Cement Task Force

Action Plan

Contents

Introduction

The six countries of the Asia-Pacific Partnership on Clean Development and Climate—Australia, China, India, Japan, the Republic of Korea, and the United States of America—are cooperating to meet both their increased energy needs and associated challenges, including those related to air pollution, energy security, and greenhouse gas intensities.

The Partnership has established public-private Task Forces in eight key sectors: (1) cleaner fossil energy; (2) renewable energy and distributed generation; (3) power generation and transmission; (4) steel; (5) aluminium; (6) cement; (7) coal mining; and (8) buildings and appliances. The Task Forces are designed to meet Partnership goals through international cooperation to facilitate the development, diffusion, deployment, and transfer of existing, emerging and longer term cost-effective, cleaner, more efficient technologies and practices among the Partners through concrete and substantial cooperation so as to achieve practical results.

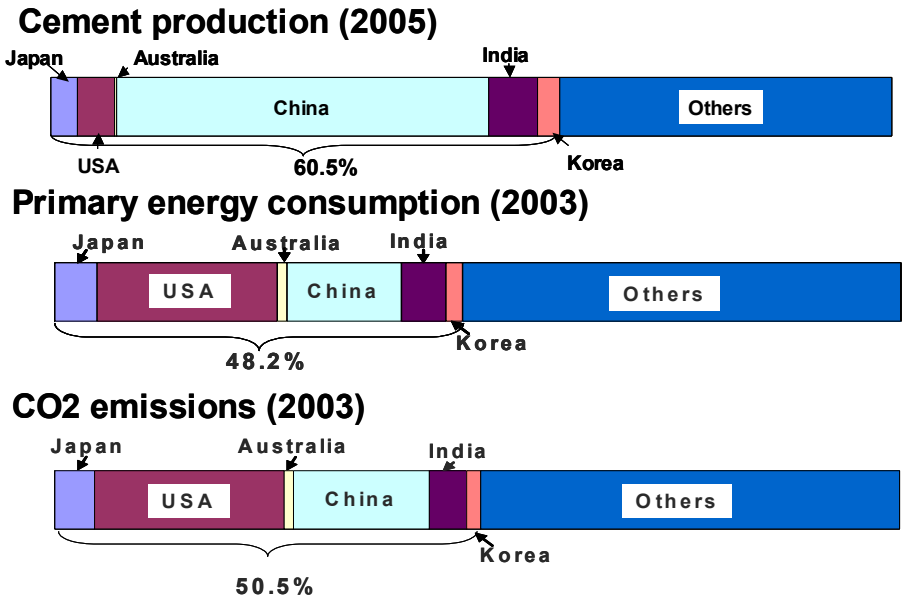
As a product of its first stage of collaboration, each Task Force has created an Action Plan which has been endorsed by the Policy and Implementation Committee. The Action Plans contain an initial set of priority activities for implementation. Some projects contained within the Action Plans may need to be refined or elaborated. Financial resources are needed for the implementation of the Action Plans. Some initial funding from some government and industry sources has already been identified for the implementation of projects. Partner countries will continue to work to mobilize further funding from both public and private sectors in order to bring about full implementation of the practical projects identified in the Action Plans and will continually develop new projects and add them to this set of activities.

Sector Review

Cement is an essential material for social infrastructure and has played a vital role in economic development around the world. The production process for cement is energy intensive and requires a large amount of natural resources for fuel and raw materials. Consequently, the aggregate amount of carbon dioxide (CO_2) emitted from the global cement industry has reached about 2.2 billion tons, accounting for approximately five percent of global man-made CO_2 emissions.

Energy makes up 40 percent of the cost of cement production. An increase in energy efficiency therefore has great potential to reduce costs. In addition, the majority of pollutants generated by cement production are due to fuel combustion in the kiln, which means that increasing energy efficiency is the most cost-effective way to reduce pollution.

Partner countries account for 61 percent of global cement production. The Cement Task Force therefore has significant potential to reduce CO_2 emissions and conserve energy by sharing information on clean technologies and by cooperating further to diffuse such technologies. In addition, the Partnership's emphasis on public-private cooperation will catalyze sectoral improvement.



