For discussion on
27 May 2013

THE LEGISLATIVE COUNCIL
PANEL ON ENVIRONMENTAL AFFAIRS

ENVIRONMENTAL INFRASTRUCTURE PROJECTS

(i) 5163DR: Northeast New Territories (NENT) landfill extension

(ii) 5164DR: Southeast New Territories (SENT) landfill extension

(iii) 5165DR: West New Territories (WENT) landfill extension

1. PURPOSE

The provision of adequate waste treatment and disposal infrastructure is indispensable in any sustainable waste management strategy. This paper seeks Members' support for our proposal to –

(a) upgrade **5163DR** to Category A at an estimated cost of $7,026.9 million in money-of-the-day (MOD) prices;

(b) upgrade **5164DR** to Category A at an estimated cost of $1,886.4 million in MOD prices; and

(c) upgrade part of **5165DR** to Category A at an estimated cost of $35.1 million in MOD prices.

2. ACTION BLUEPRINT 2013 – 2022 AND RELATED ISSUES

2.1 The Environment Bureau released the "Hong Kong Blueprint for Sustainable Use of Resources 2013–2022" (hereafter referred to as the

"Action Blueprint") on 20 May 2013[1], which maps out a comprehensive strategy, with targets, policies and action plans for waste management for the coming 10 years to tackle our imminent waste challenge. We have set an aggressive target to reduce the per capita disposal rate of municipal solid waste (MSW) by 40% by 2022. To achieve this goal, the Action Blueprint proposes policies and actions in three areas, with multiple and concurrent actions to:

(a) drive behavioural change for waste reduction through policies and legislation, including MSW charging and producer responsibility schemes;

(b) roll out targeted territory-wide waste reduction campaigns to mobilize the public; and

(c) allocate resources for waste-related infrastructure, including organic waste treatment facilities (OWTFs), waste-to-energy integrated waste management facilities etc.

2.2 Yet, even if measures and facilities are taken forward as planned, and waste reduction targets are achieved as set, there will still be about 10,000 tonnes of waste that require disposal every day in 2017. With the three existing landfills to be exhausted one by one by 2019 (see **Annex A**), while large scale waste-to-energy facilities yet to come on stream by then, we have no means to tackle such waste apart from extending landfills in time.

3. LANDFILL EXTENSION PROJECTS

3.1 Landfills in Hong Kong

3.1.1 Landfills are an essential and ultimate part of the waste management chain everywhere in the world and the same applies to Hong Kong. No matter how hard we work to reduce waste, there will still be inert materials, non-recyclables, construction waste and post-treatment residues that need to be disposed of, and in the case of Hong Kong, MSW that could not be otherwise treated due to lack of modern waste treatment facilities.

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1 The blueprint is available at the website of the Environmental Protection Department (www.epd.gov.hk).

3.1.2 Today, there are three modern strategic landfills established in three corners of Hong Kong – Northeast New Territories, West New Territories and Southeast New Territories. The locations of the three existing landfills were chosen for transport optimization in terms of emissions and costs for waste arising from all over the territory[2].

3.1.3 Hong Kong's landfills are engineered to a very high standard, including stringent control measures to prevent potential nuisances caused by odour, landfill gas and leachate to its surrounding environment. The implementation of the following measures and facilities will bring further improvements to the surrounding environment:

(a) the odourous **sludge** will no longer be landfilled upon the commissioning of Sludge Treatment Facility (STF) by end 2013;

(b) there will be progressive **reduction in food waste** to be landfilled with the commissioning of OWTFs and reduction through Food Wise Hong Kong Campaign; and

(c) as all the **refuse collection vehicles** (RCVs) are diesel commercial vehicles, the scheme on early retirement of pre-Euro IV diesel commercial vehicles will greatly reduce the age of the fleet and improve its environmental performance; and

(d) the promotion of Code of Practice on the Operation of RCVs and the stepping up of monitoring (e.g. through blitz

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2 According to the White Paper "Pollution in Hong Kong – A Time to Act" issued on 5 June 1989 and the subsequent Waste Disposal Plan issued in the same year, there should be three new landfills in Hong Kong distributed on a regional basis for the following reasons:

(a) the daily quantity of MSW could not be handled by one or two landfills simply because of the strain that would be placed on the surrounding road network and on the landfill sites themselves;

(b) the increases in MSW were projected for the western and north-eastern New Territories and provision of disposal facility in each of these areas would help reduce transportation costs; and

(c) there would continue to be a need for a final disposal facility in reasonable proximity to Hong Kong Island in order to contain the transportation cost for waste arising from urban areas.

