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Local governance for climate change: Evidence from global cities and a case study of Hong Kong

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Abstract

Cities have increasingly become the focal point for policy makers to launch climate change initiatives. However, how cities respond to climate change challenges and through what mechanisms have remained largely unexplored. This paper employs a framework of local governance for examining and explaining the local capacity in response to global climate change.

By reviewing a selection of 16 climate change initiatives in cities and a detailed case study of Hong Kong, this paper has two findings. First, the elements of good governance such as equity, legitimacy, deliberation and partnership are associated with effective climate change initiatives. Second, by comparing and contrasting the experience in other cities and Hong Kong, our case study of Hong Kong provides insights on the barriers that could limit a city's ability to adapt to new forms of governance that would better respond to climate change challenges. This paper concludes by exploring potential role of local governance as a model to strengthen climate change initiatives at the city level.

Key words: local governance, city climate initiatives, global cities, Hong Kong, institutional capacity

INTRODUCTION

For the past two decades particularly following the signing of the Kyoto Protocol in 1997, governments in developed and developing economies have been increasingly active in formulating policy initiatives on climate change. A recent trend of these policy initiatives is the downward shifting of policy attention from the international and national levels to cities. Cities, which includes all urban areas, from “mega-cities” to smaller-scale urban settlements (IEA, 2008), have increasingly become the focal point for climate change policies for many reasons. Cities are the main contributors to and victims of global climate change. On the one hand, cities currently use over two-thirds of the world’s energy and account for more than 70 per cent of global CO₂ emissions (IEA, 2008). On the other hand, due to their high population density, their often coastal location and their dependence on imports, cities generally are particularly vulnerable to the climate change impacts such as heatwaves and flooding (Bulkeley *et al.*, 2009; Corfee-Morlot *et al.*, 2009).

Cities also appear to be the place where many innovative solutions for global climate change have emerged. Worldwide, cities have collaborated, formed partnership or used innovative financing mechanisms to achieve low-carbon development goals (Bulkeley *et al.*, 2009). Some initiatives such as the London Climate Change Partnership and New York’s NYC°Cool Roofs programme (City of New York, 2010; LCCP, 2010) are good examples of how cities deploy new ways to engage with a broader range of stakeholders rather than relying on conventional command-and-control measures. Some city governments also showed local leadership which even led their nations in responding to climate change challenges. Cities such as London have set greenhouse gas (GHG) emission reduction targets that are more ambitious than those set by the national government (Mayor of London, 2010; Lawson *et al.*, 2010).

However, how cities respond to climate change challenges and through what mechanisms have remained largely unexplored. Important questions that need to be answered include: why do some cities appear to be more successful in fighting climate change and some appear to be lagged behind? What are the factors that may enhance or constrain a city’s ability to address climate change problems, and how? These issues are especially under-explored in the Asian context, with a few exceptions such as the work by Qi *et al.* (2008).

The objective of this paper is to tackle these knowledge gaps from the perspective of local governance for climate change with particular reference to the city level. This paper adopts a local governance approach for developing a framework. The framework is used to guide us to analyse and understand how and why cities deal with climate change problems in the ways observed.

Our empirical analysis consists two integral parts: a review of a selection of 16 climate change initiatives in a number of cities in developed economies, and a detailed case study of Hong Kong’s initiatives on climate change. The review of the initiatives has two objectives. First is to illustrate the usefulness of our framework. Second is to identify the mechanisms of an emerging local governance approach for managing climate change problems. By comparing and contrasting the experience in other cities and Hong Kong, the detailed case study of Hong Kong is to critically

examine the factors that may constrain this city from moving towards new forms of governance which would be more conducive to the development of effective climate change policies.

The 16 city initiatives are selected for a number of reasons. This review covers cities in developed economies but not developing economies. Developed economies deserve attention because developed economies have access to technical and financial resources and therefore provide a better enabling environment for policy innovation (Gagnon-Lebrun and Agrawala, 2006). On the other hand, the literature on cities in developing economies is relatively limited except the works by for example Northrop (2004) and therefore limiting the opportunity of this study to extend our coverage to initiatives in developing economies. These initiatives are selected also because they represent a variety of policy initiatives (from regulation to market-based instruments and to community partnership) with different outcomes (including emission reduction, stimulating behavioural changes such as reducing consumption on water, and public engagement).

