For Information

LEGISLATIVE COUNCIL
PANEL ON ENVIRONMENTAL AFFAIRS

Cleaner Production Partnership Programme
Progress Report for 2018-19

PURPOSE

This paper reports on the progress of the Cleaner Production Partnership Programme (the Programme) for the period from 1 April 2018 to 31 March 2019.

BACKGROUND

2. The Environmental Protection Department (EPD) launched the Programme in April 2008 in collaboration with the then Economic and Information Commission of Guangdong Province (now the Department of Industry and Information Technology of Guangdong Province, (GDDIIT)). The Programme aims to encourage and facilitate Hong Kong-owned factories to adopt cleaner production (CP) technologies and practices through funding support and technology promotion activities, thereby improving the regional[1] environment.

3. In light of the environmental benefits brought by the Programme, the Government committed $150 million in 2015 to extend the Programme for five years from 15 June 2015 to 31 March 2020. This phase of the Programme continues to encourage Hong Kong-owned factories to adopt new technologies for reducing emissions of volatile organic compounds (VOC) and nitrogen oxides (NO_x), which are the culprits of the smog problems of the region including Hong Kong. The Hong Kong Productivity Council (HKPC) is the implementation agent of the Programme.

[1] The Programme covers Hong Kong-owned factories in Hong Kong and Guangdong.

Annex A

4. The Programme comprises four key initiatives, namely (details are at **Annex A)** –

(a) to assist participating Hong Kong-owned factories to carry out on-site improvement assessments;

(b) to support Hong Kong-owned factories to carry out demonstration projects on CP technologies and practices;

(c) to support relevant trade and industry associations of Hong Kong to carry out trade-specific promotion and publicity activities (the Organisation Support Initiative (OSI)); and

(d) to run cross-trade technology promotion activities organised by HKPC under the Programme.

MANAGEMENT OF THE PROGRAMME

5. A Project Management Committee (PMC) has been set up to oversee the implementation of the Programme. The PMC comprises representatives from four major chambers of commerce (i.e. the Chinese General Chamber of Commerce, the Chinese Manufacturers' Association of Hong Kong, the Federation of Hong Kong Industries and the Hong Kong General Chamber of Commerce), an academic, as well as representatives from EPD, Trade and Industry Department, and Innovation and Technology Commission. During the reporting period, the PMC held four meetings to provide steer to the operation of the Programme and scrutinise funding applications lodged by Hong Kong-owned factories and relevant trade and industry associations of Hong Kong.

PROGRESS DURING 1 APRIL 2018 – 31 MARCH 2019

On-site Improvement Assessments, Demonstration Projects, OSI Activities and Cross-trade Technology Promotion Activities

6. As at 31 March 2019, the cumulative number of applications approved for on-site improvement assessments, demonstration projects, OSI activities and cross-trade technology promotion activities since the beginning of the current phase of the Programme are set out in the table below.

	Approved Applications /Activities (as at 31 March 2019)				
	2015/16	**2016/17**	**2017/18**	**2018/19**	**Cumulative Total**
On-site improvement assessments	100	127	105	125	457
Demonstration projects	35	51	62	105	253
OSI activities	17	25	25	34	101
Cross-trade technology promotion activities	40	41	43	36	160

7. During the reporting period, the on-site improvement assessments were conducted for 125 Hong Kong-owned factories to identify areas for improvement with practical solutions proposed. These assessments focused on reduction of air pollutants emission, energy efficiency as well as effluent reduction and control.

8. Among the 105 demonstration projects approved for the Hong Kong-owned factories, 55 involved technologies on reduction of air pollutants emission, 43 on energy efficiency and 7 were on effluent reduction and control. Key types of technologies demonstrated under the Programme is at **Annex B**.

Annex B

9. During the reporting period, 6 OSI project applications were approved involving 34 trade-specific promotion activities including factory visits and seminars, sectoral trade exhibitions, as well as production of videos for wider adoption of CP technologies and practices. HKPC has conducted quality checks for OSI activities to ensure that the implementation of the OSI activities was in accordance with the plan specified in the approved applications and of acceptable quality.