The efficiency of production processes within the global cement sector varies widely. Nonetheless, global trends in the cement sector have shown an increase in production in recent years, despite the efficiency differences and the reduction in number of kilns in many countries. For example, in 2003 alone world cement production increased by more than 6%, with the largest increases in Asia and North America. A critical challenge for this sector is the lack of available data, which if available could inform decision-making processes and potentially lead to increases in efficiency. As a result, one of the key components of the cement Task Force's effort is to address this lack of data. Another important element of this group's work will be to share information on good/best practices so that these may be replicated where appropriate in this very de-centralized sector. Moreover, the prevalence of proprietary research in this sector has further challenged information sharing practices.

The clean technologies to reduce emissions and/or conserve energy include:

- Dry processing technologies through pre-heater installation;
- Grinding technologies;
- Electricity generation using waste heat recovery technologies;
- Co-processing technologies using alternative fuels and optimized plant operation for clinker coolers;
- Raw materials preparation; and
- Cement grinding.

Addressing barriers to the utilization of these clean technologies could assist Partner countries in more effectively addressing their greenhouse gas emissions, recognizing that differing national circumstances may influence the potential for energy conservation in domestic cement industries. In addition, concerted efforts to reduce SOx, NOx and stack dust are essential to the global effort to reduce air pollution.

The cement production process can utilize wastes and by-products as alternative fuels and raw materials (AFR), which reduces air pollution and the use of fossil fuels. The development, diffusion, deployment and transfer of these technologies will reduce net greenhouse gas emissions and promote resource-recycling societies.

Partner countries have identified various issues as barriers to achieving the maximum potential for improving the energy efficiency of the cement sector, including the following examples. In Australia, permitting requirements necessitated by multiple-levels of government create challenges to the development, expansion, and movement of cement-related products. China's large size and diversity of local circumstances has created challenges in generating meaningful benchmarks and other measurement tools. In India, further increased use of alternative fuels and raw materials is hindered by insufficient regulatory measures and a lack of availability of the relevant foreign good/best practices. In Japan, existing high rates of efficiency in the cement sector mean that further increases are extremely challenging. For Korea, the use of alternate fuels for reducing CO_2 net emissions is very limited because the current regulatory structure does not permit it, and the supply of appropriate alternate fuels is inadequate to meet demand. In the United States, stringent permitting requirements and limited market acceptance of blended cements or those that are less climate-friendly hinder advances in the sector.

Partner countries have also cited notable achievements in the sector, including the following examples. The Australian cement industry was one of the first to voluntarily monitor, measure and manage its CO_2 and other emissions, resulting in a 24% reduction of CO_2 per ton of product produced. In China, the Central government is funding cement projects through national bonds for projects that utilize waste and other by-products, reduce energy consumption, and promote environmental protection. The Indian cement sector has in recent years increased the use of alternative fuels and raw materials in cement processes, which have resulted in reductions in greenhouse gas emissions and yielded other environmental benefits. In Japan, while the cement industry has achieved one of the world's most efficient production systems by using SP and NSP kilns, it is working through Keidanren voluntary initiatives to reduce 3% further its energy intensity per ton of cement by 2010 from its 1990 levels. The Korean cement industry is implementing ways to reduce air pollutants such as SOx and NOx, and has installed monitoring equipment for this purpose. The U.S. cement industry has committed to reducing its greenhouse gas intensity, and through the Climate Vision program has adopted voluntary goals of 10% reduction from 1990 baseline in CO_2 emissions per ton of product by 2020.

Objectives

The Task Force's objectives are to conduct surveys on current situation, develop performance indicators and benchmarks, share information and experiences on the clean technologies in order to conserve energy, reduce emissions of greenhouse gases, control air pollution, and promote use of AFR, and thereby diffuse and deploy such clean technologies in the cement industry of each Partner country. Subsequent meetings will discuss further ways to diffuse and deploy clean technologies.

