For information

LEGISLATIVE COUNCIL
PANEL ON ENVIRONMENTAL AFFAIRS

Cleaner Production Partnership Programme
Progress Report for 2015/2016

PURPOSE

This paper reports on the progress of the Cleaner Production Partnership Programme (the Programme) for the period from 15 June 2015 to 31 March 2016.

BACKGROUND

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

3. In light of the environmental benefits brought by the Programme, EPD extended the Programme for five years up to 31 March 2020 with $150 million approved by the Legislative Council (LegCo) in May 2015. The new phase of the Programme continues to cover the entire Guangdong Province with a focus on the promotion of new technologies for reducing volatile organic compounds (VOC) and nitrogen oxides (NO_x), which are the culprits of the smog problems of the Pearl River Delta (PRD) region.

[1] GDEIC is the lead department of the Guangdong Provincial Government for promoting voluntary cleaner production amongst enterprises and factories in Guangdong.

4. The Programme is implemented by the Hong Kong Productivity Council (HKPC) under the steer of EPD. It has four key initiatives, namely –

(a) technology promotion activities;
(b) on-site improvement assessment for participating factories;
(c) demonstration projects on CP technologies and practices; and
(d) trade-specific promotion and publicity activities under the new Organization Support Initiative (OSI).

Annex A Details of the key initiatives and the targets set for the new phase of the Programme are at **Annex A**.

MANAGEMENT OF THE PROGRAMME

5. To oversee the implementation of the Programme, we have set up a Project Management Committee (PMC) comprising representatives from the four major chambers of commerce (i.e., the Hong Kong General Chamber of Commerce, Federation of Hong Kong Industries, Chinese Manufacturers' Association of Hong Kong and Chinese General Chamber of Commerce), EPD, Trade and Industry Department, Innovation and Technology Commission as well as an academic. During the report period, the PMC had three meetings to provide steer to the operation of the Programme and scrutinise funding applications.

PROGRESS IN 2015/2016

6. To facilitate sharing of expertise knowledge and successful experience in the adoption of CP technologies and practices by Hong Kong-owned factories, we organized a total of 40 technology promotion and publicity activities during the report period, attracting some 1 300 participants. The Programme was widely publicized through various channels including interviews and reports by the media as well as briefings for the trade and industry associations. We also established a logo for the Programme and distributed promotional leaflets for publicizing the new phase of the Programme.

7. In addition, an online CP toolbox was developed and posted on the Programme website to facilitate and encourage factories to adopt CP

technologies. The dedicated Programme website serves 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.

8. To encourage more factories to adopt CP technologies demonstrated by the participating factories, 20 factory visits were also organised for factory owners and staff to view on-site the completed demonstration projects and other successful CP technologies. We continued to collaborate with the relevant trade associations, local municipal governments and environmental technology (ET) service providers under the Programme to promote CP technologies and practices to factories in the region.

9. Under the new phase of the Programme, funding ceilings of each demonstration project and on-site assessment have been raised from $300,000 and $25,000 to $330,000 and $28,000 respectively. Also, we launched the OSI as a new initiative to provide funding support to trade and industry associations for carrying out trade-specific promotion and publicity activities with a view to facilitating the wider adoption of proven CP technologies.

10. During the report period, a total of 35 and 100 applications were approved for demonstration projects and on-site assessments respectively. Three projects under OSI were approved involving 17 trade-specific promotion activities. While the response on the new OSI is in steady progress, the number of applications for on-site assessments and demonstration projects are lagging behind the respective targets as shown in the table below. This is attributable to the slowdown in the global economy as factory owners have become increasingly cautious about investing in capital assets, including CP technologies and practices under the prevailing economic climate.

	Total targets (2015/16 to 2019/20)	**Targets (2015/16)**	**Approved Applications / Activities (as at 31 March 2016)**
On-site Assessments	625	125	100
Demonstration projects	225	40	35
OSI activities	100-130	17	17

11. Among the 35 approved demonstration projects, 11 projects involved technologies mainly on abatement of air pollution, 8 projects on effluent control and reduction, and 16 projects on energy saving. Examples of the technologies tested in these demonstration projects include –

- installation of a composite exhaust air treatment system using a combination of water scrubbing, activated carbon adsorption and UV photocatalytic oxidation to reduce VOC emissions from screen printing process in a printed circuit board (PCB) factory;
- adoption of UV-degradation technology to remove VOC from plastic products manufacturing processing;
- installation of online alkaline etchant regeneration system to reduce effluent in aluminum product manufacturing process; and
- retrofitting textile stenter machine with direct gas-fired heating system to replace indirect heating system and save energy, etc.

A summary of the key types of technologies demonstrated under the Programme is in **Annex B**.

