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Optimising the Environmental Impact Assessment Ordinance Process

PURPOSE

At the 252nd ACE meeting on 7 March 2022, we briefed Members on the overall approach and scope for the review on the environmental impact assessment (EIA) process stipulated under the Environmental Impact Assessment Ordinance (EIAO) [1]. This paper updates Members on the review results and recommendations on the amendments of Schedules 2 and 3 of the EIAO[2] and the Technical Memorandum on EIA process (EIAO-TM) and to seek Members' advice on the recommendations of the EIAO process and relevant enhancement initiatives.

BACKGROUND

2. The Chief Executive has announced in the 2021 Policy Address that the Government will review the existing statutory and administrative procedures related to the development, including the EIA process under the EIAO. The purpose of this review is to improve the EIA mechanism in order to optimise procedures, improve operational efficiency, focus more on environmental performance, and strike a balance between environmental protection and development needs.

3. The Environmental Protection Department (EPD) conducted an extensive consultation exercise on the overall approach and scope for the review of the EIA process in order to collect views and suggestions from stakeholders and the public between March and June 2022. The engagement exercise included consultation with this Council, the Panel on Environmental Affairs of the Legislative Council (EAP), three online meetings with professional institutes, key project proponents and relevant organisations, and four online public forums. Overall, the views received

[1] https://www.legco.gov.hk/yr2022/english/panels/ea/papers/ea20220328cb1-94-2-e.pdf
[2] Schedule 2 of EIAO refers to designated projects requiring EP; Schedule 3 of the EIAO refers to major designated projects requiring EIA reports.

during the consultation period were positive and constructive. Majority of the participants agreed that it is necessary to review the EIA process as soon as possible, establish a centralised environmental database, review the list of designated projects (DPs), optimise the EIAO-TM and improve the technical guidelines in order to improve the efficiency of environmental impact assessment, the relevant comments are summarised in **Annex 1**.

OPTIMISING EIA PROCESS AND KEY ENHANCEMENT INITIATIVES

4. Taking into account the comments and suggestions received from the consultation exercise mentioned above, we recommend the following four major enhancement initiatives in order to optimise the EIA process. It is expected that by adopting these enhancement initiatives, the EIA process can be optimised and standardised, and the time required for the entire EIA process can be reduced by about half. We aim to trim down the processing time to 18 months for typical projects and 24 months for major or complicated projects (i.e. aim to achieve about 50% reduction in time) while maintaining the current statutory public inspection period unchanged and at the same time improving the overall quality of EIA reports.

(i) Centralised Environmental Database

5. To facilitate the project proponents in project planning and to improve the quality of the EIA studies, we have developed an open Centralised Environmental Database (CED), encompassing the data related to environment and ecology, including findings and information from previously approved EIA reports, government departments and other academic researches. Information in the CED will be classified into general and sensitive categories according to its characteristics. The general information will be open to the public for reference, while the sensitive information will be restricted to those who need to refer to the information in order to protect sensitive information, for example the location of endangered animals and plants such as Chinese Three-lined Box Turtle and Incense Tree, etc. In the future, we will require all EIA studies and government-funded academic studies to submit their ecological data in electronic format compatible with the database so that the EPD can screen and update the database accordingly. The design and data specifications of the database will also be compatible with the Government's "Common Spatial Data Infrastructure".

6. Modelling tools and baseline information on air quality, water quality, hydrology, and traffic noise, which are required for conducting EIA studies, will also be uploaded onto the database platform with a view to enhancing the accuracy and consistency of relevant assessments. At the present moment, it often takes several months or even longer for individual project proponents to conduct the regional air quality simulations (PATH[3]), even with super-computers. In order to

[3] PATH - Pollutants in the Atmosphere and their Transport over Hong Kong, is a regional air quality simulation computer system used in Hong Kong.

optimise the EIA process, the EPD will conduct detailed PATH simulations for future air quality based on actual conditions and overall air pollution control strategy and planning requirements at different horizons such as 2025, 2030, 2035 and 2040, and upload the results to the database platform. In the future, most EIA studies can be conducted by running a relatively simple air pollutant dispersion model and superimposing it onto the PATH simulation results to obtain the cumulative air quality impacts. This will not only improve the accuracy and consistency of relevant EIA studies, but also greatly reduce the time required for compiling the EIA reports. Similarly, the EPD has also updated the water quality simulation system to improve the accuracy of the simulation, provided background pollution data for the whole territory, and uploaded the hydrodynamic and water quality simulation results to the database platform to shorten the time required for water quality impact assessment.

7. In terms of noise impact assessment, we have completed the web-based platform for the assessment of construction noise and road traffic noise. This platform is uploaded with geospatial and traffic infrastructure data, and uses a simple interface to build complex computer noise models to assist the calculations of construction and road traffic noise levels to expedite the assessment of potential noise impacts from new developments. This innovative platform not only greatly reduces the time for preparing models of different noise mitigation schemes, but also standardises the assessment of noise impacts. It also allows project proponents to use computer simulation to examine different schemes in an early stage of the engineering design in order to select the most suitable option.

8. The CED is the first data platform in Hong Kong based on geographic information systems that can integrate local environmental resources and EIA data. Users can choose different content in the database according to their access rights, and filter and create data overviews by data types depending on their needs. The CED also has other smart functions, including scenario analysis for instant comparison of different project design options based on selected environmental indicators, providing online technology assessment tools, and allowing the uploading of Building Information Modelling[4]. We will continue to update the information in the CED and add more smart applications, such as providing the effectiveness of mitigation measures suggested in previous EIAs, analysing environmental data through artificial intelligence, and conducting the entire EIA process online, etc.

9. The CED has been launched officially on 19 December 2022 and opened progressively to the project proponents, consultants and the public. We have set up a one-stop service hotline and an email address for the database platform to assist and answer inquiries related to the use of the CED and other issues related to this review. Training sessions have also been organised for users of the CED. The key deliverables of the CED are summarised in **Annex 2**.

[4] Building Information Modelling is an innovative approach to building design and construction.

(ii) Updated the list of DPs under the EIAO

10. In response to the ever-changing technological development and the accumulated experience in EIA over the past years, we have carefully reviewed the list of DPs set out in Schedule 2 of the EIAO, and proposed amendments based on the following circumstances:

(a) To provide clearer definitions for existing designated works items, e.g. "Road" is proposed to be replaced by "carriageway" to avoid mis-capturing roads solely for bicycles, which have no or very limited environmental concerns in view of their project nature;

(b) New designated engineering projects in response to social development and scientific and technological progress, including hydrogen storage facilities, wind farms, etc.;

(c) Remove the existing DPs from which adverse environmental impacts would not be anticipated by adopting standard mitigation measures, such as sewage pumping stations, laying of submarine pipeline, etc.;

(d) Adding or updating minimum scale limits to existing DPs to cover projects that may cause adverse environmental impacts, e.g. setting a minimum limit for wind farms and power plants to 100 MW, and updating limit for waste disposal facilities to 500 tonnes per day, etc.; and

(e) Exempt some essential facilities and minor works for the management or protection of environmentally sensitive areas, such as setting up helipads for firefighting, hospital, police force, national security and other life-saving and emergency purposes; providing basic utilities in rural villages including electricity, telecommunications, water supply and sewerage systems; setting up toilets, firefighting, security, water supply and sewerage systems in country parks.

11. There are currently two DPs in Schedule 3 of the EIAO[5], which involve engineering feasibility studies for large-scale urban development and redevelopment projects. The purpose of these DP items is to assess the potential cumulative environmental impacts from multiple large-scale infrastructure projects within the urban development or redevelopment projects, and to recommend appropriate mitigation measures such as overall land-use planning and project layout design. After reviewing all the 25 numbers of Schedule 3 EIA reports

[5] The two DP items of Schedule 3 of the EIAO are: (i) Engineering feasibility study of urban development projects with a study area covering more than 20 ha or involving a total population of more than 100 000; and (ii) Engineering feasibility study of redevelopment projects with a study area covering more than 100 000 existing or new population.

approved under the EIAO in the past years, we noted that projects with a development scale of less than 50 hectares (such as the development of Tsuen Wan Area 35 and the development of Tuen Mun Area 54) were mainly small-scale residential development projects together with associated supporting facilities. They generally do not involve other large-scale infrastructure facilities and/or works that may lead to adverse cumulative environmental impact.