The existing 3 strategic landfills were therefore located at the western, north-eastern and south-eastern New Territories regions within the territory in the absence of other alternative site available in Kowloon and Hong Kong Island.

operations) will help reduce the **environmental nuisance of such vehicles**.

3.2 Landfill Extensions

3.2.1 As mentioned above, even with our best efforts, it is estimated that by 2017, there will still be about 10,000 tonnes of waste requiring disposal every day. Given the rapid successive filling up of existing landfills, we need to secure new landfill capacity urgently and we affirm that we will proceed with the three landfill extension projects. The three extension projects are crucial in providing adequate disposal outlets in time to serve the whole territory under the proximity principle and maintain a balanced geographical distribution of disposal facilities. The details of the three landfill extension projects, **5163DR**, **5164DR** and **5165DR**, are set out in sections 4.1 to 4.3 below.

4 FUNDING APPLICATIONS

4.1 5163DR: NENT Landfill Extension

4.1.1 Proposal and Justification

4.1.1.1 The existing NENT Landfill is expected to be exhausted in 2016/17. In early 2008, we completed an engineering feasibility and environmental impact assessment (EIA) study of the proposed site in the Ta Kwu Ling and Sha Tau Kok area, south east of the existing NENT Landfill. The extension site covers about 70 hectares (ha) of land, comprising mainly the stockpile and borrow area (SBA)[3] and the waste reception area (WRA)[4] of the existing NENT Landfill (about 38 ha) with some additional land (about 32 ha) at the north-western side and south-western side of the SBA. According to the engineering feasibility study, the NENT Landfill Extension could provide about 19 million cubic metres of additional landfill capacity to cope with the continuous need for final waste disposal in the north-eastern part of the territory.

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3 The SBA is a borrow area for the existing NENT Landfill contract. The existing contractor can excavate material including soil and rock, and use as cover material for daily operation and capping material during restoration works.

4 The WRA is the area where the weighbridges are installed to facilitate the ingress and egress of waste collection vehicles. Utilities and other infrastructures including office buildings are also located in WRA for the operation of the landfill.

4.1.1.2 The scope of **5163DR** comprises all works necessary for the development of NENT Landfill Extension including –

(a) landfill design[5] and site formation (including utilities provision and drainage diversion);

(b) provision and relocation of landfill infrastructure;

(c) provision of landfill liner system[6];

(d) provision of leachate collection and treatment system[7];

(e) provision of landfill gas (LFG) collection and management system[8];

(f) implementation of measures to mitigate environmental impacts and environmental monitoring and auditing for construction works;

(g) engagement of community stakeholders; and

(h) construction of restoration and aftercare[9] facilities.

A plan showing the location of the proposed NENT Landfill Extension is at **Annex B1.** Subject to funding approval of the Finance Committee (FC), tendering will start in early 2014 and the construction works are scheduled to start in late 2014 with a view to commencing waste intake in late 2016.

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5 The landfill is designed as a secure containment system, which primarily consists of multilayer impermeable composite liners to contain landfill gas and leachate generated, so that the waste is deposited and treated under a controlled environment.

6 The landfill liner system consists of multilayer impermeable composite liners installed at the formation level to contain landfill gas and leachate produced during the degradation process and prevent them from leaving the landfill to the surrounding environment.

7 Leachate is the liquid that has percolated through solid waste. The source of the liquid is primarily the water already present in the waste and any water induced from an external source such as rain water and ground water. The leachate management system comprises leachate collection network, pump sumps, storage lagoons, rising mains and treatment plants for handling and treating leachate.

8 LFG is produced during the waste degradation process. It is made up of several gases such as methane which are potentially flammable and harmful to health. The LFG management system comprises collection network, gas extraction system and flaring unit for handling and treating **landfill gas.**

9 Restoration and aftercare facilities include the installation of the capping system, sub-surface drainage system, monitoring facilities and landscape works.

