

**For discussion on
26 November 2012**

**LEGISLATIVE COUNCIL
PANEL ON ENVIRONMENTAL AFFAIRS**

**EXTENSION OF THE CLEANER PRODUCTION
PARTNERSHIP PROGRAMME**

PURPOSE

This paper –

- (a) informs Members of the environmental benefits of the Cleaner Production Partnership Programme (the Programme) launched in April 2008; and
- (b) seeks Members' support to extend the Programme for two years from 1 April 2013 to 31 March 2015.

BACKGROUND

2. The Programme is a five-year programme launched by the Environmental Protection Department (EPD) in collaboration with the Economic and Information Commission of Guangdong Province (GDEIC)¹ in April 2008. The Finance Committee (FC) of the Legislative Council (LegCo) approved the creation of a new commitment of \$93.06 million for the Programme.

3. The Programme aims to encourage and facilitate Hong Kong-owned factories in both Hong Kong and the Pearl River Delta (PRD) region to adopt cleaner production (CP) technologies and practices². The

¹ GDEIC is the lead department of the Guangdong Provincial Government for promoting voluntary cleaner production to enterprises in Guangdong. The Environment Bureau signed a "Co-operation Agreement to Promote Energy Efficiency, Cleaner Production and Comprehensive Utilisation of Resources to Enterprises in Hong Kong and Guangdong" with GDEIC in August 2007.

² Cleaner production is a preventive, integrated strategy that applies to the entire production cycle to increase productivity by promoting a more efficient use of raw materials, energy and water, and to enhance environmental performance through reduction of waste and emissions at source.

Programme is being implemented by the Hong Kong Productivity Council (HKPC). It comprises four key initiatives, namely –

- (a) organising awareness promotion activities;
- (b) providing on-site improvement assessment for 800 – 1 000 participating factories;
- (c) conducting 120 demonstration projects on CP technologies and practices; and
- (d) providing third party verification service for 500 – 1 000 improvement projects implemented by participating factories.

EPD submits a progress report for the Programme to this Panel annually. As at end October 2012, the total funding committed under the Programme is close to 99%. It is envisaged that the funding allocation earmarked for implementation of the Programme will be fully expended upon completion of the Programme in January 2013.

ENVIRONMENTAL BENEFITS FROM THE PROGRAMME

4. The Programme has been making good progress in engaging and facilitating Hong Kong-owned factories to adopt CP technologies and practices. As at 31 October 2012, a total of 2 056 funding applications involving some 1 260 Hong Kong-owned factories were approved. These include 1 144 on-site assessments, 151 demonstration projects and verification services for 761 improvement measures implemented by participating factories. Close to 300 awareness promotion activities, mainly in the form of seminars, workshops, factory visits, and exhibitions, were organised and they attracted over 26 700 participants from some 6 600 enterprises. This has exceeded the targets set for the Programme when funding was approved by the FC.

Key initiatives	Targets	Approved Applications as at 31 October 2012
On-site Assessment	800 - 1 000	1 144
Demonstration Project	120	151
Verification Service	500 – 1 000	761

5. One of the key objectives of the Programme is to enhance the understanding of industries on CP. We have received positive feedback from the industry that the Programme has helped introduce the CP concept to both the management and staff of the Hong Kong-owned factories in the PRD region. Their general awareness level has been raised. In particular, participating factories had gained deeper knowledge and appreciation of CP technologies and practices. The Programme has also served as a useful platform for demonstrating CP technologies and sharing of experiences by participants, which is another main objective of the Programme. So far, four guidebooks on CP technologies have been published while six are being finalised. These guidebooks and other CP related information, such as reports on demonstration projects and factory visits, have been publicised in the dedicated website of the Programme. They help foster technical support to factories for identifying potential areas of improvements, and knowledge sharing of improvement options and measures at the factory level.

6. While the current Programme is primarily an awareness promotion and technical support initiative, the demonstration projects sponsored by the Programme as well as follow-up investment made by enterprises have brought about significant environmental and economic benefits to the PRD region. As rough indicators, it is estimated that the 151 demonstration projects approved by the Programme alone have contributed to reduction of emissions/discharges in the following order –

Pollutants	Emission / Discharges Reduction (tonne)
Volatile Organic Compounds (VOC)	480
Sulphur Dioxide (SO ₂)	520
Nitrogen Oxides (NO _x)	370
Carbon Dioxide (CO ₂)	110 000
Effluent discharges	2 100 000

Furthermore, an annual energy saving of some 950 tera-joules (TJ) has been achieved and the annual saving in production cost of the participating factories is in the region of \$72 million.

