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**Reducing Greenhouse Gas Emissions: How companies can earn additional revenues while helping the environment**

*By Teo Eng Dih, International Enterprise Singapore*

Most companies as well as consumers would be aware that human activities are key contributors of greenhouse gas emissions (GHG) which cause global warming. But what comes to mind if you're asked to reduce GHG from your business? *Where do I start? Will I get paid for this? How can I find assistance to do this?*

The international framework covering the flexible mechanisms for the trading of GHG started with the Kyoto Protocol, which was negotiated in 1997 in this ancient capital of Japan. These mechanisms became operational when the Protocol came into force in 2005, giving rise to the global trading of emission/carbon credits or what is commonly known as the "carbon market".

In 2007, the global carbon market was estimated to be worth US\$60 billion (€40 billion), an increase of 80 percent over 2006, while traded volumes were 2.7 gigatonnes of GHG, up by 64 percent from 2006 levels<sup>1</sup>.

Since 2003, Japan has accounted for nearly 30 percent of the demand for carbon credits from projects overseas, and analysts have estimated further demand of approximately 100 to 500 million tonnes of emission credits in the 2008-2012 period.<sup>5</sup>

**Are Singapore-based companies getting a piece of the pie?**

It's better late than never. Several companies, largely small and medium enterprises (SMEs), have nimbly seized opportunities to undertake CDM projects in Singapore as of October 2008:

Company	Type of CDM Project	Other Project Participant
Bee Joo Industries	Waste Heat Recovery	Kansai Electric Power Co. (Japan)
Kim Hock Corporation	Use of Biomass Energy	LFGC Corporation (Canada)
IUT Global	Food Waste Biomethanisation for Electricity Production	-
Power Seraya	Fuel Switch from Fuel Oil to Natural Gas	-

These four projects are estimated to reduce carbon emissions by about 533 kilotons per year. At the same time, the four companies are expected to earn a total of S\$235 million (based on the current CER<sup>6</sup> price of €22) from their projects over the 10-year crediting period stipulated by the UN. Companies will need to submit documentation, which requires consultancy services from specialised companies or advisors in the nascent carbon services sector.

Bee Joo Industries has sold up to 95,000 CERs (the equivalent of a reduction of 95,000 tonnes of carbon dioxide which would otherwise have been emitted into the atmosphere) to Kansai Electric from Osaka, Japan. These credits would assist Kansai Electric in meeting its obligations to reduce emissions.

To further stimulate a supply of carbon credits to meet the needs of Japanese companies, the Japan Bank of International Cooperation (JBIC) has signed a co-operation agreement with Singapore-based Asia Carbon Exchange Pte Ltd to provide information on carbon credits in Japan to potential sellers in Asia.

The Clean Development Mechanism (CDM), which governs how carbon credits can be generated from projects in the developing countries [see Box 1], has generated the most interest. Key buyers are companies or investors from the developed world, as it is relatively more cost-effective to carry out emission reduction in the developing world rather than doing so in the developed world.<sup>2</sup> As of 2006, China has the largest share, supplying 61 percent of the carbon credits.

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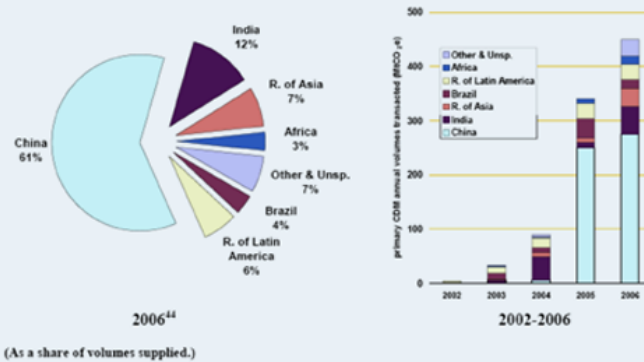
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### Geographical Distribution of CDM Projects<sup>3</sup> (click to zoom)



### What's the potential demand from Japan?

Under the Kyoto Protocol, Japan is expected to reduce her carbon emissions by an average of 6 percent from 1990 levels from 2008 to 2012. However, as the world's most energy-efficient economy, it has been relatively difficult for Japan to reduce GHG domestically since they are already at the forefront in the deployment of GHG abatement technologies.

