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Clean Air Policy

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# Sectoral Programs and Nationally Appropriate Mitigations Actions (NAMAs)

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# Overview of Presentation

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- Climate Change Action Plans
- Nationally Appropriate Mitigation Actions
  - » NAMAs and Climate Change Action Plans
  - » NAMAs and Sectoral Programs
- Role of a NAMA Registry
- An Example: Potential Sectoral Programs and Goals for Mexico's Cement and Oil Refining Sectors
- Key Questions

# Goals of the Climate Change Action Plans

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- The primary objectives of Climate Change Action Plans are:
  - » To provide a single integrated framework where developing countries can describe their nationally appropriate mitigation actions (NAMAs), including what they will do unilaterally and what they will need international support to carry out
  - » To help global emissions to stay on track for stabilization of GHG atmospheric concentrations at 450-550 ppmv CO<sub>2</sub>e by 2100
- A Climate Change Action Plan would describe the NAMAs to be implemented to achieve its aims

# Potential Components of a Climate Change Action Plan

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Each developing country would submit a package that could include any or all of the following:

- Individual measures or NAMAs, such as:
  - » Laws and regulations
  - » Standards
  - » Market-based measures (taxes, incentives, etc.)
  - » Capacity building and data-gathering activities
  - » Technology demonstration projects
  - » SD-PAMs
- Broader programs (plus the NAMAs to be used for implementation)
  - » REDD programs
  - » Sector-wide technology penetration goals or sectoral approaches
  - » Economy-wide measures (e.g., China's goal to reduce energy use per unit of GDP by 20% from 2006-2010)
- Other activities authorized by the COP/MOP

# NAMAs and Climate Change Action Plans

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- All NAMA descriptions should include:
  - » Concrete details of implementation (timeframes, etc.)
  - » Expected emissions reductions
  - » SD (and other) co-benefits
- If international assistance is requested, a NAMA would be broken into “unilateral” and “full implementation” components and should include:
  - » Basis for selection of unilateral action level
  - » Up-front capital and long-term costs
  - » The specific technology, finance and/or capacity-building assistance requested
  - » MRV strategy

# NAMAs and Sectoral Programs

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- A sectoral goal itself could be a NAMA, or a number of NAMAs could be combined to achieve a sectoral goal
- For any NAMAs that are implemented to achieve a sectoral goal:
  - » Up-front assistance would be provided to help achieve the NAMA or to incentivize the choice of a more stringent NAMA (the no-lose goal)
  - » Any GHG emissions reductions achieved by exceeding the sectoral goal would generate international carbon credits
- Decisions on the governance of the negotiation and financing process on “beyond unilateral” NAMAs will be a key design issue
- MRV requirements would be linked to the extent and type of international up-front assistance provided

# The Role of Registries

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- Creation of a UNFCCC registry has been proposed as a way to recognize developing country actions
- Clearly, all unilateral reduction actions should be listed in such a registry
- Questions center on how actions that require international support should be treated in a registry
  - » Should the registry list the proposals and requests made by DCs before they are agreed to and financed by A1?

Or

- » Should it be more like the registration process in the CDM where only after review and acceptance is a NAMA registered? Once registered, a NAMA would then become eligible to generate carbon credits if the NAMA were exceeded.