7. Majority of the demonstrated technologies for VOC reduction can reduce the emission levels by 30% - 90%, while those for reducing other air pollutants (i.e. SO₂ and NO_x) can achieve a reduction level from 10% - 80%. Some VOC reduction technologies can even eliminate VOC discharge by using alternative production materials. On effluent reduction and control as well as enhancing energy efficiency, the reduction potential of demonstrated technologies are also significant, e.g. ranging respectively from 50% - 90% and 30% - 80%.

8. It has also been estimated that the demonstration projects, together with other CP improvement measures implemented by the participating factories at their own cost, have achieved reduction of emissions / discharges in the following order –

Pollutants	Emission / Discharges Reduction (tonne)
VOC	3 400
SO ₂	4 400
NO _x	2 500
CO ₂	660 000
Effluent discharges	10 000 000

The annual energy saving is about 4 000 TJ and the annual saving in production costs is around \$700 million every year.

9. The Programme has also fostered regional collaboration with relevant Mainland authorities in reducing pollution arising from industrial production. The Administration has established partnership with the nine PRD municipalities in publicising the Programme and promoting CP. As at end of September 2012, more than 70 events had been jointly organised with the Mainland authorities to take forward the Programme. In 2009, the Environment Bureau and GDEIC have also jointly launched the Hong Kong-Guangdong Cleaner Production Partners Recognition Scheme to commend enterprises that have made notable achievements in pursuing CP. These joint efforts are crucial in improving the environment of the PRD region.

10. The Programme has also facilitated local environmental technology (ET) services providers to gain access to the growing

environmental market in Guangdong. These services providers have been supporting the Programme by providing on-site assessment, demonstration project consultation and installation services, etc. to factory operations in the PRD region. So far, 168 ET services providers have been registered under the Programme, of which 99 of them are Hong Kong registered companies and they have been in charge of more than half of the Programme-funded projects. The Programme has thus reinforced the development of local environmental industry, one of the six industries for priority development in Hong Kong.

PROPOSAL FOR EXTENSION

11. The Programme will end on 20 January 2013. In the light of the environmental benefits brought by the Programme and the positive feedback received from the industries, we **recommend** extending the Programme for another two years from 1 April 2013 to 31 March 2015 (the extension programme) to encourage and enable more Hong Kong-owned factories to participate. This will tie in with and support the National 12th Five-Year Plan which ends in 2015, which inter alia, promotes CP and strengthens pollution control measures. It will also help reinforce Hong Kong-Guangdong cooperation efforts in improving regional air quality. The proposed extension programme will require an additional funding of \$50 million. In designing the extension programme, we have taken into account the suggestions and feedback from the trades and various chambers of commerce while following the same guiding principles under the current Programme. Consideration has also been given to the need for adjusting the subsidy levels so as to meet the cost increases over the past years.

Key Initiatives

12. We recommend the extension programme to continue to focus on the four key initiatives of the Programme. The **proposed** framework for the extension programme is set out below –

- (a) *technology promotion* – we plan to organise around 60 – 80 such activities during the two-year period, mainly to facilitate sharing of knowledge and successful experiences in adoption of CP technologies and practices, and to enhance technological information exchange. These will be in the form of seminars, workshops, factory visits or exhibitions which will be held in

both Hong Kong and key industrial cities of the PRD region. The dedicated CP website together with the three enquiry hotlines set up under the current Programme will also be maintained.

- (b) *on-site improvement assessment for about 250 factories* - HKPC, in conjunction with other ET services providers, will continue to provide technical guidance and conduct on-site assessment for participating factories to identify and analyse the problems they face and propose practical improvement solutions. The focus of the assessments will continue to be on energy efficiency, reduction of air pollutant emissions as well as effluent reduction and control. All-rounded assessment covering other areas of improvement, such as reuse or recycling of waste and efficient utilisation of production materials, can also be provided for. The assessment costs will continue to be shared between the Government and the participating factories on a fifty-fifty basis. We **propose** to raise the funding ceiling for each on-site assessment from \$15,000 under the current Programme to \$25,000. Any cost exceeding the ceiling will be met by the participating factories.
- (c) *demonstration projects* – we **propose** to support around 90 projects in the two-year period to demonstrate the effectiveness and potential financial return of CP technologies through installation of equipment and/or modification of production processes at participating enterprises. The participating enterprises will be required to share their experience gained from the demonstration projects with other enterprises. The project cost will continue to be shared between participating factories and the Government on a fifty-fifty basis. We **propose** to raise the funding ceiling from \$160,000 to \$300,000 per project.
- (d) *verification services* – this will cover 80 - 120 improvement projects. For those factories which have already implemented improvement measures at their own cost, HKPC will continue to provide an independent third-party service to verify the effectiveness of such improvement projects. This service aims to help reinforce participating factories' confidence in investing in CP technologies and, through reporting and sharing of the verification results, stimulate other factories to follow suit. The service will continue to be provided free of charge to

participants, with a funding ceiling of \$20,000 per project. The current funding ceiling is \$15,000 per project.