12. For urban development projects with a scale larger than 50 hectares (such as the North East New Territories New Development Areas, Tung Chung New Town Extension), in addition to the proposed land development plan, they usually involve other large-scale infrastructure projects such as reclamation, new roads, sewage treatment facilities. Conducting EIA studies under Schedule 3 of the EIAO will enable the assessment of potential cumulative environmental impacts at various stages of the development and the derivation of appropriate measures like project phasing, land-use planning and other green measures.

13. In view of the above, we propose to merge the two DPs in Schedule 3 and change the original threshold from 20 hectares to 50 hectares to make the EIA process more effective and focused.

14. Furthermore, we also found that the area of the Schedule 3 DPs have already sufficiently reflected the environmental impact of the proposed development, and hence, we propose to remove the population threshold. In addition, since some privately-proposed urban development or redevelopment projects may not be subject to technical feasibility studies, we propose to remove the current "feasibility study" requirement in Schedule 3 of the EIAO in order to catch all relevant urban development projects.

15. The proposed amendments to Schedules 2 and 3 of the EIAO are illustrated in **Annex 3**.

(iii) *Updated Requirements for Technical Assessments*

16. Referring to the experience of conducting environmental assessments over the past 25 years, and in response to the development of engineering design and construction, we will follow the main principles and directions illustrated as below, and propose to revise and update the technical assessment guidelines in the EIAO-TM:

(a) Establish standard practices for conducting various technical assessments in the EIA, clearly define the methods and scope of various baseline surveys and environmental assessments, such as the requirements for ecological baseline surveys in **Annex 4**, in order to improve the consistency and comparability of the efficiency of related assessments, and at the same time, allows project proponents to conduct baseline surveys in advance and complete the EIA process earlier;

(b) Avoid overlapping with other environmental legislation, such as removing the requirement for quantitative assessment of dust emissions from construction works, as such emissions are already regulated under the Air Pollution Control Ordinance (APCO);
(c) When evaluating the environmental impact of engineering projects, the overall environmental conditions in the territory and the impact of the government's strategic plans and policies on improving the quality of the background environment should be taken into consideration to make the evaluation more comprehensive; and
(d) Amend the text of the EIAO-TM to make the requirements and guidelines for various technical assessments clearer and to avoid unnecessary misunderstandings.

17. In accordance with the above principles and directions, the technical assessment guidelines in the EIAO-TM have been revised and updated with the following key suggestions:

Air quality impact assessment (AQIA)

(a) Since construction dust is regulated by the APCO, and construction dust can be effectively controlled by water spraying, it is suggested that there is no need to conduct quantitative simulation and evaluation of construction dust. If necessary, the project proponents will be required to conduct environmental monitoring and audit during the construction period to ensure that the construction dust meets the relevant standards.
(b) EPD will provide territory-wide background emission data for PATH and air quality modelling results derived from PATH to shorten the time required for air quality impact assessment.

Water quality impact assessment (WQIA)

(c) EIA studies generally use water quality indicators as the assessment standard. However, as the water quality in Hong Kong is affected by the southwest monsoon wind and the Pearl River, the baseline inorganic nitrogen content in some waters is higher than the water quality objectives in summer. Therefore, we propose to make reference to the European Union’s designation of acceptable sewage treatment levels for new urban sewage treatment facilities, as an alternative assessment standard for inorganic nitrogen indicators in environmental impact assessments, e.g. the acceptable level of discharge into western waters is secondary treatment with denitrification and disinfection, while discharge into enclosed bay areas such as Tolo Harbour or Deep Bay is secondary treatment with nitrogen and phosphorus removal and disinfection to prevent water eutrophication and other problems.

(d) EPD will provide territory-wide background pollution data, as well as hydrodynamic and water quality modelling results to shorten the time required for water quality impact assessment.

(e) Requiring the adoption of preventive and mitigation measures as set out in the Sewerage Manual from Drainage Services Department to prevent or minimise emergency sewage discharges/bypasses, and require a water quality monitoring program for unavoidable maintenance situations.

Noise impact assessment (NIA)

(f) In practice, project proponents may not be able to determine the detailed construction methods or construction machinery at the planning and design stage. Therefore, we suggest that (i) qualitative assessment of construction noise should be carried out during EIA with a view to estimate the degree of construction noise impact and suggest appropriate mitigation measures; and (ii) through the environmental permit (EP) to require the project proponent acquire the information on the list of construction machinery or construction method and submit a detailed quantitative assessment before construction; so as t to ensure that the relevant construction noise can comply with the relevant standards.

(g) To provide online simulation application tools for construction noise and road traffic noise impact assessment to facilitate related noise impact assessment.

(h) Introduce and implement innovative noise mitigation designs (such as acoustic windows and balconies) as mitigation measures for road traffic noise impacts when planning residential developments.

Waste management and land contamination assessment

(i) Strengthen the management of construction waste by requiring that dump trucks used for transportation of construction waste should be equipped with real-time tracking devices to monitor the delivery and disposal of construction waste.

(j) Standardise the requirements for land contamination surveys so that project proponents can conduct land contamination surveys early.

(k) Provide technical guidelines to allow project proponents to suggest the most appropriate solution based on the "source-pathway-receptor" model when considering land contamination remediation options.

(l) Provide clearer guidance on methods for dealing with naturally occurring pollutants, e.g. construction projects in areas with high background arsenic levels, such that more cost and environmentally effective strategies to control pollutant transmission through pathway or receptor control methodologies can be devised to avoid

unnecessary treatment and disposal of large quantities of naturally occurring arsenic-containing soil.

Ecology and fisheries impact assessment

(m) Standardise ecological and fisheries survey methods, frequencies, modes and timing so that project proponents can conduct baseline surveys in advance and complete the EIA process earlier. Requiring the minimum baseline survey period to increase from four months to six months, and extended to cover a full year period when necessary.
(n) Require all ecological and fisheries survey reports to be prepared, reviewed and signed by relevant professionals/ experts in the field to ensure that the survey results are recognised.
(o) In assessing ecological impacts, the local or regional distribution of relevant habitats and species, and the linkages between habitats or populations at different locations shall be considered.

Landscape, visual and cultural heritage impact assessment

(p) Revise the guidelines for landscape and visual impact assessments to align with the relevant guidelines for applications submitted under the Town Planning Ordinance to avoid duplication of assessment work.
(q) Screening projects subject to Landscape Impact Assessment and/or Visual Impact Assessment and streamlining the requirements so as to focus more on projects with potentially significant landscape and visual impacts.
(r) Revise the guidelines for impact assessment of cultural heritage sites to avoid overlapping with landscape and visual impact assessment requirements.

18. The new EIAO-TM with incorporation of the proposed amendments is attached in **Annex 5**.

(iv) Better Use of Direct Application for EP

19. According to section 5(11) of EIAO, if the DP will not cause adverse environmental impact and if the mitigation measures proposed by the project proponent complies with the requirement of EIAO-TM, the project proponent may apply for direct application for EP (DIR)[6] which provides a streamlined route to obtain an EP for DP. The streamlined DIR route could compress the statutory EIA process from 7.5 months to within 2.5 months. EPD is developing specific

[6] The EIAO has provisions for a streamlined EIA procedure to provide a fast-track route for the approval of some DPs. If a DP meets the relevant requirements as stipulated in the EIAO and the EIAO-TM, the project proponent can apply for permission to directly apply for an EP without the need to conduct an EIA study.

guidelines to facilitate proponents of the following DPs to adopt through the DIR route:

(i) Reuse of treated sewage effluent from a sewage treatment plant;
(ii) Submarine telecommunication cable laying;
(iii) Rock cavern;
(iv) Transport and tram depot;
(v) Wholesale market;
(vi) Revitalisation of man-made channel; and
(vii) Maintenance dredging

OTHER OPINIONS

20. The above proposed amendments have taken into account the comments received during the consultation period from March to June 2022 on the overall direction and scope of the review of the EIA process. In addition, some opinions propose that carbon emissions and performance of biodiversity of the engineering projects should be included in the scope of the statutory EIA process. We believe that achieving carbon neutrality involves a territory-wide strategy, and it can be dealt with more effectively and properly at the policy level rather than by assessing carbon emissions from individual projects. In order to achieve the goal of carbon neutrality, the Environment Bureau published the Hong Kong's Climate Action Plan 2050 in October 2021 to formulate a clear roadmap, set aggressive carbon emission reduction strategies and measures, strive to achieve carbon neutrality before 2050[7], step up the medium-term carbon reduction target, and halve Hong Kong's carbon emissions from the 2005 level by 2035. Although some EIA studies in foreign countries have also included the subject of carbon emissions, these are different EIA systems as compared to Hong Kong. The EIA system in Hong Kong is a statutory requirement based on the evaluation criteria established in the EIAO-TM, and the recommendations in the EIA report are strictly implemented through EPs. Thus, any criteria or requirement set out in the EIAO-TM must be clear, unambiguous and enforceable under the statutory EIA process. However, there is currently no uniform and objective carbon emission standard or criteria established internationally which can enable a statutory approval process under the Hong Kong EIA system. Therefore, we do not recommend that the subject be included in the scope of the EIA study.

