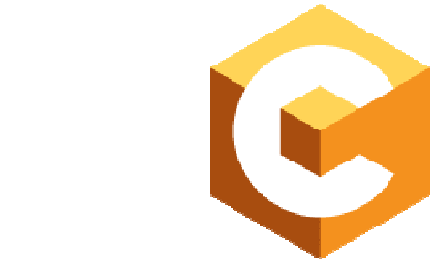

Low-Carbon Growth Planning: Issues & Challenges

Chris Stori, Program Officer, ClimateWorks Foundation
The World Bank
10 September, 2009

Agenda

- **Project Catalyst and context for low-carbon growth planning**
- Core components of a LCGP
- Issues and Challenges to Scaling Up LCGPs
- Appendix

The ClimateWorks Foundation focuses on top-emitting regions and sectors

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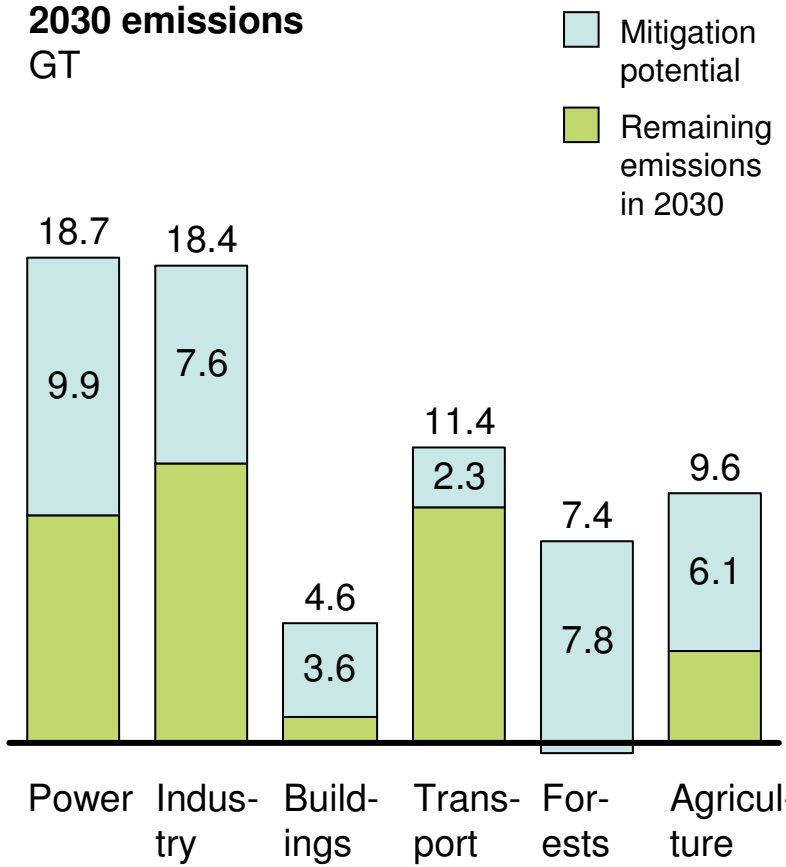
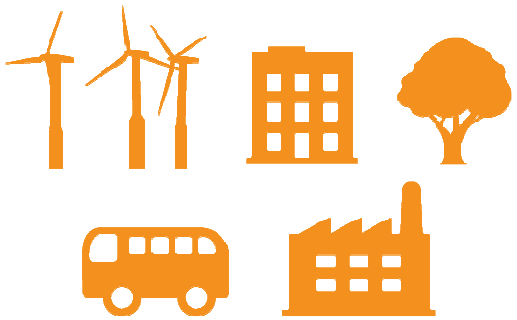
Nations/regions responsible for most CO_2

Abatement potential by sector



Source: Design to Win

ClimateWorks Network



Regional Climate Foundations

Best Practice Networks

ClimateWorks enables global best practice sharing across geographies, sectors and institutions

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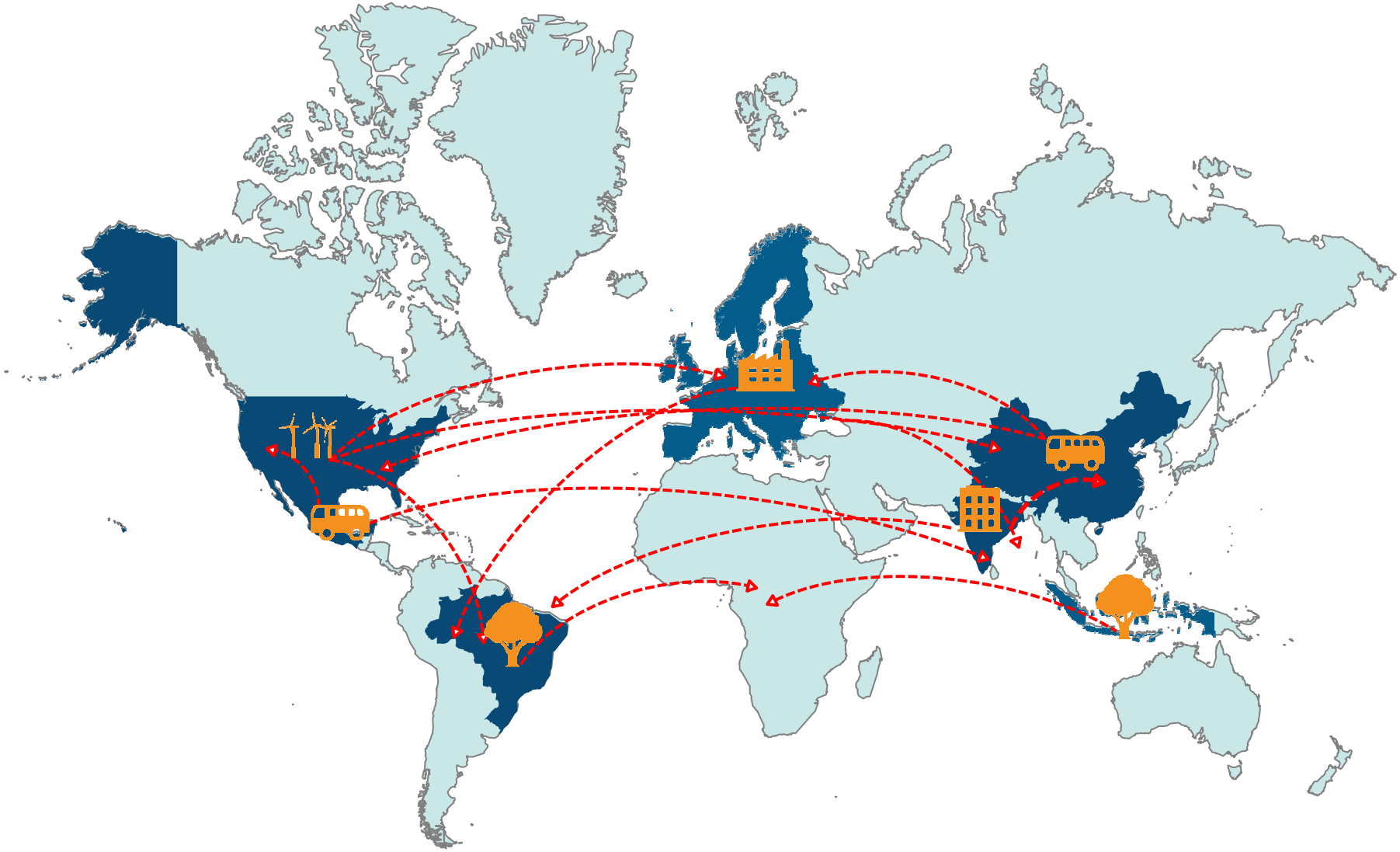


