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## Managing CO2 emissions in the Cement Sector: Exploring policy scenarios



A member-led program of the  
World Business Council For  
Sustainable Development

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### Sectoral Approach - What is it?

A combination of policies and measures, developed to enhance efficient, sector-by-sector, greenhouse gas mitigation, addressing data, policy, technology and capacity building within each sector.

1. **International Cooperation with major sector actors** to develop and share: appropriate sector tools, systems, data, best practices, UNFCCC crediting policies, benchmarking and technology development
2. **Nationally appropriate Mitigation Actions (NAMAs)** 'tuned' to sector.

Emission goals and policies could differ depending on national ambition, common but differentiated responsibilities, and local circumstances



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## Sectoral Approach - CSI Key Principles

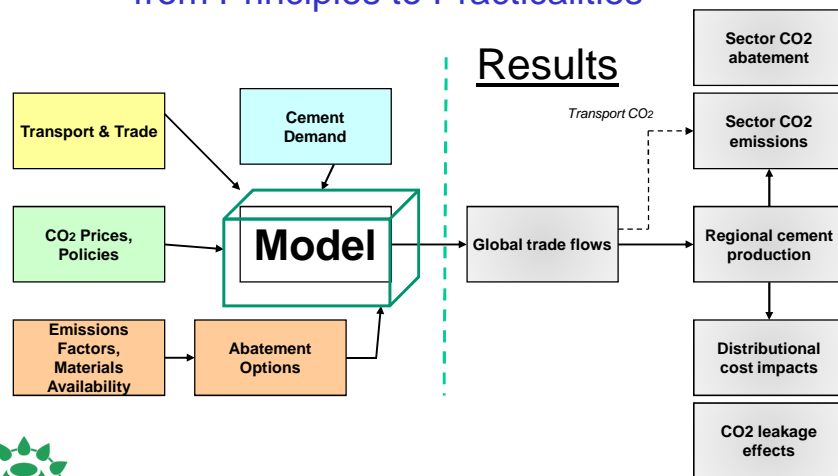
A sectoral approach to GhG management must:

- Work within the UNFCCC, compatible with existing and future mechanisms (e.g. ETS, CDM/JI);
- Include key developed and developing economies;
- Use simple metrics and standardized methodologies;
- Use verified emissions data to track compliance;
- Involve government to help set, monitor and enforce agreed goals;
- Enhance new technology development, especially CCS



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## Modeling Policy Options: from Principles to Practicalities



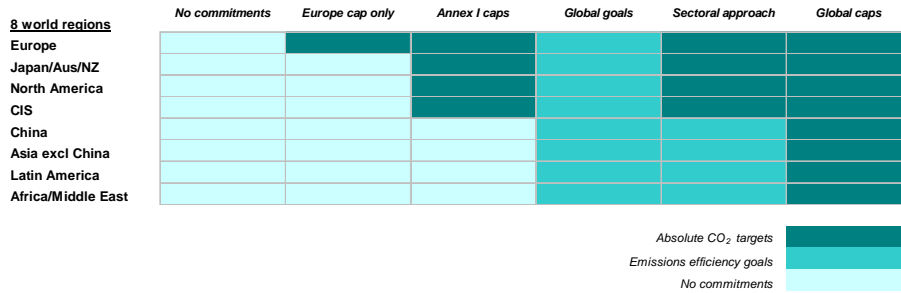
Caution: most models are false, some are useful



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### Policy scenarios evaluated:

Scope of international commitment post Kyoto

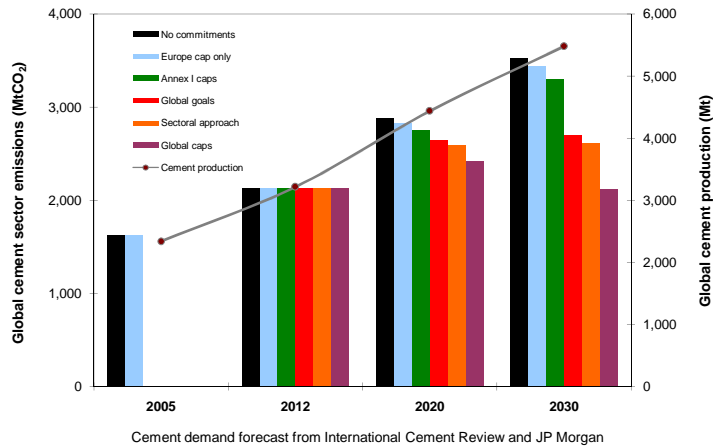


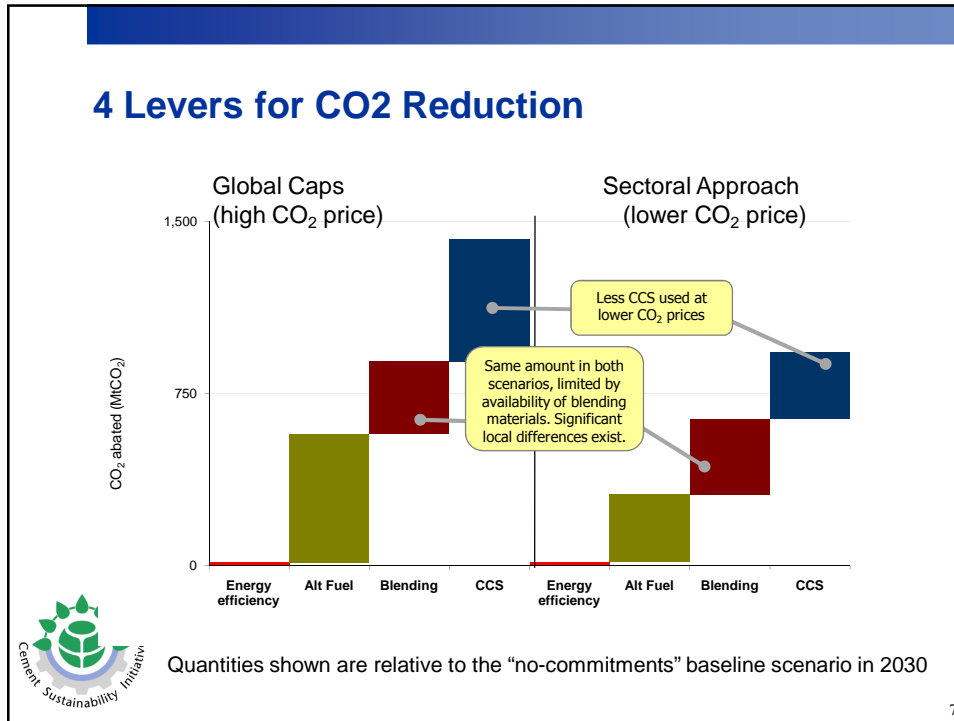
Scenarios involve different combinations of carbon prices, mitigation options, national or regional carbon policies and commitments. Many other policy combinations possible in model in the Sectoral Approach. One has been chosen for modeling.



### Comparison of scenario outputs: CO2 emissions projections

- Emissions increase in all cases from 2005-2030
- Impacts occur late in the scenarios, if at all
- Only 'Global caps' 'Global goals' & 'a sectoral approach' show impact on emissions





### Trade and Carbon Leakage impacts

Changes in trade patterns, production location and CO<sub>2</sub> emissions can occur when different carbon policies in different regions cause significant price differences for the same product.

- Policy options are available to help reduce these market distortions
- An effective sectoral approach should include specific policies to address this issue

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## Key conclusions from Model Studies

1. 'Sectoral approach' shows real impact from 2020 onwards, and seems most practical to implement;
2. Greater worldwide sector CO<sub>2</sub> abatement is possible under scenarios which include non-Annex I actions;
3. Cement-sector specific technology and CCS can impact reductions
4. Abatement potential varies by region: hence nationally tailored approaches are key.
5. Risk of leakage (trade and CO<sub>2</sub>) exists where emissions are capped in one region and not in others.



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## Summary: CSI Sectoral Approach

2 key parts:

- **International Cooperation with major sector actors**
  - to develop and share: appropriate sector tools, MRV systems, aggregated emissions data, best practices, UNFCCC crediting policies, benchmarking and CCS technology development
- **Nationally Appropriate Mitigation Action (NAMAs) to set local goals, policies and timetables.**
  - Emission goals could differ depending on national ambition, common but differentiated responsibilities and local circumstances such as materials availability.



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## Sectoral Approach: summary

### Sectoral Approach

- shows promise to help address climate mitigation with greater speed and scale. It should be retained in the post-Copenhagen framework.
- Retains ability for growth
- If well designed, can permit different national carbon policies with minimum distortion of trade flows
- Is a practical approach to engage business and key economies in mitigation action.
- Offers ability to move more quickly with a fewer number of parties.
- Needs national government policies and measures to help deliver applied technology at national level.
- Requires good coordination with cement trade associations to develop local and regional action.