Hong Kong merits a detailed case study for a number of reasons. Hong Kong is a major global city. Hong Kong is one of the major international financial centres and has one of the highest GDP per capita values in Asia and in the world (Oxfam, 2010). Our analysis on Hong Kong can contribute to the understanding of how global cities respond to climate change challenges. Hong Kong also merits scholarly attention in the broader Chinese context. The central government in Beijing has given Hong Kong a role to pioneer low-carbon economies as a demonstration for other cities (The Climate Group, 2010). China has a central role to play in global climate change impacts and responses. It has been projected that China would be responsible for three-quarters of energy-related CO₂ emissions by 2030 (IEA, 2009). In consideration of Hong Kong's potential role as a role model for cities in this important country, the experience of Hong Kong therefore can be instructive to enrich our understanding of the role of cities in responding to the challenge of climate change in the Chinese context.

When compared with other research methods such as conducting quantitative surveys, the case-study approach adopted to analyse Hong Kong experience has the strengths in collecting rich qualitative data. Such data would be useful for explaining the complexity, critical interactional processes, and important mechanisms of policy developments for climate change in Hong Kong (Miles and Huberman, 1994). The data presented in this paper is derived from a desktop review of published works from academic sources, government documents, reports and newspapers.

This paper is organised into four sections. Following the introduction is a section that outlines the analytical framework. The usefulness of the framework will be illustrated by a review of 16 climate change initiatives in cities in developed economies. This is followed by a detailed case study of Hong Kong. This paper concludes by providing some policy recommendations for the Hong Kong government.

CLIMATE CHANGE AND LOCAL GOVERNANCE

(a) Local governance as an analytical framework

Research on local climate change policies started in the early 1990s (Kern and Alber, 2008). Since then, a growing body of literature has emerged reporting the important role of cities on climate change (see for example Bulkeley *et al.*, 2009; Burch, 2010). This paper adopts a local governance perspective for analysis. Local governance has its roots in the governance perspective. Since the mid-1990s, there has been a recognition of the limits of the ability of government to govern (Kettl, 2000). Governance emphasises moving away from government to governance, and the need for the government to reach out to localities (Kern and Alber, 2008), and move out to civil society and markets (Pierre and Peter, 2000) to enhance governing capacity.

Central to the debate on local governance are the strengths and weaknesses of a local governing system that is more bottom-up and is one that emphasises horizontal relationships when compared with a national top-down one. A key concept of local governance is the subsidiarity principle, i.e. that issues should be handled at the smallest competent level of government (Keirstead and Schulz, 2010). Local governance therefore challenges the conventional approach of policy-making and contends that policy intervention at local levels rather than national or international levels may be more appropriate (Keirstead and Schulz, 2010).

Local governance is a particularly relevant perspective in the context of climate change for several reasons. First, Local Agenda 21, as a concept as well as a strategy, underscores the role of local authorities as a key actor for implementing sustainable development (Freeman *et al.*, 1996). Second, the urgency, complexity and enormity of the climate issues have highlighted the need to explore new forms of governance, including local governance, to enhance the governing capacity for the traditional, hierarchical forms of governments (Corfee-Morlot *et al.*, 2009; IFRC, 2004; IPCC, 2007; Greater London Authority, 2007; Kern and Alber, 2008).

What, then, can local governance offer? When compared with national governments, sub-national regions have the strengths of being closer to concrete problems, possessing better knowledge and trust which are the basis for effectively managing sustainability problems (Schienstock, 2005). The literature also suggests that local governance offers benefits in terms of policy diversity, flexibility and accountability (Ansell and Gash, 2008). In the context of climate change, local governments are motivated to formulate policies which are independent of national policies for a number of reasons, including the aspiration for creating green jobs and experimentation of innovative initiatives (Vogel *et al.*, 2005; Rabe, 2004).

Local governance however also has drawbacks. Benefits such as uniformity that could be offered at the national level may need to be compromised (Keirstead and Schulz, 2010). Furthermore, localities often do not possess all the required resources and capabilities such as human resources and market demand for the progress of sustainable technology (Schienstock, 2005). Barriers to effective local governance are also numerous. Tensions in central-local relations, the problems of coordination, the lack of clear objectives to build up consensus, the lack of institutional capacity to resolve conflicting interest are the key barriers (Clark, 2006; Hooghe and Marks,

2003).

How then can local governance makes a difference? Based on Painter and Pierre’s (2005) framework for governing capacity, this paper develop a conceptual framework for local governance to guide our investigation (Table 1). This framework consists three interrelated building blocks, values of good governance, governing strategies, and governing capacity.

Table 1: A conceptual framework for local governance

Values	Strategies	Outcomes
Equity Legitimacy Efficiency Trust Coherence Decisiveness Accountability	Participation Deliberation Partnership Policy integration	Governing capacity to mitigate and adapt to climate change impacts

Values are perceived as the beliefs or principles of good governance (Shah, 2006). Equity, transparency, legitimacy, coherence, legitimacy, accountability, decisiveness, consent and efficiency are some of the key values of governance identified in the literature (Hetherington, 1998; Painter, 2005).