Projects and Milestones

Project Title	2006	2007	2008	2009
1. CMT-06-01: Status Report	• Send out questionnaire by June, and collect by October. • Develop the draft Partnership cement protocol by mid-June. • Conduct a training seminar by request. • Publish the survey results within 2006.	• Update the status report as necessary.		
2. CMT-06-02: Benchmarking	• Hold the first stakeholder meeting in the margin of 2nd TF meeting. • Develop the tools for benchmarking.	• Set benchmarks. • Identify potential reduction and barriers. • Make recommendations.		
3. CMT-06-03: Legal/Regulatory Issues	• Collect information and case studies by October.	• Make recommendations. • Deliver a White Paper within the first quarter of 2007.		
4. CMT-06-04: Product Application	• Summarize existing literatures and programs within 2006. • Identify potential research projects within 2006.	• Make recommendations during 2007 or 2008.		
5. CMT-06-05: Centre of Excellence Component 1: Best Practice Advocate	• Reach agreement to progress Component 1.	• Select Advocate and sign consultancy after Benchmarking exercise completed.	• Report to Cement TF about the performance of the Advocacy.	

Project Title	2006	2007	2008	2009
Component 2: Technology Scholarships/ Lecturer/Researcher	• Reach agreement between participating Partners and CBMA to progress Component 2.	• Establish Assessment Committee within participating Partner countries. • 2007-08 placements awarded.	• 2008-09 placements awarded. • Participating Partner countries provide performance report to Cement Task Force.	• 2009-10 placements awarded. • Participating Partner countries provide performance report to Cement Task Force.
Component 3: Specialist Exchanges	• Reach agreement to progress Component 3.	• Establish Exchange Committee within participating Partner countries. • 2007-08 placements awarded.	• 2008-09 placements awarded. • Participating Partner countries provide performance report to Cement Task Force.	• 2009-10 placements awarded. • Participating Partner countries provide performance report to Cement Task Force.
6. CMT-06-06: Cement Kiln Co-Generation	• Reach agreement within Partnership to progress the project.	• Report to Cement Task Force about the potential energy efficiency and GHG abatement performance of cogeneration using cement plant waste heat. • Task Force determines the value of a demonstration plant.	• Identify a suitable cement plant for retrofitting. • Obtain funding and install the cogeneration facility.	

India presented two projects, "Co-Processing of Hazardous Waste in Cement Manufacturing on Commercial Basis" and "Industrial Recycling of CO_2 from Cement Process into High-Energy Algal Biomass Coal Equivalent Fuel". Australia and the United States expressed shared interest in further developing these proposals.

The Task Force will seek and respond to opportunities to collaborate with other Task Forces to meet the goals of the Partnership.

Appendix A: Individual Project Plans

CMT-06-01: Status Report

Project

This project is to conduct surveys on, for instance, emissions of CO_2 and air pollutants from the cement industry of each Partner country to serve as the basis for the development of benchmarks and subsequent projects.

Participation

Managing Parties
Japan.

Participants (Inquirers)

Relevant ministries and cement associations of Partner countries.

Objectives

To conduct the research survey within 2006 on the basis of existing data to understand the current status on the following items of the respective Partner country:

- emissions and emissions intensity of CO_2 and air pollutants;
- energy consumption and intensity;
- usage of alternative fuels and raw materials (AFR);

To identify within 2006 best practices and to what extent such best practices have been spread.

Milestones

Send out questionnaire by June and collect by October.

Develop the draft Partnership cement protocol based on WBCSD/CSI (Cement Sustainability Initiative) protocol by middle of June, for reporting CO_2 and air pollutants.

Conduct a training seminar on this protocol within 2006 by request.

Publish the survey results within 2006.

Update the status report in 2007 as necessary.

Conduct a further training seminar or workshop to facilitate data-gathering in 2007 as necessary.

Location

Surveys will be conducted in each country.

Resources

Japan.

Detailed Description

The Method of Survey for Status Report

- Questionnaire
  - Develop common questionnaire and survey current status in each country in order to share existing data.
  - Consider the results as reference material that helps to fix the benchmarks of the next project.
- Partnership Cement Protocol
  - Develop Partnership Cement Protocol and survey detailed current status in order to collect detailed data.
  - Develop the databases that determine to fix the benchmarks of the next project and evaluate the reduction potential.