21. Instead of incorporating carbon neutrality in the statutory EIAO process, the Government has committed to achieve carbon neutrality in the planning of the Kau Yi Chau artificial island and the Northern Metropolis in the Hong Kong's Climate Action Plan 2050. The engineering feasibility study of these two projects will also fully address the need to achieve carbon neutrality.

[7] https://www.climateready.gov.hk/files/pdf/CAP2050_booklet_en.pdf

22. In Hong Kong, the biodiversity goal is to be attained through implementation of the Biodiversity Strategy and Action Plan[8] (BSAP), to strengthen the conservation of biodiversity and support the sustainable development of this city. According to BSAP, the current EIA process has fully considered the impact of designated projects on the ecosystem. Based on the biodiversity principle, the ecological impact assessment in the EIA report requires the project proponents to assess the direct or indirect impacts on the habitat and species caused by the project, and recommend appropriate mitigation measures to protect the habitat and species with high conservation value in order to avoid and mitigate the impact of the project on the ecology. Hence, there is no need to re-define a separate criteria for biodiversity in the EIAO-TM.

WAY FORWARD

23. The recommended amendments and enhancement initiatives package for optimising the EIAO process was submitted to the EAP for advice on 12 December 2022, the Legislative Council (LegCo) Members supported the introduction of amendments to Schedules 2 and 3 of the EIAO and the EIAO-TM into LegCo. The optimisation proposal does not involve amendment of the principal ordinance of the EIAO, and we will implement the enhancement initiatives once Members' support is obtained. We plan to submit the proposed amendments of Schedules 2 and 3 of the EIAO and the revised EIAO-TM to the LegCo in the second quarter of 2023 for negative approval.

25. It is anticipated that the amendments of Schedules 2 and 3 and the new EIAO-TM will come into operation in Q2/Q3 2023.

26. We will continue to organise briefing sessions with stakeholders and relevant professional bodies on the assessment methodologies and technical requirements in the new EIAO-TM and the relevant guidance notes.

ADVICE SOUGHT

27. Members are invited to note the above progress on optimising the EIAO process and comment on the relevant enhancement initiatives, list of DPs and the EIAO-TM.

Environment and Ecology Bureau
Environmental Protection Department
February 2023

[8] https://www.afcd.gov.hk/english/conservation/Con_hkbsap/con_hkbsap.html

Annex 1

Gist of Public Comments from Public Engagement Forums on
Optimising the Environmental Impact Assessment Ordinance (EIAO) Process

Comments from the Advisory Council on the Environment at the 252nd meeting dated 7 March 2022 are summarised in **Annex 1a**.

	Key Public Comments	General Responses by Environmental Protection Department (EPD)
	(A) Comments on the EIAO Process	
1.	● Given the global trend to tackle the climate change issue within the environmental impact assessment (EIA) context, some participants consider that the climate change and carbon neutrality issues should be included in the EIAO review.	● We believe that the issue of carbon emissions involves a territory-wide strategy, and it can be tackled more effectively and properly at the policy level than by assessing under individual projects. To achieve the carbon neutrality target, the Environment Bureau released Hong Kong's Climate Action Plan 2050 in October 2021, which sets out proactive strategies and measures on reducing carbon emissions, with a view to striving to achieve carbon neutrality before 2050, and to reduce Hong Kong's carbon emissions by 50% before 2035 as compared with the 2005 level.
2.	● Some participants share views that there is already legislation in Hong Kong, namely the Buildings Energy Efficiency Ordinance, and the "BEAM Plus" to tackle the climate change and carbon emission issues for their development projects. Moreover, listed companies are required under the Environmental, Social and Governance Reporting requirements of the Hong Kong Stock Exchange to disclose carbon emission data. Hence, it may not be necessary to cover the subjects of climate change and carbon neutrality in an EIA study.	● Although some EIA studies in foreign countries have also included the subject of carbon emissions, there are different EIA systems in different regions; for example, the EIA system in Hong Kong is based on the evaluation criteria for various topics in the Technical Memorandum on EIA Process (EIAO-TM), and the recommendations in the EIA report are strictly implemented through EPs. Clear and appropriate criteria must therefore be set for all topics covered in the statutory EIA study. However,

	Key Public Comments	General Responses by Environmental Protection Department (EPD)
		internationally established acceptance criteria have not yet been formulated for greenhouse gas emission. Therefore, we do not recommend that topics on climate change be included in the scope of EIA studies. ● Nevertheless, when the government conducts engineering feasibility studies for some large-scale development projects (such as the reclamation of the central waters and the Northern Metropolis), it has included assessments of climate change and carbon emissions.
3.	● Some participants suggest that the EPD should comprehensively review the procedures/mechanisms relating to environmental monitoring and audit (EM&A), environmental permit (EP) and variation of environmental permit (VEP) apart from those proposals mentioned in the panel paper. Moreover, the performance of the mitigation measures stated in EM&A reports should be verified with proof and the results should be convincing to the public. Furthermore, there should be a "scoring system" to record/trace the poor EM&A performance by a project consultants and contractors.	● Noted. EPD is conducting a compressive review on the EIA process, Designated Projects (DPs), and the EIAO-TM. It is considered that the primary legislation of the EIAO, periods of public inspection and mechanism relating to VEP have been effective and will continue to be used. Under the prevailing EIA system, project proponents shall ensure that the mitigation measures and EM&A system as set out in the EIA report are duly implemented in accordance with the EP requirements. The EPD conducts site inspections regularly, and uploads EM&A reports onto the EPD website for public inspection. ● The relevant works departments have also been closely monitoring the performance of consultants/contractors. If their overall performance, including those related to environmental aspects, cannot meet the performance standards, it will be dealt with in accordance with the current mechanism.

	Key Public Comments	General Responses by Environmental Protection Department (EPD)
4.	● Some participants consider that qualified professionals for conducting various technical assessments and monitoring in EIA should be engaged and it is suggested that the EPD should provide the list of qualified professionals, with clear guidance on qualifications in different environmental aspects.	● We agree that various technical assessments (such as model run and baseline survey) and monitoring should be conducted by qualified professionals or experts with relevant experience in order to ensure the quality of the assessments. ● Given that such requirements involve cross-disciplinary professional knowledge, the EPD has been discussing with the Hong Kong Institute of Qualified Environmental Professionals Limited on the qualifications for qualified personnel (e.g. personnel for air and noise modelling). ● The EPD will continue to follow up with relevant professional bodies to ascertain that there are sufficient qualified professionals for conducting various impact assessments.
5.	● Some participants express concern that it is not certain if there will be sufficient qualified professionals to conduct different assessments in future, given that a number of them might need to be involved in the vetting/certification procedures in the EIA process. As a result, there might be a shortage of qualified professionals and this might impede the completion time of their EIA studies.	
6.	● The EPD's responses to public comments on project profiles and EIA reports should be disclosed to enhance transparency and mutual trust.	● There may be technical difficulties to provide individual responses to public comments on project profiles and EIA reports during the public inspection period, especially for controversial projectswhich will often attract more than 10,000 sets of public comments. Nonetheless, the EPD will explore the possibility to preparing a summary of public comments and responses for future EIA study.
7.	● Duplication of landscape and visual impact assessment (LVIA) for development projects as required under the	● In this review, it is proposed to revise the criteria and guidelines for LVIA to align with the relevant guidelines issued under the