In contrast to the conventional top-down approaches for governing, more innovative governing strategies such as participation, deliberation, partnership and policy integration have received growing attention from scholars and policy-makers as important ways to enhance governing capacity. Public participation may include information provision, involvement or other processes that encourage greater breadth in decision-making (Petts, 2001). Deliberation, on the other hand, is more concerned with depth in decision-making (Holmes and Scoones, 2000). The primary role of deliberation is to stimulate wider civil engagement as a means of restoring trust in the decision-making process (Bloomfield *et al.*, 2001). Partnership is a process in which diverse stakeholders, including public, private, and societal stakeholders, come together, offer individual inputs and resolve societal issues collectively (Koontz *et al.*, 2004). Policy integration is a policy process in which interests, which are often in conflict, are aligned to formulate and implement mutually reinforcing policies (Jones, 2002).

The existing literature has provided some insights about the perspective of local governance on climate change (Bulkeley *et al.*, 2009; Burch and Robinson, 2007; Corfee-Morlot *et al.*, 2009). However, the literature tends to be more descriptive and does not provide many insights into what governing mechanisms can facilitate the efficacy of climate change initiatives. To partially fill this gap, we will address the following questions: Is a shift from government to governance happening in climate change initiatives in contemporary cities? What are the critical elements of such new form of governance? What are the factors that facilitate or constrain cities in

deploying these new forms of governance?

(b) Empirical evidence of local governance for climate change: a review of 16 city initiatives

This section of our paper reviews a selection of 16 local climate change initiatives introduced by city governments in developed economies. This review aims to explore the possible application of our conceptual framework to empirical practice. Specifically it examines whether local climate change initiatives at city-level embrace the key elements of values and governing strategies of good local governance as suggested by our framework. Our analysis on these 16 local policy initiatives on climate change are summarised in Table 2.

Table 2: A review of 16 climate change initiatives in cities in developed economies

	Cities	Climate Initiatives (CI)	Illustrations	Relevance to Governance Framework
1.	New York, USA	PlaNYC	Under the high-level direction of Mayor Bloomberg, New York formulated PlaNYC in 2007. The PlaNYC laid out a long-term vision and has set clear objectives and goals in the areas of climate change and sustainability for New York (City of New York, 2010).	Values: decisiveness, coherence Strategies: policy integration
2.	Los Angeles, USA	Green LA	The mayor formulated the Green LA as an action plan in 2007 to lead the nation in fighting global warming (City of Los Angeles, 2007).	Values: decisiveness, coherence Strategies: policy integration
3.	Phoenix, USA	A virtual reality “decision-theatre”	A virtual reality “decision-theatre” was pioneered in Phoenix to support stakeholder engagement and evidence-based decision-making (Dawson, 2007).	Values: legitimacy, equity, consent Strategies: participation; deliberation
4.	Canada	Green municipal fund	The <i>Federation of Canadian Municipalities’ (FCM) Green Municipal Fund (GMF)</i> is a long-term, source of grants and below-market loans for municipal governments and their partners. The Government of Canada endowed FCM with CAD 550 million to establish GMF to support municipal initiatives across Canada that benefits the environment, local economies and quality of life (Jollands <i>et al.</i> , 2009).	Values: trust Strategies: partnership
5.	Espaces Info Energie, France	Provision of free and independent technical advice	The <i>Espaces Info Energie</i> offer independent and free energy efficiency advice to individuals and small companies. It promotes information dissemination on energy efficiency (Jollands <i>et al.</i> , 2009).	Values: trust, transparency Strategies: partnership
6.	Austin, USA	Reinforcing policies for water saving	Austin uses a combination of rebates, education and regulation to reduce water usage (C40, 2009).	Values: coherence Strategies: policy integration
7.	New York, USA	New York City Panel on Climate Change (NPCC)	The NPCC was convened by Mayor Michael Bloomberg and was launched in 2008. The NPCC is a panel of experts in climate science, social sciences, economics, risk management and law. It is to advise on issues related to climate change and adaptation, and is funded through a grant from the Rockefeller Foundation. The NPCC has prepared a set of climate change projections for New York City, examined how climate change has the potential to affect the city, and offered suggestions on approaches to create an effective adaptation program (City of New York, 2010).	Values: equity, legitimacy, decisiveness Strategies: participation, deliberation
8.	London, UK	London Climate Change Partnership	<i>London Climate Change Partnership</i> is a platform that allows stakeholders to work together in preparing London for climate change impacts. Being coordinated by the Greater London Authority, it comprises over 30 organisations with representation from climate scientists, government, environment, developers, finance and health sectors. This Partnership aims to help London understand and prepare for climate change impacts. It assists in the development of London’s climate change adaptation strategy and other policies. It also responds to key consultation undertaken by the government. It helps stakeholders in London to be aware of	Values: equity, trust, legitimacy Strategies: partnership, deliberation

