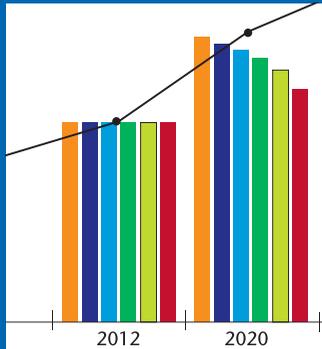


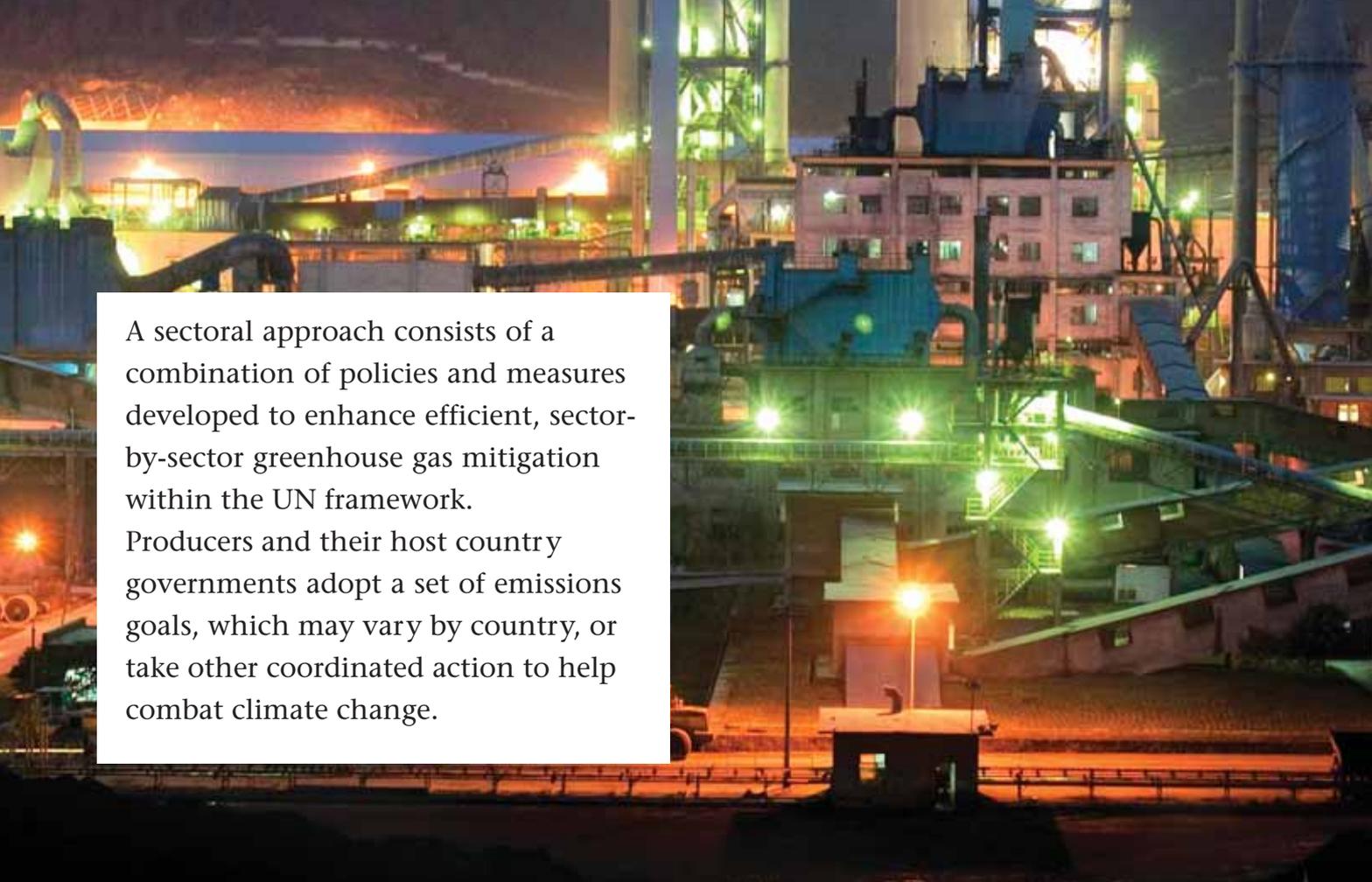
# The Cement Sustainability Initiative



## A Sectoral Approach

Greenhouse gas mitigation  
in the cement industry





A sectoral approach consists of a combination of policies and measures developed to enhance efficient, sector-by-sector greenhouse gas mitigation within the UN framework.