# An Example: Setting Goals for Mexico's Cement and Oil Refining Sectors – Analysis

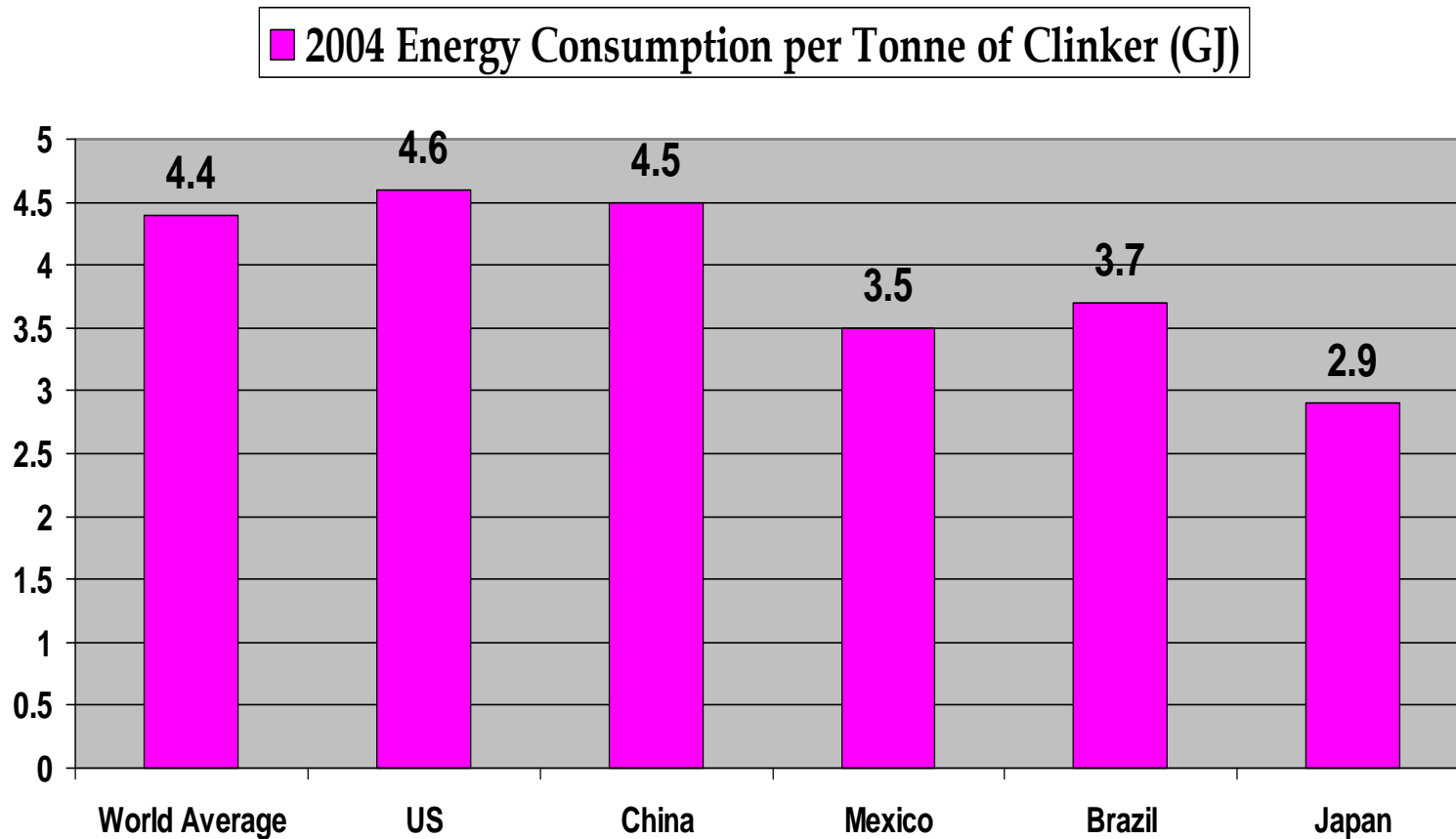
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- CCAP performed a preliminary analysis of Mexico's cement and oil refining industries to estimate their GHG emissions reduction potentials in 2020
- The analysis involved:
  - » Estimation of BAU emissions through 2025, based upon expected growth in production and projected changes in production capacity, energy intensity, electricity intensity, fuel mix and industry practices
  - » Examination of the current penetration of technologies in the sectors
  - » Consideration of projects currently in the pipeline (CDM, other)
  - » Evaluation of emissions reduction options and costs both individually and as packages of options
- CCAP then suggested unilateral and no-lose sectoral goals for the Mexican cement and oil refining sectors

# An Example: Mexico's Cement Sector — Energy Efficiency

**Mexico's cement sector is one of the most energy efficient in the world**



# An Example: Sectoral Programs in Mexico — Cement Sector Options

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- The most promising mitigation options for cement production are:
  - » Cement blending (3.8 MtCO<sub>2</sub> in 2020)
    - Requires no financial assistance because cost to push this option to its maximum extent is only about \$35 million (2012 USD) over 20 years
    - May require guaranteed supply of blending materials
  - » Replacement of fossil-fuel based electricity generated by CFE with electricity produced by renewable sources (3.5 MtCO<sub>2</sub> in 2020) built by cement industry (expanded cement sector boundary)
    - May require international loans until reform of electricity pricing structure is enacted
  - » Improvements in kiln energy efficiency (2.1 MtCO<sub>2</sub> in 2020)
    - Full implementation cost is about \$800 million (2012 USD) over 20 years, for which Mexico could request a partial support