Buildings Power Transportation Industry Forests

Project Catalyst

ClimateWorks

- **Initiative** of the ClimateWorks Foundation, a global, non-profit philanthropic foundation headquartered in San Francisco, California with a network of affiliated foundations in China, India, the U.S., and the European Union

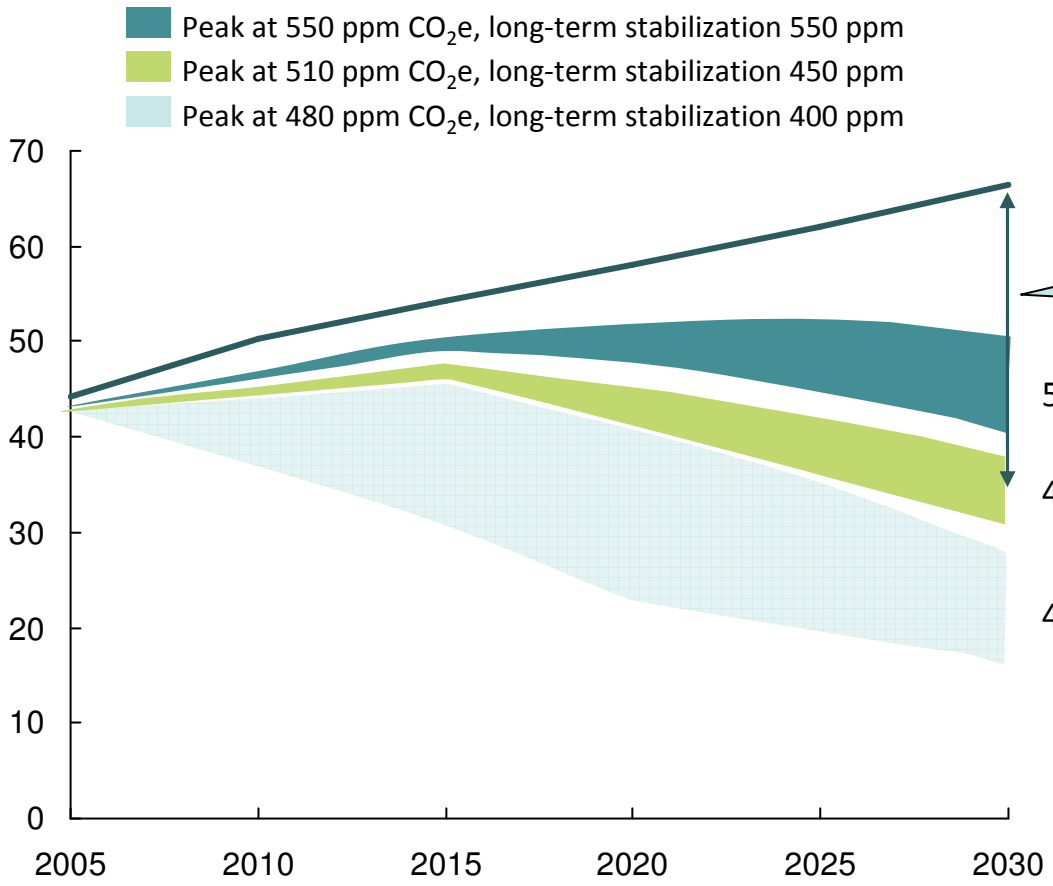
- **Launched** in May 2008 to provide analytical and policy support for the United Nations Framework Convention on Climate Change (UNFCCC) negotiations on a post-Kyoto international climate agreement

- **Provide** a forum where key participants in the global discussions can informally interact, conduct analyses, jointly problem solve, and contribute ideas and proposals to the formal UNFCCC process

- **Organized** in working groups: mitigation, adaptation, technology, forestry, low-carbon growth plans, and finance with a total of about 150 climate negotiators, senior government officials, representatives of multilateral institutions, business executives, and leading experts from over 30 countries

Divergence from BAU is needed to limit temperature increases

Global GHG emissions and pathways for GHG stability
GtCO2e per year



	2050 temp. increase[1]	2100 temp. increase[1]
Business as usual	~2.1˚C	~4.6˚C
550 ppm pathway	~1.7˚C	~2.2˚C
450 ppm pathway	~1.5˚C	~1.9˚C
400 ppm pathway	~1.3˚C	~1.6˚C

Reaching a 450ppm pathway requires reducing emissions by approximately 50% in 2030

1 Compared to pre-industrial levels; Modeled using C-ROADS (400, 450 and 550 ppm pathways)

Source: Global Environmental Change, 17 (2007) 260–280 (den Elzen, Meinshausen, van Vuuren) (450 ppm and 550 ppm pathways); Meinshausen (400 ppm pathway); C-ROADS (for 2100 temperature increases)

The Global GHG abatement cost curve shows there is the technical potential to meet the 450 pathway

