

# 立法會 *Legislative Council*

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## **Panel on Environmental Affairs**

**Meeting on 23 May 2016**

### **Background brief on combating climate change prepared by the Legislative Council Secretariat**

#### **Purpose**

This paper provides background information on combating climate change in Hong Kong. It also gives a brief account of the major views and concerns expressed by Members when related issues were discussed by the relevant committees of the Legislative Council ("LegCo") in the 2012-2013 to 2015-2016 legislative sessions.

#### **Background**

##### Climate change

2. Climate change refers to the change in climate as a result of human activities that cause a change in the atmosphere's composition, in addition to natural climate variability. Human activities cause an increase in ambient concentration of greenhouse gases ("GHGs"), mainly through burning of fossil fuels. GHGs act like a blanket in the atmosphere, trapping heat on Earth and keeping the planet warm.<sup>1</sup> The human-induced increase in GHGs has enhanced the greenhouse effect and caused the climate system to warm (a phenomenon commonly called global warming). This general rise in temperature in turn leads

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<sup>1</sup> GHGs are gases in the atmosphere that absorb and trap heat. The United Nations Framework Convention on Climate Change requires national reporting on six key GHGs: carbon dioxide ("CO<sub>2</sub>"), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride. CO<sub>2</sub> is the most common GHG emitted by human activities, in terms of the quantity released and the total impact of global warming through the combustion of fossil fuels.

to a proliferation of other problems, such as more frequent heat waves, rise of sea level, reduction in agricultural production, scarcity of water resources, spread of diseases, and ecological and environmental imbalance.

### International efforts to combat climate change

3. The United Nations Framework Convention on Climate Change ("UNFCCC") entered into force in 1994 with the objective to stabilize GHG concentrations in the atmosphere at a level that will prevent dangerous anthropogenic interference with the climate system.<sup>2</sup> UNFCCC outlines how specific international treaties may be negotiated to set binding limits on GHGs.<sup>3</sup> In 1997, the Kyoto Protocol was concluded by the parties to UNFCCC, which established legally binding obligations for developed countries to reduce their GHG emissions in the period 2008-2012. The Kyoto Protocol was amended in 2012 to encompass the period 2013-2020 in the Doha Amendment. After extension of UNFCCC and the Kyoto Protocol to Hong Kong in May 2003, Hong Kong was obliged to play a part to fulfill the relevant obligations imposed upon China under the Convention/Protocol.

4. In December 2015, the parties to UNFCCC adopted the Paris Agreement at the United Nations Climate Change Conference in Paris, which aimed at limiting global warming to less than 2°C (with the pre-industrial levels as the baseline), and striving for limiting the temperature rise to 1.5°C (collectively known as the temperature goals)

### Measures and strategies for combating climate change

#### *Hong Kong's Climate Change Strategy and Action Agenda*

5. The Environmental Protection Department commissioned a consultancy study in 2008 to assess the impacts of climate change on Hong Kong, and to recommend long-term strategies and measures to reduce GHG emissions as well as to adapt to the unavoidable effects of climate change. In 2010, the Environment Bureau ("ENB") published the "Hong Kong's Climate Change Strategy and Action Agenda" ("the Action Agenda") for public consultation. Based on the Action

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<sup>2</sup> China is a party to UNFCCC and the subsequent Kyoto Protocol.

<sup>3</sup> UNFCCC does not set binding limits on GHGs for individual countries and contains no enforcement mechanisms. Since 1995, the United Nations has convened its Climate Change Conference yearly, as a platform to report on the implementation of UNFCCC, adopt resolutions on regulations and conduct discussions about new commitments. The latest Climate Change Conference was held in Paris, France in December 2015, as mentioned in paragraph 4 of this background brief.

Agenda, bureaux and departments concerned have been implementing various measures with a view to achieving by 2020 a target of reducing carbon intensity by 50% to 60% from the 2005 level. The progress of these measures is set out in **Appendix I**. On 6 November 2015, ENB further released the "Hong Kong Climate Change Report 2015" which outlined the efforts of the government and the private sector in responding to climate change.

