

PLANNING FOR A LOW-CARBON HONG KONG

A Multi-stakeholder Workshop

Discussion Summary Report
April 2008

Organised by



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Civic Exchange is a non-profit public policy think tank that helps improve policy and decision-making through research and analysis.

The opinions expressed in this report represent those of the participants and do not necessarily represent those of Civic Exchange. This summary is based on transcripts recorded at the Workshop held on 25 April 2008.

EXECUTIVE SUMMARY

This report is prepared a part of a wider strategy of Civic Exchange to encourage Hong Kong citizens, business and the Hong Kong SAR Government to take responsibility for and seek solutions to reduce greenhouse gas emissions and associated climate change. Recognizing that buildings and associated facilities account for more than 40% of Hong Kong's greenhouse gas emissions, and that little progress has been made in addressing this issue, Civic Exchange convened a workshop on 25 April 2008, to explore barriers and solutions to creating a low-carbon built environment in Hong Kong. Participants included stakeholders from a range of building-related sectors such as planners, building managers, developers, architects, construction companies, engineers, consultants, power companies, academics and NGOs. Findings from the workshop can be consolidated around five broad barriers:

Barrier 1 - Lack of political leadership This barrier referred primarily to the need for Government leadership in shaping policy, but also related to business and community leadership. Suggested solutions include the development of an **energy policy** and a **low-carbon urban planning policy**; **green accreditation** of all government buildings; the facilitation of **multi-sector, cross-departmental dialogue** and a challenge to business and NGOs to **raise professional standards** and to support **low-carbon champions** in the Government.

Barrier 2 - Inadequate codes and regulations Current mandatory building regulations and voluntary Building Energy Codes (BECs) are not very effective. The suggested solution is to enact **stronger regulations** and make the **BECs mandatory**, so as to remove the competitive disadvantage for high performing developers and to set a level playing field for all.

Barrier 3 - Insufficient incentive This barrier focuses on the mismatch of costs and benefits, whereby developers and investors do not believe that green design offers them a financial return. Also, the fact that the price of energy does not include all of the health and environmental costs of unsustainable practices does little to encourage the adoption of low-carbon principles. Suggested solutions include better **research on the nature of costs and benefits** and the development of a suite of **rewards and penalties** to incentivise low-carbon building.

Barrier 4 - Lack of awareness The public is generally unaware of both the benefits of low-carbon, sustainable building practices and the health and environmental costs of unsustainable buildings. Suggested solutions include a dedicated programme of **public outreach** activities; the design of **clever communication tools**, such as standards, checklists and case studies; and **education** targeted at industry workers and professionals, policy makers and the general public.

Barrier 5 - Lack of innovation Hong Kong lacks a culture of innovation in green design and sustainability. Suggested solutions include increased **R&D** efforts; making better use of Hong Kong's **financial expertise**; **investigating international approaches** and developing a green neighbourhood **demonstration site**.

There is substantial interconnection between the issues discussed above - greater public awareness, for example, can galvanise leadership and pressure government to develop stronger policy and regulation, which in turn can create the necessary incentives for the private sector to commercialise innovation. Of all issues discussed by the workshop participants, the priority for action is **stronger political leadership from business and government** to formulate the policies necessary to create the momentum and incentive for action throughout the whole of Hong Kong society.

PART 1 INTRODUCTION

When the embodied energy of construction, electricity and gas consumption, and all other aspects of operation and demolition are taken into account, buildings are responsible for at least 40% of Hong Kong's total greenhouse gas emissions. However, the potential to reduce emissions in the built environment is substantial, though it requires co-operation amongst of all sectors of the community, including government, business and the general public. To facilitate dialogue amongst these sectors and following the publication of its report on climate change and the building stock of Hong Kong and Macau¹, Civic Exchange convened a half-day workshop on 25 April 2008, which brought together 97 participants from a range of sectors, including:

- Planners
- Building Managers
- Developers
- Architects
- Construction Companies
- Engineers
- Consultants
- Power Companies
- Academics
- NGOs

The aim of the workshop was to explore barriers and potential solutions to creating a low-carbon built environment in Hong Kong. It opened with presentations by a panel of five industry experts (see Appendix 1), after which participants broke up into small groups to discuss barriers and solutions in the context of five general themes: costs, capacity, standards, leadership and policy. Appendix 2 summarises the findings of the small groups, and in the discussion below, these findings have been consolidated around five broad barriers:

- lack of political leadership
- inadequate codes & regulations
- insufficient incentive
- lack of awareness
- lack of innovation.