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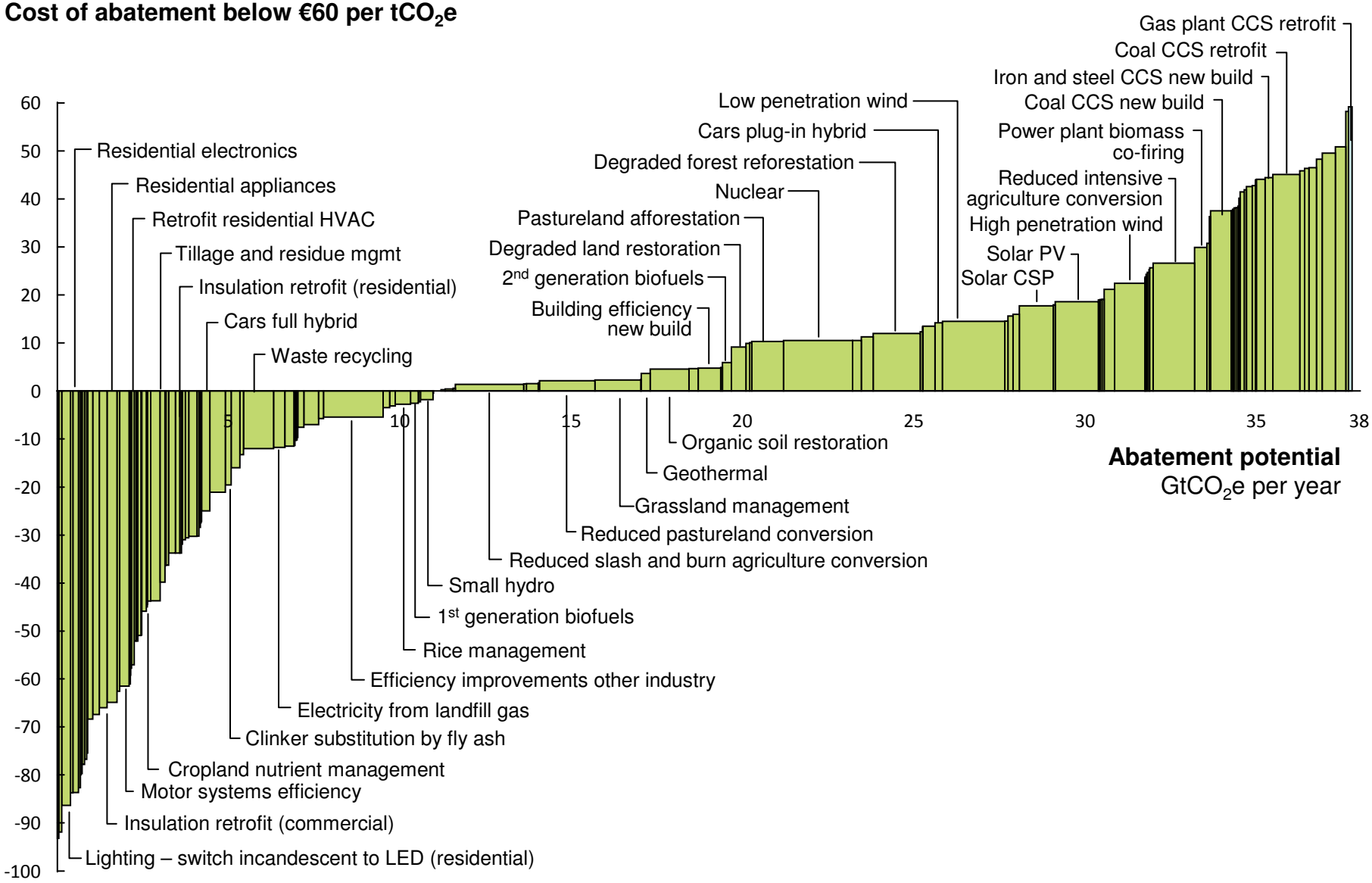
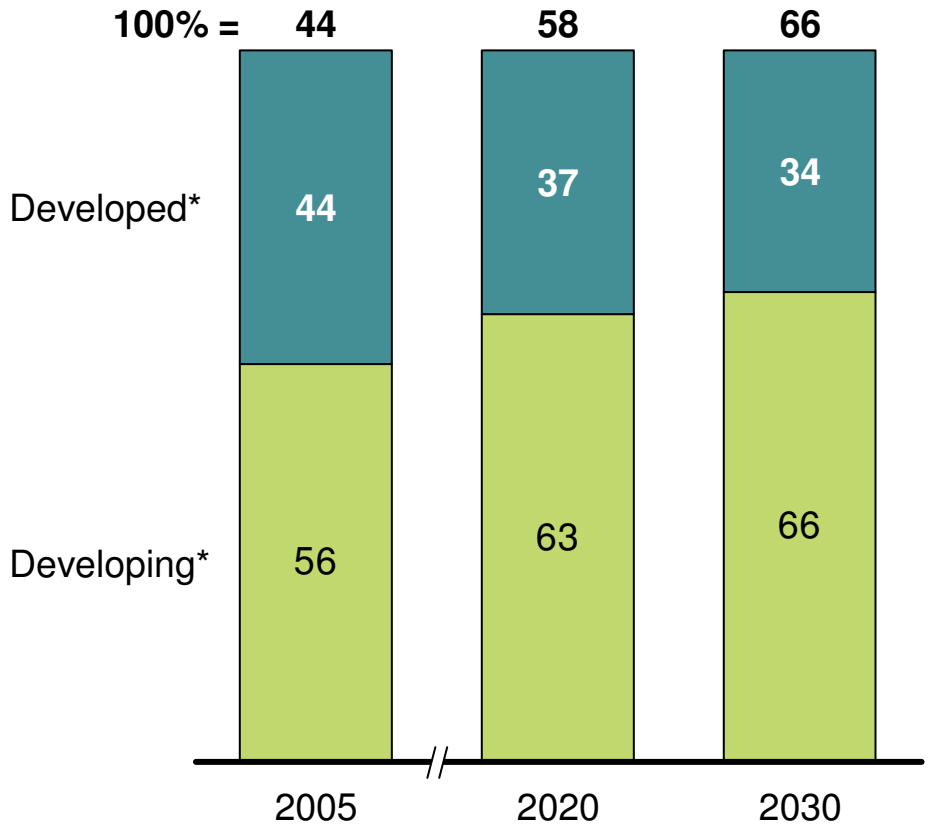
Cost of abatement below €60 per tCO_2e



Source: McKinsey Global Cost Curve v2.0

A viable solution requires action by both developed and developing countries

Global GHG emissions
Percent, GtCO2e



- In 2030, approximately 2/3 of emissions will come from developing countries. With the need to cut emissions by nearly 50% in 2030, any successful mitigation plan will require participation of the developing world
- A UNFCCC agreement will not include binding emissions targets on non-Annex 1 countries making LCGPs needed for developing countries
- If no agreement is reached in Copenhagen (or post-COP), voluntary implementation of LCGPs becomes even more important

* Developed/Developing distinction based on World Bank definitions. When countries were unavailable we assumed developed countries were countries with GDP/Capita > $10,000 in 2000

Source: McKinsey Global Cost Curve v2.0, International Energy Agency (IEA), McKinsey India, China and Brazil Cost Curves

Countries need reliable and compelling information that is often difficult to obtain

The path to reducing emissions
Most governments will only act aggressively on climate change when they recognize those actions are in their national interest

At a minimum, that requires countries to understand:

- The range of mitigation options available to reduce emissions
- What policy interventions available that will capture the mitigation options
- The relative costs and benefits of emission reductions
- What might be the broader economic and financial implications of pursuing that pathway
- How this fits into a potential global finance system that will pay for mitigation, technology and adaptation needs

All of which an LCGP can help to answer

In Mexico, Project Catalyst piloted a successful model to aid in LCGP development

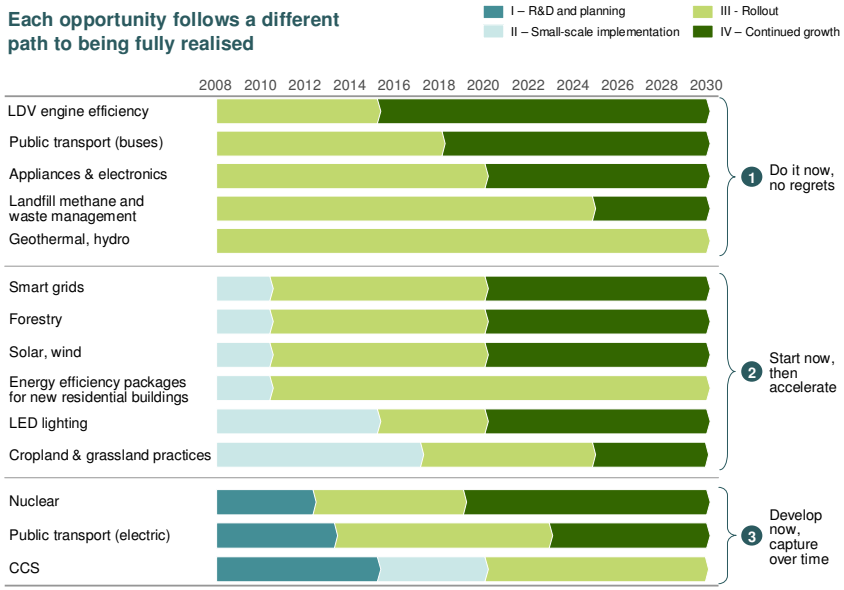
Project Catalyst and the Centro Mario Molina developed a pilot LCGP for Mexico

Scope:
- Development of a country-specific cost curve with more than 144 mitigation levers
- Identification of policies to capture the mitigation opportunity
- Creation of a map of sequenced investments needed to achieve this abatement
- Integration into a macroeconomic assessment of potential costs and benefits, including impacts on GDP, employment, and other sectoral effects

Resources:
- 5 FTEs for 8 weeks on the analysis
- A smaller team working an additional 8 weeks on report writing and syndication with the local organizations and key stakeholders