#### *Energy Saving Plan for Hong Kong's Built Environment 2015-2025+*

6. According to the Administration, the greatest potentials to reduce sizable quantities of carbon emissions in Hong Kong are through reducing coal usage for local electricity generation and maximizing energy efficiency. Related proposals and plans are articulated in the "Public Consultation on the Future Development of the Electricity Market" launched in March 2015, and the "Energy Saving Plan for Hong Kong's Built Environment 2015-2025+" ("the Energy Saving Plan") released in May 2015. The Government pledged in the Energy Saving Plan to achieve a reduction target of 40% in energy intensity by 2025 using 2005 as the base year.

#### **Major views and concerns expressed by Members**

7. The Panel on Environmental Affairs ("the Panel") was briefed on the report of public consultation on the Action Agenda at its meeting on 28 April 2014. Issues relating to climate change were brought up at the Panel meetings on 22 June 2015 and 25 January 2016 when the Administration briefed the Panel on the Energy Saving Plan and key environmental initiatives featured in the Chief Executive's 2016 Policy Address, and during examination of the Estimates of Expenditures 2014-2015, 2015-2016 and 2016-2017. Members also raised questions on related issues at various Council meetings in the current term of LegCo. The major views and concerns expressed by Members are summarized in the ensuing paragraphs.

#### Carbon reduction target

8. Some Members expressed concerns as to whether Hong Kong could achieve the target of reducing 50% to 60% carbon intensity by 2020 compared to the 2005 level, and whether the Administration would update the carbon reduction target for 2020 in the light of the latest temperature goals set by the Paris Agreement. Members also criticized the Chief Executive's 2016 Policy Address for lacking new environmental initiatives to combat climate change, and urged the Administration to formulate relevant measures as soon as possible, as well as set out specific work plans, schedules and quantifiable targets for such measures.

9. The Administration advised that the Paris Agreement laid down clear directions and objectives beyond 2020 for global co-operation in addressing climate change. To this end, the Government had been taking forward mitigation measures proactively to achieve the existing carbon intensity reduction target for 2020. In parallel, the committee chaired by the Chief Secretary to steer and coordinate various bureaux and departments in better responding to climate change would study Hong Kong's post-2020 carbon reduction target.

#### Low-carbon development in the Pearl River Delta region

10. Members were concerned about how the Administration would take forward regional co-operation in the Pearl River Delta ("PRD") region to promote low-carbon development. Following the Joint Announcement on Climate Change by China and the United States in November 2014, some Members enquired on whether the Government would review the common policy objectives, measures and modes of co-operation drawn up with the PRD region in respect of GHG mitigation and climate change adaptation.

11. The Administration advised that the Hong Kong/Guangdong Joint Liaison Group on Combating Climate Change ("the Joint Liaison Group") set up under the Hong Kong/Guangdong Co-operation Joint Conference in 2011 would co-ordinate the relevant regional measures and activities on combating climate change, as well as to promote related scientific research and technology development. The Government would continue to strengthen co-operation between the two sides on combating climate change through the work of the Joint Liaison Group.

#### Reducing carbon emissions from electricity generation

12. As electricity generation was the major source of GHG emissions in Hong Kong, and the Scheme of Control Agreement ("SCA") which regulated the power sector would expire in 2018, Members suggested that the Administration should require the two power companies to shoulder more responsibilities in reducing GHG emissions under the new SCA. Members also urged the Administration to closely monitor the total energy consumption in Hong Kong.

13. The Administration advised that it would increase the percentage of natural gas for electricity generation while maintaining the current interim measure to import 80% of the nuclear output from the Daya Bay Nuclear Power Station. In negotiating the new SCAs with the power companies, the Administration would consider putting in place a suitable mechanism to enhance the promotion of energy efficiency, energy saving and the use of renewable energy by power companies.