PART 2 BARRIERS & SOLUTIONS TO A LOW-CARBON HONG KONG

2.1 Lack of political leadership

Hong Kong needs strong, visionary leadership, not only from government but from business leaders as well. Relying on the free market alone has failed to address the risks of climate change and the Government's unwillingness to take a long-term view and set effective targets for the emission of greenhouse gases is hindering progress.

SOLUTIONS:

Develop a low-carbon urban planning policy

The Government should make energy efficiency one of the top requirements of urban planning policy. Low-carbon urban planning would promote synergies between reducing greenhouse gas emissions and reducing air pollution, by maximising the use of passive cooling strategies and encouraging local on-site renewable energy. Planning policy should favour designs that:

- Incorporate low-carbon transport (pedestrian and cycle access; mass transit

¹ "'Green' House or Greenhouse? Climate change and the building stock of Hong Kong & Macau", published in conjunction with the Architects Association of Macau: [http://www.civic-exchange.org/eng/upload/files/200804_greenhouse\(1\).pdf](http://www.civic-exchange.org/eng/upload/files/200804_greenhouse(1).pdf)

- services), rather than high-carbon vehicular transportation;
- Promote zero waste; and
- Encourage plot ratios that allow for urban greening.

Develop an overarching energy policy

The Government should develop a policy for achieving the most efficient generation and consumption of energy that balances reliability and affordability with sustainability. This needs to be measured against precise but achievable quantitative targets. Some other suggestions include:

- Requiring developers to undertake analysis of entire lifecycle costs;
- Ensuring that energy policy finds a balance that is socially just and intergenerationally equitable; and
- Introducing a building labelling scheme to promote the transparent disclosure of building performance to the public.

Lead by example

- Make all government buildings - including public housing - meet some recognised green building standards within 3 to 5 years;
- Promote the use of green products in public settings such as government offices and libraries; and
- Facilitate multi-sector, cross-departmental planning and dialogue to reflect the fact that climate change will affect all sectors of society and that an effective response will need to integrate the skills of many sectors.

Roles for business and NGOs

- Raise the professional status of green building and energy efficiency professionals, by developing a professional recognition framework, under the auspices of the professional associations, such as the Hong Kong Institution of Engineers (HKIE);
- Form a Hong Kong chapter of the World Green Building Council; and
- Encourage, brief and support low-carbon champions in government.

2.2 Inadequate codes and regulations

Hong Kong's mandatory building regulations are inadequate, with too few requirements for energy-efficient lighting, glass and insulation. Voluntary Building Energy Codes have not achieved widespread uptake of greener building designs and technologies. Developers, owners and landlords are reluctant to implement energy-efficiency measures because they do not expect to reap any financial benefits that may result. As building designers are not required to take into account the surrounding natural and built environment, opportunities to reduce energy usage and alleviate the heat-island effect through passive design are lost.

SOLUTION:

Enact stronger regulations and mandatory codes

Government should pursue mandatory Building Energy Codes and stronger regulation, setting minimum energy efficiency standards and rigorous carbon-reduction targets across all building types, and at every stage in the lifecycle of a building. These would reward high performing developers by removing competitive disadvantage and setting a level playing field for all developers.

As well as new-build, codes and regulations must take into account *existing*

buildings, as the majority of the buildings that will be in use in Hong Kong's over the next 30 years have already been built. One suggestion made at the workshop was to establish a 'carbon inventory' and require companies to report their carbon footprint.

2.3 Insufficient incentive

Mismatch of costs and benefits - Developers and buyers do not perceive any greater value in lower-carbon buildings and, with neither reward for good performance nor penalty for bad, building management companies are reluctant to promote low-carbon ideals. The return on investment (ROI) for outlays in energy efficiency is perceived as being too slow and the benefits are not obvious enough to create a compelling case for investors. In addition, it is often tenants and operators who recoup the financial benefits of energy efficiency installations, not the initial developer. Lower income families may balk at the upfront costs associated with installing or retrofitting green building features, and so it may be harder to encourage them to adopt substantial changes without subsidies.