			climate change impacts and help them develop appropriate adaptation measures (LCCP, 2010).	
9.	New York, USA	NYC°Cool Roofs programme	In 2009, Mayor Michael Bloomberg and former Vice President Al Gore launched <i>NYC°Cool Roofs programme</i> . This initiative mobilises volunteers to coat New York City's existing roofs which are typically dark in color with reflective white coatings. Nearly 250 volunteers came together in 2009 to coat 100,000 square feet of roofs in Long Island city. Participating buildings include businesses and government departments (City of New York, 2010).	Values: efficiency, trust Strategies: partnership
10.	Australia	Transnational municipal networks	Transnational municipal networks such as ICLEI CCP or the Climate Alliance have provided opportunities for municipalities to lead – for example, to be the first to complete a particular performance measure, or to develop particular projects – and have also developed means of recognizing and rewarding leadership – including the Climate Alliance Climate Star award and CCP Australia's 'outstanding council initiative' award (Bulkeley <i>et al.</i> , 2009).	Values: decisiveness Strategies: partnership
11.	Newcastle, Australia	ClimateCam	ClimateCam was created by Newcastle City Council in 2001. ClimateCam is the world's first GHG speedometer, and it measures the greenhouse gas emissions in the Newcastle local government area. Consumption data and the equivalent greenhouse emissions from electricity are updated hourly and reported online at ClimateCam.com and on the ClimateCam Billboard (Bulkeley <i>et al.</i> , 2009).	Values: transparency Strategies: participation
12.	Philadelphia, USA	Philadelphia's Heatwave Preparedness Plan	The US city Philadelphia estimated that it saved 117 people during heatwaves from 1995 to 1998 through a Hot Weather Health Watch Warning System. The System comprises a number of integral elements including: using mass media to encourage friends and neighbors to visit elderly people daily; activating a telephone hotline to provide information and counseling, organizing visits by health authorities to people requiring attention; informing care homes of a high-risk heat situation; increasing fire department and hospital emergency staffing; and implementing daytime outreach services to homeless people (IFRC, 2004).	Values: trust, transparency Strategies: partnership
13.	Seoul, Korea	Competence in using economic instruments	Congestion fees was introduced in Seoul and resulted in a 10-20 per cent CO ₂ emissions reductions (Jollands, 2008).	Values: coherence Strategies: policy integration
14.	Oslo, Norway; Vaxjo, Sweden	Government procurement	The use of public procurement to create markets for LEDs. LEDs are used for traffic signals and public lighting, and resulted in a reduction of 50-70 per cent of street lighting CO ₂ emissions (Jollands, 2008).	Values: coherence Strategies: policy integration
15.	Tokyo, Japan	Competence in using regulation and reinforcing policies	A city mandate/ordinance requiring that all households meet certain building standards when they are sold, transferred or renovated. This ordinance has reduced residential energy consumption by over 13 per cent, annually reduced CO ₂ emissions by over 5,000 tons and allowed households to save up to US\$ 450 on their energy bills (C40, 2010).	Values: coherence Strategies: policy integration
16.	New York, USA	Regulation	New York City has updated building code that requires cool roofs, that is rooftops with a reflective white coating, for all new construction and re-roofing (City of New York, 2010).	Values: Coherence Strategies: Policy integration

Our review suggests that these initiatives are underpinned by certain key elements of good governance. Key values of good governance such as equity, legitimacy, trust, coherence, and transparency as well as governing strategies, particularly participation, deliberation, partnership, and policy integration, are found to be a key. These trends are reflected in:

- City governments enhance equity across stakeholders through participatory decision-making processes. The New York City Panel on Climate Change and London Climate Change Partnership (CI No.7 and 8) are good example to illustrate this observation. It is important to note that equity is enhanced in these partnerships in which local community, experts, governments and other stakeholders are regarded as equal partners in the decision-making processes. These participatory decision-making processes also tend to be more deliberative, and seems to be a key to restore trust and enhance policy legitimacy. These processes are also critical to facilitate science-based decision-making;
- City governments appear to be able to achieve policy coherence under decisive leadership. Mayors in New York, Los Angeles and Tokyo (CI No. 1, 2 and 15) for example have shown leadership in formulating visions, developing plans, and formulate strategies to achieve their policy objectives relating to climate change. It is noticeable that some city governments appeared to be particularly competent in translating their visions into implementation through deploying a portfolio of policy instruments which are reinforcing to achieve the stated policy objectives (CI No. 13-16). Their competence in introducing more radical policy changes such as congestion fee and through legislation appears to be a key to policy effectiveness (CI No. 13, 15, 16);
- Some cities appeared to give much attention to establishing partnerships with wider society as a means of achieving policy objectives more effectively and efficiently. The NYC°Cool Roofs programme and London Climate Change Partnership (CI No. 8 and 9) are good examples illustrating how city governments can effectively mobilised resources from non-state sectors local communities and business through partnership;
- Information and transparency are a core element in climate change initiatives in some cities. Transparency in emission data and information about potential risks and impacts of climate change are particularly important. Newcastle in Australia (CI No. 11) for example has established ClimateCam – an on-line system to provide hourly electricity consumption and GHG emissions data. The ClimateCam is a good example illustrating how data transparency is a good policy tool to mobilise public participation. The Heatwave Preparedness Plan in Philadelphia (CI No. 12) on the other hand is an example illustrating how emergency preparedness plans can save lives from climate change impacts through effective information dissemination and communication.

These experiences suggest that those cities have adopted forms of governance that embrace elements of good governance to manage climate change problems. Generally, these forms of governance adopted by those city governments appear to be more inclusive rather than relying on government alone. Such forms of governance are also distinguished by the presence of a more participatory structure that places more emphasis on horizontal relationships between governments, business and civil society.

While measuring the outcomes of those 16 city initiatives is certainly important, a detailed analysis of those outcomes is not provided in this paper. Such an analysis would warrant another study. However, some observations suggest that these forms of governance emerged from those city initiatives appear to be more conducive to effective climate change policies in some important aspects. Those forms of governance appear to be conducive to meeting emission reduction goal, strengthening regulatory and policy framework as well as saving lives. For instance, a review of the PlaNYC in New York – which was launched in 2007 and has been distinguished by its emphasis on a participatory approach - acknowledges that the PlaNYC has enacted a comprehensive legislation on green buildings, brought a declining per capita electricity use and a reduction in greenhouse gas emissions (Bloomberg, 2010). Another example is the Philadelphia's Heatwave Preparedness Plan. It was estimated that the Plan saved 117 people between 1995 and 1998 through a partnership between mass media, local government and local community (IFRC, 2004).

THE CHALLENGES OF LOCAL GOVERNANCE FOR CLIMATE CHANGE: A CASE STUDY OF HONG KONG

In contrast to the cities that were reviewed in the preceding sections, Hong Kong may not experience major changes in its form of governance for climate change. However, the reasons why some cities are less capable of adapting their forms of governance in response to climate change challenges must also be understood. By contrasting the practices in cities in other countries, this detailed case study of Hong Kong may contribute to a better understanding of the factors that may limit a city's ability to adapt its forms of governance.

(a) Climate change in Hong Kong: the impacts and policy challenges

Hong Kong is located on the southeast coast of China, adjoining Guangdong Province. It has a population of 7 million (2009) and a geographical area of 1,104 square kilometers (CSD, 2010). As a major international financial center, Hong Kong's economy is driven by the service sector with its manufacturing base relocated to the adjoining Pearl River Delta Region in Guangdong in the 1980s (Enright *et al.*, 2005).

A key feature of environmental governance in Hong Kong has been the emergence of a regional dimension. It has been widely acknowledged that many environmental problems including air and water pollution in Hong Kong are regional in nature, and many of the environmental solutions as well as the future economic development of this city are to be found in better cooperation with Guangdong province (Enright *et al.*, 2005).

Climate change has elevated in the policy agenda in Hong Kong in recent years amidst a growing public concern on this global issue which has local impacts. Climate

change has been on the policy agenda in the Policy Address in recent years (Tsang, 2009, 2010, 2011) According to a global survey conducted by HSBC in 2010, climate change tops the list of Hong Kong people's concerns even ahead of economic stability (HSBC, 2010). Another major public concern is the unsustainability of the current electricity system which is based on fossil fuels. At present, about 54 per cent of electricity generated in Hong Kong is from burning coal while about 23 per cent from burning natural gas and about 23 per cent from nuclear power imported from Guangdong Province in China (2009) (Environment Bureau, 2010b). GHG emissions in Hong Kong increased by 19 per cent from 39.2 millions tonnes in 1990 to 46.7 million tonnes in 2005 (EPD, 2010) as the city's energy consumption grew by an average of 1.3 per cent annually between 1995 and 2005 (Yau, 2008). Hong Kong emitted about 42 million tonnes of CO₂ in 2008, which is equivalent to about 6 tonnes per capita (Environment Bureau, 2010b).