	Key Public Comments	General Responses by Environmental Protection Department (EPD)
	Town Planning Ordinance and the EIAO should be reviewed.	Town Planning Ordinance, so as to avoid duplication of assessment work.
8.	● The potential streamlining of the EIAO process will undermine public participation, especially public inspection periods. It is also suggested that public inspection periods should be lengthened for both the public and the Advisory Council on the Environment to inspect EIA reports.	● There will be no change to the current statutory public inspection period. ● Based on the experience gained over the past 20 years, the current public consultation periods (i.e. project profile: 14 days, EIA report: 30 days for the public/60 days for the Advisory Council on the Environment) has provided sufficient time for reviewing the relevant documents without affecting the progress of the project Strike the right balance. Therefore, there is currently no plan to modify the relevant public consultation arrangements.
9.	● The timeline of implementing the changes as a result of the EIAO Review exercise and the transitional arrangement should be elaborated.	● Noted. Amendments to Schedules 2 and 3 of the EIAO and the EIAO-TM will be carried out in accordance with statutory procedures. Other administrative proposals such as the Centralised Environmental Database (CED) will be implemented progressively, and the EPD will announce the relevant arrangements in due course.
10.	● The validity period of an EP to cater for environmental changes, especially if there is a long lapse of time between issuance of EP and commencement of the construction works, should be reviewed.	● There is no validity period for EP. EP is issued under the statutory EIAO process and backed by detailed EIA study. Project proponents are required to proceed the project in accordance with the EP requirements. It is not an appropriate juncture to set a validity period for an EP, which may involve

	Key Public Comments	General Responses by Environmental Protection Department (EPD)
		fundamental principles of EIA study and complicated legal issues.
11.	● More guidelines/clarifications will be needed on the definition of "material change" in EIAO-TM and the use of direct application for EP. Further clarification of certain terms mentioned in Schedule 2 to the EIAO or the EIAO-TM, such as "discharge point", will be appreciated.	● The definition of "material change" is defined in the Schedule 1 of the EIAO, whilst its meaning and interpretation is explained in the EIAO-TM. The project proponents/consultants may consult the EPD if they have any queries.
	(B) Comments on Schedules 2 and 3 to the EIAO	
12.	● The list of DPs should be reviewed regularly in the future.	● Noted.
13.	● Item B.2: The amendments relating to "helipad" are suitable, but it is not clear whether helipads located in country parks will also be exempted under the review.	● The review recommends that some essential facilities be exempted, including helipads for firefighting, hospital, police, national security and other life-saving and emergency purposes within a Country Park.
14.	● Item F.3: Although some agree on the deletion, given that there are standardised mitigation measures to tackle the operational air and noise issues, there are also concerns that such a move will allow pumping stations be built in environmentally sensitive areas such as sites of special scientific interest (SSSIs).	● If a sewage pumping station is proposed to be built within an environmentally sensitive area such as a site of special scientific interest (SSSI), then it will likely be a DP under item Q.1 of Schedule 2 to the EIAO.
15.	● Item F.3: The reasons and how the relevant environmental impacts could be addressed without an EIA regarding the proposed deletion of item F.3 on sewage pumping station	● Based on the experience gained by the EPD for more than 20 years, the environmental problems caused by sewage pumping stations are mainly the odour and noise problems during operation. Therefore,

	Key Public Comments	General Responses by Environmental Protection Department (EPD)
	should be explained.	the proposal to delete this item while also incorporating standard/proven mitigation measures into the project design as suggested would be sufficient to address the associated environmental impacts.
16.	● Item P.1: The "Deep Bay Buffer Zone 1 & 2" under the EIAO might be outdated. Instead, projects within the "Wetland Conservation Area (WCA)" and "Wetland Buffer Area (WBA)" should be adopted.	● The Government is planning to conduct a strategic feasibility study for the proposed wetland conservation park system under the Northern Metropolis Development Strategy (NMDS), and it is recommended that revisions to this project be considered after completion of the study.
	(C) Comments on the Centralised Environmental Database (CED)	
17.	● The CED will enhance the operational efficiency of EIA studies and smoothen their process. The CED also helps resolve technical difficulties encountered by project proponents and consultants when conducting assessments.	● It is the EPD's intention for the CED data to be used or for reference by consultants in conducting EIA studies, as well as for research and learning purposes by academics and members of the public. However, given the possible sensitivity, privacy, effectiveness, credibility and other issues of the data, the EPD will look into these issues prudently.
18.	● Governance, maintenance and updating of the CED are important and the data should be recognised by other relevant authorities.	● The CED will be owned and managed (including data input, etc.) by the EPD and the possibility of adopting a mobile-friendly platform for the CED will be explored. The EPD will also explore the compatible data format for uploading data into the CED.

	Key Public Comments	General Responses by Environmental Protection Department (EPD)
		● Data verification and checking will also rest with the EPD. ● Apart from the approved EIA reports, the CED has also provided data owned by relevant departments. The EPD will also require submission of future EIA study or government-funded academic study using appropriate data format for inclusion in the CED. ● The EPD will work out the list of data to be incorporated into the CED. It is aimed to avoid duplicated efforts by project proponents in gathering existing information from various sources and enhance efficiency.
19.	● The accessibility/disclosure of certain data/information in the CED has to be handled with great care in view of sensitivity and privacy issues (e.g. location of sensitive species, chimney data, information on Specified Process Licence under the Air Pollution Control Ordinance (APCO)).	● Accessibility of certain "sensitive" information will only be available to those who needs to make reference to the information.
20.	● Innovative technology and artificial intelligence should be adopted. It is suggested that the CED could be made accessible to academia/universities for research usage and cover the data gathered from the general public.	● The data in the CED will cover information from approved EIA reports. The CED will be updated regularly with information of new projects and EM&A data. In future, the EPD will require project proponents and funding bodies (e.g. under the Environment and Conservation Fund) to submit relevant project and academic research data in compatible format for input to the CED.

	Key Public Comments	General Responses by Environmental Protection Department (EPD)
		● The design of the CED has been completed, and it will be gradually opened to project proponents, consultants and the public in mid December 2022.
	(D) Specific Comments on Technical Assessments	
	(i) Air and Noise	
21.	● Undo construction dust modelling and construction noise impact assessment which will be replaced by established/standardized practices and EM&A is welcomed and supported.	● Noted.
22.	● It will be useful if chimney inventory/emission data will be available in the CED.	● The CED will provide information on the locations of chimneys and licenses for specified processes under the APCO. As for chimney emission data and information on sensitive species, etc., there should be a balance between disclosure of information and protection of privacy/sensitive information. The EPD will ensure that the quality, security and sensitivity of the data are well managed. ● The CED will also be used or for reference by consultants in conducting EIA studies (e.g. PATH modelling data up to Year 2040). The CED will enhance the efficiency of conducting technical assessments. Given the possible sensitivity, privacy, effectiveness and credibility issues of the data, the EPD will look into these issues
23.	● The updated PATH model forecast incorporated into the CED will save time for model run on air quality and will benefit the project programme.	

	Key Public Comments	General Responses by Environmental Protection Department (EPD)
		very carefully (i.e. specific access right for different users).
24.	● Should minimise the need for the EPD to update model files from time to time. It will be time-consuming to re-run models due to the release of an updated one.	● The lengthy time required for conducting air quality modelling is acknowledged. To facilitate model run by consultants, PATH model data will be updated to Year 2040 and beyond by the EPD and will be incorporated in the CED. While consultants can make use of the CED for model run, the quality of data and results can also be guaranteed.
25.	● The population of Chinese White Dolphins in Hong Kong is decreasing due to underwater noise impact arising from relevant construction works (e.g. underwater piling). In this respect, the EPD should make reference to overseas experience in collecting data related to underwater noise and develop relevant modelling criteria.	● Noted. The impact of engineering projects on the underwater environment is an important part of the EIA. In fact, past mitigation measures such as bubble enclosures have been proven to be effective in mitigating the impact of underwater construction works on marine species. In the future, the EPD will consider to add more smart functions to the CED, such as providing the actual effectiveness of mitigation measures suggested in past EIAs.
	(ii) <u>Ecology</u>	
26.	● The "early start" of ecological baseline survey before the issuance of an EIA Study Brief will mean that the public might have less chance to comment on the scope and duration required for the "future" baseline survey.	● The "early start" of the ecological baseline survey will not affect the respective statutory public inspection period. If public comments on the ecological survey are found to be valid during the public inspection period of Project Profile, their concerns will be considered and suitably reflected in the EIA Study Brief. ● The proposed revision of the EIAO-TM will standardise the ecological survey method, mode and time, so that project