Externalities - The price of energy does not take into account (i.e. 'externalises') environmental and social costs, such as climate change and the health costs of pollution. Cheap energy means consumers will not press for alternative energy solutions, and since there is no real competition amongst Hong Kong energy providers, there is no incentive for suppliers to innovate or provide green energy.

SOLUTIONS:

Research costs and benefits

Determine where and how the costs to society are being externalised and how stakeholders could be encouraged to bear those costs equitably.

Provide a range of rewards & penalties to incentivise low-carbon building

- Introduce better demand-side management (e.g. offer power companies financial incentives when they persuade customers to implement energy-efficiency measures);
- Provide tax incentives (e.g. rebates, discounts or exemptions) for low-carbon initiatives. The incentives could be funded by revenue from a carbon tax;
- Institute a 'carbon fund' in which energy-efficiency improvements made to a building over its lifetime result in credits that could be transferred from owner to owner and redeemed as tax/rate concessions;
- Make companies responsible for covering recycling costs of building waste and reduce the impact on landfill sites;
- Underwrite the upfront cost of investment in environmental technology under an energy performance contract where the investment is recouped through the resulting energy savings;
- Rewrite tenancy agreements to offer rent abatement for tenants who install energy efficient features; and
- Encourage banks to consider environmental risk and its effect on property value, with a view to providing preferential rates for finance for green buildings.

2.4 Lack of awareness

The goodwill and support of the general public will be crucial in dealing with climate change and yet the public is generally unaware of both the benefits of low-carbon, sustainable building practices (less pollution, healthier people, often financial savings

and conservation of valuable energy resources) and the externalised health and environmental costs of high-carbon, unsustainable buildings. Although the Government produces large amounts of publicly available information, it does not actively communicate it in a meaningful format.

There is a lack of transparent information and user-friendly techniques for the general public to analyse costs and benefits. Members of the public do not always appreciate their role in producing or reducing greenhouse gas emissions, nor do they appreciate the consequences of climate change for them and their children. At a practical level, the potential energy savings of green technologies may be lost where end-users lack understanding about the optimal operation of the technology.

SOLUTIONS:

Develop public outreach activities

- Create opportunities for cross-sector dialogue and debate within the community, including public forums and information sharing events;
- Dedicate a high-profile publicity campaign to stimulate public interest and awareness of the advantages of green buildings and the role members of the public can play in climate change mitigation;
- Publicise information on the costs of externalities, as there is a lack of understanding of the real cost of inefficient energy consumption; and
- Organise events to kick-start the low-carbon trend; e.g. a community summit or competition.

Design innovative communication tools

- Develop a simple standard enabling the public to track environmental performance. It should be comprehensible, with clear targets, and should be reviewed periodically;
- Design building energy efficiency information products, such as a checklist for carbon-neutral building that outlines available options and per unit benefits for every dollar spent;
- Highlight case studies of successful business models and methods, to inspire other planners, developers, architects, engineers and landlords;
- Develop a green GDP standard; and
- Develop green branding schemes to increase awareness and promote green technologies in buildings.

Education

- **Industry** Fund industry associations and training institutions to develop a range of courses (from degrees and diplomas to supplementary training) on energy efficiency and green building. These courses would be targeted at industry professionals and workers in the construction, property, and transportation sectors, and could be augmented by a green award scheme.
- **Policy-makers** Well-informed policy-makers and implementers, such as members of the Legislative Council (LegCo) and civil servants, are crucial to progress on a low-carbon economy. One suggestion from the workshop was to require civil servants who make decisions relating to environmental and energy-related matters, to undertake mandatory green tests and training.
- **General public** Initiatives suggested included a greater emphasis on green education in schools and a grassroots educational movement.

2.5 Lack of innovation

Hong Kong lacks a culture of innovation in green design and sustainability. There is a reluctance to take risks with new techniques and most buildings are constructed according to traditional development models and building practices.