Climate change is a major policy issue in Hong Kong to a large extent because the city is vulnerable to its impacts. This coastal and urbanised city is highly dependent on imports. For example about 70 per cent of Hong Kong's water supply comes from Dongjiang water in the Mainland (LegCo, 2010). A growing number of studies have found that Hong Kong is vulnerable to climate impacts such as flooding, heat waves and regional and global fluctuations in food and water supplies (Ginn *et al.*, 2010; Lee *et al.*, 2010), and the costs are too considerable for policy-makers to overlook (Fung, 2004; Yip *et al.*, 2007). For instance, a government study has estimated that for 1°C increase in temperature, the electricity consumption by Hong Kong households would increase by about 9 per cent, and the economic costs caused by using more electricity would amount to HK\$1.7 billion (Fung, 2004).

(b) Climate change initiatives in Hong Kong: an overview and assessment

Hong Kong has not formulated an explicit climate change policy. A major initiative is the recent release of a consultation paper on the city's first climate change strategy in September 2010 (Environment Bureau, 2010b). The government proposes to reduce carbon intensity by 50-60 per cent below the 2005 level by 2020 – a target that is in line with, but slightly more ambitious than, the Chinese central government's target which is set at 45 per cent (Environment Bureau, 2010b). However, the government's proposal to increase the use of nuclear power from the present 23 per cent to 50 per cent by 2020 as a key strategy to meet the target (Environment Bureau, 2010b) has drawn immense criticism from local green groups. Local green groups have lobbied for more aggressive policies for energy saving and energy efficiency as an alternative (Greenpeace, 2010; Legco, 2011). Recent public opinion surveys conducted indicate that Hong Kong people's opposition to nuclear power has risen after the Fukushima incident that took place in Japan in March 2011 (Mah *et al.*, 2011).

Although Hong Kong has yet to formulate a climate change policy, a number of energy initiatives introduced over the years have the potential to reduce GHG emissions. Those initiatives cover quite a broad range of areas including energy efficiency, using more natural gas and renewable energy, landfill gas utilisation, greening, public awareness promotion and education (EPD, 2008). A comprehensive review of these initiatives is available elsewhere (see for example EPD, 2008). But several weaknesses of those initiatives are important to note.

To many local environmental NGOs, academics and professionals, Hong Kong has not developed an effective approach to climate change mitigation and adaptation. Progresses in some key areas have been unsatisfactory. The Energy Efficiency Registration Scheme for Buildings, a voluntary programme initiated by the Electrical and Mechanical Services Department, is a good example illustrating how limited such achievements are. In more than 10 years between 1998 and 2010, the scheme issued registration certificates for only 1,145 building venues which represent a small proportion of the 40,000 existing buildings in Hong Kong (EMSD, 2010).

Road congestion charges on the other hand illustrate how current approaches have failed to make policy decision decisively. Whether Hong Kong should introduce a congestion charging system as a measure for sustainable transport management has been debated since the 1980s. However, while similar systems have already been introduced in a number of cities including Singapore, London, Stockholm, Singapore and Milan and Seoul (Jollands, 2008), this option is still under debate in Hong Kong.

(c) Barriers to effective local governance in Hong Kong

Our case study identifies four barriers that appear to limit Hong Kong's ability to respond to climate change challenges. The barriers are the tension between central and local relations, the incompatibility of a traditional policy style and a new form of governance, the lack of institutional capacity and the lack of empowering ability.

The tensions between central and local relations

The developments of climate change initiatives worldwide have indicated that there exist complex national-local dynamics. Cities vary in their relations with their national governments in relation to climate change responses. While some are green leaders, some are followers. Cities such as New York, London, Tokyo, Los Angeles, San Francisco, and Melbourne have declared their commitment to leading the nation in fighting global warming (City of Los Angeles, 2007; Lawson *et al.*, 2010).

In Hong Kong, the central-local relations with the central government in Beijing is governed by the "one-country-two system" framework that influences all major policy developments (Conney, 1997), and climate change initiatives are no exception. Although Hong Kong can enjoy a relatively high degree of autonomy in executive, legislative, and judicial matters under the authority of China's central government (Conney, 1997), there has been a growing public concern that Hong Kong's autonomy has diminished. One example to illustrate this observation is the proposed enactment of the Hong Kong Basic Law Article 23, which is an anti-subversion law, that aroused a massive demonstration in Hong Kong in 2003 (Petersen, 2005).