Producers and their host country governments adopt a set of emissions goals, which may vary by country, or take other coordinated action to help combat climate change.

Many countries and businesses recognize the need to reduce CO<sub>2</sub> emissions. But they seek ways to do this without endangering the success of their national economies or businesses.

Cement, the glue that holds concrete together, is a critical component of economic development. Concrete builds our homes, offices, schools, hospitals, roads and airports. Yet, making cement is an energy-intensive process that today accounts for about 5% of the global man-made CO<sub>2</sub> emissions. The Cement Sustainability Initiative (CSI), a voluntary business initiative within the World Business Council for Sustainable Development (WBCSD), was established to help industry leaders understand and manage the impacts of their products and processes – with a strong emphasis on dealing with climate change.

Since its founding nearly ten years ago, CSI companies have developed world-class tools for measuring and reporting CO<sub>2</sub> emissions, built a global database of cement plant energy and emissions performance, and contributed to new Clean Development Mechanism approaches, while making and keeping strong commitments to reduce their individual company CO<sub>2</sub> emissions.<sup>1</sup>

Today, the world's leaders are moving quickly to develop new climate policies and actions to replace or augment the Kyoto Protocol after 2012. The CSI has been exploring a variety of policy options to see which may offer opportunities for faster, more effective, large-scale responses to climate change. Dealing with climate change is a long-term process. But more rapid, larger interventions must begin soon.

<sup>1</sup> See *Climate Actions*, WBCSD, Geneva, Switzerland, November 2008 for details. [www.wbcscement.org](http://www.wbcscement.org)



What is a  
sectoral  
approach?

A sector-based analysis of the climate challenge, often called a sectoral approach, offers a number of possible advantages over more traditional geographically organized responses.

Because of this, sectoral approaches are now on the international climate policy agenda, and have been discussed at the two previous UNFCCC<sup>2</sup> COP<sup>3</sup> meetings in Bali (2007) and Poznan (2008).

The CSI has been exploring this sectoral concept for the past two years and believes it could make a useful addition to the suite of policy options needed to deal with climate change.

For the CSI, a sectoral approach involves organized action by key product producers in a specific industry sector, and their host governments, to address the greenhouse gas emissions from their products and processes, within the UNFCCC framework.

- Specific actions taken would differ from sector to sector, dictated by the characteristics of each sector's structure and technologies.
- Specific actions would also differ from country to country, following the principle of common but differentiated responsibilities laid out by the UNFCCC.

Thus a sectoral approach is not a one-size-fits-all recipe, but a blend of policies and actions organized around the location of production facilities and each sector's (and region's) unique characteristics.

A sectoral approach:

- is not a way to bypass existing country programs and policies.
- is not a way to "escape" action.
- is not a program to capture all industries or necessarily all participants in a single industry.

A successful program would address a major portion of the greenhouse gas emissions with action by the major producers and their host governments in each sector.

A sectoral approach does not impose growth limits on developing countries. On the contrary, emissions efficiency goals (emissions per unit of product) can move an industry sector towards improved efficiency, and improved competitiveness with better economic results, without limiting growth. Specific agreements for participation will need to be decided by national or regional governments in consultation with industry and other stakeholders. In some countries, participation may be through efficiency-based emissions goals; in others, through a cap-and-trade emissions trading system; in others through the adoption of technology or efficiency standards.



Dialogues, training and workshops form an important part of the CSI's work in understanding and interpreting the views of different stakeholders.