	Key Public Comments	General Responses by Environmental Protection Department (EPD)
		proponents can conduct baseline surveys in advance and complete the EIA process earlier.
27.	● Regarding the introduction of regional concept in ecology impact assessment (EcoIA), given that the current time spent on EcoIA has been very tight, the additional efforts required may lengthen the assessment process. The assessment period may not be long enough to cover a regional assessment of the ecological impacts as well. The meaning of "regional" and the representativeness of the data collected should also be specified with examples. ● The scale and extent of ecological baseline survey should be elaborated if the "regional approach" is adopted.	● This review suggested a number of measures to optimise the EIA process, including standardised ecological survey methods, models and time, so that project proponents can conduct baseline surveys in advance; collect data related to the environment and ecology through CED, including those from EIA, government departments or other academic research data and environmental information. These recommendations will help project proponents to complete the EIA process as soon as possible. ● The EPD will update relevant technical guidelines for baseline surveys.
28.	● EM&A data in the CED might be used to replace the requirements of baseline survey.	● The information in the CED is not intended to replace the ecological baseline survey. Instead, the CED information may be able to supplement the baseline survey to give a more comprehensive picture of the overall ecological condition of the site, if eventually needed under the requirements of the EIA Study Brief.
29.	● Ecological mitigation measures in the EIAO-TM, in particular the ecological compensation including both	● Ecological compensation has to be considered on a case-by-case basis which is dependent on the findings and recommendations of

	Key Public Comments	General Responses by Environmental Protection Department (EPD)
	on-site & off-site, and their effectiveness should be reviewed.	the EIA report. In fact, the effectiveness of mitigation measures will normally be reflected under the EM&A mechanism of individual project. In the future, the EPD will study adding more smart features to the CED, such as providing the actual effectiveness of mitigation measures recommended in past EIAs.
	(iii) Land Contamination and Hazard	
30.	● The "Risk-Based Remediation Goals" (RBRG) for contaminated land management has been used in Hong Kong for many years. The new approach of cutting off the exposure pathway of contaminants by just putting a concrete slab as "insulation" might not be sufficient. This might have problems with volatile contaminants and groundwater issues.	● If the contaminants are water insoluble and non-volatile, adopting the "source-pathway-receptor" model by putting suitable barrier to cut off the pathway will be appropriate to tackle land contamination issue as demonstrated in previous experience, and will not need to dispose of the treated contaminated soil.
	(iv) Others	
31.	● Light pollution should be considered in the EIAO review.	● Project proponents should make reference to "Charter on External Lighting" when it comes to the light pollution issue in urban area. ● Project proponents are also encouraged to highlight in the EIA report the environmental considerations and efforts on minimising potential impacts from artificial lighting (i.e. operating hours for lighting, light nuisance control measures). ● On ecology, the nuisance from artificial lighting will be an important consideration on impacts to ecology from a

	Key Public Comments	General Responses by Environmental Protection Department (EPD)
		development. It would be included in the ecological impact assessment where necessary.

Annex 1a

Comments from the Advisory Council on the Environment (ACE) at the 252nd meeting dated 7 March 2022 on Optimising the Environmental Impact Assessment Ordinance (EIAO) Process

	Key Comments from ACE Members	Actions taken/proposed by Environmental Protection Department (EPD)
	(A) Objectives and Outcomes of the Review	
1.	● Noted that the review would focus mainly on the enhancement of operational efficiency, more efforts should be devoted to enhance the effectiveness of the environmental impact assessment (EIA) process and improve the quality of the EIA work as a whole. ● The EPD should compare and evaluate the improvement in operational efficiency as well as quality of the EIA work after the implementation of the refined EIAO mechanism.	● The purpose of the review is to improve the EIA mechanism in order to optimise procedures, improve operational efficiency, focus more on environmental performance, and strike a balance between environmental protection and development needs. With the experience and knowledge gained in the past two decades, the EIA process could be streamlined through the standardisation of requirements and mitigation measures as well as the development of a smart assessment tools including the centralised environmental database (CED) for data sharing. ● It is expected that by adopting the proposed enhancement initiatives, the EIA process can be optimised and standardised, and the time required for the entire EIA process can be reduced by about half. It is aimed to trim down the processing time to 18 months for typical projects and 24 months for major or complicated projects (i.e. aim to achieve about 50% reduction in time) while maintaining the current statutory public inspection period unchanged and at the same time improving the overall quality of EIA reports and the operational efficiency of the EIA process.
2.	● A comprehensive plan should be devised to facilitate	● The EPD will continuously improve our work and refine the EIA

	Key Comments from ACE Members	Actions taken/proposed by Environmental Protection Department (EPD)
	the continuous optimisation of the EIAO mechanism in the long run.	mechanism from time to time to enhance its operational efficiency and effectiveness. ● The EPD would continue to arrange training workshops, seminars and EIAO Users Liaison Group meetings regularly to safeguard the professionalism and quality of EIA. Also, relevant EIAO Guidance Notes will be updated to ensure the quality of EIA reports.
3.	● There is a need to address the overlapping of the EIAO with other ordinances.	● Avoid overlapping of the EIAO with other prevailing ordinances is one of the principles and directions when revising and updating the technical assessment guidelines in the Technical Memorandum on Environmental Impact Assessment Process (the EIAO-TM). ● For instance, it is proposed to update the guidelines for Air Quality Impact Assessment as dust emission from a construction site is controlled under the Air Pollution Control (Construction Dust) Regulation. Construction dust assessment should be conducted qualitatively to ensure that the Air Pollution Control (Construction Dust) Regulation is complied with. (Annex 12, Section 3.6 (d) of the updated EIAO-TM refers) ● Also, the EPD takes this opportunity to revise the assessment criteria and guidelines for Landscape Impact Assessment (LIA) and Visual Impact Assessment (VIA) under the EIAO to align with the relevant guidelines issued under the Town Planning Ordinance (e.g. VIA considered “key public viewing points” instead of “all possible

	Key Comments from ACE Members	Actions taken/proposed by Environmental Protection Department (EPD)
		viewpoints") to avoid duplication of assessment work under the two ordinances (Annex 18, Section 6-7 of the updated EIAO-TM refers). In addition, project proponents should make reference to "Charter on External Lighting" when it comes to the light pollution issue in urban area. On ecology, the nuisance from artificial lighting will be an important consideration on impacts to ecology from a development. It would be included in the ecological impact assessment where necessary.
	(B) Timeframe of the Review	
4.	● Members enquire on the timeframe for the implementation of the refined EIA mechanism.	● The recommended amendments and enhancement initiatives package for optimising the EIAO process were submitted to the Panel on Environmental Affairs (EAP) of the Legislative Council (LegCo) for advice on 12 December 2022, the LegCo Members supported the introduction of amendments to Schedules 2 and 3 of the EIAO and the EIAO-TM into LegCo. The current optimisation proposal does not involve amendment of the principal ordinance of the EIAO. EPD plans to submit the proposed amendments of Schedules 2 and 3 and the revised EIAO-TM to the LegCo in the second quarter of 2023 for negative approval. ● In fact, some of the enhancement initiatives have already been undertaken. The Centralised Environmental Database (CED) platform was also officially launched on 19 December 2022 and is open to project proponents, consultants and the public for use.

	Key Comments from ACE Members	Actions taken/proposed by Environmental Protection Department (EPD)
5.	● A Member asks whether the proposed amendments to the list of DPs and the TM would be considered as an amendment to the EIAO.	● The amendments of the DP list and the EIAO-TM will require negative approval by the LegCo, the optimisation proposal does not involve amendment of the principal ordinance of the EIAO. ● To make the proposed amendments effective, the amended list of Designated Projects (DPs) and the EIAO-TM is planned to be published in the Gazette and tabled at the LegCo for negative vetting in Q2 2023.
	(C) **Centralised Environmental Database**	
6.	● Members suggest that academics and relevant experts should be engaged in the development of the CED and the information contained in the CED should be allowed for deployment for teaching purposes. The EPD should proactively invite different parties to contribute useful data to the CED.	● While the EPD will keep updating the contents and functions of the CED, academics and relevant experts are welcome to use the CED for research and teaching purposes. The EPD also welcomes consultants, academics and members of the public to provide and upload various environmental study results. ● In the future, the EPD will require all EIA studies and government-funded academic studies to submit their ecological data in electronic format compatible with the database so that the EPD can screen and update the database accordingly. The design and data specifications of the database will also be compatible with the Government's "Common Spatial Data Infrastructure".
7.	● Discrepancies in the data provided by different data sources should be addressed bearing in mind that project proponents, environmental groups and the Government might provide very different data sets	● The EPD will regularly update the content of the online centralised database and collaborate with relevant departments to certify and verify the environmental science data provided by third parties to maintain the accuracy of the database content.