The Administration also advised that the two power companies provided information in the electricity bills for consumers' reference of their electricity consumption habits and setting of energy reduction targets by individual households.

#### Tackling extreme weather conditions

14. Referring to the extreme weather conditions in late January 2016 when Hong Kong experienced the coldest day in the past 59 years and the Hong Kong Observatory ("HKO")'s underestimation of the severity of the cold weather in its forecast, Members enquired about how the Administration would enhance the accuracy of HKO's weather forecasts and increase public awareness of extreme weather risks.

15. The Administration responded that extreme weather events, which had become more frequent due to global climate change, could result in deviations of the weather forecasts from the actual outturns. HKO had drawn experience from the cold weather event in January, with a view to enhancing its forecasting techniques to meet the challenges of more extreme weather conditions brought by climate change, such as by including more specific contents and wording in its Cold Weather Warnings, and providing more detailed information on regional temperatures.

#### **Latest development**

16. At the meeting on 23 May 2016, the Administration will brief the Panel on the latest development on its work on combating climate change.

#### **Relevant papers**

17. A list of relevant papers is set out in **Appendix II**.

**Progress of measures and strategies for combating climate change**  
(as at April 2016)

- (a) Energy saving and energy efficiency enhancement measures to reduce carbon emissions
- (i) The Buildings Energy Efficiency Ordinance (Cap. 610) was fully implemented in September 2012 to enhance energy efficiency of key building services installations;
  - (ii) a district cooling system has been provided for the non-residential premises in the Kai Tak Development Area;
  - (iii) the Mandatory Energy Efficiency Labelling Scheme was launched to encourage the use of more energy-efficient products;
  - (iv) a three-year programme was completed in 2015 to conduct energy-cum-carbon audits for 120 government buildings and public facilities. Assistance will continue to be provided for relevant departments in conducting carbon audits alongside the energy audits for over 40 government buildings in 2016-17; and
  - (v) a carbon footprint repository was launched at the end of 2014. So far, a total of 67 listed companies have disclosed their carbon audit findings through the carbon footprint repository.
- (b) Promote green transport and turn waste into energy
- (i) The Air Pollution Control (Motor Vehicle Fuel) (Amendment) Regulation 2009 was introduced in July 2010 to provide for the specifications of biodiesel for motor vehicles;
  - (ii) a \$300 million Pilot Green Transport Fund was launched in 2011 to provide funding support for transport trades to try out green innovative transport technologies, including electric and hybrid vehicles; and

(iii) as regards turning waste into energy, landfill gas and gas generated during wastewater treatment process have been recovered for conversion into alternative energy. Also, the Sludge Treatment Facility in Nim Wan came into operation in April 2015. The facility can turn waste into energy during operation and the surplus electricity can be exported to the public power grid.

(c) Adaptation to climate change

- (i) The works departments will update construction-related codes, guidelines and design standards for buildings and infrastructure regularly to cope with extreme weather events;
- (ii) the Water Supplies Department has been monitoring the measures implemented under the Total Water Management Strategy since its promulgation in 2008 and will review its effectiveness regularly;
- (iii) the Drainage Services Department conducted the territory-wide Drainage Master Plan Review studies in phases to assess flood risk and formulate necessary drainage improvement works;
- (iv) the Civil Engineering and Development Department ("CEDD") has commissioned a consultancy study on the trend of rising sea level caused by climate change and its implications on the design of coastal structures;
- (v) CEDD is studying the implications of climate change on slope safety and exploring ways to model more precisely the extreme rainfall conditions and extreme landslide scenarios;
- (vi) the Planning Department has completed the Feasibility Study on Urban Climatic Map and Standards for Wind Environment. Its on-going study, namely "Hong Kong 2030+: Towards a Planning Vision and Strategy Transcending 2030", will take climate change into consideration; and
- (vii) the Housing Department is preparing in-house design and maintenance guidelines for green roof and dual flush cisterns.