A detailed cost breakdown of the above key programme initiatives is provided at **Annex**.

13. We **propose** to raise the “funding cap” for on-site improvement assessments, demonstration projects, and verification services under the extension programme mainly to meet the cost increases over the past five years, and encourage the use of more advanced CP technologies. For example, the proposed increase for the funding ceiling for demonstration projects from \$160,000 to \$300,000 will allow the adoption of higher-end technologies and/or larger scale projects which would have more substantial environmental and economic benefits in future.

14. Under the extension programme, the number of demonstration projects to be supported will be increased from around 30 to 45 projects a year. This adjustment is **proposed** in light of positive responses received from the trades and the significant environmental benefits brought by this initiative. Experience in the past five years indeed proves that demonstration through successful CP projects is an effective means to inspire other factories to follow suit, resulting in greater reduction in pollutant emissions and energy consumption.

Other Adjustments

15. While the extension programme will continue to provide technical support on energy efficiency, air pollutant reduction as well as effluent reduction and control, we **propose** to place a greater focus on encouraging the use of VOC and NO_x reduction technologies/processes. Ozone pollution and haze problem are major regional air pollution problems, and VOC and NO_x are the culprits. Reducing their emission would help relieve the smog problem of the region.

16. As enterprises in the PRD region are now more ready and confident to adopt CP technologies than the Programme was first launched in 2008, we **propose** to focus promotion activities on sharing experience of demonstration projects instead of raising awareness and recruiting participating factories as under the current Programme.

17. We also **propose** to widen the geographical coverage of the

extension programme from the nine municipalities in Guangdong³ to the entire Guangdong Province. There have been “relocation” of factories from the PRD region to other Guangdong municipalities in recent years, and this relaxation will enable enterprises operating in Guangdong Province outside PRD to be eligible for the extension programme, although our outreaching work will still focus in the PRD region.

18. In view of the small number of factories operating in Hong Kong, we **propose** workshop type enterprises which involve polluting processes in Hong Kong should be allowed to apply for demonstration projects under the extension programme. Such processes could be paint-spraying and curing, solvent cleaning of metal parts and components, and vehicle engine testing, etc. The proposed relaxation will help reducing local pollution level and improve our air quality.

Implementation of the Extension Programme

19. HKPC is the implementation agent of the Programme. It is responsible for administration of the approved funding; including receiving and vetting Programme applications, reaching out to potential applicants, monitoring the progress of approved projects, drawing up annual implementation plans, planning and organising publicity and technology promotion activities, etc.

20. We **propose** to continue to engage HKPC as the implementation agent of the extension programme having regard to the need for ensuring continuity and smooth implementation of the extension programme. The following considerations regarding the unique positioning of HKPC are also relevant –

- (a) HKPC is a statutory organisation specifically set up to provide technical support to the Hong Kong industry and enhance its international competitiveness. With more than 30 years’ experience in providing technical support to the industry in environmental protection aspects, HKPC has developed extensive expertise and experience in industrial pollution prevention, cleaner production and energy efficiency which are essential for supporting the operation of the extension

³ The nine municipalities in the PRD region are Guangzhou, Shenzhen, Dongguan, Foshan, Huizhou, Zhaoqing, Jiangmen, Zhongshan and Zhuhai.

programme;

- (b) HKPC has built up wide network, mutual trust and long partnership with the manufacturing sector and the Mainland authorities. These strengths are essential in inspiring the confidence of the prospective participants in the extension programme; and
- (c) the extension programme involves partnership with ET services providers in delivering support services and technology solutions to a large number of targeted factories. As a public organisation, HKPC is best placed to give an impartial assessment on the work of ET services providers and avoid any potential conflict of interest which might arise should the extension programme be led by an environmental project consultant or services provider from the private sector.

21. EPD will also actively support the Programme by closely liaising with the relevant Guangdong authorities, including GDEIC, to seek their continuous support and policy advice, as well as their active participation in related publicity and technology promotion activities.

Control and Review Mechanism

22. Following the arrangement of the current Programme, a Project Management Committee (PMC) will oversee the implementation of the extension programme. It will *inter alia* draw up project administration guidelines and application selection criteria; consider applications and monitor the implementation of approved projects; and review and monitor the overall progress of the Programme. HKPC will also draw up an annual implementation plan and submit regular progress reports to the PMC. The PMC will be chaired by the Under Secretary for the Environment and comprise representatives from the Trade and Industry Department, HKPC and four major trade and industry associations, namely, the Hong Kong General Chamber of Commerce, the Federation of Hong Kong Industries, the Chinese Manufacturers' Association of Hong Kong and the Chinese General Chamber of Commerce. Other departments such as the Innovation and Technology Commission, related organisations and/or experts will also be invited to join as co-opt members as appropriate. EPD will continue to provide progress reports to this Panel on an annual basis.