SOLUTIONS:

Fund R&D from collaborative funding arrangements

Funds could be raised from the Government's budget surplus and by reinvesting carbon taxes, fees and fines, as well as by leveraging private sources (e.g. in 1998, HEC sponsored photo-voltaic scheme of HK\$1 million/year for three years).

Build on Hong Kong's financial sector strengths

Hong Kong may not be innovative in building design but it is innovative in financial arrangements. Hong Kong could be a leading world centre for low-carbon business (e.g. carbon trading).

Study international examples

Other jurisdictions are trialling retrofitting schemes and demand-side initiatives (e.g. Hydro-Ontario offers discounts on electricity bills for energy saving).

Develop pilot studies and demonstration sites

For a world city such as Hong Kong to have a sustainable-living demonstration site would create healthy competition, as well as collaboration, with other international sustainability projects, such as the Green Quarter in London, Masdar in Abu Dhabi, and Dongtan near Shanghai. The international attention that the site would attract would galvanise civic pride and motivate action. As well, such a demonstration would act as a focal point to draw together talented people and innovations, and attract a range of investments – private as well as Government subsidies, and R&D funding. Essential features of the demonstration site must include:

- A well-developed business case involving some of the large private players (developers and banks);
- Sufficient scale - not just a single building but a whole neighbourhood; and
- Agreement from the participants to a transparent analysis of cost and benefits.

PART 3 CONCLUSION

This workshop was successful in terms of bringing together a wide range of interested stakeholders for an initial exploration of impediments and solutions to building a low-carbon economy. There is substantial interconnection amongst the issues discussed; for example, greater public awareness and leadership from business can provide the necessary pressure for government to act, which in turn produces stronger policy and regulation. Policy and regulation can create incentive and drive the private sector to seek out innovation. Increased promotion of sustainable technologies in the commercial sector can provide considerable resources for raising awareness amongst the general public. The most recurring theme was the need for strong leadership from business and government to push forward effective policies and create the momentum and incentive for action to address greenhouse gas emissions and climate change throughout the whole of Hong Kong society.

PART 4 APPENDICES

Appendix 1 - Workshop Format

| Timing: | Topic: | Proposed speaker: |
|-------------|---|---|
| 1:45 – 2:00 | Registration and coffee and tea | |
| 2:00 – 3:00 | Welcome and Panel Presentations: Asia Overview Planning for Climate Change Energy Efficiency Buildings & Climate Change Report Q&A Session | Mark Clifford, Asia Bus. Council Stephane Asselin, EDAW Cary Chan, Swire Eddie Wu, CLP Peter Gorer, Civic Exchange Moderated by Christine Loh |
| 3:00 – 3:45 | Small Group Breakout Session 1 | What are the barriers to creating a low-carbon Hong Kong? |
| 3:45 – 4:15 | Group Presentation and Discussion (1) | |
| 4:15 – 4:30 | Small Group Breakout Sessions 2 | What are the solutions to the barriers and next steps (including further research) needed to progress a low-carbon future? |
| 4:30 – 5:15 | Group Presentation and Discussion (2) | |
| 5:15 – 6:00 | Closing Remarks | |

Appendix 2 - Summary of top 3 barriers and solutions from the small groups

THEME A - COSTS:

1. Lack of public awareness of cost of 'externalities'

- Information on externalities exists but is not being shared widely enough.
- Lack of transparent information regarding i) options; ii) costs; iii) benefits.

Solution: Design a media campaign to inform the public of the true cost of energy.

2. Externalities are not factored into energy price

- Energy looks cheap but environmental & social costs are not taken into account.
- No energy competition and no incentive for suppliers to provide green energy.

Solution: Consult stakeholders to determine how the costs are being externalised and how stakeholders could be encouraged to bear those costs equitably.

3. Lack of policy & regulation

- Regulation ensures everyone participates and absorbs equal costs.

Solutions:

- *Rewrite tenancy agreements to allow for reductions in costs.*
- *Install energy meters so everyone pays for energy used.*
- *Subsidies & incentives are needed to assist energy efficiency measures.*
- *Provide recognition & rewards to companies that meet energy standards.*

THEME B – CAPACITY:

1. Lack of incentives and accountability

Solution: Develop a climate action plan.

