

立法會
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Panel on Environmental Affairs

Meeting on 24 November 2014

**Background brief on "Improving the water quality of Victoria Harbour"
prepared by the Legislative Council Secretariat**

Purpose

This paper provides information on the actions taken by the Administration to improve the water quality of Victoria Harbour, and gives a brief account of the views and concerns expressed by members on the subject.

Background

2. Through the Water Pollution Control Ordinance (Cap. 358), the Environmental Protection Department ("EPD") exercises control over the discharge of wastewater within the Victoria Harbour Water Control Zone ("WCZ") with a view to maintaining the water quality in compliance with the Water Quality Objectives ("WQO") specified for the zone. The work includes conducting inspection at premises with wastewater discharges, processing applications for effluent discharge licences, handling complaints as well as instituting enforcement action (including prosecution) in cases of violation.

Stage 1 of the Harbour Area Treatment Scheme ("HATS")

3. In order to improve the water quality of Victoria Harbour, the Administration is implementing HATS in phases to collect and treat the wastewater from both sides of Victoria Harbour in an efficient and environmentally sustainable manner. Commissioned in 2001, Stage 1 of HATS now collects 1.4 million cubic metres ("m³") of wastewater daily from the Kowloon Peninsula, Tseung Kwan O, Kwai Tsing, Tsuen Wan, Shau Kei

Wan and Chai Wan for centralized treatment at the Stonecutters Island Sewage Treatment Works ("SCISTW"), thereby greatly reducing the amount of pollutants released into Victoria Harbour.

4. According to EPD's monitoring data, the overall *E. coli* level in Victoria Harbour has decreased by over 70% with the commissioning of Stage 1 of HATS in December 2001 and the Advance Disinfection Facilities at SCISTW in March 2010. The reduction in *E. coli* level was as high as 95% in the eastern part of the harbour. Besides, the overall level of dissolved oxygen in Victoria Harbour as a whole increased by 10% while the ammonia nitrogen level decreased by 27% and nutrient levels in terms of total inorganic nitrogen and ortho-phosphate phosphorus were also reduced by 13% and 23% respectively between 2001 and 2010.

Stage 2A of HATS

5. In order to collect and treat the remaining 0.45 million m³ of wastewater from the northern and southwestern parts of Hong Kong Island, the Administration is taking forward Stage 2A of HATS which comprises construction of 21 kilometres of deep sewage tunnels and expansion of the existing SCISTW. With around \$17 billion (in money-of-the-day prices) approved by the Legislative Council for the capital works of the project between 2009 and 2010, the Drainage Services Department ("DSD") has commenced all the major construction works of Stage 2A of HATS for completion in 2014. The Administration anticipates that the water quality of Victoria Harbour will be further improved with the following benefits once Stage 2A in full operation –

- (a) most wastewater to be collected by Stage 2A of HATS now receives only preliminary treatment. In comparison, SCISTW adopts chemically enhanced primary treatment to remove 70% of organic pollutants, 80% of suspended solids and 99.99% of *E. coli* in the wastewater;
- (b) a further 190 tonnes of sewage sludge will be prevented from flowing into the harbour daily;
- (c) the level of ammonia will be reduced by 10% on average;
- (d) the level of inorganic nitrogen and phosphorous will be reduced by 5% and 8% respectively; and
- (e) the level of dissolved oxygen will be increased by 5%.

Stage 2B of HATS

6. HATS Stage 2B will provide biological treatment to all harbour area sewage on an adjacent site to SCISTW so as to secure long term protection of the harbour's water quality. The site identified for the biological treatment plant under Stage 2B is proposed to be co-used with other uses aboveground, with the treatment plant located mainly underground.