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## CSI Participants (with headquarters country)

- Ash Grove Cement (USA)
- Camargo Correa (Brazil)
- CEMEX (Mexico)
- Cementos Molins (Spain)
- Cimentos Liz (Brazil)
- Cimpor (Portugal)
- CRH (Ireland)
- Grasim Cement (India)
- HeidelbergCement (Germany)
- Holcim (Switzerland)
- Italcementi (Italy)
- Lafarge (France)
- SCG (Thailand)
- SECIL (Portugal)
- Shree Cement (India)
- Taiheiyo (Japan)
- Titan (Greece)
- Votorantim (Brazil)



Collectively, participants have operations in more than 70 countries

[www.wbcscement.org](http://www.wbcscement.org)

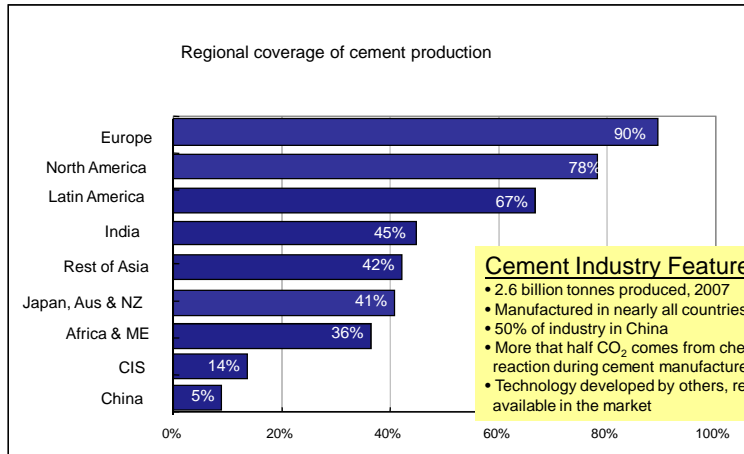


## Annex



## CSI: Leading cement companies in a global voluntary initiative

(800 million tons cement produced by CSI members)



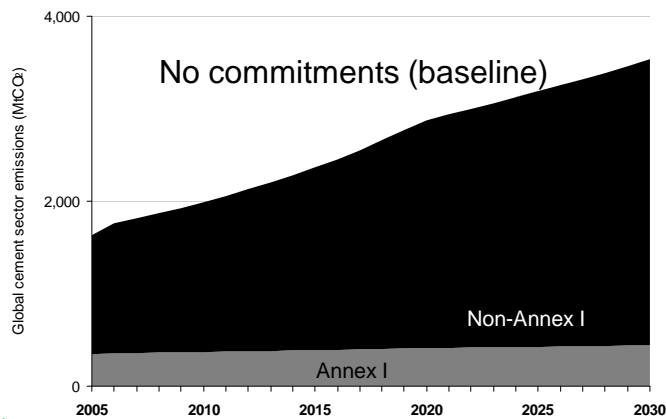
### Cement Industry Features

- 2.6 billion tonnes produced, 2007
- Manufactured in nearly all countries
- 50% of industry in China
- More than half CO<sub>2</sub> comes from chemical reaction during cement manufacture
- Technology developed by others, readily available in the market



\* Values from CSI GNR database in which CSI members represent 91%.

## Modeled Emissions from Cement Making



## Levers for CO<sub>2</sub> Reductions in Cement Industry

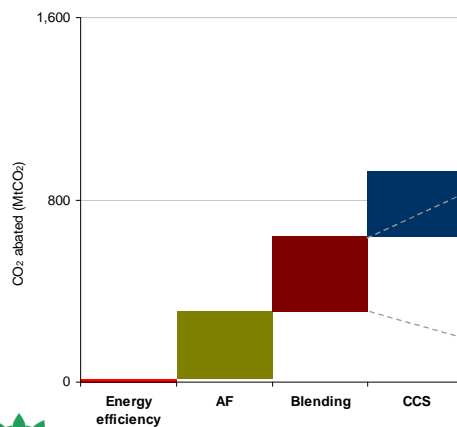
1. Energy efficiency – small impact; new plants already highly energy efficient
2. Alternative fuels – biomass and waste materials
3. Blending materials – using substitutes for clinker
4. Carbon Capture and Storage – not yet ready



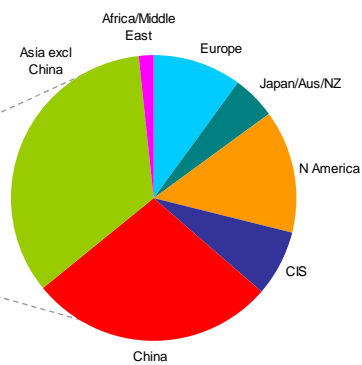
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## Abatement options used (MtCO<sub>2</sub> abated) in 2030

Sectoral Approach Scenario



Potential Abatement from **blending** by region:



(strong regional variations)

Quantities shown are relative to the “no-commitments” baseline scenario in 2030



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