	Key Comments from ACE Members	Actions taken/proposed by Environmental Protection Department (EPD)
	based on the past experience.	
8.	● The outcomes and effectiveness of various environmental modelling, mitigation measures and environmental monitoring and audits (EM&A) carried out by project proponents under the approved Environmental Permits should be reviewed and incorporated in the CED to provide useful references for understanding their effectiveness.	● The CED will be updated by phases with technical assessments results from approved EIA reports. The EPD is also developing the dashboard function in the CED providing EM&A data to demonstrate and review the environmental performance of projects.
9.	● A standardised method should be adopted for the interpretation and application of the data in the EIA process	● The EPD will continue to work on the standardised and compatible data format for uploading data into the CED.
10.	● The data available in the CED should not obviate the need for the project proponents to carry out separate on-site ecological baseline surveys, if considered necessary by the authorities.	● The CED serves to provide baseline data to facilitate the screening and scoping exercise. When conducting an EIA study, the project proponent must also review and verify the existing baseline data concerned, and conduct an on-site ecological baseline survey according to the requirements of the EIA study brief to ensure that they have sufficient and accurate baseline data for ecological impact assessment.
11.	● There should be restricted access to some sensitive data in the CED, such as the locations of the endangered species.	● Accessibility of certain "sensitive" information will only be available to those who need to make reference to the information and will not be made public.
12.	● EPD should draw reference from the urban	● The EPD will keep updating the contents and functions of the CED and

	Key Comments from ACE Members	Actions taken/proposed by Environmental Protection Department (EPD)
	intervention simulation hub of the Massachusetts Institute of Technology and strengthen the development of innovative technology to visualise the environmental impact of EIA projects.	shall keep in view of the latest development on digital environmental impact assessment.
	(D) Ecological Impact Assessment	
13.	● The TM should be reviewed and updated to incorporate new assessment parameters, more specific standards and clear guidelines on the assessment approach for different ecological surveys with a view to avoiding the need to carry out additional or supplementary surveys.	● The EIAO-TM has been reviewed to incorporate standardised practices for conducting various technical assessments in the EIA and define clearly the methods and scope of various baseline surveys and environmental assessments, such as the requirements for ecological baseline surveys in order to improve the consistency and comparability of the efficiency of related assessments. Clearer guidance has been provided in the updated Annex 16 of the EIAO-TM for determining the optimal time of the year, minimum survey frequency and optimal time of the day for conducting the ecological baseline surveys.
14.	● Project proponents should be allowed to propose other new mitigation measures if there were better alternatives.	● While there are standardised mitigation measures proven to be successful in the EIA and EM&A, project proponent are always encouraged to explore alternative practical measures to mitigate adverse environmental impacts accordingly.
15.	● As project proponents might begin to carry out ecological baseline surveys before the issuance of the EIA study brief under the proposed arrangement, it was stressed that project proponents should be	● The carrying out of the ecological baseline survey in advance, with the advice from Agriculture, Fisheries and Conservation Department, before the issuance of the EIA study brief, will not affect the respective statutory public inspection period of 14 days and 30 days on

	Key Comments from ACE Members	Actions taken/proposed by Environmental Protection Department (EPD)
	required to comply with any changes or additional requirement on ecological baseline surveys as set out in the EIA study briefs subsequently issued.	commenting the project profile and the EIA report. If public comments on the ecological survey are found to be valid during the inspection period, their concerns will be taken into account and suitably reflected in the EIA study brief.
16.	● While supporting the relevant environmental assessments would be prepared and signed by qualified persons, professional qualifications or a registry of the qualified ecological experts should be established to enhance the efficiency in the preparation and the quality of the relevant studies	● The EPD agrees that qualified professionals to conduct various technical assessments (including model run and baseline survey) were multi-disciplinary and important and would follow up with the relevant professional bodies given its cross-disciplinary nature. The EPD will continue to work with professional institutes (i.e. Hong Kong Institute of Qualified Environmental Professionals) and the industry with a view to establishing the professional qualifications for experts in ecology.
17.	● Exemptions or simplified assessment mechanism might be considered for projects concerning the construction of essential public utilities or infrastructure to facilitate the development needs.	● According to section 5(11) of EIAO, if the DP will not cause adverse environmental impact and if the mitigation measures proposed by the project proponent complies with the requirement of EIAO-TM, the project proponent may apply for direct application for EP (DIR) which provides a streamlined route to obtain an environmental permit for DP. The streamlined DIR route could compress the statutory EIA guidelines to facilitate proponents of the following DPs to adopt through the DIR route: (i) Reuse of treated sewage effluent from a sewage treatment plant; (ii) Submarine telecommunication cable laying; (iii) Rock cavern;

	Key Comments from ACE Members	Actions taken/proposed by Environmental Protection Department (EPD)
		(iv) Transport and tram depot; (v) Wholesale market; (vi) Revitalisation of man-made channel; and (vii) Maintenance dredging ● Amendments have been made to DP item Q.1 of Schedule 2 to exempt some basic utilities/facilities in rural areas/country parks including electricity, telecommunications, water supply and sewerage systems. ● In addition, for physical addition or alteration to an exempted DP, the "material change" mechanism provides a simplified way to confirm whether adverse environmental impacts would be resulted as defined in Section 6.1 of the EIAO-TM. For a material change to an exempted project, the proponent can apply under section 5(10) of EIAO for permission to apply directly for EP if the impact of the material change and the mitigation measures described in the project profile meet the requirements of the EIAO-TM. ● Project proponents/consultants are welcome to consult EPD on the EIAO implications concerning the construction of essential public utilities or infrastructure to facilitate the development needs.
	(E) Incorporating New Environmental Requirements	
18.	● The incorporation of new environmental parameters, such as impact assessments on climate change, carbon emissions and greenhouse gases, as part of	● We believe that achieving carbon neutrality involves a territory-wide strategy, and it can be dealt with more effectively and properly at the policy level rather than by assessing carbon emissions from individual

	Key Comments from ACE Members	Actions taken/proposed by Environmental Protection Department (EPD)
	the mandatory requirements under the EIAO. ● EPD should draw references from other economies which had already incorporated climate impact assessments in their EIA process and devise a long-term plan for incorporating climate impact assessment in the EIAO mechanism. ● Requirements on public health improvement, such as increasing ventilation in buildings, in the EIA process.	projects. In order to achieve the goal of carbon neutrality, the Environment Bureau published the Hong Kong's Climate Action Plan 2050 in October 2021 to formulate a clear roadmap, set aggressive carbon emission reduction strategies and measures, strive to achieve carbon neutrality before 2050, step up the medium-term carbon reduction target, and halve Hong Kong's carbon emissions from the 2005 level by 2035. ● Although some EIA studies in foreign countries have also included the subject of carbon emissions, they are different EIA systems as compared to Hong Kong. The EIA system in Hong Kong is a statutory requirement based on the evaluation criteria established in the EIAO-TM, and the recommendations in the EIA report are strictly implemented through EPs. Thus, any criteria or requirement set out in the EIAO-TM must be clear, unambiguous and enforceable under the statutory EIA process. However, there is currently no uniform and objective carbon emission standard or criteria established internationally which can enable a statutory approval process under the Hong Kong EIA system. Therefore, we do not recommend that the subject be included in the scope of the EIA study. ● Nonetheless, project proponents will be required to implement measures to minimise carbon emissions in large-scale development projects and in the new development areas though such requirements may not be