Major Survey Areas for the Status Report

Current status of cement supply/demand, clinker production, CO_2 emissions and emissions intensity, energy consumption and intensity, and emissions intensities (wherever possible) of air pollutants such as SO_x, NO_x (in terms of SO_2 and NO_2) and stack dust for each Partner country.

Voluntary action programs of each Partner country (if they exist).

Environment regulations (including energy conservation laws).

Production forecasts.

Installation of emissions monitoring equipment (for O_2, SO_X, NO_X and stack dust) at the plant.

Current activities and availability of alternative fuels and raw materials (AFR).

Good and best practices under current cement production.

Coverage of the Survey

Above-mentioned intensities: production processes inside the plants only (excluding resources/fuel mining and transport to plants, outbound product shipment from plants and the sales of electricity produced by on-site power generation).

In principle, cover all plants (however, the parties may select model region(s) where all types of plants exist).

Data source and reliability should be shown in the survey.

Key Activities to Identify Best Practices in Relation to Cement Production Technology and to Understand those Diffusion Rates

Develop a list of identified good and best practices.

CMT-06-02: Benchmarking (Benchmark Development)

Project

This project is to select key performance indicators based on the result of emissions surveys of CO_2 and air pollutants in the Partner country's cement plants, and to develop benchmarks for evaluating the emissions reduction potential.

Participation

Managing Parties
Japan, the United States.

Participants
Relevant ministries and cement associations of Partner countries.

Objectives

Through stakeholder meetings:

- Select key performance indicators such as CO_2 emissions for benchmarking;
- Define benchmarking (regional, national or global vs. kiln type);
- Set benchmarks and estimate the potential for emissions reduction; and
- Identify potential barriers, recommendations for each government and economic viability in order to meet the reduction goal.

Milestones

Hold the first stakeholder meeting in the margin of the second Task Force meeting to be held in Xi'an, China on 20 and 21 September 2006.

Develop the tools for benchmarking (ex. BEST developed by LBNL).

Select key performance indicator(s) for developing benchmarks and define benchmarks within 2006.

Set benchmarks and estimate the potential for emissions reduction in 2007.

Identify potential barriers, recommendations for each government and economic viability in 2007.

Location

Benchmarks will be discussed and developed by Partner countries.

Resources

Japan, the United States.

Detailed Description

Possible indicators for benchmarking (to be selected from the following):

1) CO_2

- Cement-based emission intensity (net/gross).

2) Energy efficiency

- Clinker-based heat consumption intensity for clinker production (net/gross).
- Clinker-based electricity consumption intensity for clinker production.
- Total energy intensity for clinker production (net/gross).
- Electricity consumption intensity for cement-production process.

Note 1) Net: fossil fuels only (excluding alternative fuels) Gross: fossil fuels and alternative fuels

Note 2) Excluding power generation from waste heat recovery

3) Recycled resource ratio

- Alternative raw material ratio (wet/dry basis).
- Alternative fuel ratio (calculated on thermal-basis).

4) Emissions of air pollutants

- Concentration of SO_x, NO_x and dust in the exhaust gas (calculated on 10% oxygen-basis) and their intensity per ton of product (specific emissions).
- Percentage of kilns installed with pollutant-capturing equipment.
- Percentage of kilns covered by monitoring system for the concentration of O_2, SOx, NOx, and dust in the exhaust gas.

CMT-06-03: Legal/Regulatory Issues

Project

This project is to identify and create an inventory of domestic legal and regulatory barriers to, and incentives for, the reduction of the emissions of greenhouse gases or other pollutants from cement manufacturing and formulation.

The study also identifies the legal or regulatory barriers to, and incentives for, the use of concrete to mitigate climate change impacts and as energy efficient structures.

Participation

Managing Parties
The United States.

Participants (Inquirers)
Relevant ministries and cement associations of Partner countries.

Objectives

To undertake a study of comparative legal or regulatory barriers to and incentives for reducing the CO_2 intensity of cement production and deploying cleaner manufacturing technology.

Milestones

Partner countries supply information and case studies by October through the Status Report (project CMT-06-01).