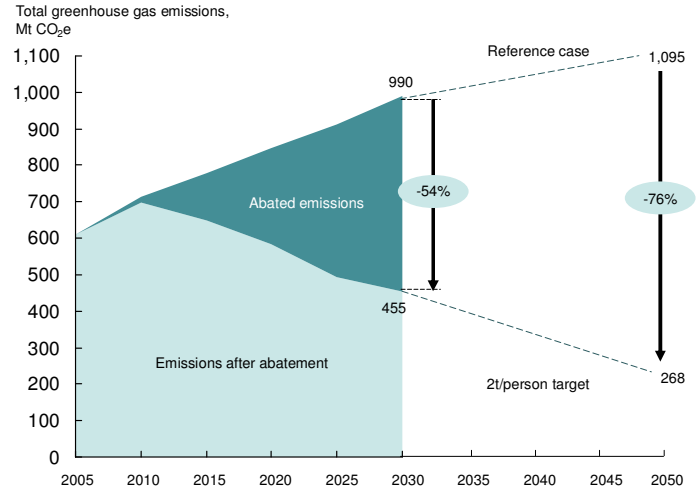
Results:
- Demonstrated that Mexico can reduce emissions by 25% by 2030 while continuing to grow the economy
- The LCGP was presented to the Mexican President's council on environmental policy and was adopted into the country's national climate policy planning process (PECC)
- Contributed to Mexico's pledge at the UN negotiations in Poznan to cut its emissions 50 percent by 2050 and adopt a sectoral cap-and-trade program beginning operation in 2012

Each opportunity follows a different path to being fully realised



Source: McKinsey GHG abatement cost curve v2.0; McKinsey analysis

535 Mt of abatement potential has been identified, which is sufficient to put Mexico on a low-carbon path



Source: IEA World Energy Outlook 2007 (unpublished Annex); Houghton unpublished emissions data; EPA and INEGEI non-CO2 emissions database; McKinsey GHG abatement cost curve v2.0; McKinsey analysis

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- Issues and Challenges to Scaling Up LCGPs
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Core elements of a LCGP

1. Strategic plan to assist the country in shifting its development path to a **low carbon** and climate resilient economy and achieve **sustainable development**

2. Based on the **socio-economic and development priorities** of the country

3. Includes a **strategic vision** (long-term component) as well as that **specific actions** to be undertaken to get on a low carbon, climate resilient pathway (short and medium term component)

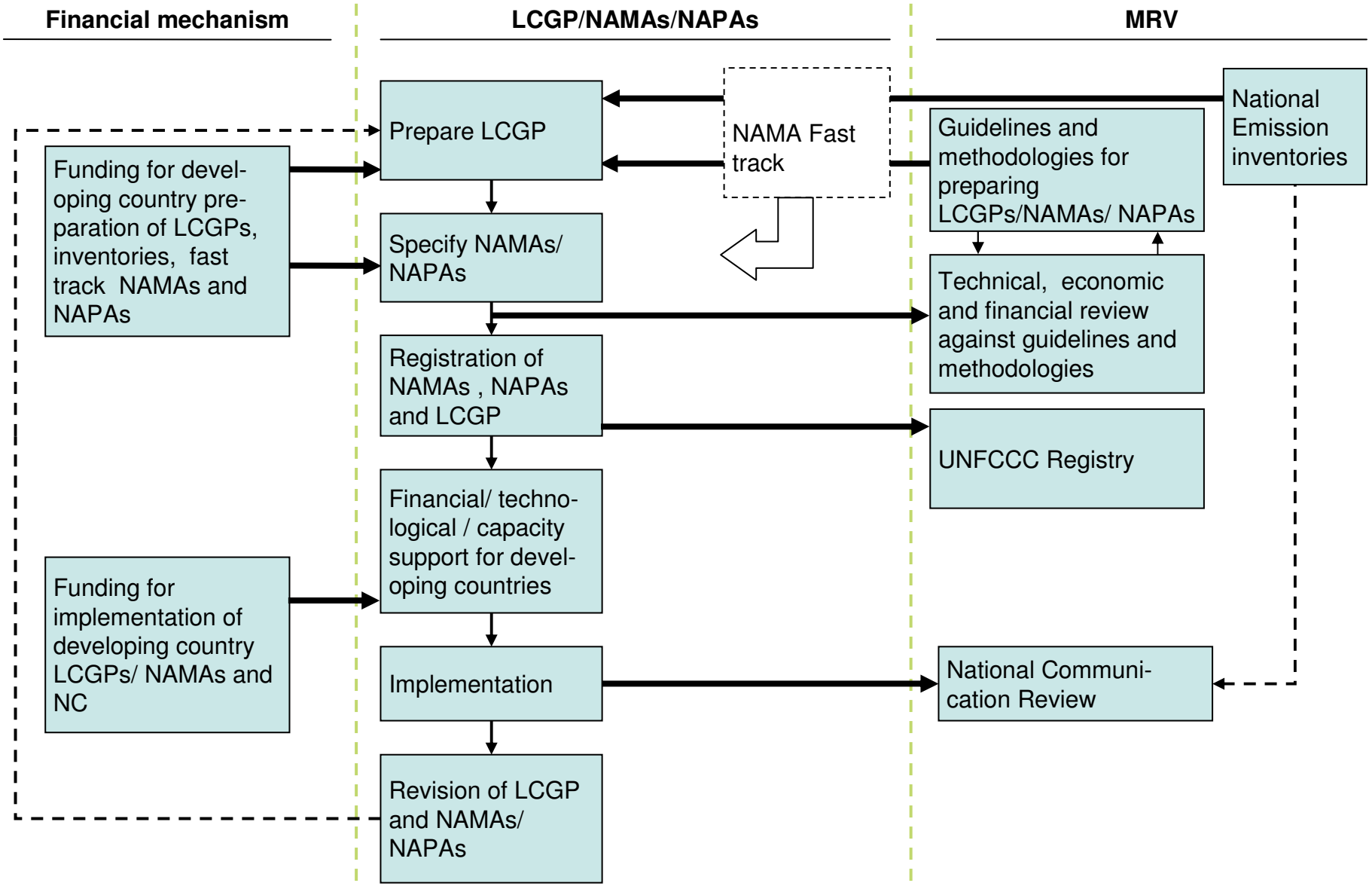
Topics covered by a LCGP

- National circumstances and current development plans
- Assessment of vulnerability to climate change and how future climate change will affect it
- Most recent GHG inventory
- Long-term vision for an economy with low GHG emissions and low vulnerability to climate change
- Plan for specific investments in making the economy and the infrastructure less vulnerable and measures to adapt existing infrastructure to the changing climate
- GHG mitigation plan containing:
  - Projection of GHG emissions under BAU scenario for the most important economic sectors
  - Scenario the country can achieve without assistance
  - Scenario for which it would require international support.
- NAMAs and NAPA's the country wishes to undertake
- Incremental cost of the individual NAMAs and NAPAs and all technology, financing and capacity building support needed to implement the plan.
- Economy-wide modelling when appropriate

Process for an the effective LCGP

SOURCE: LCGP, Advancing Good Practice, August 2009

Process for a developing country LCGP as part of agreement



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There are two types of success factors for an LCGP: input and output driven

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Input

- **Senior leadership** from within the government
- A strong basis of **data and scientific and economic analysis** based on a robust, credible assessment of abatement potential and costs
- **Stakeholder engagement** to enable data collection and cross sector support
- **Ongoing review and iteration** building consensus around priority sectors in the country, taking into account advances in scientific knowledge, international agreements, technological developments and learning about what works