It is in this central-local context that Hong Kong government's decision to follow China's commitment and adopt the carbon intensity target (which is an efficiency target) rather than a GHG emission reduction target (that sets an absolute reduction amount) has provoked public concern. In contrast to those cities who lead their nations, the Hong Kong government appears to be a passive follower of the central government's climate change initiative. The Hong Kong target of a 50-60 per cent reduction in carbon intensity by 2020 (ISD, 2010) is only slightly more ambitious

than the Beijing target (Environment Bureau, 2010b). Carbon intensity targets generally are easier to achieve than GHG reduction targets. As such, carbon intensity targets are more applicable to developing countries which require more flexibility in environmental targets for future development. As a developed city that has been relying on a service economy with few energy-intensive industries (Yau, 2008), Hong Kong's target has aroused criticism on the ground that the target cannot effectively benchmark a developed city's performance in combating global climate change.

The incompatibility of a traditional policy style and a new form of governance

Our review of the literature (see for example Jollands, 2008) and the city initiatives show that the use of a portfolio of policy instruments that include command-and-control measures (such as setting emissions limits), voluntary measures (such as education) as well as economic means and market-based instruments (such as provision of subsidies, congestion fees and emission trading) is a key element of effective climate change policy initiatives. It is noteworthy that economic and market-based instruments are particularly important in the context of climate change problems. The negative impacts of global climate change have been regarded as a consequence of the greatest example of market failure the world has seen (Garnaut, 2008; Stern, 2008). The correction of this market failure therefore is the central task of climate change policy worldwide (Garnaut, 2008). The use of economic and market-based instruments however pose new governing challenges to Hong Kong because of its policy style.

A major weakness of the policy style in Hong Kong is its failures in recognising the important role of governments in rectifying market failures of climate change problems. The "positive non-interventionalism" principle and the over-reliance on economic rationality (Lo, 2008) have constrained the government's ability to broaden its policy instruments to economic and market-based measures to deal with climate change problems more effectively. The "positive non-interventionalism" principle of Hong Kong capitalism that has underpinned the policy-making system (Yu, 2002) is based on a philosophy of laissez-faire. Economic measures have often been regarded as excessive government intervention. As a result, the current approach tends to rely on conventional command-and-control measures (such as emission standards) and voluntary measures to manage climate risks (EPD, 2008). The political feasibility of economic instruments such as a congestion charge, though it may have been proved effective in other cities, tends to be lower in Hong Kong. As noted in earlier sections, the idea of introducing congestion charging system has been discussed for almost two decades but has yet to be implemented in this city.

The lack of institutional capacity

Our review of initiatives in other cities suggests that leadership, visioning, and the ability to develop strategies, formulate well-coordinated policies, mobilise resources and implement policy programs are all key components of effective climate change initiatives. The establishment of the New York City Panel on Climate Change (CI No.7) is a good example of a city's attempt to build up its institutional capacity for tackling climate change problems under strong local leadership.

However, institutional inertia within the Hong Kong government appears to be a major constraint that has limited the government's institutional capacity. A major barrier to overcoming institutional inertia in Hong Kong is the lack of high-level direction in combating climate change.

The responsibility to address climate change issues in the Hong Kong government resides mainly with the Environment Bureau. Under the lead of the Environment Bureau, the Inter-departmental Working Group on Climate Change is tasked to co-ordinate and promote actions across the five bureaux and 16 departments to address climate change which span from the Development Bureau to the Hong Kong Observatory and to the Home Affairs Department (Environment Bureau, 2010b). However, the Environment Bureau appears to lack the institutional capacity to steer policy coordination across departments.

The negative outcomes of this situation are obvious. Policy initiatives on mitigating climate change impacts have been poorly coordinated, and on some occasions have even worked against each other. This can be illustrated by the introduction of government electricity bill subsidies in 2008. The government offered a HK\$3,600 electricity subsidy in the third quarter in 2008 for each domestic electricity user account (HK Govt, 2008). Although the subsidy may be well intended as an attempt to ease inflation-induced financial burden on the general public, local environmental groups criticised that the subsidy was an economic incentive promoting electricity consumption rather than energy saving. It is reported that in the three months from September to November 2008, electricity consumption by domestic households in Hong Kong recorded an 18 per cent increase over the same period in 2007. The electricity consumption increase meant an increase of GHG emissions of 450,000 tonnes. Although the government pointed out electricity consumption may be affected by other factors such as warm weather, it has been criticized by local green groups for considering that subsidy in isolation, overlooking an unintended policy implication of this subsidy for energy saving (Cheung, 2009).

A lack of empowering and engaging capacity

A noticeable trend emerging from international experiences is the city government's active role in engaging the civil society. The New York City Panel on Climate Change and the London Climate Change Partnership (CI No.7 and 8) are good examples illustrating how city governments can proactively establish platforms to engage experts, developers, community groups and the wider society in formulating vision, targets and strategies for climate change. The New York's NYC°Cool Roofs programme is another good example illustrating the importance of city government leadership and creativity in developing low-tech, low-cost but effective community programmes to reduce GHG emissions. The programme mobilised volunteers to coat New York City's dark roofs with reflective white coatings, and has achieved substantial emissions reductions (City of New York, 2010).