4.1.2 Financial Implications

4.1.2.1 We estimate that –

(a) the capital cost of the proposed landfill extension project to be about $7,026.9 million in MOD prices;

(b) the additional annual recurrent expenditure arising from the NENT Landfill Extension is about $81 million; and

(c) the proposed works will create about 682 jobs (540 for labourers and another 142 for professional/technical staff) providing a total employment of 46,770 man-months.

4.1.3 Public Consultation/ Engagement

4.1.3.1 We have adopted a continuous public involvement approach during the planning and development stages of the project, including the statutory EIA process. We have conducted a series of public consultation/engagement sessions through which we considered and addressed the concerns of relevant stakeholders and other interested parties on the landfill extension project. A summary of the key public consultation/engagement activities held is at **Annex B2**.

4.1.3.2 We have consulted the North District Council (NDC) since 2004 on the proposal to conduct engineering feasibility and EIA study for the project, and from time to time reported to NDC on the study progress. We consulted the NDC on 12 April 2007 regarding the EIA findings and the latest development of the project, a motion objecting to the NENT Landfill Extension was moved by the NDC at the meeting.

4.1.3.3 As the proposed NENT Landfill Extension site is located between Ta Kwu Ling (TKL) and Sha Tau Kok (STK), the Ta Kwu Ling District Rural Committee (TKLDRC) and the Sha Tau Kok District Rural Committee (STKDRC) are also key stakeholders and local objections to the project had been received from them. In response to local concerns, the North District Office (NDO) and the Environmental Protection Department (EPD) have taken the lead to set up a Working Group with representatives from the TKLDRC and STKDRC in early 2009. The Working Group provides a forum for stakeholders to express their views and map out measures and betterment programmes to address their concerns. Liaison meetings under this Working Group had been held regularly to brief and update stakeholders of the latest development of the

landfill extension project. Ten meetings have been held so far, with most of the requests under the betterment programmes (mainly concerning improvement to local environment like greening or community facilities) successfully met or being explored. We will continue to carry out enhancement and associated works, and consider actively the requests for implementation of local enhancement works.

4.1.3.4 Subsequently, in a consultation with the NDC on 9 June 2011 regarding Hong Kong's latest waste management strategy and the action plan, including the implementation of the NENT Landfill Extension project, the NDC members were generally supportive of the waste management strategy. We will continue to maintain close liaison with the NDC, local community and other relevant stakeholders in taking forward the project.

4.1.4 Environmental Implications

4.1.4.1 **5163DR** is a designated project and the EIA report was completed and approved under the EIA Ordinance on 20 September 2007 after consulting the general public and the Advisory Council on the Environment (ACE). The Environmental Permit (EP) for the construction and operation of the landfill was issued on 26 November 2007. The project would need to comply with the requirements in accordance with the EP conditions.

4.1.4.2 For impacts during construction stages, we will control noise, dust and site run-off to levels within the established standards and guidelines, through the implementation of mitigation measures such as the use of quiet construction plants to reduce noise generation, water-spraying to reduce dust emission as well as proper containment and treatment of site run-off.

4.1.4.3 During the operation phase, we will control the size of the active tipping area to minimize odour nuisance and the assessment shows that there would be no adverse impact on the nearby air sensitive receivers except Tong To Shan Tsuen which has been unoccupied for more than a decade. Impact due to odour is scarce and transient in nature. Odour nuisance will be mitigated with good site practices, including applying daily cover on waste, covering up of inactive tipping face with plastic sheets, positioning of active tipping face further away from air sensitive receivers, etc. To further minimize the odour issue, we will include a condition in the contract provisions requiring the landfill operator to cover up all (both temporary and permanent) leachate

storage tanks.

