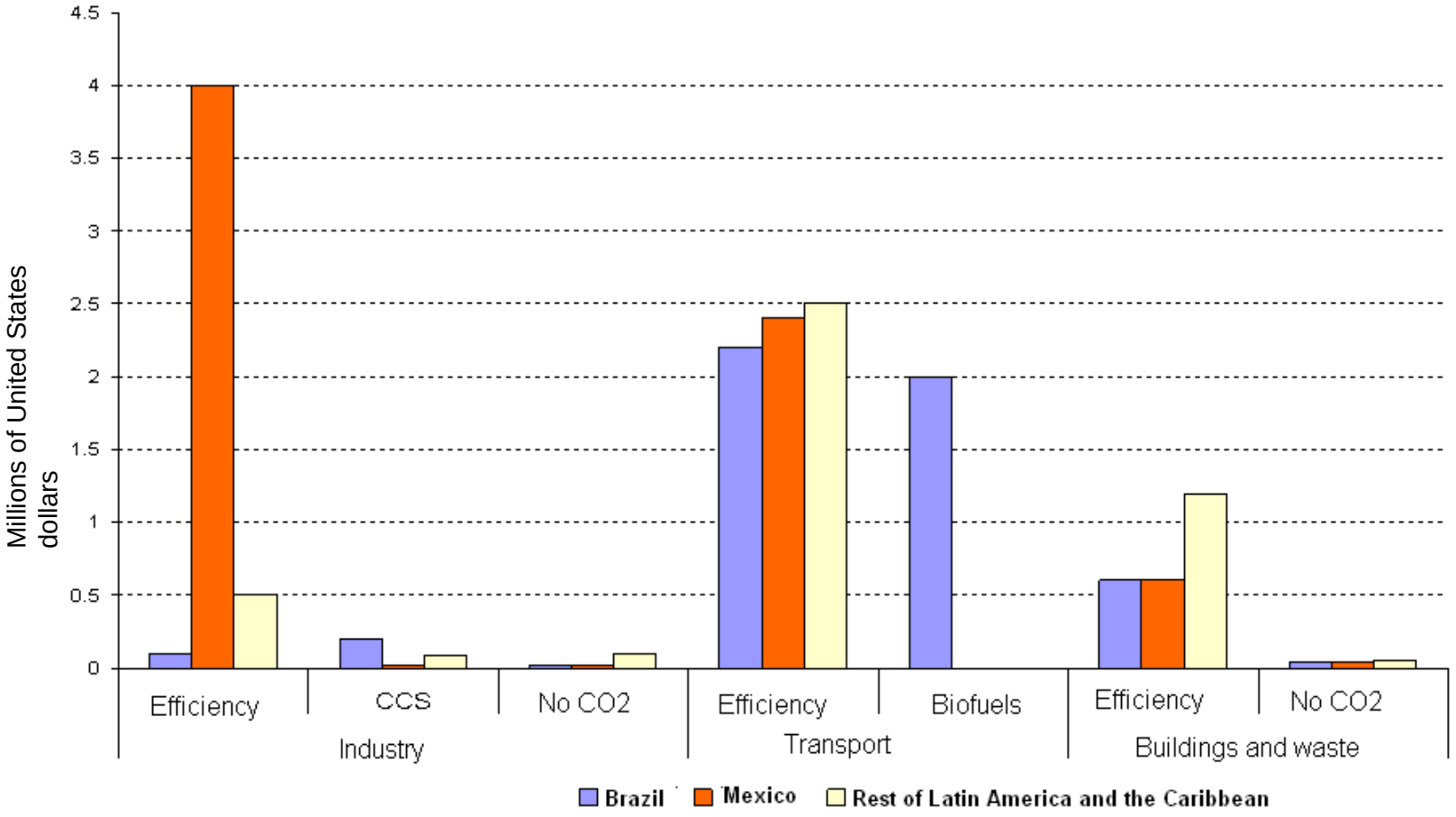
The virtuous path for simultaneously closing the productivity gap and the energy gap is Latin America and the Caribbean's new "empty box"

LATIN AMERICA AND THE CARIBBEAN: ENERGY AND PRODUCTIVE GAPS, 1996 – 2006

ENERGY GAP	**Narrowed energy gap**	Mexico - Employment Mexico - Natural Resources Mexico - Total		
	Increased energy gap	Mexico - Engeneering Brazil - Engeneering Brazil - Natural Resources	Brazil - Employment Brazil - Total Chile - Engeneering Chile - Total	Chile - Natural Resources Chile - Employment
		Increased productive gap		**Narrowed productive gap**
		PRODUCTIVE GAP		

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official data.

Participation by Latin America and the Caribbean in a mitigation scenario: opportunities are concentrated in improving efficiency in industry, transport and buildings



Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of UNFCCC(2007).

Main opportunities for energy mitigation for Latin America and the Caribbean 2010-2030:

- **Efficiency measures for potential emissions reductions of between 15% and 20% by 2030:**
  - **In electricity generation**
  - **In managing demand for electricity**
  - **In the industrial sector**
  - **In transport**
- **Increasing renewable sources participation from the current level of 25% to 40% by 2030. This will entail removing barriers in the following areas:**
  - **Economic and institutional (subsidies, internalizing positive externalities from renewables and negative ones from fossil fuels)**
  - **Technical (knowledge of available resources)**
  - **Social (acceptance of some renewables and cultural changes)**
- **Increase in nuclear energy**
- **Introduction of technologies for carbon capture and sequestration in electricity generation**

Some Conclusions

- Compared with other regions, Latin America and the Caribbean can position itself proactively at relatively low cost within the international climate change regime, given its potential for managing growth by improving energy efficiency and diversifying energy sources.
- This positioning enables the region to capture additional financial and technological flows associated with its participation in the international agenda.
- Flows can be channeled towards underfinanced areas of the regional energy agenda, which need attention, regardless from the international agenda on climate change.
- This strategy will enable the countries to move forward simultaneously with their domestic priorities and assume a proactive role vis-à-vis the international climate change regime, consistent with their own development priorities.

Política Energética y Desarrollo en ALC: Líneas de trabajo y desafíos pendientes 2010-2020

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Sustainable Development and
Human Settlements Division

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Manchester, 9 December 2009