<sup>2</sup> UNFCCC = United Nations Framework Convention on Climate Change  
<sup>3</sup> COP = Conference of the Parties

Global cement production 2006 (total 100%)



BRAZIL

CANADA

CHINA

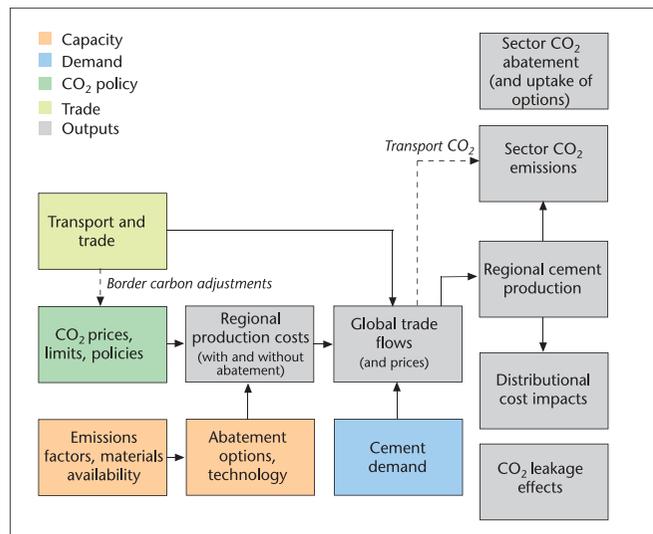


Modeling

Many people and organizations have commented on the possible value of a sectoral approach. However, the CSI still did not know how well this might work compared to or in concert with other policy options. To test these

concepts the CSI undertook an economic and policy modeling project, coupled with a series of stakeholder dialogues to better understand the potential benefits and pitfalls.

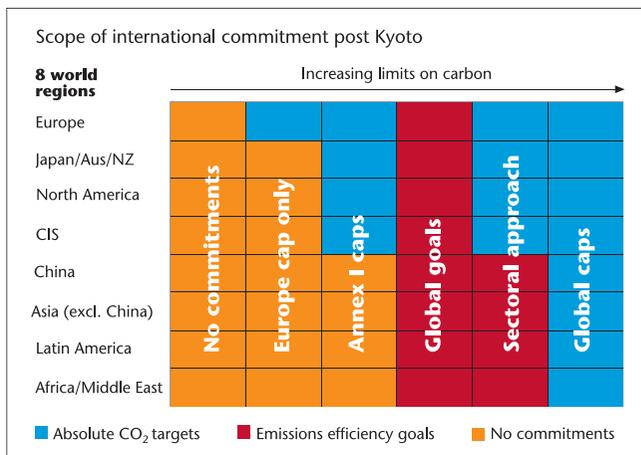
An economic model was built featuring eight world regions and including data on production technology, shipping, energy costs, CO<sub>2</sub> abatement options, and many other factors to understand global cement and carbon flows under different carbon policy scenarios. Carbon policies and emission goals are modeled across regions and over time. The model includes the regional goals and costs of carbon reduction options as well as trade. Different carbon policy choices can be analyzed and compared on a consistent basis, looking at impacts on regional CO<sub>2</sub> and cement flows and costs.



Policy, production, technology, carbon cost and trade are included in the CSI model

Six different policy scenarios were explored with a wide spread of carbon limits, ranging from “no commitments” to a full global cap on absolute CO<sub>2</sub> emissions from the sector.

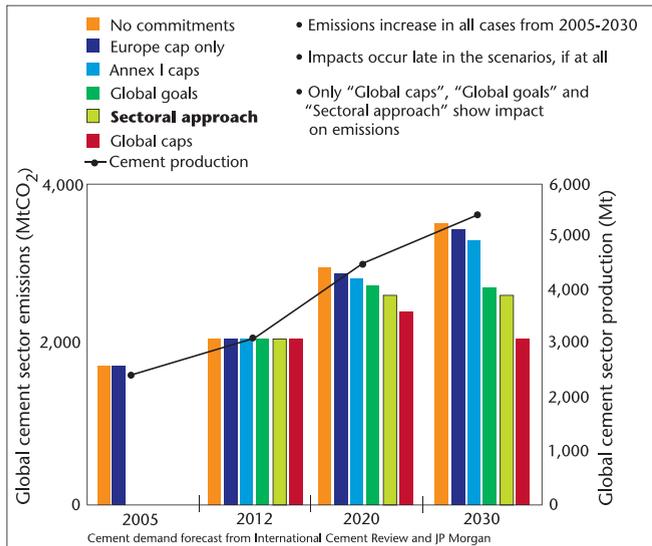
A sectoral approach was modeled as a combination of fixed emission limits (caps) in Annex I countries, with emissions efficiency goals in non-Annex I countries – although this is only one of a number of possible policy combinations.