Deliver a White Paper summarizing findings within the first quarter of 2007 (this milestone is dependent upon the United States receiving the completed questionnaires in October).

Make recommendations within 2007.

Location

Surveys will be conducted in each Country.

Resources

The United States.

Detailed Description

Each Task Force member nation is requested to include case studies relevant to regulatory and legal issues on their experiences for each of the following scenarios (where applicable):

Siting of a new greenfield facility;

Major expansion of an existing facility;

Introduction of alternative fuels or raw materials (AFR);

Gaining approval for use of blended cements; and

Any other scenario where legal or regulatory issues have proven a barrier to or incentive for clean development.

CMT-06-04: Product Application

Project

This project is to evaluate and document applications of concrete that mitigate the climate change impact of buildings and other aspects; to recommend that Partner countries undertake collaborative research into life cycle energy efficiency of concrete applications; and to identify further steps that governments can take to encourage sustainable development using concrete products.

Participation

Managing Parties
The United States.

Participants (Inquirers)
Relevant ministries and cement associations of Partner countries.

Objectives

To evaluate applications of concrete to mitigate climate change impact.

Milestones

Summarize existing literature and programs to evaluate applications of concrete within 2006.

Identify potential research projects within 2006.

Make recommendations within 2007 or 2008.

Location

Evaluation of existing literature and programs will be conducted in each Country, with the United States as lead Partner.

Resources

The United States.

Detailed Description

The scope of this task is to effort to evaluate and document applications of concrete that mitigate the climate change impact of the particular building or project over the projects service life cycle. This effort may include evaluation of:

Energy Efficient structures: commercial and residential structures built with concrete exterior walls to enhance energy efficiency;

Urban heat island mitigation: light colored concrete absorbs less heat and reflects more light than dark-colored materials – whether on pavement, roofs, or other services, thereby reducing ambient temperatures and demand for electricity;

Vehicle fuel efficiency: because of its rigidity, concrete pavement enhances fuel efficiency of vehicles compared to flexible pavements;

Structural durability: because concrete buildings and pavements last longer, they require less frequent maintenance and replacement, activities that typically involve power consumption and the resulting emissions.

Primary responsibility for evaluating and documenting the climate change advantages of concrete shall rest with the industry members of the Cement Task Force, including trade associations and individual companies. Additionally, The Cement Task Force may recommend that Partner governments undertake basic research into life cycle energy efficiency of concrete applications to residential and commercial structures.

The Task Force will consider the results of this evaluation and will make recommendations to the Policy and Implementation Committee on further steps that governments can take to encourage sustainable development using concrete products.

CMT-06-05: Centre of Excellence (Proposed as Flagship Project)

Project

The project actively advocates the need for all participating Partner country governments and their cement industries to operate at environmental best practice. It also provides scholarships and a skilled worker exchange program to assist companies to implement best practice technologies in areas of energy reduction, greenhouse gas emissions (GHG) reduction and in better utilizing alternative fuels and raw materials in cement production. The program further provides for the funding of a teaching appointment specializing in energy efficiency and greenhouse gas issues in relation to cement manufacture and use. The teaching appointment would be taken up at the China Building Materials Academy (CBMA) and would be for one year.

Participation

Managing Parties
Australia (as lead agency), China (as the preferred location for some activities), Japan.

Participants
Relevant ministries, cement companies and cement associations of Partner countries.

Objectives

This project has two objectives:

1. To drive attitudinal change within participating Partner governments, cement industry associations and major cement manufacturers to improve their environmental performance, energy efficiency and increase their use of alternative fuels and raw materials. The project draws on existing best practice and benchmark information relating to the cement industry and other relevant information about the need for action at all levels to address climate change.

2. To provide mechanisms enabling participating Partners' governments and companies to implement environmental performance and energy efficiency improvements and enhance of use of alternative fuels and raw materials for cement production. It also provides mechanisms for research into emerging technologies that have the potential to impact on cement manufacture such as fluidized-bed systems, alternative building materials, low-emission technologies, carbon capture and storage, electrical energy related technologies, and the use of non-carbon fuels.