By March 2006, Japan's emissions were 14 percent above their target. While emissions from industry have fallen by 9 percent, the effects have been overshadowed by increasing emissions from the household, transport and building sectors.<sup>4</sup>

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### Are there risks involved and how can the government help?

The entire process from idea generation to documentation and UN approval, as well as the need to monitor emission reductions post-UN approval, seem to put off many SMEs. Otherwise, more companies can potentially reap additional revenues for their efforts to reduce the environmental impact.

A key barrier is the cost of documentation required by the UN. Depending on the scale and complexity of the project, the cost of documentation can fall anywhere from S\$50,000 to S\$200,000.

To help promote more CDM projects, the National Environment Agency (NEA) has set up a grant to support companies in engaging carbon consultancy services to develop the required documentation. The grant will provide co-funding up to S\$100,000 per project.

Alternatively, companies may wish to work with carbon consultants or advisors that do not require upfront payment by companies, but would instead tap on future earnings from the sales of carbon credits to pay for the documentation.

Besides the project risks, many will ponder if there will still be a carbon market after the end of the first commitment period of the Kyoto Protocol. While the structure of the mechanisms such as CDM may undergo refinements, the EU has highlighted that the EU Emissions Trading Scheme will continue.

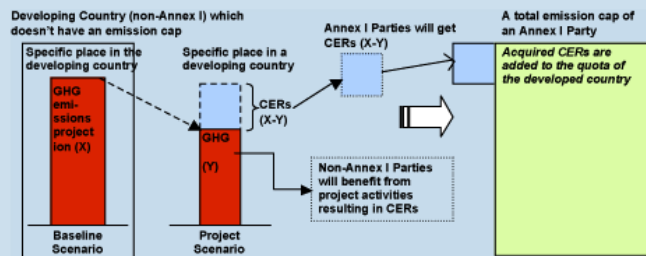
This drives a demand for carbon credits from overseas though discussions are still underway on the limits for these credits. Australia, Japan and various US states are also developing their own emissions trading scheme. Ultimately, the decision to proceed on CDM would depend on the feasibility of the project. It would be useful to discuss this with consultancies that provide such advisory services.

#### Box 1: New mechanism to generate revenue for clean investments

Under the Kyoto Protocol, developed countries (Annex I countries) have obligations to cut greenhouse gas emissions and have economy-wide emission caps. To meet these obligations, developed countries have to undertake plans to reduce emissions in their own countries. As the costs of reducing emissions in developed countries are generally higher than reducing emissions in the developing countries (non-Annex I), the developed countries can also undertake reduction activities in the developing countries through the clean development mechanism.

Under normal circumstances in a developing country A (Baseline Scenario), companies in will use coal for producing electricity, producing X tonnes of GHG per year.

In the Project Scenario, an investor from a developed country participates in bringing in clean investments, for instance, providing technologies for using gas to produce electricity instead of coal. Using gas produces Y tones of GHG per year, and the reduction in emissions (X-Y) can be quantified and verified by third parties for sales to companies that requires these emissions allowances or quotas in the developed country. (Click to zoom.)



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1. Point Carbon, "Carbon 2008", March 2008
2. To prevent companies from shifting all their high emission activities to the developing countries, developed countries have set limits on the amount of carbon credits arising from the flexible mechanisms.
3. World Bank, International Emissions Trading Association, "State and Trends of the Carbon Market", 2007
4. Reuters, "Japan emissions to rise, Kyoto target at risk", Aug 2007
5. World Bank, International Emissions Trading Association, "State and Trends of the Carbon Market", 2007
6. Certified Emission Reductions or CERs are the carbon credits arising from CDM projects

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