The model results from each policy scenario were compared to a “no commitments” base case. Model projections indicate that:

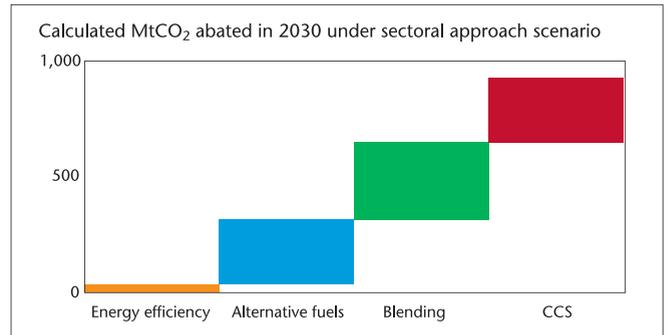
- (1) Cement production, driven by growing demand, is expected to more than double by 2030.
- (2) A sectoral approach could reduce cement sector emissions significantly compared to the base case.

# The Cement Sustainability Initiative



Modeling shows the relative impact of different policy choices on CO<sub>2</sub> emissions.

- (3) There is relatively little potential emissions reduction from energy efficiency gains at individual cement plants. Modern plants that are being built in rapidly developing markets are approaching the limits of minimum energy use. Older plants are being retired.
- (4) With current cement-making technology, carbon capture and storage (CCS) is likely to have a strong role in reducing the sector's emissions. Substantial public and private investment is required to make CCS commercially viable for the sector.

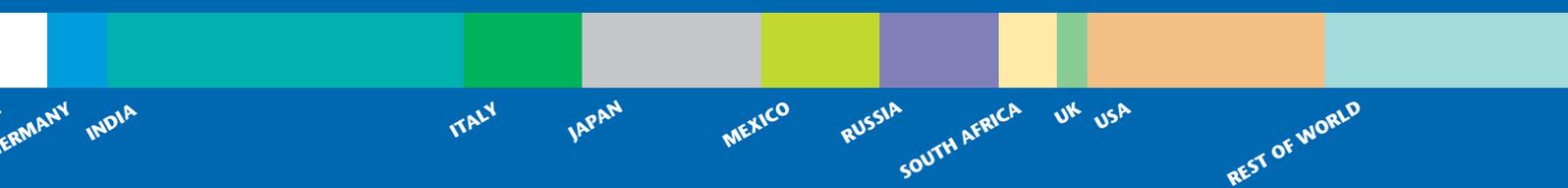


There are four main methods specific to the cement industry that can contribute to CO<sub>2</sub> abatement: energy efficiency, using alternative fuels, making blended cement and CCS.

- (5) While regional differences exist, a sectoral approach could significantly increase access to the major greenhouse gas mitigation levers available to the sector by proper design of national policies.
- (6) Potential trade distortions caused by differentiated carbon policies can be managed by one or a combination of tools including allowance allocation policies, border carbon adjustments, import/export tariffs and rebates.
- (7) Exploiting the full potential of the sectoral approach requires supporting government policies in the participating countries, covering cement standards, building codes, and waste management practices among other areas.



A number of different alternative fuels are used successfully to provide energy as part of the cement production process. The use of alternative fuels aids CO<sub>2</sub> abatement while reducing waste, for example, scrap tires (right) and a blend of household residual and commercial waste (left).





Sectoral  
approach:  
advantages  
and  
disadvantages

**Potential advantages of a sectoral approach**

The key advantages of a sectoral approach to greenhouse gas emissions management are the possibilities of:

- (1) Greater **speed** in implementation due to the smaller number of parties involved in building a workable program.
- (2) Greater **scale** in terms of addressing sector-wide emissions, rather than emissions on a project-by-project basis as is presently done under existing mechanisms.
- (3) Faster **technology development and deployment** through international cooperation, particularly for carbon capture and storage (CCS).
- (4) More **capacity building** to establish effective systems and measures that work at a sector level (and could be scaled up) without trying to manage economy-wide impacts.
- (5) Better policy design with sector-tailored **tools to manage competitive impacts** that can result from different carbon policies in different countries or regions.

Individual participants will no doubt see pros and cons to this approach. For most governments, a sectoral approach offers significant national control to tailor management of emissions and efficiency goals to local circumstances and capabilities.

For developing countries, a sectoral approach offers a policy structure to encourage efficiency gains without limits on economic development. At the same time, international cooperation within a sector offers a chance to share and benefit from best practices, as well as to participate in technology development.