- *Hong Kong's financial structure is ideal for carbon trading.*
- *All publicly traded companies should join the Carbon Disclosure Project.*
- *Make low-carbon part of the ESH (Environmental, Safety and Health) policy of every publicly traded company.*

2. Lack of trained professionals

- *Building professionals are not aware of the solutions available to them.*

Solutions: Create green jobs in energy auditing and carbon markets and offer courses and training at universities and professional institutions.

3. Lack of public education

- *There is a lack of awareness on the part of end-users of how to use green technologies once they are installed. This means that any energy savings or gains made are potentially diminished.*

Solutions: Incorporate green education in every school curriculum. Distribute information on the necessity of proper use of energy efficient technologies.

THEME C – STANDARDS:

1. Current codes are inadequate

- *There are too many duplicating voluntary standards and no mandatory energy efficiency ones;*
- *There is no clear carbon reduction emission target.*

Solution: Develop buildings codes that address sustainability as well as safety and health. Review and change provisions of existing codes that result in a high carbon footprint.

2. There is a general ignorance of the benefits of better standards

- *Lack of general awareness extends to policy makers, architects, engineers, developers, and to the general public.*

Solution: Introduce a carbon fund over the life of a building to put a value on energy efficient measures. Give credits for buildings based on good or poor energy performance. Credits could be transferred from owner to owner and could be reflected in the resale value.

3. There is a reluctance to accept the costs and risks that better standards would produce

- *Developers refuse to follow the voluntary targets and focus entirely on financial gain.*

Solution: Set mandatory standards and an aggressive sustainability target that everyone must comply with.

THEME D – POLICY:

1. Lack of an effective, long-sighted energy policy

Solution: Develop a proper energy policy that:

- *Provides a reliable and secure supply of energy,*
- *Ensures affordable energy,*
- *Lowers overall emissions,*
- *Is socially just,*

- Maximises value of long-term benefits to society,
- Includes urban planning and its relationship to energy.

2. Lack of financial incentives or regulations to encourage and reinforce energy efficiency

Solution: Build on Hong Kong's financial strengths. Allow for a range of investment opportunities and develop subsidies, rebates and tax cuts for energy efficient measures.

3. No culture of green innovation in Hong Kong

- Maybe related to Hong Kong's size, space and geographical constraints – there is limited space to apply solar panels, wind farms, green zones, etc.

Solution: Fund innovation through research and development. Study international examples and establish a demonstration site as a focal point for innovation.

THEME E – LEADERSHIP:

1. Lack of leadership in government

- Government is one of the most important leadership agents, but so far its energy-saving campaigns have not been successful in stimulating public concern or action.

Solutions: Set compulsory minimum standards and rigorous carbon reduction targets and provide legislation for measuring improvements. Lead by example by adopting energy efficient measures in government buildings.

2. Lack of leadership in business

- Innovative ideas are often only implemented when developers are also owners and operators.
- Developers and buyers do not perceive any greater values in better buildings.
- Building management companies are reluctant to emerge as leaders.

Solutions: Architects and designers could take the lead in pushing green technologies and practices. There is a great opportunity for developers to utilise green branding.

3. Lack of public leadership

- Lack of public consensus is a barrier that needs to be resolved.

Solution: Educate citizens on how they can be involved in climate change mitigation measures. Provide media coverage to bring this issue to public discussion and organise public forums.

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Speakers:

| | |
|------------------|--|
| Mark Clifford | <i>Asian Business Council – Executive Director</i> |
| Stephane Asselin | <i>EDAW – Vice President & Asia Regional Director, Environment</i> |
| Cary Chan | <i>Swire Properties – Head of Technical Services</i> |
| Eddie Wu | <i>CLP Power – Energy Services Manager</i> |
| Peter Gorer | <i>Civic Exchange – Architect (AIA, RIBA, LEED AP)</i> |

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Facilitators & Note-takers: Christine Loh, Michele Weldon, Rita Leung, Andrew Lawson, Andrew Stevenson, Yanyan Yip, K.H. Fok, Veronica Galbraith, Kylie Uebergang, Tom Young, Ron Chan and Ryan Anderton.

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