7. In June 2010, the Administration commenced a comprehensive review of the timing for implementation of Stage 2B of HATS for completion of the relevant technical assessments by early 2012. The review takes into account all relevant planning parameters including trends in water quality, population growth and sewage flow build-up. It also covers the preparation of schematic designs for the underground biological treatment plant under Stage 2B and provides preliminary estimates of the capital and operating costs of the plant. Apart from the review study, the Administration has also completed the rezoning procedures in accordance with the Town Planning Ordinance (Cap. 131) to amend the Stonecutters Island Outline Zoning Plan in September 2011. A site for development of the biological treatment plant under Stage 2B of HATS has been secured as a result of the aforesaid amendment. The Administration will keep the implementation of HATS Stage 2B under review taking into account the water quality situation and the latest technological development in biological treatment.

Publication of water quality monitoring data

8. EPD currently publishes an annual report on the marine water quality in different WCZs, including the Victoria Harbour WCZ. Detailed information on the status of compliance with each WQO is also provided in the report. Given its geographical location, the marine water quality of Hong Kong is susceptible to seasonal fluctuations in weather and flow patterns, the volume of discharges from the nearby Pearl River as well as oceanic current effects of the South China Sea. The Administration has thus adopted 12 monthly-collected samples in assessing the long-term water quality trends to ensure the representativeness of the monitoring outcome from the scientific and statistical angles.

Urban coastal waters

9. As advised by the Administration, all sewage within the Victoria Harbour catchment will be collected and treated at SCISTW. However, due to the residual pollution discharges into the urban coastal waters, i.e. those not collected by the sewerage system due to various factors such as drain

misconnections, and polluted surface run-offs from streets etc., the odour and visual impacts caused by near shore pollution to the urban coastal waters are still under frequent complaints, in particular at areas that are easily accessible by the public and close to population and business centres. Upon completion of HATS Stage 2A, near shore pollution in Victoria Harbour will become priority water quality problem.

10. To deal with the above problem will require measures that can effectively reduce or collect the many residual discharges from a wide range of small sources that are large in numbers in the urban area. As announced in the 2014 Policy Address, the Administration plans to carry out a consultancy study to work out practical options and a programme to improve the environment of the waterfront areas by tackling near shore pollution. An engagement exercise involving academics, green groups, professional bodies, nine District Councils, the Advisory Council on the Environment and the Harbourfront Commission was carried out between March and August 2014.

Deliberations by the Panel on Environmental Affairs

11. The Panel on Environmental Affairs ("the Panel") touched on the subject of the water quality of Victoria Harbour when discussing the proposal to upgrade SCISTW and preliminary treatment works at its meetings on 15 December 2009 and 25 January 2010. Panel members also expressed concern on the subject at the meeting on 10 October 2013. The major views and concerns expressed by members at various meetings of the Panel are set out below.

Water quality

12. Some Panel members opined that the works to improve the water quality in the harbour were plagued with problems over many years. Despite the substantial amount of money being spent on HATS, the water quality of the harbour had yet to meet the standards good enough for resuming the cross-harbour swimming events, and re-opening the Tsuen Wan beaches which had been closed since the commissioning of HATS Stage 1.

13. Other members enquired the effectiveness of HATS Stage 1 and Stage 2A in achieving the targeted improvements in water quality, particularly in terms of removal of *E. Coli*, such that the public might conduct leisure angling activities along the coastline of the harbour.

14. Some members also enquired if any ecological studies had been carried out on the impact of effluent discharge on the marine ecology of surrounding waters. They pointed out that some fishermen from the Mainland had been illegally collecting shellfishes from the polluted seabed in Hong Kong for sale in the Mainland. These shellfishes could be heavily contaminated and not suitable for consumption.

Illegal sewerage connections

15. Some other members were concerned about the problem of illegal sewerage connections, particularly in dilapidated districts where untreated sewage was discharged direct to the harbour through expedient connections. These members considered that concerted efforts from both the Buildings Department and DSD were required to tackle the problem.

16. There was also the suggestion that the Administration should step up publicity in districts advising owners' corporations on the need to ensure proper sewerage connections. Meanwhile, enforcement actions should be taken to deter illegal sewerage connections.