Output

- **Data-driven**, based on an assessment of abatement and adaptation opportunities and costs
- **Concrete**, with specific goals, targets and timelines
- **Addresses need for institutional capacity and funding** to implement the proposed policy packages

SOURCE: LCGP, Advancing Good Practice, August 2009

There are a number barriers to developing effective LCGPs

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1 **Guidelines**

- Agreement on technical issues such as approaches to setting baselines, discount rates, development assumptions, etc.
- Ability to compare data and methodologies across LCGP efforts

2 **Data & tools**

- Lack of data required to understand the cost and benefits of NAMAs and NAPAs
- Uncertainty around implications for investment or available sources of financial models to support the transition
- Shortage of country-level tools including macroeconomic models capable of estimating implications for jobs, economic growth, health, energy security, and high-emitting or politically important sectors

3 **Capacity**

- Lack of technical engineering, economic and development capacity in both developed and developing world
- Lack of participation from policy makers & decision makers from within governments
- Insufficient understanding of potential policy interventions or best practices pursued in other countries

1 2 The initial review of early LCGP experience indicates global guidelines would help the effectiveness of plans

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Based on experiences to date, these guidelines are likely to cover key areas such as:

Baseline: National circumstances of the country and current development plans, assessment of vulnerability to climate change and how future climate change will affect it and the most recent GHG inventory

A long-term vision for an economy with low GHG emissions and low vulnerability to climate change

A plan for specific investments in making the economy and the infrastructure less vulnerable and measures to adapt existing infrastructure to the changing climate (NAPA);

A plan for specific investments to move towards a low emissions economy and specific policies and measures to achieve those steps (NAMAs)

The incremental cost of the individual NAMAs and NAPAs and all technology, financing and capacity building support needed to implement the plan.

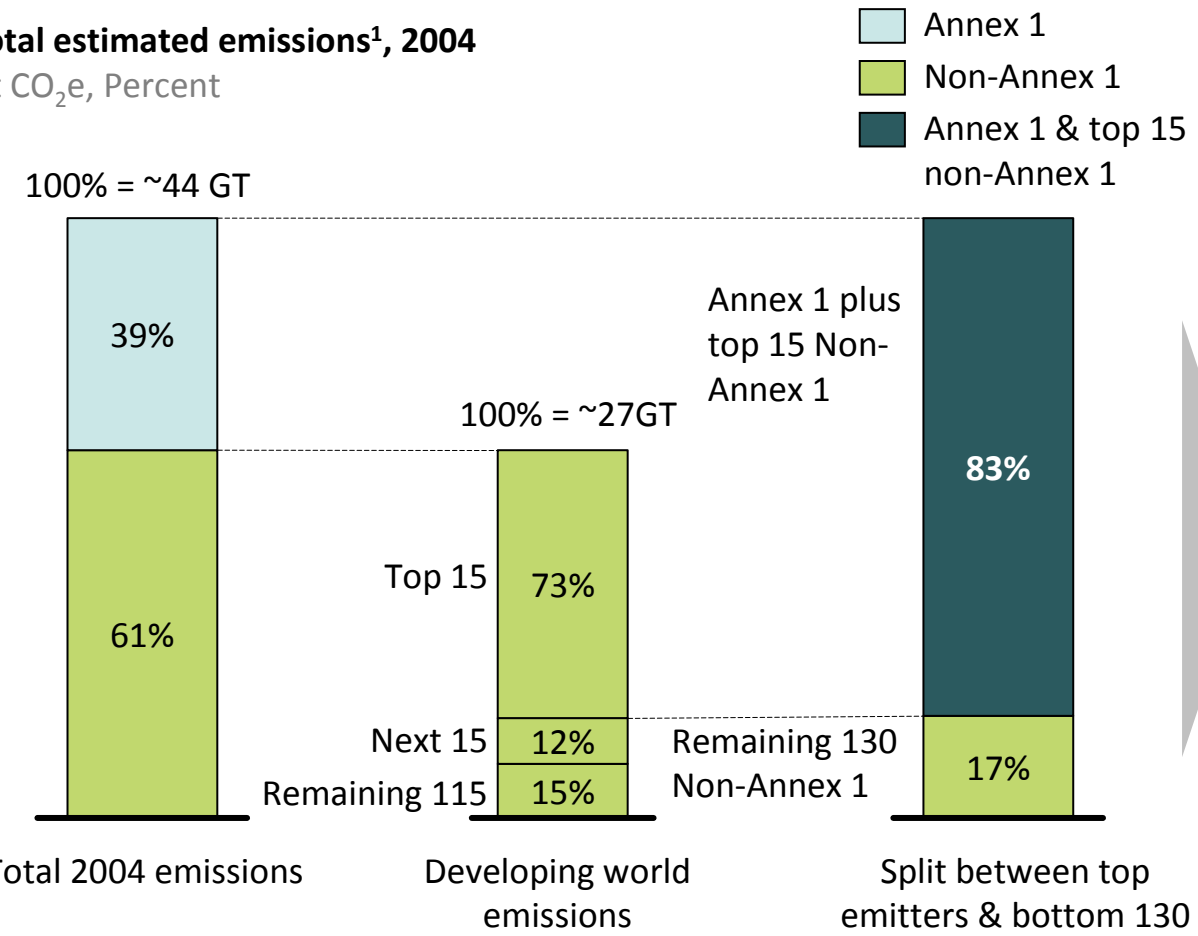
23 Some pitfalls are best avoided when developing national strategies

- **External imposition:** A large number of strategies have been induced or even imposed by external agencies rather than country-led
- **Poor integration:** Lack of integration into a country's mainstream decision making systems leads to a lack of momentum for implementation
- **Lack of prioritisation:** Lack of prioritisation between environmental, social and economic dimensions resulting in 'policy wish lists' rather than plans for effective implementation
- **Lack of local ownership:** Narrow base of participation resulting in forced, fragile or partial consensus and little sense of ownership
- **Weak fact base:** Out-of-date data, unchallenged existing assumptions leading to lack of credibility and relevance

SOURCE: Dalal-Clayton, B, Swiderska, K and Bass, S (2002) STAKEHOLDER DIALOGUES ON SUSTAINABLE DEVELOPMENT STRATEGIES Lessons, Opportunities and Developing Country Case Studies, IIED, London and OECD/UNDP (2002): Sustainable Development Strategies: A Resource Book. Organisation for Economic Cooperation and Development and United Nations Development Programme