4.1.4.4 The landfill design is a containment design and its impermeable bottom liner provides a barrier separating the waste cells from the environment. Leachate and LFG generated during biodegradation process will be contained, collected and properly treated in a control environment. Under the landfill contract, we will require the contractor to implement a LFG utilization and export scheme to make full beneficial use of all collected LFG both on site and off site. For on site utilization, LFG will be used as fuel for generating electricity for site operation and converting to heat energy for leachate treatment process. For off site utilization, LFG is delivered via a 19 km pipeline to the production plant of the Hong Kong & China Gas Company Limited in Tai Po for use as alternative fuel. Leachate generated will be contained and collected by pipe networks and treated at the leachate treatment plant within the landfill before discharged to the public sewerage system for further treatment. We shall ensure that both LFG and leachate would have no adverse impact on the air and water quality of the environment respectively.

4.1.4.5 Among the possible layout options, we have chosen an option with total exclusion of the Lin Ma Hang Stream and its catchment area to avoid potential losses, damages and impacts to the existing flora, fauna and natural habitats. The selected option also avoids any potential impact on areas containing archaeological potential, built heritage and cultural landscape, etc.

4.1.4.6 At the planning and schematic design stages, we have considered adopting a balance cut and fill design to reduce the generation of construction waste where possible. In addition, we will require the contractor to reuse inert construction waste (e.g. excavated soil and rock) on site or in other suitable construction sites as far as possible, in order to minimize the disposal of inert construction waste at public fill reception facilities. We will require the contractor to maximize the use of recycled/ recyclable inert construction waste and the use of non-timber formwork as far as practicable and cost-effective to further reduce the generation of construction waste.

4.1.4.7 At the construction stage, we will require the contractor to submit for approval a plan setting out the waste management measures, which will include appropriate mitigation measures to avoid, reduce, reuse and recycle inert construction waste. We will ensure that the day-to-day operations on site comply with the approved plan. We will

require the contractor to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. We will control the disposal of non-inert construction waste to landfills through a trip-ticket system.

4.1.4.8 We estimate that the project will generate in total about 117 600 tonnes of construction waste. Of these, we will reuse about 105 840 tonnes (90%) of inert construction waste on site. We will dispose of the remaining 11 760 tonnes (10%) of non-inert construction waste at landfill. The total cost for accommodating construction waste at landfill is estimated to be about $1.5 million for this project (based on a unit cost of $125 per tonne for disposal at landfill).

4.1.4.9 Compensatory tree planting and greening work will be required under the contract to compensate for the loss of existing woodland and shrubland within the site boundary. When the landfill is fully filled and restored, the site will be planted with vegetation to match with its surrounding landform and patterns.

4.1.4.10 The approved EIA report has provided a comprehensive assessment of the potential environmental impacts associated with the construction, operation, restoration and aftercare phases of the project. With the implementation of the proposed mitigation measures, the EIA concluded that the potential environmental impacts of the NENT Landfill Extension would be controlled to within established standards and guidelines. An environmental monitoring and audit programme is also recommended to ensure the effectiveness of the proposed mitigation measures.

4.2 5164DR: SENT Landfill Extension

4.2.1 Proposal and Justification

4.2.1.1 The SENT Landfill is expected to be exhausted in 2014/15, the first among the three existing landfills. It is essential to extend the SENT Landfill because it is the territory's single largest disposal outlet for construction waste due to the synergy created by the proximity of the SENT Landfill, the construction waste sorting facility and a public fill bank in TKO Area 137. Some 2,320 tonnes of construction waste are being disposed of at the SENT Landfill each day, which account for about 67% of the overall construction waste disposed of daily at the three landfills. The proposed scheme of the Extension, which will occupy about 13 ha of land in TKO Area 137 and about 30 ha of land within the

existing SENT Landfill, will provide a total capacity of about 6.5 million cubic metres.

4.2.1.2 The scope of **5164DR** comprises all works necessary for the development of SENT Landfill Extension including –

(a) landfill design and site formation (including utilities provision and drainage diversion);

(b) provision and relocation of landfill infrastructure (including demolition of existing infrastructure and reprovision of new infrastructure);

(c) provision of landfill liner system;

(d) provision of leachate collection and treatment system;

(e) provision of LFG collection and management system;

(f) implementation of measures to mitigate environmental impacts, and environmental monitoring and auditing for construction works;

(g) engagement of community stakeholders; and

(h) construction of restoration and aftercare facilities.