For businesses, a sectoral approach offers the opportunity to support policy-makers in identifying and using the most effective mitigation tools for each sector. In many cases the right policies could provide significantly more effective (and less expensive) mitigation options. Equally important,

a sectoral approach provides an opportunity to engage developing economies – where more than 80% of cement is now produced – in dealing with the sector’s climate impacts. Without this engagement, even draconian efforts in the world’s developed economies will have little impact.

**Potential disadvantages of a sectoral approach**

Like any policy choice there are disadvantages to a sectoral approach:

- (1) It is new and untested. This approach gives a larger role to business than approaches of the past.
- (2) It requires cooperative agreements within an industry sector, and between a set of national governments that have not necessarily worked in this way before, although initiatives such as the Asia-Pacific Partnership on Clean Development and Climate have shown promise using a similar structure.
- (3) An effective crediting system is important to developing countries and will be a challenge. While the CSI believes there are other benefits in addition to cash payments for emissions reductions, (e.g., shared CCS technology development, opportunities for climate management capacity building, etc.), many will focus only on financing.

On balance, a sectoral approach, developed with appropriate policies and incentives set by governments, has potential to deliver both substantial climate and business benefits, compared to business as usual.



Biomass fuel (rice husks) being used in Thailand



### Action needed

#### What is needed from governments for success in CO<sub>2</sub> reduction

1. A sectoral approach can be a useful tool to improve the speed and effectiveness of industry's greenhouse gas mitigation efforts. If properly designed, it could offer strong participation incentives to developing economies, businesses and governments.
2. The CSI would like to see the sectoral approach incorporated into international climate language as a policy option, with explicit details to be defined. Further work by the CSI in consultation with governments and national trade associations would be needed to put this approach into effect.
3. The CSI is ready, willing and able to work with governments potentially involved in a sectoral approach to elaborate the details of a suitable sector participation scheme and nationally appropriate carbon commitments. Such work would include:
  - Defining key elements needed to make a sectoral approach feasible, such as:
    - Sector data requirements
    - Measurement, reporting and verification (MRV) practices
    - Goal setting and crediting policies
  - Identifying effective policy measures that could be adopted at national level, as appropriate, to help reduce cement sector CO<sub>2</sub> emissions, such as:
    - Revised cement product standards based on performance rather than composition
    - Construction codes with increased emphasis on "green" building products, and energy-use reductions over the lifetime of a building
    - Government purchasing choices oriented toward greener products
    - Greater availability and use of alternative fuels via landfill bans
    - More widespread use of blending materials (which can reduce the energy intensity of cement)
  - Structuring enhanced technology development and deployment programs for the cement sector, particularly around the application of carbon capture and storage (CCS).

## Summary

#### What is a sectoral approach?

- A sectoral approach consists of a combination of policies and measures, developed to enhance efficient, sector-by-sector, greenhouse gas mitigation, within the UN Framework Convention on Climate Change (UNFCCC).
- It is a practical approach to engage business and key economies in mitigation action, as it offers the ability to move more quickly with a smaller number of parties.
- It offers a way to achieve greater speed and scale in climate mitigation, while not limiting economic growth in developing countries.

#### Benefits

- For governments, a sectoral approach offers significant national control to tailor management of emissions and efficiency goals to local circumstances and capabilities.
- For developing countries, it offers a policy structure to encourage efficiency gains without limiting economic development. It also offers a chance to share and benefit from best practices, as well as to participate in technology development.
- For businesses, it offers the opportunity to support policy-makers in identifying and using the most effective mitigation tools for each sector.

#### Next steps

- Businesses and governments must work together within the UNFCCC process to define key elements needed to make a sectoral approach feasible:
  - Sector data requirements
  - Measurement, reporting and verification practices
  - Goal-setting and potential crediting policies.

## CSI Members



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## About the WBCSD

The World Business Council for Sustainable Development (WBCSD) brings together some 200 international companies in a shared commitment to sustainable development through economic growth, ecological balance and social progress. Our members are drawn from more than 36 countries and 22 major industrial sectors.

We also benefit from a global network of about 58 national and regional business councils and partner organizations. Our mission is to provide business leadership as a catalyst for change toward sustainable development, and to support the business license to operate, innovate and grow in a world increasingly shaped by sustainable development issues.

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