	Key Comments from ACE Members	Actions taken/proposed by Environmental Protection Department (EPD)
		under the EIA framework.
19.	● EPD should gauge the views of ACE when devising a decision tree or a manual for the selection of appropriate assessment methodologies for ecological baseline surveys or mitigation measures. Objective guidelines should be devised to standardise the methodologies for different scenarios to ensure fairness.	● Comments from Members of the ACE will be taken account in the updated guidelines on ecological baseline survey requirements under the new EIAO-TM. The EPD will also update the relevant EIAO Guidance Notes on ecological assessments to provide clearer guidance on conducting ecological impact assessment to reflect the latest changes in the EIAO-TM and safeguard the professionalism and quality of EIA.
	(F) Variation of Environmental Permit (VEP)	
20.	● A validity period should be specified for each EP issued to ensure that the conditions set out in the EP would remain relevant to the environment and the project concerned. ● ACE and the public should be consulted in the process of the VEP applications as well.	● There is no validity period for EP. EP is issued under the statutory EIAO process and backed by detailed EIA study. Project proponents are required to proceed the project in accordance with the EP requirements. It is not an appropriate juncture to set a validity period for an EP, which may involve fundamental principles of EIA study and complicated legal issues. ● It should be noted that any amendment on the process of VEP as well as the role of the ACE and the public would require an amendment to the EIAO. Nevertheless, the current enhancement initiatives would bring about great improvement to the existing mechanism within a shorter timeframe.
21.	● A summary setting out the key variations to the EPs and the justifications for DEP to approve the VEPs	● To enhance transparency, information related to the Director of Environmental Protection's decision on VEP application, including

	Key Comments from ACE Members	Actions taken/proposed by Environmental Protection Department (EPD)
	should be published online for public scrutiny.	application documents and record of consideration, has been uploaded to the EIAO Register website for public information.
	(G) Stakeholder and Public Engagement	
22.	● The participation of stakeholders and the public throughout the EIA process should be enhanced, in particular at the early stage. Clear guidelines on public engagement plans for controversial or mega projects should be devised at the early stage as well.	● The existing statutory timeframe of public inspection during the application of study brief and approval of EIA report would remained unchanged under the review. ● EPD has been encouraging project proponents to actively engage with the public during the EIA process. Also, it has been a general requirement for project proponents to set up a hotline to answer public enquires during the public inspection period of an EIA report. Besides, it has been stated in EIA Study Brief for certain projects to require the project proponents to prepare 3D EIA (e.g. the traffic noise impacts on residential dwellings) to enhance public understanding of the findings and conclusions of the EIA report. ● The CED provides an effective platform to help collect, store, analyse and disseminate the vast amount of data involved in compiling EIA studies, and is an important platform for encouraging public participation in the EIA process.
23.	The public should be provided the opportunity in the current review exercise.	● The EPD conducted an extensive consultation exercise on the overall approach and scope for the review of the EIA process in order to collect views and suggestions from stakeholders and the public between March and June 2022, including consultation with ACE, the LegCo EAP, three

	Key Comments from ACE Members	Actions taken/proposed by Environmental Protection Department (EPD)
		online meetings with professional institutes, key project proponents and relevant organisations, and four online public forums. Overall, the views received during the consultation period were positive and constructive. ● The EPD have consulted the LegCo EAP on 12 December 2022 and will brief the ACE on 20 March 2023 on the recommended amendments and enhancement initiative. ● The recommendations of the EIAO Review, including the proposed amendments to the Schedules and EIAO-TM, have been made available for public access. ● We have organised two workshops for stakeholders and relevant professional bodies on the assessment methodologies and technical requirements in the new EIAO-TM and the relevant guidance notes.

Major Contents of Centralised Environmental Database (CED)

Aspect	CED Deliverables
Environmental Planning and Assessment	**Relevant data for impact assessment** ● Details of applications under the Environmental Impact Assessment Ordinance (EIAO) ● Environmental sensitive areas under the EIAO ● Location of declared monuments and graded historic buildings ● Outline zoning plans
Air	**Background modelling output** ● PATH[1] modelling data output for 2022-2025, 2030, 2035 and 2040 **Relevant data for impact assessment** ● EMFAC-HK[2] emission factor database ● Air pollution source inventories: - Marine emission - Tunnel Portal emission - Ventilation building emission - Chimney locations - Specified process licenses ● Air quality monitoring data
Noise	**Web-based modelling applications** ● Construction Noise Impact Assessment Application ● Road Traffic Noise Assessment Tool ● Quick Road Traffic Noise Assessment Application **Relevant data for impact assessment** ● Locations of noise sensitive receivers ● Extent of noise barriers, noise enclosure and roads with low noise road surfacing ● Road traffic flow data ● Noise Exposure Forecast (NEF) contours for aircraft noise
Water	**Background modelling output** ● DFM[3] hydrodynamics and water quality modelling data output for current year, 2031 and 2041 **Relevant data for impact assessment** ● Water pollution load inventory ● Marine water quality monitoring data

Aspect	CED Deliverables
Land contamination	**Relevant data for impact assessment** • Geochemical atlas of areas with exceedance of RBRG[4] levels
Hazard to Life	**Relevant data for impact assessment** • Locations and impact zone of hazardous facilities
Ecology	**Relevant data for impact assessment** • Ecological information from (a) approved environmental impact assessment reports; and (b) Agriculture, Fisheries and Conservation Department (AFCD) including: - Habitat maps - Sighting/survey records of flora and fauna - Sighting records of marine mammals
Fisheries	**Relevant data for impact assessment** • Port survey results (i.e. distribution of fishing operation and fisheries production)
Landscape and Visual	**Web-based application** • Tool for visualisation of project plans and the surrounding environment

Note:

1. A regional air quality modelling system known as "Pollutants in the Atmosphere and their Transport over Hong Kong" (PATH) (https://path.epd.gov.hk/download.html#eia_beyond25).
2. Emission factors model (EMAFC-HK) to calculate emissions for motor vehicles being operated on roads in Hong Kong (https://www.epd.gov.hk/epd/english/aqia/application-air-quality-impact-assessment.html).
3. A water quality modelling system known as Delft-3D Flexible Mesh (DFM).
4. Risk-Based Remediation Goals (RBRGs) for contaminated land management (https://www.epd.gov.hk/epd/sites/default/files/epd/english/environmentinhk/waste/guide_ref/files/gme.pdf).

Optimising the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499) Process
Justifications for Proposed Amendments to Schedules 2 and 3 to the EIAO

	PART I	**A-ROADS, RAILWAYS AND DEPOTS**
	Suggested Amendments	**Justifications**
1.	A.1 A *carriageway ~~road~~, as defined in the Road Traffic (Traffic Control) Regulations (Cap. 374G),* which is an expressway, trunk road, primary distributor road or district distributor road. *~~including new roads, and major extensions or improvements to existing road.~~*	● "Road" is proposed to be replaced by "carriageway" to avoid mis-capturing roads solely for bicycles or pedestrians, which have no or very limited environmental concerns in view of their project nature. ● The definition of "carriageway" is defined in Part 1 of Road Traffic (Traffic Control) Regulations (Cap. 374G) as below: ***"carriageway"*** (車路) means a way constituting or comprised in a road, being a way over which the public have a right of way for the passage of *motor vehicles*; ● To delete "*including new roads, and major extensions or improvements to existing roads*" as this is a redundant clause which overlaps with the requirements under material change mechanism stipulated in the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM). The proposed deletion can avoid unnecessary challenge on the interpretation of "major" in the clause.
2.	A.6 A transport depot located less than *100~~200~~* m from the nearest boundary of an existing or planned (a) residential area; (b) place of worship; (c) educational institution; or (d) health care institution.	● The nature and associated environmental impacts of a tram depot (A.5) and a transport depot (A.6) are very similar. The major operating activities of both types of depot generally include parking, cleansing, repairing, refueling and servicing, etc., which are to support the operation of fleets / vehicles, that both will create similar types of environmental concerns. ● Based on the previous Direct Application for Environmental Permit (DIR) / Environmental Impact Assessment (EIA) applications and past complaint records, the environmental impact of transport depot with more than 100m separation distance between the depot and nearest sensitive receiver is unlikely to be adverse and the effectiveness of the mitigation measures has been demonstrated in practice. Hence the threshold of "separation distance" of 200 m is amended to 100 m which also tallies with that of a tram depot. Besides, it is considered that DIR could be viable for processing application for items A.5 or A.6 if sensible measures/designs are adopted (e.g. boundary walls, alignment of access road away from sensitive receivers).