A plan showing the location of the proposed scheme of the SENT Landfill Extension is at **Annex C1**. Subject to the funding approval by the FC, we will commence with tender procurement and seek to start the construction works in mid 2014 with a view to commencing waste intake in early 2016.

4.2.2 Financial Implications

4.2.2.1 We estimate that:

(a) the capital cost of the proposed landfill extension project to be about $1,886.4 million in MOD prices;

(b) the annual recurrent expenditure will be reduced by about $22 million after commissioning the SENT Landfill Extension; and

(c) the proposed works will create about 360 jobs (282 for labourers and another 78 for professional/technical staff) providing a total employment of 10,600 man-months.

4.2.3 Public Consultation/Engagement

4.2.3.1 We have adopted a continuous public involvement approach with the statutory bodies, non-statutory organizations and local representatives since the inception of the project in 2004. A summary of the key public consultation/engagement activities is at **Annex C2**. We have consulted the Sai Kung District Council (SKDC), the ACE, green groups, professional bodies and institutions, education institutions and the TKO community. In addition, we have organized over 500 site visits (with some 15,000 visitors) to SENT Landfill, roving exhibitions and road shows in TKO and arranged outreach programmes for schools and residents in TKO to introduce the SENT Landfill Extension project to the local community.

4.2.3.2 Among the three landfills, SENT Landfill is the closest to major residential developments, thus called for extra efforts in addressing community concerns on air quality, odour and dust. On **odour** concerns, apart from measures set out in paragraph 3.1.3, we will designate the proposed SENT Landfill Extension for the reception of only construction waste with no odour concern. MSW will no longer be accepted upon the designation, resulting in reduction of relevant vehicle count by half when only construction waste is received. And from mid-2013, an on-site odour monitoring team will operate from 6am to 2am every day to enhance monitoring on and provide swift response to odour issue. To step up monitoring on **air quality**, we will measure PM2.5 at Wan Po Road from July 2013 onwards, and establish an air monitoring station in Tseung Kwan O. For addressing concerns on **dust**, frequent cleansing of Wan Po Road has been arranged.

4.2.3.3 We last consulted SKDC on 3 May 2011 on the project. The meeting concluded that most SKDC members present at that meeting supported or had no objection to the scheme under which the landfill extension will be reduced and only construction waste will be received and thereby addressed the community's concern on the odour problem. We will continue to maintain close liaison with SKDC and other relevant stakeholders in taking forward the extension project. We will also continue to carry out enhancement and associated work, and consider actively the requests for implementation of local improvement works.

4.2.4 Environmental Implications

4.2.4.1 **5164DR** is a designated project and the EIA report for the original scheme of the Extension was approved under the EIA Ordinance on 6 May 2008 after consulting the general public and the ACE. The EP for the construction and operation of the landfill was issued on 5 August 2008. The project would need to comply with the requirements in accordance with the EP conditions.

4.2.4.2 With the proposed scheme of the Extension and keeping odourous waste away from the extended landfill, it is anticipated that the environmental impacts and the traffic impact of the proposed scheme will be significantly reduced. An environmental review report with an application for variation of EP was submitted to the EIA Authority on 9 December 2011. The report concluded that with the implementation of the proposed mitigation measures, the environmental impacts of the proposed scheme are acceptable. On 6 January 2012, the Director of Environmental Protection issued an amended EP for the proposed scheme of the Extension. We will continue to comply with the conditions in the amended EP.

4.2.4.3 For impacts during construction stage, we will control noise, dust and site run-off to levels within established standards and guidelines, through the implementation of mitigation measures such as the use of quiet construction plant to reduce noise generation, water-spraying to reduce dust emission and proper pre-treatment of site run-off. We will also carry out close site inspections to ensure that these recommended mitigation measures and good site practices are properly implemented.

4.2.4.4 During the operation phase, we will control the size of the active tipping area even though the proposed extension scheme will only receive construction waste for disposal.

4.2.4.5 The landfill design is a containment design and its impermeable bottom liner provides a barrier separating the waste mass from the environment. LFG and leachate will be contained, collected and properly treated by treatment facilities to be reprovided on site. LFG will be utilized on site for generating electricity for site operation and converting to heat energy for leachate treatment process and can be exported off site for other beneficial uses. All leachate storage tanks will be covered up. We shall ensure that both LFG and leachate would have no adverse impact on air and water quality of the environment.