   This objective would be achieved through technology scholarships, specialist exchanges between companies and the appointment of an academic specializing in these areas to the China Building Materials Academy.

Milestones

	2006	2007	2008	2009
Component 1: Best Practice Advocate	Reach agreement to progress Component 1.	Select Advocate and sign consultancy after Benchmarking exercise completed.	Report to Cement TF about the performance of the Advocacy.	
Component 2: Technology Scholarships/ Lecturer/Researcher	Reach agreement between participating Partner countries and CBMA to progress Component 2.	Establish Assessment Committee within participating Partner countries. 2007-08 placements awarded	2008-09 placements awarded. Participating Partner countries provide performance report to Cement Task Force.	2009-10 placements awarded. Participating Partner countries provide performance report to Cement Task Force.
Component 3: Specialist Exchanges	Reach agreement to progress Component 3.	Establish Exchange Committee within participating Partner countries. 2007-08 placements awarded.	2008-09 placements awarded. Participating Partner countries provide performance report to Cement Task Force.	2009-10 placements awarded. Participating Partner countries provide performance report to Cement Task Force.

Location

The technology scholarships, lecturer and research positions would be located at the CBMA.

Specialist Exchanges would be located in the two member countries participating in this component of the project.

Resources

Component 1: Best Practice Advocate

The Best Practice Advocate component would be undertaken by consultant(s). Funding would be required for consultant time, travel and accommodation and the development and printing of advocacy material. Advocacy material would be developed in conjunction with each Partner country's cement industry association and that Partner's Task Force representative.

Component 2: Technology Scholarships/Lecturer/Researcher

Scholarship/lecturer/researcher funding is shared between the organization from which the successful applicant derives, and their national government (home government). The home organization pays the applicant's normal salary and employment entitlements. The home government provides the applicant with travel and supplementary accommodation assistance as well as research funding in support of a project being undertaken at the CBMA.

CBMA's contribution to this project will be the provision of CBMA lecturing and research facilities and the provision of suitably qualified staff as part of the CBMA/Partnership research team.

Component 3: Specialist Exchanges

Exchange funding is shared between the two participating companies and their respective Governments. Each home company would continue to pay the Specialist's normal salary and employment entitlements as if the Specialist had continued working on the company premises. Home governments would fund their Specialist's travel costs and would provide supplementary accommodation assistance as required.

Detailed Description

The project consists of three components:

Component 1: Best Practice Advocate

The Centre is envisaged to be a vehicle to drive the adoption of Best Practice cement manufacturing and clean technologies (such as co-generation of electricity) in participating Partner countries through active dissemination of the results of the Cement Industry Task Force Benchmarking project and promotion of the economic and environmental advantages of adopting best practice.

The vehicle through which the Centre will operate to achieve these goals will be a highly respected cement industry advocate charged with actively advancing the benefits of achieving best practice performance in the core Partnership areas of environmental performance and energy efficiency. The advocacy will be directed at Partner countries' government agencies, peak cement industry associations and major cement companies.

The intention is to drive home the need for Partner countries to implement change to reduce greenhouse gas emissions and to build commitment in Partner governments and industry for such change.

The advocate would be charged with:

- Promoting the role of the cement industry in addressing the above issues with government, cement industry associations and major cement companies in each participating Partner through appropriate meetings in each jurisdiction. The meetings would seek to elicit appropriate action at the state, industry and company level.

- Working with the Cement Task Force country representatives to develop influential advocacy material that can be used by the advocate and others in a variety of cement and government for and in a variety of countries.

Component 2: Technology Scholarships/Lecturer/Researcher

The second component of the project is to utilize the Centre as a vehicle to enhance the technical and research capabilities of industry in each participating Partner in the areas of energy efficiency, GHG abatement and the use of alternative fuels and raw materials for cement production. Project areas could also include emerging technologies that have the potential to impact on cement manufacture such as fluidized-bed systems, alternative building materials, low-emission technologies, carbon capture and storage, electrical energy related technologies, and the use of non-carbon fuels.