Effective public engagement requires two-way communication between governments and other stakeholders, collaboration and partnership for problem solving, and empowering the public to influence final decision-making (IAP2, 2007). Our review of the city initiatives has also highlighted the importance of empowerment. The provision of local funds, the use of the virtual reality "decision-theatre", the provision of free technical advice and the establishment of greenhouse gas emissions

monitoring systems that are publicly accessible are among the many examples of how other city governments empower their communities (CI No. 3, 4, 5, 11).

In contrast, Hong Kong government appears to lack this empowering capacity. There is minimal, if any, evidence suggesting that the government has taken a proactive role in empowering local groups on climate initiatives. Although there is an emerging trend of bottom-up initiatives on climate change in Hong Kong, with the Combat Climate Change Coalition formed by 15 local environmental and community groups including Oxfam (Hong Kong) in 2009 as one of the examples (Oxfam, 2009), such initiatives are limited in number and scale, and have not converged to create a strong force for change.

There is also an absence of effective channels for the public to offer their ideas on climate change mitigation and adaptation solutions. An example to illustrate this observation is a recent survey conducted by Oxfam (Hong Kong) which found that about 80 per cent of Hong Kong people were not aware the government was conducting a consultancy study on climate change policies (Oxfam, 2010) – in which stakeholder engagement was intended to be a key component of the consultation process (Environment Bureau, 2010a). This survey finding suggests that the consultancy study is a missed opportunity to engage the public in an early stage in formulating Hong Kong's climate change strategy.

CONCLUSION AND POLICY IMPLICATIONS

This paper adopted a local governance framework for examining and understanding local initiatives on responding to climate change challenges. The usefulness of the framework has been illustrated with a review of 16 climate initiatives in selected cities. The framework also guided us to provide a critical examination of the case study of Hong Kong.

This paper has two major findings. First, our review of the 16 climate initiatives in selected cities has demonstrated that local governments at city level have an important role to play in climate change policies by embracing some key values and strategies of good governance. This finding complemented the literature on local governance by shedding light on the mechanisms of local governance that appear to be more conducive to effective climate change policies. We have highlighted the value and strategy dimensions of the mechanisms. Our review found that those initiatives have addressed the key values of good governance such as equity, legitimacy, trust and coherence. In addition, these initiatives are based upon innovative strategies including partnership, deliberation, partnership and policy integration. It is evident that values of good governance and the use of innovative strategies are the key building blocks for local governance which are more likely to enhance governing capacity for climate change.

Another key finding is that while a local governance perspective appears to offer the prospect of a more vigorous response to climate change issues, there are barriers that may limit a city's ability to deploy new governing strategies. Our analysis from the case study of Hong Kong reinforced the literature that central-local tensions, the lack of institutional capacity as major barriers for effective local governance (Clark, 2006; Hooghe and Marks, 2003). Our analysis also complements the literature by shedding

light on how the incompatibility of a transitional policy style and a lack of empowering and engaging capacity are major barriers that constrain the transition from a conventional form of governance to new forms of governance which are more conducive to effective climate initiatives.

The local governance perspective has important implications for climate policy making in the Hong Kong government. By comparing experiences in Hong Kong and other cities, the findings can inspire policy-makers and other stakeholders in Hong Kong to explore alternative and more innovative approaches to responding climate change problems. Opportunities are there for the Hong Kong government to formulate more effective climate change initiatives that should be underpinned by the identified key values of good governance, in particular justice, trust and legitimacy. Those initiatives should also be supported by an intelligent use of governing strategies, in particular public participation, deliberation, partnership and policy integration. Empowering the wider society, and shifting the role of the government from a top-down one to a more inclusive and facilitating approach appears to be the two most critical processes that the Hong Kong government needs to pay attention to. The NYC°Cool Roofs programme in New York which mobilised local communities and the London Climate Change Partnership in which a city government created a platform that facilitated stakeholders to work together are among the many good practices elsewhere that could inspire the policy-makers in Hong Kong.

A major limitation of this paper is the generalisability of the findings. Since our empirical findings are derived in the context of developed cities, these findings have limited generalisability to cities in developing economies. Furthermore, this paper has focused on identifying the critical building blocks and barriers of governing cities to address climate change problems. Future research could examine the processes that are critical to enhancing governing capacity in cities to respond to climate risks. It would be particularly fruitful to explore how city governments should assume new roles in new forms of governance, partnership processes, and deliberative policy-making processes.

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