4.2.4.6 At the planning and schematic design stages, we have considered setting the base of the landfill above the ground water table to reduce the generation of construction waste where possible. In addition, we will require the contractor to reuse inert construction waste (e.g. excavated soil and demolished concrete) on site or in other suitable construction sites as far as possible, in order to minimize the disposal of inert construction waste at public fill reception facilities. We will require the contractor to maximize the use of recycled/ recyclable inert construction waste, and the use of non-timber formwork as far as practicable and cost-effective to further reduce the generation of construction waste.

4.2.4.7 At the construction stage, we will also require the contractor to submit for approval a plan setting out the waste management measures, which will include appropriate mitigation means to avoid, reduce, reuse and recycle inert construction waste. We will ensure that the day-to-day operations on site comply with the approved plan. We will require the contractor to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. We will control the disposal of inert construction waste and non-inert construction waste to public fill reception facilities and landfills respectively through a trip-ticket system.

4.2.4.8 We estimate that the project will generate in total about 7 450 tonnes of construction waste. Of these, we will reuse about 5 600 tonnes (75%) of inert construction waste on site. We will dispose of the remaining 1 850 tonnes (25%) of non-inert construction waste at landfill. The total cost for accommodating construction waste at landfill is estimated to be about $0.23 million for this project (based on a unit cost of $125 per tonne for disposal at landfill).

4.2.4.9 Mixed woodland planting will be provided under the landfill extension contract to compensate the loss of shrubland and grassland in the extension area. Advance screen planting will also be provided along the High Junk Peak Trail. When the landfill is fully filled and restored, the site will be planted with vegetation to match with its surrounding landform and patterns.

4.2.4.10 The approved EIA report and subsequent environmental review report have provided comprehensive assessments of the potential environmental impacts associated with the construction, operation, restoration and aftercare phases of the project. With the implementation of the proposed mitigation measures, the reports concluded that the

potential environmental impacts of the SENT Landfill Extension would be controlled to within established standards and guidelines. An environmental monitoring and audit programme is also recommended to ensure the effectiveness of the proposed mitigation measures.

4.3 5165DR: WENT Landfill Extension

4.3.1 Proposal and Justification

4.3.1.1 The WENT Landfill is forecast to be exhausted in 2019. The proposed WENT Landfill Extension site covers some 200 ha of land and could provide about 81 million cubic metres of additional landfill capacity to cope with the continuous need for final waste disposal in the western part of the territory, and in a longer term for the whole territory. The scope of the extension project comprises site formation, backfilling of a stream outfall, construction of surface water and ground water management systems, installation of leachate and LFG management systems, restoration works after landfill closure and aftercare, as well as realignment of a section of the Nim Wan Road. A layout plan showing the location of the proposed WENT Landfill Extension is at **Annex D1**.

4.3.1.2 We have substantially completed an engineering feasibility and EIA study for the WENT Landfill Extension project, which confirms the engineering feasibility of the WENT Landfill Extension project and that with appropriate environmental mitigation measures, the project will be environmentally acceptable. Since the engineering feasibility and EIA study was conducted a few years ago and in the light of the latest development at the vicinity including the STF and the proposed columbarium development at Tsang Tsui, and other interfacing issues, it will be prudent to update the study findings. We plan to commission a consultancy study with an estimated cost of $35.1 million in MOD prices to undertake the updating and to make the necessary preparation for the project.

4.3.1.3 The scope comprises mainly –

(a) a consultancy for conducting the proposed study, which includes –

(i) outline design of the extension scheme;

(ii) gazette arrangement for Nim Wan Road realignment and backfilling of a stream outfall, and associated revision to

outline design;

(iii) study on interfacing and handing-over issues;

(iv) arrangement and supervision of site investigation and baseline surveys[10] in (b) below;

(v) tender document preparation, tender assessment and contract procurement; and

(vi) contract management and administration of resident site staff in the initial four years of the design-build-operate contract, and

(b) associated site investigation works, baseline surveys and publicity programme.

