



Advocating Sustainable Development

## A Ray of Hope – Business-Led Initiatives on Air Pollution

EnviroSeries Conference

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### Outline

- Overview of air pollution in HK and PRD
- Measures undertaken
- What can business do?
- Role of BEC in a business-led initiative

### Overview

- Main air pollutants in HK - sulphur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), respirable suspended particulates (RSP) and volatile organic compounds (VOCs).
- Sources:
  - Stationary sources (like power plants)
  - Mobile sources (such as vehicles, shipping and aircraft)
  - Chemicals found in household and industrial products responsible for the emission of VOCs
- Smog is particularly pertinent due to its visibility and pervasiveness- declining visibility (taken as below 8 kilometres) is reflected in the percentage of such days taking place per year, which reached a high of 16% in 2004.
- Impacts of air pollution in Hong Kong have been quantified using healthcare costs, estimated to be about \$1.3 billion based on 2000 data. Other possible economic impacts arising from smog in terms of losses in tourism, property and foreign investment are less easy to quantify.

### Regional perspective

- Hong Kong suffers from downstream air pollution effects arising from sources in the PRD.
- Energy, industry, motor vehicles and VOC-containing products, make up more or less 90% of the total air pollution load in the PRD region.
- Long-term growth in economy, population, electricity demand and vehicle mileage in the PRD region – likely that air pollution in the region will increase rather than decrease even as the Hong Kong and Guangdong Governments continue to implement their existing improvement measures.

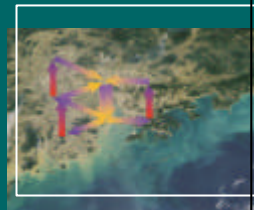
### Urban land-sea breeze circulation

- Phenomenon of “urban land-sea breeze circulation”

- During the day, warm air over the urban areas rises leaving an area of low pressure that sucks in air from surrounding areas into urban areas.

- Air rises to a height of about 1-2 kilometres, and then spreads out horizontally before falling as it drifts out to the cooler ocean area. This effect leads to the formation of closed vertical circulations around the city centres.

- Air pollutants are re-circulated as they get sucked back in through the circulation cycle.



## Measures undertaken

- Hong Kong Government has carried out a number of measures including:
  - Tightening of motor petrol standards
  - Applying Euro IV emission standards to new vehicles
  - Negotiating with the power companies to further reduce air emissions and encourage the use of cleaner fuels, like natural gas, in electricity generation.
- The Guangdong provincial government has focused on power plants, vehicles and the most polluting industrial processes by:
  - Restricting the use of high-sulphur fuels
  - Closing down small power generation units
  - Retrofitting flue gas desulphurisation (FGD) systems to reduce emissions from power generation
  - Phasing out coal-fired boilers, industrial boilers and industrial technologies and equipment with inefficient energy consumption characteristics.

## Cross-boundary initiative on improving regional air quality

- 2002 agreement between the governments of Hong Kong and Guangdong Province on reducing smog-related air pollution.
- Taking 1997 as the base year, RSPs and VOCs are each to be cut by 55%, SO<sub>2</sub> by 40% and NO<sub>x</sub> by 20% by 2010.
- The two governments are also exploring ways to set up an emissions trading pilot scheme covering power plants in Hong Kong and Guangdong.
- But, clearly, for air quality to improve, it is not just the two governments that are responsible. Other stakeholder parties like the power companies, transport companies, industrialists and communities will have to co-operate closely to share knowledge and resources and work towards common goals.