# An Example: Mexico's Cement Sector — Proposed Sectoral Goals

- Based upon this analysis, Mexico's Climate Change Action Plan might propose cement-sector emissions intensity goals of:
  - » **Unilateral:** 0.67 tCO<sub>2</sub>/t cement in 2020 (EU average is about 0.66)
    - based upon maximum deployment of blending or renewable energy options (or some combination of the two options)
    - reduces emissions by 9% or 3.8 MtCO<sub>2</sub> from BAU in 2020
  - » **No-lose (with EE financing):** 0.57 tCO<sub>2</sub>/t cement in 2020
    - based upon maximum deployment of all three options → has a greater unilateral commitment than unilateral goal above
    - reduces emissions by 22% or 9.2 MtCO<sub>2</sub> from BAU in 2020
  - » **MRV:** could use Mexico's current GEI Mexico system (if made mandatory and some degree of third party verification is incorporated) or a system like CSI's *Getting the Numbers Right*

# An Example: Sectoral Programs in Mexico — Oil Refining Options

- Unlike the cement industry Mexico's oil refineries are not among the world's most energy efficient
- The most promising mitigation options for oil refining are:
  - » Specific energy efficiency improvements (2.6 MtCO<sub>2</sub> in 2020)
    - Estimated to require no financial assistance because this is only modestly more effort than current plans
  - » Energy Integration (4.5 MtCO<sub>2</sub> in 2020)
    - Would require significant international assistance (MEDEC study data imply \$3 billion total cost)
  - » 3100 MW Co-generation (9.7 MtCO<sub>2</sub> in 2020)
    - May or may not be profitable, but domestic barriers exist
    - May require international loans to permit implementation until reforms of electricity-pricing and budget-setting structures are enacted, or to accelerate implementation

# An Example: Mexico's Cement Sector — Sectoral Program Goals

- Based upon this analysis, Mexico's Climate Change Action Plan might propose dual sectoral goals for its oil refining operations:
  - » **Intensity-based goals:**
    - **Unilateral:** Reducing Solomon Energy Intensity Index (EII) by 17% from the 2007 level (reducing emissions by 11% or 2.6 MtCO<sub>2</sub> from BAU in 2020)
    - **No-lose (with energy integration financing):** Reducing Solomon EII by 25% from the 2007 level (reducing emissions by 19% or 4.5 MtCO<sub>2</sub> from BAU in 2020)
  - » **Technology-based goals:**
    - **Unilateral:** 1500 MW of cogeneration by 2020
    - **No-lose (with loans):** 3100 MW of cogeneration by 2020
  - » **MRV:** PEMEX has had an MRV system in place for some time now, but provisions of international assistance may be dependent upon third party verification being included

# An Example: Sectoral Programs in Mexico — Potential NAMAs

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- Mexico could use a variety of NAMAs to achieve the proposed sectoral goals, such as:
  - » A cap-and-trade system
  - » Regulatory reform that provides independent renewable energy power producers or efficient co-generators with a preferred rate for electricity sold to CFE
  - » Minimum requirements for EE of cement kilns or oil refineries
  - » Minimum blending requirements for cement
  - » Incentives to encourage coal-fired power plants and iron and steel plants to provide blend-quality waste to the cement industry
  - » A system of rewards and penalties to motivate facilities to reduce emissions and to ensure private-sector investors of a minimum return on investment, even if the sector as a whole doesn't meet the sectoral goal

# An Example: Sectoral Programs in Mexico — A Cap-and-Trade System

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- In Poznan, Mexico announced that it will pursue a trans-sector cap-and-trade program to include the electricity, oil, cement, and iron and steel sectors
  - » Initiation slated for 2011
- Hard caps for the 2011-2020 period could be derived from the emissions intensity goals and expected cement production levels and be adjusted in subsequent periods
- Mexico is also putting some complementary policy reforms in place:
  - » Energy Reform – more budgetary flexibility for PEMEX and permits some degree of private investment
  - » New law that allows CFE to consider externalities in its pricing decisions and gives CRE more control over contracting terms with independent power producers

# Key Questions

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- Is the provision of international assistance based upon evaluation of a developing country's Climate Change Action Plan as a whole, or are individual components of the Plan evaluated independently and assistance tied directly to those components?
- What level of unilateral effort is required to obtain assistance? How and by whom is that determined?
  - » Must a country implement all/most low-cost options before getting international assistance for more costly measures?
- Do we need to compare goals to benchmarks?
  - » Global performance levels
  - » Technology or process benchmarks
- Must a climate plan address a minimum set of sectors or policy areas before it can be considered for international support?

# Key Questions

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- Does the stringency of MRV (and the entity responsible for MRV) depend on:
  - » the level of support provided by developed countries (for MRV of developing country mitigation activities)?
  - » the level of commitment by developing countries (for MRV of assistance from Annex I countries)?
- How much justification does a developing country need to provide for its specific technology or finance request in terms of:
  - » Baselines
  - » Technology costs
  - » Expected emissions reductions
  - » SD impacts
  - » Extent of technology deployment