Annex B

PARTNERSHIP WITH ENVIRONMENTAL TECHNOLOGY (ET) SERVICE PROVIDERS

12. ET service providers play an important role in the Programme through providing professional advice and technical services to the participating factories for conducting on-site assessments and demonstration projects. As at 31 March 2016, a total of 220 ET service providers have been registered under the Programme. Amongst them, 111 were based in Hong Kong, 103 in Guangdong and six in other regions. HKPC has conducted quality checks on the work of ET service providers from time to time.

COLLABORATION WITH MAINLAND AUTHORITIES

13. The Programme has fostered regional collaboration with the relevant Mainland authorities in reducing pollution arising from industrial activities. We have worked with the nine PRD municipalities in publicizing the Programme and promoting CP. During the report period, a total of nine

publicity events were jointly organised with the Mainland authorities to reach out to Hong Kong-owned factories in Guangdong.

14. The Environment Bureau (ENB) and GDEIC continued to organise the Hong Kong-Guangdong Cleaner Production Partners Recognition Scheme during the report period. An award presentation ceremony was held on 29 October 2015 as a parallel event to the Eco Expo Asia 2015 in Hong Kong. A total of 163 enterprises were commended as Hong Kong-Guangdong Cleaner Production Partners to recognize their efforts in pursuing CP. About 300 representatives from the governments of Hong Kong and Guangdong, trade and industry associations, manufacturing industries, supply chains and ET service sector participated in the event.

15. 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 was also established under the Hong Kong/Guangdong Co-operation Joint Conference (HKGDCJC) and its annual second meeting was held on 29 October 2015.

WAY FORWARD

16. We would continue to monitor the impacts of changes in the global economy on the number of applications for on-site assessments and demonstration projects. In parallel, we will step up outreaching efforts to encourage enterprises to make use of the Programme to achieve cleaner production. We will also proactively explore joint efforts with the Mainland authorities to further publicize the importance attached to cleaner production by the governments which is in line with the efforts to enhance the quality of the environment in the Pearl River Delta region.

17. Members are invited to note the latest implementation progress of the Programme. We will continue to provide progress reports for the Programme to this Panel on an annual basis.

Environmental Protection Department
June 2016

Annex A

Cleaner Production Partnership Programme

The Programme aims to encourage and facilitate Hong Kong-owned factories in Guangdong and Hong Kong to adopt CP technologies and practices, thereby contributing to improving the regional environment by reducing emissions of pollutants and energy consumption. 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 new phase (from 15 June 2015 to 31 March 2020) of the Programme include –

(a) *technology promotion:* to organise *around 110 – 140 activities*, mainly to facilitate sharing of knowledge and successful 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;

(b) *on-site improvement assessment:* to assist *about 625 factories* to identify and analyse the problems they face and propose practical improvement solutions. The Government will sponsor 50% of the assessment cost, subject to a ceiling of $28,000;

(c) *demonstration project:* to support *around 225 projects* to demonstrate the effectiveness of CP technologies through installation of equipment and/or modification of production processes. The Government will sponsor 50% of the project cost, subject to a ceiling of $330,000; and

(d) *organisation support initiative:* to support trade and industry associations to carry out *around 100 – 130 trade-specific promotion and publicity activities*. The Government will sponsor up to 90% of the project cost and the applicant will have to contribute at least 10% of the project cost.

Annex B

Cleaner Production Technologies Demonstrated
Under the Cleaner Production Partnership Programme

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

(a) **Volatile organic compounds (VOC) reduction**

- to reduce solvent consumption through the use of ultraviolet (UV) cured coating system, centralized low-VOC dampening solution, or burn-off ovens; and
- to treat VOC through the application of low temperature plasma, UV degradation, catalytic oxidation, wet scrubbing, or bio-filtration.

(b) **Reduction of other air pollutant emissions**

- to reduce SO_2 emissions through the use of infrared (IR) heating furnace; and
- to reduce air pollutant emissions through the use of high-temperature heat pumps with automatic control.

(c) **Effluent and pollutant reduction**

- to reduce water and chemical consumptions through the use of dry cleaning machine with cleaning agent vapour recovery system, 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, or nano activated carbon adsorption;
- to enhance treatment efficiency of wastewater through the use of non-invasive electromagnetic scale control system; and
- to reduce amount of waste sludge through the use of photo-Fenton treatment.

(d) **Energy saving**

- to utilise renewable energy through the use of grid-connected photovoltaic system as ancillary electricity supply;
- to optimize the overall energy efficiency of the factory through the applications of automatic monitoring or management 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, on-line dryer fabrics cleaner, back press turbine, variable speed drives, centralized air-conditioning system with phase change material cooling thermal storage, or energy efficient rotary screw air compressor; and
- To reclaim waste heat through the use of waste heat recovery system on production machinery or exhaust system.