3 Prioritization by outside organizations can help maximize the emissions covered by LCGPs

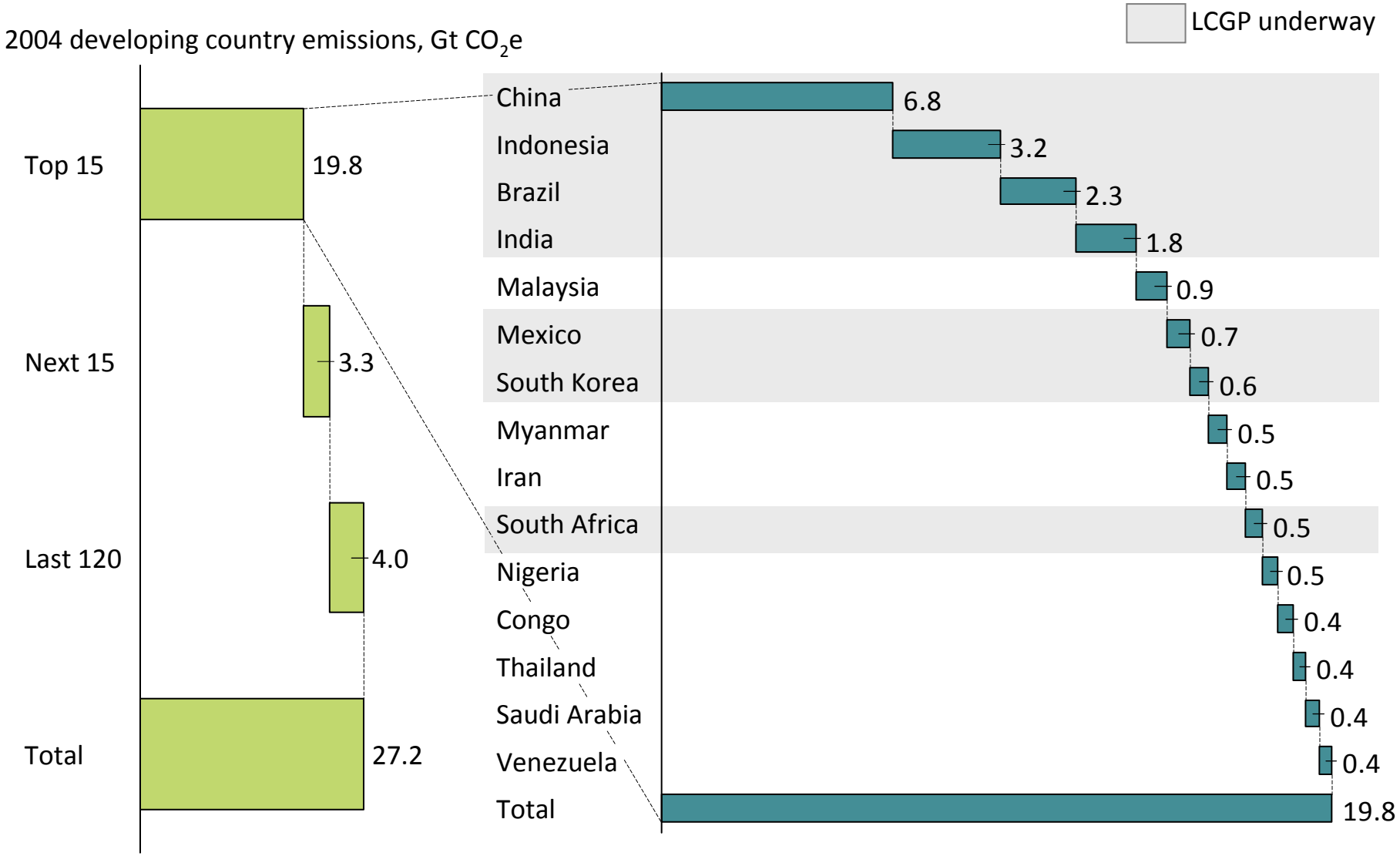
Total estimated emissions[1], 2004
Gt CO_2e, Percent



- A similar prioritization should be performed with respect to adaptation needs. This can help prioritize the completion of LCGPs focused on NAPAs for the countries at greatest risk from climate change

1. Includes CO_2 from fuel consumption, cement process emissions, non-CO_2 gases, and land use changes. Excludes other industrial CO_2 process emissions
SOURCE: WRI/CAIT; Houghton; IEA; CDIAC; US EPA

3 Significant efforts in developing countries are already underway for many of the largest current emitters



Includes CO_2 from fuel consumption, cement process emissions, non-CO_2 gases, and land use changes. Excludes other industrial CO_2 process emissions
SOURCE: WRI/CAIT; Houghton; IEA; USEDA

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  - **Background materials**

Key areas to explore before embarking on a LCGP

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	Key considerations
Emissions & vulnerability	• Emissions: What is the level of current emissions? • Is there a large amount of growth expected or is there a significant risk of lock-in? • Is the country vulnerable to changes in climate in the near or long term?
Geography & GDP	• Can this countries' LCGP offer insight into low-carbon growth pathways for other countries that have similar geographic locations or sectoral makeup? • Will a deep analysis in this country help develop standards for creating LCGPs?
Capacity and partners	• Are there sufficient in-country capabilities to develop and execute on a robust LCGP or is outside assistance necessary? • What skills and resources do in-country organizations have to develop a LCGP?
Receptivity	• How will outside assistance on low-carbon growth planning be viewed by the government? • What is the likelihood that the LCGP will be incorporated into national policy and planning measures? • Does the country have the political will, power, and resources to execute against a LCGP if one is developed?
Data	• Have the model's necessary statistical inputs been gathered in the past? • How difficult might it be to gather all the required information in an analytically credible fashion?
International context	• What kind of influence does the country have on the broader regional and global landscape? • If it adopts aggressive targets, will those commitments create ripple effects?

Examples of national strategies to get onto low-carbon pathways

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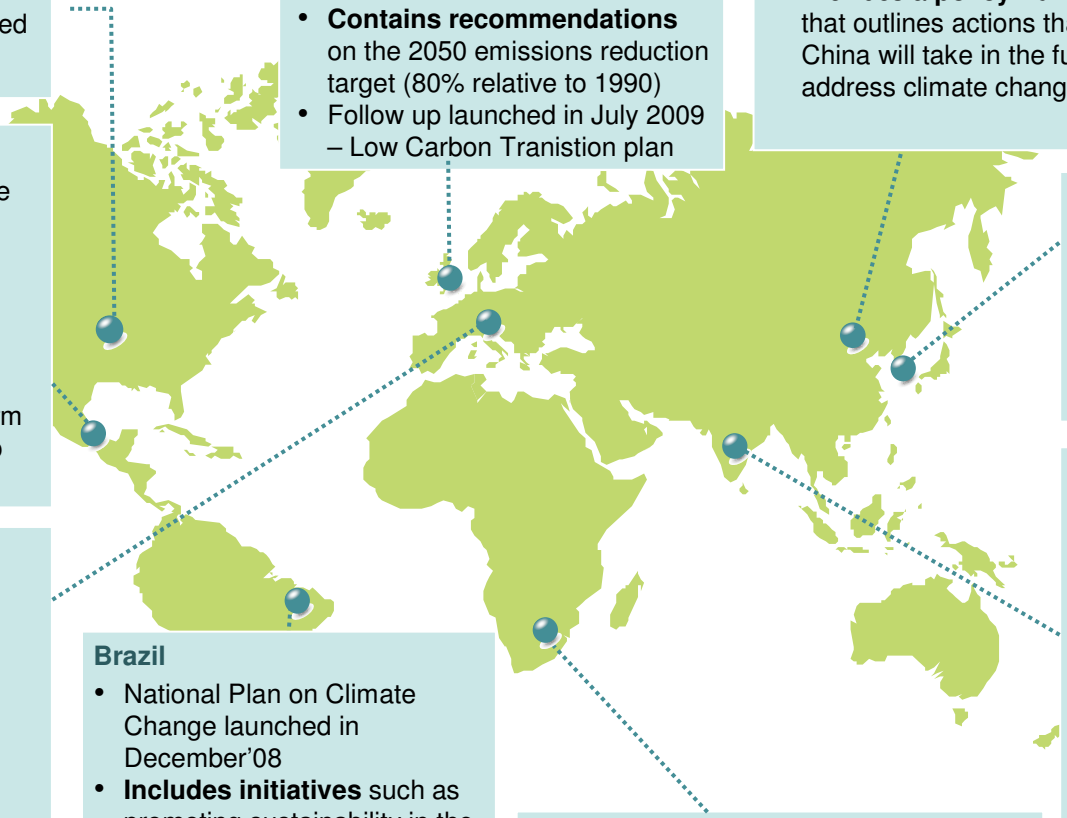
NOT EXHAUSTIVE