Odour problem

17. Some members were concerned about the odour and poor quality of the water at the sewage outlets along the waterfront. They requested the Administration to update the Panel on Hong Kong's sewage management and maintenance of drainage, including illegal drainage connections.

Council motion

18. At its meeting on 16 November 2011, the Council passed the motion on "Comprehensively improving the water quality of the Victoria Harbour" moved by Dr Hon Priscilla LEUNG as amended by Dr Hon PAN Pey-chyou. The hyperlinks to the wording of the motion and the progress report provided by the Administration are provided in the **Appendix**.

Latest development

19. The Administration will brief members on the progress in commissioning a consultancy study with the long-term objective of enhancing the leisure and amenity value of the coastal areas of Victoria Harbour at the Panel meeting on 24 November 2014.

Relevant papers

20. A list of relevant papers is set out in the **Appendix**.

Council Business Division 1
Legislative Council Secretariat
20 November 2014

Appendix

List of relevant papers

Council/ Committee	Date of meeting	Paper
Panel on Environmental Affairs	15 December 2009	<p>Administration's paper on "341DS - Harbour Area Treatment Scheme, stage 2A - upgrading of Stonecutters Island sewage treatment works and preliminary treatment works" (LC Paper No. CB(1) 628/09-10(12)) http://www.legco.gov.hk/yr09-10/english/panels/ea/papers/ea1215cb1-628-12-e.pdf</p> <p>Administration's supplementary paper on "341DS - Harbour Area Treatment Scheme, stage 2A - upgrading of Stonecutters Island sewage treatment works and preliminary treatment works" (LC Paper No. CB(1) 745/09-10(01)) http://www.legco.gov.hk/yr09-10/english/panels/ea/papers/ea1215cb1-745-1-e.pdf</p> <p>Minutes of meeting (LC Paper No. CB(1)1154/09-10) http://www.legco.gov.hk/yr09-10/english/panels/ea/minutes/ea20091215.pdf</p>
Panel on Environmental Affairs	25 January 2010	<p>Administration's paper on "341DS - Harbour Area Treatment Scheme, stage 2A - upgrading of Stonecutters Island sewage treatment works and preliminary treatment works" (LC Paper No. CB(1) 628/09-10(12)) http://www.legco.gov.hk/yr09-10/english/panels/ea/papers/ea1215cb1-628-12-e.pdf</p> <p>Administration's supplementary paper on "341DS - Harbour Area Treatment Scheme, stage 2A - upgrading of Stonecutters Island sewage treatment works and preliminary treatment works" (LC Paper No. CB(1) 745/09-10(01)) http://www.legco.gov.hk/yr09-10/english/panels/ea/papers/ea1215cb1-745-1-e.pdf</p> <p>Minutes of meeting (LC Paper No. CB(1)1441/09-10) http://www.legco.gov.hk/yr09-10/english/panels/ea/minutes/ea20100125.pdf</p>

Council/ Committee	Date of meeting	Paper
Panel on Environmental Affairs	10 October 2010	Minutes of meeting (LC Paper No. CB(1)213/13-14) http://www.legco.gov.hk/yr13-14/english/panels/ea/minutes/ea20131010.pdf
Panel on Environmental Affairs	27 January 2014	Administration's paper on "2014 Policy Address - Policy initiatives of Environment Bureau: Environmental protection" (LC Paper No. CB(1)744/13-14(01)) http://www.legco.gov.hk/yr13-14/english/panels/ea/papers/ea0127cb1-744-1-e.pdf

Hyperlinks to relevant Motion:

Date	Motion
16 November 2011	Motion on "Comprehensively improving the water quality of the Victoria Harbour" moved by Dr Hon Priscilla LEUNG as amended by Dr Hon PAN Pey-chyou http://www.legco.gov.hk/yr11-12/english/counmtg/motion/cm1116-m2-wordings-e.pdf Progress report provided by the Administration http://www.legco.gov.hk/yr11-12/english/counmtg/motion/cm1116-m2-prpt-e.pdf