[Source: Adapted from the Administration's written reply (Reply Serial No. [ENB102](#)) to a question raised by a Member for examination of Estimates of Expenditure 2016-2017]

## Combating climate change

## List of relevant papers

Date of meeting	Event	Paper
1 April 2014	Special meeting of Finance Committee for examination of Estimates of Expenditure 2014-2015	Written questions raised by Members and Administration's replies (Reply serial numbers: <a href="#">ENB121, 231, 263 and 313</a> )
28 April 2014	Meeting of the Panel on Environmental Affairs	Administration's paper on "Report of public consultation on Hong Kong's Climate Change Strategy and Action Agenda" (LC Paper No. <a href="#">CB(1)1292/13-14(06)</a> )  Updated background brief on "Hong Kong's Climate Change Strategy and Action Agenda" prepared by the Legislative Council Secretariat (LC Paper No. <a href="#">CB(1)1292/13-14(07)</a> )  Minutes of meeting (LC Paper No. <a href="#">CB(1)1812/13-14</a> )
30 March 2015	Special meeting of Finance Committee for examination of Estimates of Expenditure 2015-2016	Written questions raised by Members and Administration's replies (Reply serial numbers: <a href="#">ENB136, 137, 139, 254, 255, 256 and 281</a> )
22 June 2015	Meeting of the Panel on Environmental Affairs	Administration's paper on "Energy Saving Plan for the Built Environment 2015 ~ 2025+ (LC Paper No. <a href="#">CB(1)995/14-15(03)</a> )  Minutes of meeting (LC Paper No. <a href="#">CB(1)1267/14-15</a> )



Date of meeting	Event	Paper
25 January 2016	Meeting of the Panel on Environmental Affairs	Administration's paper on "2016 Policy Address - Policy initiatives of Environment Bureau: Environmental protection" (LC Paper No. <a href="#">CB(1)459/15-16(03)</a> )  Minutes of meeting (LC Paper No. <a href="#">CB(1)739/15-16</a> )
6 April 2016	Special meeting of Finance Committee for examination of Estimates of Expenditure 2016-2017	Written questions raised by Members and Administration's replies (Reply serial numbers: <a href="#">ENB102, 114 and 169</a> )

**Hyperlinks to relevant documents:**

Issuance Date	Government bureau/department	Document
10 September 2010	Environment Bureau	Public Consultation on Hong Kong's Climate Change Strategy and Action Agenda <a href="#">Consultation document</a> <a href="#">Report of the public consultation</a>
December 2010	Environmental Protection Department	A Study of Climate Change in Hong Kong - Feasibility Study  <a href="#">Consultancy report</a>
31 March 2015	Environment Bureau	Public Consultation on the Future Development of the Electricity Market <a href="#">Consultation document</a> <a href="#">Report of the public consultation</a>
14 May 2015	Environment Bureau in collaboration with Development Bureau, Transport and Housing Bureau	<a href="#">Energy Saving Plan for Hong Kong's Built Environment 2015-2025+</a>

<b>Issuance Date</b>	<b>Government bureau/department</b>	<b>Document</b>
6 November 2015	Environment Bureau in collaboration with Development Bureau, Transport and Housing Bureau, Commerce and Economic Development Bureau, Food and Health Bureau, Security Bureau	<a href="#">Hong Kong Climate Change Report 2015</a>

**Hyperlinks to relevant Council Questions:**

<b>Date</b>	<b>Council Question</b>
17 July 2013	<a href="#">Press release</a> on Council question (written) raised by Mr Frederick FUNG
25 June 2014	<a href="#">Press release</a> on Council question (written) raised by Mr Frederick FUNG
3 December 2014	<a href="#">Press release</a> on Council question (written) raised by Mr Kenneth LEUNG
25 November 2015	<a href="#">Press release</a> on Council question (oral) raised by Ms Emily LEUNG
6 January 2016	<a href="#">Press release</a> on Council question (oral) raised by Mr Martin LIAO
2 March 2016	<a href="#">Press release</a> on Council question (oral) raised by Mr Andrew LEUNG