The Centre will provide scholarships and lecturing / research opportunities through which Partner home country funded applicants can work for up to a year on an agreed Partner relevant project with a research team at the China Building Materials Academy (CBMA) in Beijing.

Component 3: Specialist Exchanges

The third component of the project is to use the Centre as a vehicle to enable skilled worker exchanges between participating Partner countries in order to enhance the diffusion of technical expertise between companies in areas of energy efficiency, greenhouse gas reduction and the use of alternative fuels and raw materials for cement production. Project areas could also include emerging technologies that have the potential to impact on cement

manufacture such as fluidized-bed systems, alternative building materials, low-emission technologies, carbon capture and storage, electrical energy related technologies, and the use of non-carbon fuels.

Specialist Exchanges are currently promoted within the cement industry (and technology research organizations). This component of the project builds on this program. It is expected that specialist exchanges will usually be up to a year in duration.

Governance

Component 1: Best Practice Advocate
Governance arrangements for the best practice advocate would have to be developed, including selection process, management and administration.

Component 2: Technology Scholarships/Lecturer/Researcher
Each country is responsible for the management and performance of those Scholarships/Lecturer/Researcher positions it awards, and for providing a six-monthly performance report to the Chair of the Task Force for distribution to Partners.

It is envisaged that each member country will establish a Scholarship/Lecturer/Research Committee comprising government and industry representatives. Applications will be sought within that country. Applications will be assessed by the Committee using criteria consistent with the objectives of the Cement Task Force. The Committee subsequently reaches agreement with CBMA about the project and funding arrangements.

Component 3: Specialist Exchanges
Each country is responsible for the management and performance of those Exchanges it awards, and for providing a six-monthly performance report to the Chair of the Task Force for distribution to Partners.

It is envisaged that each member country will establish an Exchange Committee comprising government and industry representatives. Applications will be sought from companies within that country. Applications will generally involve two companies, one in each of two Partner countries and be submitted to one Exchange Committee. Applications will be assessed in consultation with the Exchange Committee in the second Partner using criteria consistent with the objectives of the Cement Task Force. A suitable exchange arrangement is subsequently developed.

CMT-06-06: Cement Kiln Co-Generation

Project

The project will document the economic and energy efficiency gains obtained by utilizing cement plant waste heat to generate electricity. The potential reductions in GHG emissions will also be documented as the cogeneration reduces the cement plant's use of grid electricity.

The project will also explore mechanisms to address the technical and engineering challenges involved in retrofitting cogeneration facilities to an existing cement manufacturing plant.

Participation

Managing Parties
Australia (as lead agency), China.

Participants
Other Partner countries are invited to participate.

Participating organizations include cement and kiln manufacturers and cogeneration technology manufactures.

Objectives

To document the technical and engineering challenges involved in retrofitting cogeneration facilities utilizing cement kiln waste heat.

To characterize the energy efficiency gains obtained from the installation of cogeneration facilities in a typical cement plant.

To disseminate the expertise of Partner countries on cogeneration technology.

To encourage and facilitate deployment of cogeneration technology to Partner countries including through the possible retrofitting of an existing plant as a demonstration site.

Milestones

2006	2007	2008
Reach agreement within Partnership to progress the project.	Report to Cement Task Force about the potential energy efficiency and GHG abatement performance of cogeneration sing cement plant waste heat. Task Force determines the value of a demonstration plant.	Identify a suitable cement plant for retrofitting. Obtain funding and install the cogeneration facility.

Location

Australia.

Resources

The project will be funded by Australia. Partner countries' involvement might include providing information on, and access to, existing cogeneration facilities or through joint activities to examine engineering and technical challenges. In particular, Australia will seek the assistance of other Partner countries who may have expertise on the development or adaptation of cogeneration technology for use at cement plants.

Detailed Description

The project combines two established technologies, cement kiln operation and cogeneration technology, to reduce the greenhouse gas emissions (GHG) from cement production to increase cement kiln energy use efficiency, reduce kiln energy consumption and to generate electricity.

If agreed, following the technical study, the project will include retrofitting cogeneration to an existing cement plant. The project will facilitate the demonstration and deployment of energy-efficient and cleaner production formulation technologies in Partnership countries.