United States
- The Obama plan aims to reduce GHG emissions 80% below 1990 levels by 2050 through a market-based cap and trade system

Mexico
- Special Program on Climate Change (PECC) will be launched in 2009
- **Includes a voluntary commitment to reduce emissions** 50% relative to 2000 baseline by 2050
- **Includes specific** short-term and long-term **initiatives** to achieve this

EU
- European Parliament approved Climate Change Plan in Dec'08
- Includes three goals - GHG emissions reduction 20% below 1990 levels by 2020; double the renewable electricity generation by 2020; and increased use of biofuels

United Kingdom
- 'Building a Low-carbon Economy' report released in December'08
- **Contains recommendations** on the 2050 emissions reduction target (80% relative to 1990)
- Follow up launched in July 2009 – Low Carbon Tranistion plan

China
- National Climate Change Program released in June'07
- Provides a **policy framework** that outlines actions that China will take in the future to address climate change

South Korea
- South Korea has already launched 3 plans and it is preparing the forth one
- The lesson learned from the previous plans is the need for some long-term goals

India
- National Action Plan on Climate Change launched in June'08
- Plan **identifies eight "national missions"** and **directs ministries to submit implementation plans** to the Prime Minister's Council on Climate Change
- Ultimate goal is to never reach Annex I level of per capital emissions

Brazil
- National Plan on Climate Change launched in December'08
- **Includes initiatives** such as promoting sustainability in the industrial and agricultural sectors, maintaining a high share of renewable in power production, encouraging biofuels in transportation and reducing deforestation

South Africa
- Framework for Climate Policy released in July'08
- **Aims to implement three strategic options** derived from government's long-term mitigation scenario analysis

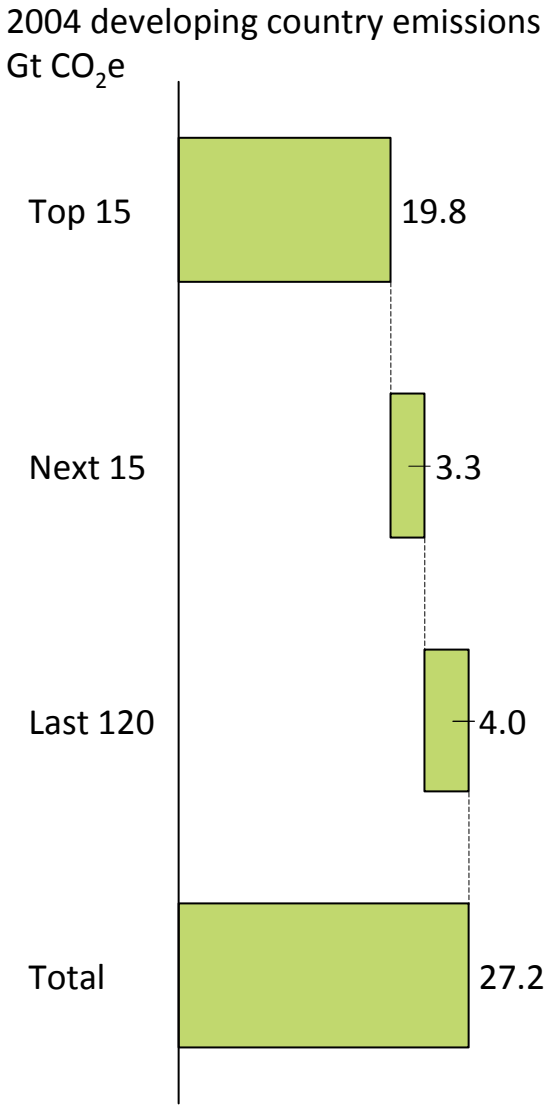
Source: Project Catalyst analysis

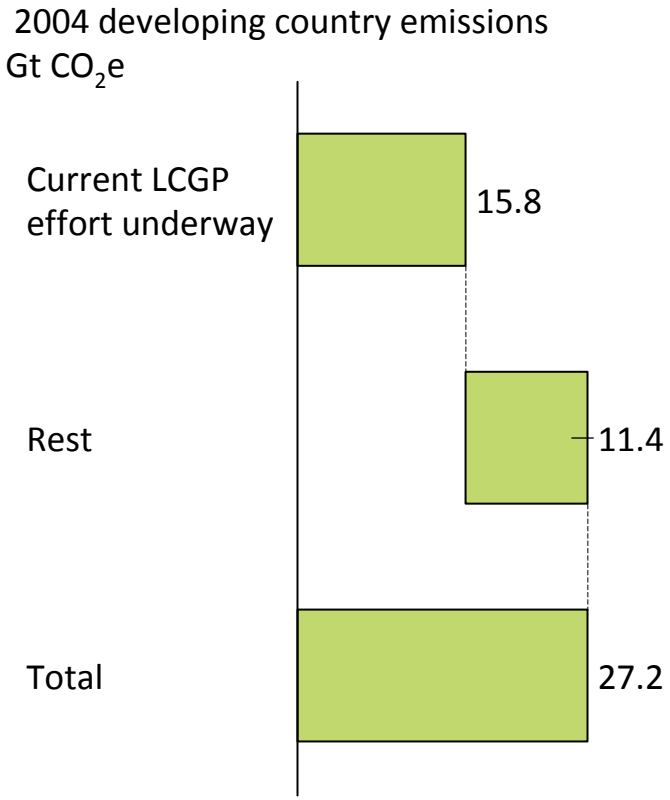
These are some national strategies and plans developed to date

Country	Date	
Bangladesh	Sep 2008	Bangladesh climate change strategy and action plan (draft)
Brazil	Dec 2008	National Plan on Climate Change (PNMC)
China	Jun 2007	National Climate Change Program
Costa Rica	Jul 2007	Peace with Nature
EU	Jan 2008	EU Energy and Climate Package
Guyana	May 2009	Transforming Guyana's Economy While Combating Climate Change
India	Jul 2008	National Action Plan on Climate Change (NAPCC)
Indonesia	Nov 2007	National action plan addressing climate change
Japan	Jul 2008	Action plan for achieving a low carbon society
Mexico	2007, Mar 2009	National Strategy on Climate Change → Special Program on Climate Change (PECC)
South Africa	Jul 2008	Long Term Mitigation Scenarios (LTMS) → Climate Change Policy Framework
South Korea	Aug 2008	'Low Carbon, Green Growth' Vision and 1st National Basic Energy Plan (2008~2030) and Comprehensive Plan on Combating Climate Change
U.K.	Jul 2009	The UK Low Carbon Transition Plan
U.S.	May 2009	U.S. Climate Bill