Timing

23. Subject to FC's approval on the funding allocation of \$50 million for the extension programme, we plan to roll it out in April 2013.

Expected Benefits

24. The implementation of the extension programme is expected to deliver the following benefits -

- (a) providing a dedicated CP portal on practical guidance and case examples of CP technologies and process options to facilitate sharing of experience and good practices amongst factories;
- (b) providing on-site assessment services for some 250 participating factories to assist them in identifying measures to reduce energy consumption and pollutant emissions, as well as related resource and cost saving opportunities;
- (c) sponsoring some 90 demonstration projects to showcase practicable CP technologies and process options;
- (d) providing independent evaluation for 80 – 120 CP applications to verify their effectiveness which should help reinforce and bring further CP investments;
- (e) inspiring participating factories to reduce air pollution emissions and effluent discharges, thus making a positive contribution to improving the regional environment; and
- (f) reducing energy, water and resources consumption at participating factories, thereby resulting in productivity gain and cost reduction.

25. The extension programme will also create business and job opportunities for the local ET services providers. It is estimated that some 50 full-time jobs will be created for Hong Kong by implementation of the two-year extension programme. Through participation in the technology promotion activities, on-site improvement assessments and demonstration projects, the programme will also help open up attractive business

opportunities for ET services providers which are interested in the Guangdong market.

26. The adoption of CP will help Hong Kong businesses in the industrial upgrading process as promoted by the National 12th Five-Year Plan. It will foster the development of a sustainable culture of cleaner production in the region. This will in turn bring more environmental, economic and social benefits in terms of energy-efficient operations, better air and water quality.

CONSULTATION

27. We held exchange sessions with the trades and chambers of commerce earlier this year. The latter considered there was a strong case to extend the Programme beyond 2012 having regard to the considerable interest in Hong Kong-owned factories in Guangdong for technical support and know-how in applying CP technologies and practices. These factories need to meet the tightened environmental control by the Guangdong authorities in building an environmental and resource-friendly society under the National 12th Five-Year Plan. They were supportive of the above extension proposal.

28. The four major industry associations welcome the extension programme. Their views and suggestions have been incorporated in the design of the extension programme, e.g. scope of the programme, cost sharing arrangement and funding ceilings, wider geographical coverage, etc. They are also supportive to the proposal of placing more focus to encourage more VOC and NO_x emission reduction projects in the extension programme.

FINANCIAL AND CIVIL SERVICE IMPLICATIONS

29. The total Government funding required for the proposed two-year extension programme is \$50 million. Participating factories will contribute around \$33 million through the cost-sharing arrangements for on-site improvement assessments and demonstration projects. The cost-sharing arrangement will continue to maintain a balance between government support and participating factories' commitment. As the implementation agent, HKPC will make contributions in terms of manpower support, office rentals and other ancillary, technical and support services at an estimated value of around \$6.2 million in two years. Subject to the support of this Panel, we

plan to seek funding approval from the Finance Committee in December 2012.

30. EPD will continue to deploy a dedicated professional team led by a Senior Environmental Protection Officer to render support to the extension programme. The necessary staffing cost will be absorbed by the existing provision of the Department.

ADVICE SOUGHT

31. Members are invited to support the proposed two-year extension of the Programme.

**Environmental Protection Department
November 2012**

Estimated Cost Breakdown for the Extension Programme

	Funding by Government (HK\$ million)
1. TECHNOLOGY PROMOTION	
Events Organization, Publicity and Promotion (seminars, factory visits, exhibitions, website, guidebooks etc)	3.28
Organisation of the “Hong Kong–Guangdong Cleaner Production Partners Recognition Scheme”	1.90
Sub Total	5.18
2. ON-SITE IMPROVEMENT ASSESSMENTS	
Project Implementation Costs	6.25
Sub Total	6.25
3. DEMONSTRATION PROJECTS	
Project Implementation Costs	27.00
Sub Total	27.00
4. VERIFICATION SERVICES	
Project Implementation Costs	2.00
Sub Total	2.00
5. PROGRAMME MANAGEMENT & TECHNICAL SUPPORT	
(i) Programme Manager	4.16
Sub Total	4.16
(ii) Programme Management	
- Mainland Programme Supporting Staff (4 nos.)	1.43
- Mainland Office Accommodation	0.48
Sub Total	1.91
(iii) Programme Technical Support Team	
- Team Members (3 nos.)	3.50
Sub Total	3.50
TOTAL	50.00