Subject to FC's funding approval, we plan to commission the consultancy study by late 2013. Approval for full-upgrading of the WENT Landfill Extension project will be sought in 2015 with a view to commencing the construction works of the initial development of the landfill extension in 2016 for timely commencement of waste intake in 2018/19.

4.3.2 Financial Implications

4.3.2.1 We estimate that the cost of the proposed consultancy study is about $35.1 million in MOD prices. The proposed consultancy study will not give rise to any recurrent consequence. We estimate that the proposed works under this part-upgrading of **5165DR** will create about 12 jobs (2 for labourers and another 10 for professional/technical staff) providing a total employment of 290 man-months.

4.3.2.2 For the remaining part of the project to be full-upgraded in the future, which would involve the award of a design-build-operate contract, we estimate that the cost is over $9,000 million in September 2012 prices. More updated cost estimate will be provided when we conduct the full-upgrading exercise in the next stage.

4.3.3 Public Consultation/Engagement

[10] Baseline surveys include topographic survey, environmental survey, tree survey, utilities survey, etc. to collect the most updated information to facilitate the engineering and environmental reviews and necessary modifications.

4.3.3.1 We have adopted a continuous public involvement approach during the planning and development stages of the project, including the statutory EIA process. We have conducted a series of public consultation/engagement sessions through which we considered and addressed the concerns of relevant stakeholders and other interested parties. A summary of the key public consultation/engagement activities held is at **Annex D2**.

4.3.3.2 We have been consulting the Tuen Mun District Council (TMDC) since 2004 on the proposal to conduct engineering feasibility and EIA study for the project, and from time to time reported to TMDC on the study progress. During the TMDC consultation in January and September 2009, TMDC members passed a motion objecting to further waste facilities in Tuen Mun, and requested the Government to review the overall planning on the long-term development of Tuen Mun. To address members' concern, the Environment Bureau (ENB) took the lead and set up the Tuen Mun Development Liaison Working Group, with representatives from ENB, Development Bureau, Transport and Housing Bureau, Food and Health Bureau, Home Affairs Department and TMDC members, to look into strategic matters relating to the long-term development of the district. Ten meetings have been held since March 2009 to follow up TMDC members' proposals and to report on the progress and development of the action items. A number of improvement and betterment measures have been or are being undertaken, including the improvement of the Tuen Mun transport system and public transport services, enhancement of Tuen Mun Area 46 for high value usage, vitalization of Tuen Mun industrial area and establishment of an air monitoring station in Tuen Mun town centre. We will continue to maintain close liaison with TMDC, the local community and other relevant stakeholders in taking forward the project.

4.3.4 Environmental Implications

4.3.4.1 In view of the work nature of the proposed study, we consider that there is little environmental implication to be incurred by this consultancy study. We will implement suitable mitigation measures to control the short-term environmental impacts from the site investigation works. The proposed consultancy study which includes site investigation works will only generate very little construction waste. We will require the consultant to fully consider measures to minimize the generation of construction waste and to reuse/recycle the construction waste as much as possible in the future implementation of the construction projects.

4.3.4.2 The project **5165DR** is a designated project under the EIA Ordinance. The EIA report for the project was approved on 20 November 2009 after consulting the general public and the ACE. The EP for the construction and operation of the landfill was issued on 3 June 2010.

4.3.4.3 The approved EIA report has provided a comprehensive assessment of the potential environmental impacts associated with the construction, operation, restoration and aftercare phases of the project. With the implementation of the proposed mitigation measures, the EIA concluded that the potential environmental impacts of the WENT Landfill Extension would be controlled to within the established standards and guidelines. An environmental monitoring and audit programme is also recommended to ensure the effectiveness of the proposed mitigation measures.

5. ADVICE SOUGHT

5.1 Members are invited to support our proposal for putting forward the proposed upgrading of **5163DR**, **5164DR** and part of **5165DR** to Category A to the LegCo Public Works Subcommittee (PWSC) for approval. Subject to Members' advice, we plan to submit our proposals for consideration by the LegCo PWSC in June 2013 with a view to seeking the FC's approval in July 2013.

Environment Bureau/Environmental Protection Department
May 2013