SOURCE: LCGP, Advancing Good Practice, August 2009

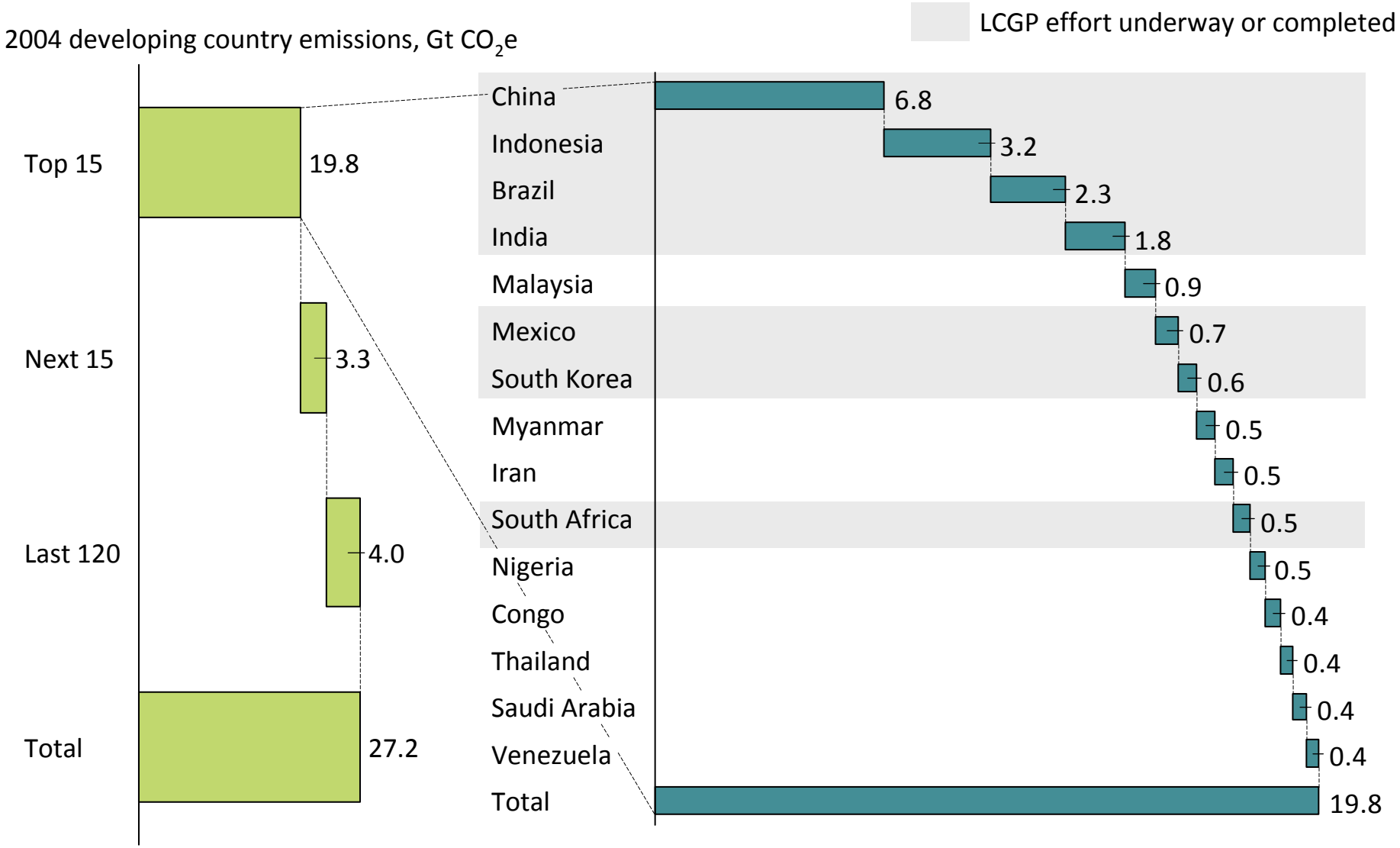
Developing country emissions are concentrated in a small number of countries, some of which have LCGP efforts underway





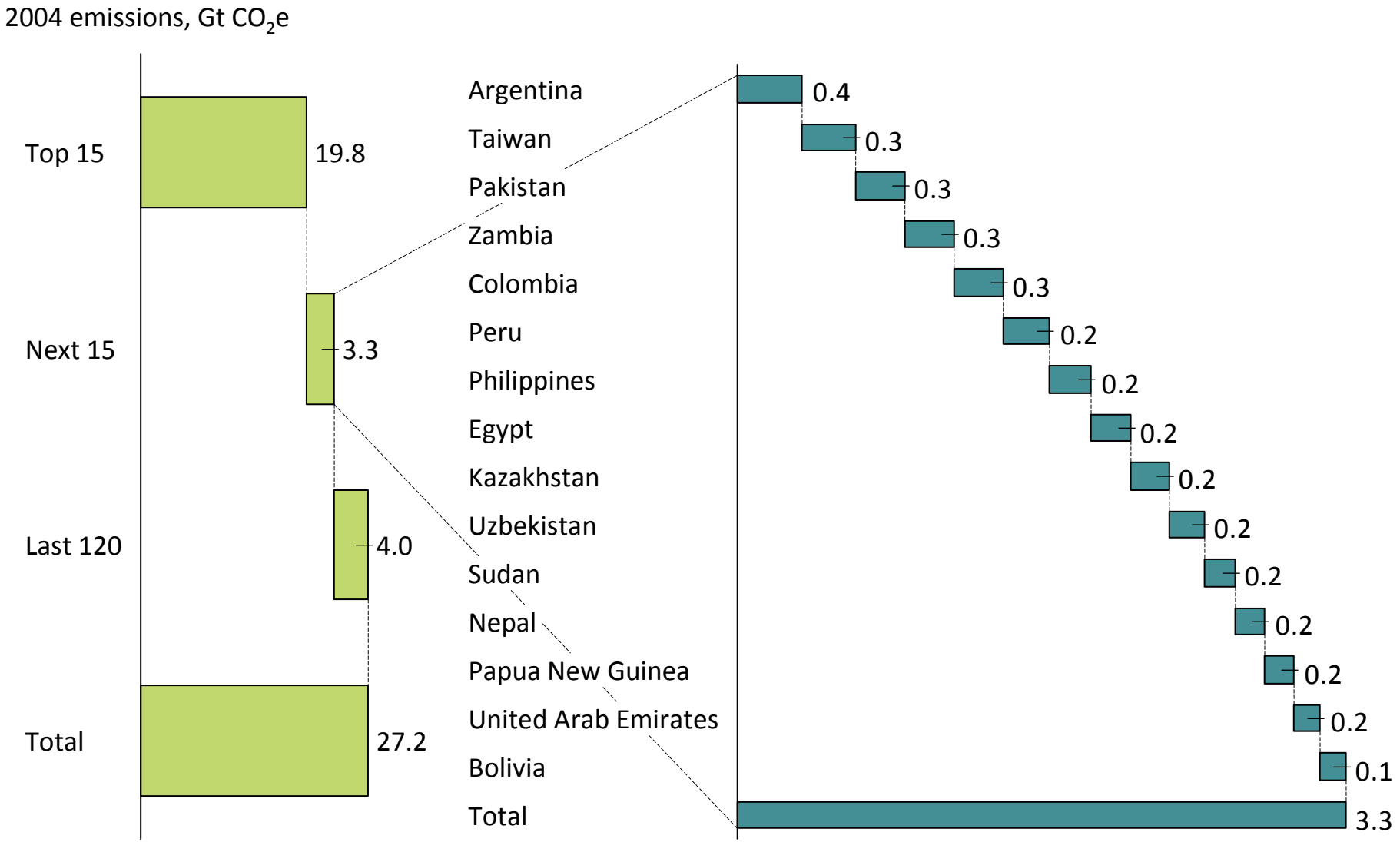
Includes CO_2 from fuel consumption, cement process emissions, non-CO_2 gases, and land use changes. Excludes other industrial CO_2 process emissions
SOURCE: WRI/CAIT; Houghton; IEA; USEDA

Emissions for the top 15 developing country emitters



Includes CO_2 from fuel consumption, cement process emissions, non-CO_2 gases, and land use changes. Excludes other industrial CO_2 process emissions
SOURCE: WRI/CAIT; Houghton; IEA; USEDA

Emissions for the next 15 developing country emitters



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