## HK's performance so far

Air Pollutant	HK Emissions (tonnes)		
	1997	2003	% diff.
NO <sub>x</sub>	111,000	96,600	-13%
RSP	11,200	7,380	-35%
VOCs	58,800	41,800	-29%
SO <sub>2</sub>	64,500	90,900	+41%

Source: EPD

## What can business do?

- Power companies:
  - Composition of fuel mixes to include a higher proportion of cleaner fuels
  - Incentives for further demand-side management
  - Commitment of both power companies to adopt renewable energy options and to support the cross-boundary emissions trading programmes with Mainland power stations.
- Industry:
  - How to further reduce the use of VOC-containing chemicals
  - Promoting more energy efficiency and conservation initiatives, particularly in buildings
  - Encouraging better practices throughout factories and offices in the PRD

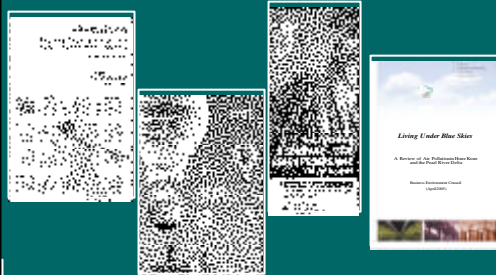
## What can business do?

- Transport
  - Extending the use of cleaner fuels (e.g. LPG or Biodiesel) into private vehicles
  - Introducing hybrid vehicles
  - More vehicle-related environmental initiatives (such as turning off idling engines and encouraging public transport or pedestrianisation)
  - How to prevent Hong Kong drivers "tankering" and bringing in lower-grade fuel from the PRD
  - Stopping the use of low-grade bunker fuel in shipping and port activities
  - Looking at the impacts of new infrastructure such as the Shenzhen Western Corridor and the proposed HK-Macau-Zhuhai bridge and the growth of cross-boundary traffic
- General
  - Need to educate more companies, especially SMEs, on the relationship between wasteful energy habits and the unnecessary generation of air emissions from fossil fuel combustion.

## Current initiatives

- Chambers of Commerce have come up with position statements representing their members' concerns on the need to tackle air pollution and the translation of these statements into action.
- The Business Coalition for the Environment has proposed a charter for companies to sign to declare their intent to reduce air pollution within their respective industries.
- The Hong Kong Federation of Industries has come up with the "1-1-1" programme to encourage factories to individually come up with one environmental initiative (including curbing air emissions), every year, i.e. "one factory, one initiative, one year".
- The Civic Exchange is promoting a fuel-switching campaign targeted at industrial onsite generation units used by factories in the PRD.
- Some Hong Kong companies have also identified possible commercial opportunities from energy efficiency projects, notably those with property portfolios, and are looking at the wider issue of carbon emissions, climate change and trading in carbon emission and pollution credits.

## Some of the outputs so far



## BEC's role

- To gather and disseminate published information on Hong Kong's air pollution issues as well as any ongoing and planned initiatives in order to raise awareness amongst BEC members
- To provide support to members and other groups wishing to or already involved in programmes to reduce current air pollution levels
- To launch key topic programmes on financial instruments, best practices and clean energy to engage business, government and NGOs in order to form appropriate and effective partnerships that will address current and future issues in this area

## Financial Instruments

- Current trends in the use of financial instruments in encouraging companies to minimize air pollution:
  - Use of cross-boundary exchange schemes of pollutant loads (which the respective governments are discussing)
  - Role of carbon emissions trading (covering Greenhouse Gas Protocol and use of Clean Development Mechanisms)
- Issues: which markets, how to gain credits, institutional arrangements

## Best Practices

- Selected activities being carried out by specific industry groups in HK
- Focus will be on how to reduce air emissions using:
  - Case studies on energy efficiency (e.g. buildings), demand-side management, transport practices (including better motorist habits and encouraging public transport and pedestrianisation), energy conservation and clean processes (like alternative solvents and vapour-treatment technologies)
  - Tool box for companies (especially SMEs) on best practice
- Issues: energy efficiency, demand side management, clean design

## Clean Energy

- Covers:
  - Clean fuels for transport (e.g. biodiesel, hybrid vehicles, LPG) and power generation (LNG and renewable energy)
  - How to stop the use of polluting fuels (e.g. bunker fuel and low-grade diesel)
  - Incentives for businesses to consider switching to clean energy methods
- Issues: uptake of less-polluting fuels and clean technologies (i.e. renewable energy)

Thank you