10. To facilitate sharing of expertise knowledge and successful experience in the adoption of CP technologies, apart from supporting non-profit distributing trade and industry associations of Hong Kong to carry out trade-specific promotion and publicity activities (i.e. the OSI activities highlighted in the paragraph 9 above), the HKPC also organised various kinds of cross-trade technology promotion activities for Hong Kong-owned factories. During the reporting period, 36 such activities were held, attracting more than 5 400 participants, including 5 environmental exhibitions to showcase the CP technologies and 12 factory visits for

factory owners and staff to view the completed demonstration projects and other successful CP technologies on-site. These promotion activities were well received and proved to be effective in enhancing Hong Kong-owned factories' awareness on CP and facilitating their adoption of similar technologies in their own operations.

11. The Programme was also widely publicised through various channels including interviews and reports by the media as well as briefings for the trade and industry associations. During the reporting period, 69 case reports on completed demonstration projects or verified technologies were produced and publicised on the Programme website which has served as an open platform on CP related materials for sharing with industries. HKPC also operates three enquiry hotlines to enhance information dissemination and sharing of the related experience.

PARTNERSHIP WITH ENVIRONMENTAL TECHNOLOGY (ET) SERVICE PROVIDERS

12. With rich experience and expertise in various areas of CP technologies, ET service providers rendered professional advice and technical services to the participating Hong Kong-owned factories in the design and implementation of CP technology solutions for conducting on-site improvement assessments and demonstration projects. As at 31 March 2019, a total of 274 ET service providers were registered under the Programme. HKPC has conducted quality checks on the work of ET service providers from time to time with a view to ensuring the quality of service rendered by the registered ET service providers.

COLLABORATION WITH MAINLAND AUTHORITIES

13. We continue to jointly organise with GDDIIT the Hong Kong-Guangdong Cleaner Production Partners Recognition Scheme (the Scheme) with the award presentation ceremony held annually. The tenth presentation ceremony for the Scheme was held on 7 December 2018 in Guangzhou. A total of 130 Hong Kong-owned and 23 Guangdong enterprises were commended as Hong Kong-Guangdong Cleaner Production Partners to recognise their efforts in pursuing CP. About 300 representatives from the Hong Kong and the Guangdong governments, trade and industry associations, manufacturing industries, supply chains and ET service sector participated in the event.

14. Promoting CP has been one of the priority areas of work in Hong Kong-Guangdong cooperation to improve the regional environment. To strengthen the cooperation and exchanges on CP, the two sides signed a Hong Kong-Guangdong Cooperation Agreement on Cleaner Production in 2014. A Hong Kong-Guangdong Joint Working Group on Cleaner Production (JWGCP) was also established under the Hong Kong-Guangdong Co-operation Joint Conference. The fifth meeting of the JWGCP was held on 7 December 2018. At the meeting both sides agreed on the 2019 work plan, with focuses on the use of energy saving technologies by high energy consumption industries, adopting CP technologies to reduce volatile organic compounds (VOC), and encouraging Hong Kong-owned factories to undertake cleaner production audits, all of which aligned with the direction of further promoting CP technologies in the development of the region.

WAY FORWARD

15. The current phase of the Programme will come to end in March 2020. We are considering further arrangement of the Programme and will report to this Panel at a suitable juncture.

Environmental Protection Department
August 2019

Annex A

Cleaner Production Partnership Programme

The Programme aims to encourage and facilitate Hong Kong-owned factories to adopt CP technologies and practices with focus on reduction of air pollutants emission, energy efficiency and effluent reduction and control, thereby contributing to improving the regional environment. The Programme targets at eight industry sectors, i.e. textiles, non-metallic mineral products, metal and metal products, food and beverage, chemical products, printing and publishing, furniture and paper/paper product manufacturing.

Key Initiatives

2. The key initiatives in the current phase (from 15 June 2015 to 31 March 2020) with number of targets of the Programme are as follows –

(a) *on-site improvement assessment:* to assist *about 530*[1] *Hong Kong-owned factories* to identify and analyse the problems they face and propose practical improvement solutions. The Government sponsors 50% of the assessment cost, subject to a ceiling of $28,000;

(b) *demonstration projects:* to support Hong Kong-owned factories to carry out *around 225 projects* to demonstrate the effectiveness of CP technologies through installation of equipment and/or modification of production processes. The Government sponsors 50% of the project cost, subject to a ceiling of $330,000;

(c) *organisation support initiative:* to support relevant trade and industry associations of Hong Kong to carry out *around 100 – 130 trade-specific promotion and publicity activities*. The Government sponsors up to 90% of the project cost and the applicant has to contribute at least 10% of the project cost; and

(d) *cross-trade technology promotion:* the Hong Kong Productivity Council to organise *around 110 – 140 activities*, mainly to facilitate sharing of knowledge and successful

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[1] In the 42nd meeting held in November 2018, the PMC endorsed adjustment of the target number of on-site improvement assessments from 625 to 530 so as to allocate more resources to cater for the increasing need for demonstration projects.

experience in adoption of CP technologies and practices. These activities comprise seminars, workshops, factory visits, conferences and exhibitions, in Hong Kong or key industrial cities of the Guangdong Province.

Annex B

Cleaner Production Technologies Demonstrated Under the Cleaner Production Partnership Programme

The key CP technologies demonstrated under the Programme during the reporting period are summarised below.

(a) **Reduction of air pollutants emission**

- to reduce volatile organic compounds (VOC) emissions through the use of ultraviolet (UV) cured coating system, automatic enclosed screen printing system, membrane press machine, centralised low-VOC dampening solution, burn-off ovens, water-based flexographic printing machines, cryogenic condensation technology, iron carbon micro-electrolysis, low temperature plasma, UV degradation, catalytic oxidation, chemical scrubbing, vapour permeable membrane, Zeolite adsorption and activated carbon adsorption, or bio-filtration; and

- to reduce other air pollutants (including Sulphur dioxide ($SO_{2)}$ and nitrogen oxides (NOx)) emission through the adoption of infrared (IR) heating furnace, oxy-fuel combustion technology, flue gas recirculation (FGR), selective non-catalytic reduction (SNCR), natural gas-fired heating system, wet spraying scrubber with quicklime or high-temperature heat pumps with automatic control.

(b) **Energy Efficiency**

- to optimise the overall energy efficiency of the factory through the applications of central control and monitoring system (CCMS), turbine driven boiler feed pump, centralised refrigerated fresh air dehumidifier, phase change material (PCM) cooling thermal storage or flash steam recovery system ;

- to save energy through the use of non-invasive electromagnetic scale control system, thermal installation cover on rotary cylinder dryer, automatic cartooning and film wrapping machines, mechanical vapour recompression (MVR) system, back press turbine, centralised air-conditioning system with phase change material cooling thermal storage, time-programmed dyeing system, automatic paint spraying and curing system, servo motor control, variable speed drives, energy efficient infrared heating coils, energy efficient rotary screw air compressor, oil-free magnetic-bearing centrifugal blower, water bath vaporiser or split module adsorption dryer; and

- to reclaim waste heat through the use of waste heat recovery system on production machinery, compressed air system or exhaust system.

(c) **Effluent reduction and control**

- to reduce water and chemical consumptions through the use of fabric dyeing machine, dry cleaning machine with cleaning agent vapour recovery system, low liquor ratio garment dyeing machine, vertical continuous plating technology, or jeans denim laser engraving machine;

- to recycle wastewater and/or production materials through the use of inline acidic/alkaline etchant regeneration and copper recovery system, on-line recirculating de-smear solution filtration system, electrically driven membrane, ceramic nanofiltration (NF) membrane or nano activated carbon adsorption;

- to enhance treatment efficiency of wastewater through the use of jet aerator system, or non-invasive electromagnetic scale control system; and

- to reduce the amount of waste chemicals through the use of etching solution electrolysis regeneration, side stream pipeline electro-adsorption control system, or photo-Fenton treatment.