3.	A.7 A *carriageway* ~~*road*~~ or railway tunnel more than 800 m in length between portals.	● "Road" is to be replaced by "carriageway" to avoid mis-capturing roads solely for bicycles or pedestrians, which have very limited environmental concerns in view of their project nature (see item no. 1 above).
4.	A.8 A *carriageway* ~~*road*~~ or railway bridge more than 100 m in length between abutments *with piers over the sea*.	● "Road" is to be replaced by "carriageway" to avoid mis-capturing roads solely for bicycles or pedestrians, which have very limited environmental concerns in view of their project nature (see item no. 1 above). ● Legislative intent of this item was targeted at large-scale "road bridge / railway bridge" such as "Tsing Ma Bridge", "Ting Kau Bridge", "Ap Lei Chau Bridge" and "Cross Bay Link, Tseung Kwan O", etc. which spanned across the sea and may have potential water quality impact / ecological impact during the construction and operation of the bridge structure within the waterbodies. ● However, the current literal meaning of the item does not properly reflect the above interpretation and sometimes caused ambiguity as to whether this item should also cover any connecting structure that span across any land (i.e. flyover or viaduct). ● To remove ambiguity, it is proposed to amend this item to control any carriageway or railway bridge with piers over the sea.
5.	A.9 A *carriageway* ~~*road*~~ fully enclosed by decking above and by structure on the sides for more than 100 m.	● "Road" is to be replaced by "carriageway" to avoid mis-capturing roads solely for bicycles or pedestrians, which have very limited environmental concerns in view of their project nature (see item no. 1 above).

	PART I	**B-AIRPORTS AND PORT FACILITIES**
	Suggested Amendments	**Justifications**
6.	B.1. An airport (including its runway and the development and *facilities* ~~*activities*~~ related to aircraft maintenance, repair, fueling and fuel storage, engine testing or air cargo handling).	● "activity/activities" is replaced by "facility/facilities" because the intention of the EIAO is to assess the environmental impact of certain "projects and proposals" rather than their "activity / activities".
7.	B.2 A helipad *(except for fire services,*	● The purpose of this item is to control the environmental impacts arising from helicopter

	hospital, police, national security and other life-saving and emergency purposes) within 300 m of existing or planned residential development.	operation not covered by the Noise Control Ordinance (NCO) and other pollution control ordinances. ● Based on the internal review by the Environmental Protection Department (EPD) on overseas control practices (reference has been made to Australia, the United States, the United Kingdom, Japan and Singapore), in the planning of a helipad, exemptions are provided for emergency services involving hospitals, police, search and rescue, fire service or other emergency purposes, etc. To tally with international control practices, it is proposed to include the exemption of emergency uses in the EIAO under this item. ● In any event, the key environmental issues for planning of these emergency helipad can still be properly addressed through other means of environmental reviews, such as preliminary environmental reviews and covered via other prevailing internal guidelines and procedures (e.g. Environment, Transport and Works Bureau Technical Circular (Works) No. 13/2003). ● The EPD has consulted the Government Flying Services and they have agreed on the proposed amendment.
8.	B.4 A public cargo working area— (a) of more than 1 000 m cargo working length; or (b) with a cargo working length *more than* ~~*between*~~ 500 m and ~~*1 000 m and*~~ within 50 m of an existing or planned planned- (i) residential area; (ii) place of worship; (iii) educational institution; or (iv) health care institution.	● Proposed amendment is to provide better clarity between B.4(a) & B.4(b).

	PART I	**C-RECLAMATION, HYDRAULIC AND MARINE FACILITIES, DREDGING AND DUMPING**
	Suggested Amendments	**Justifications**
9.	C.2 Reclamation works (including associated dredging works) more than	● From past experience, the threshold of "500 m" from the nearest boundary of existing or planned sensitive receivers which are "land-based" (e.g. site of cultural heritage or country

	1 ha in size and a boundary of which- (a) is less than 500 m from the nearest *seaward* boundary *or 200 m from the nearest landward boundary* of an existing or planned--- (i) site of special scientific interest; (ii) site of cultural heritage; (iii) bathing beach; (iv) marine park or marine reserve; (v) fish culture zone; (vi) wild animal protection area; (vii) coastal protection area; (viii) conservation area; (ix) country park; ~~*or*~~ (ix) special area; *or* ~~*(b) is less than 100 m from a seawater intake point; or*~~ (~~*c*~~*b*) is less than 100 m from an existing residential area.	park) seems to be too conservative as reclamation / dredging works are water-based activities. Taking Table 1.3 of Ch.9 of Hong Kong Planning Standards and Guidelines (HKPSG) as a reference, amendments are made to differentiate the "seaward" and "landward" thresholds to 500 m (unchanged) and 200 m (conservative buffer distance equivalent to "offensive trades / odour source" respectively. ● The "*seawater intake point*" is, in fact, **not** a "sensitive receiver / use" identified in (a) the legislative intent; or (b) Appendix 5.1 of Ch 9 of the HKPSG (related to water pollution). ● Besides, seawater intake generally serves two main functions, namely, (a) flushing water and (b) cooling water system & not for drinking purpose. Hence, there is no or very limited human health risk issue. Flushing water or warmed seawater being discharged will eventually be controlled under Waste Pollution Control Ordinance (WPCO) licences. Even if there is any potential impact on the seawater intake point, there are various means to handle, e.g. relocation of the intake point. ● In any event, the potential adverse water quality impact due to dredging or reclamation works can be mitigated by standard/proven mitigation measures (e.g. application of silt curtain, control on dredging rate, etc.). Hence, it is expected that "dredging operation" will have very limited potential environmental impacts on "seawater intake point". It is therefore suggested to delete "seawater intake point" [i.e. C.2 (b) & C.12 (b)] as a sensitive receiver. ● The Water Supplies Department (WSD) has no adverse comment on the proposed amendment.
10.	C.3 Reclamation works - (a) resulting in *excess of* 5% decrease in cross sectional area calculated on the basis of 0.0 mPD in a sea channel; or (b) occupying an area on plan in excess of 10% of any enclosed or semi-enclosed waterbody.	● Reclamation in a sea channel will have a "narrowing" effect causing potential hydrodynamic impacts on the water bodies thus aggravating the water quality. Hence, clarity is made to cover reclamation works resulting in more than 5% decrease in cross sectional area.
11.	C.5 A typhoon shelter designed to provide moorings for *more* ~~*not less*~~ than 30 vessels	● Replace "not less than" with "more than" for consistency with other items.
12.	C.11 A public dumping area of *more* ~~*not less*~~ than 2 ha in size.	● Replace "not less than" with "more than" for consistency with other items.
13.	C.12 A dredging operation	● Amend "seaward" & "landward" thresholds to 500 m and 200 m respectively (see item no. 9

	(a)~~*exceeding*~~ *of more than* 500 000 m^3*,* or *(b)* a dredging operation which is less than 500 m from the nearest *seaward* boundary *or 200 m from the nearest landward boundary* of an existing or planned- (i) site of special scientific interest; (ii) site of cultural heritage; (iii) bathing beach; (iv) marine park or marine reserve; (v) fish culture zone; (vi) wild animal protection area; (vii) coastal protection area; or (viii) conservation area~~*; or*~~ ~~*(b) is less than 100 m from a seawater intake point.*~~	above). ● Delete "(b) is less than 100m from a seawater intake point" as the sensitive receiver (see item no. 9 above). ● Replace "exceeding" with "of more than" for consistency with other items.

	PART I	**D-ENERGY SUPPLY**
	Suggested Amendments	**Justifications**
14.	D.1 ~~*Public utility eE*~~lectricity power plant *running on fossil fuel with a production capacity of more than 100 megawatt.*	● "Public utility" is deleted to cater for any large-scale manufacturing plant from private sector which might self-generate their own electricity supply within their plant / facility. ● The legislative intent for this item is to control the impacts from power plant or electricity works operated on fossil fuels. Hence, the wording "running on fossil fuel" is added for clarity. ● Thresholds are included for thermal power plant in various regulations (Canada, the United Kingdom, Germany and Japan). EIA is normally required with power output of 100 megawatt (MW) to 300MW. A threshold of 100MW is therefore proposed to be added. ● Amending this item will avoid mis-capturing power plants using clean energy sources (e.g. solar power and hydropower) with no air pollutant emission which is not the intention to be

		covered under the EIAO. We do not anticipate that the said plants will cause adverse environmental impact.
15.	D.2 *Town ~~Public utility~~* gas*, as defined in the Gas Safety Ordinance (Cap. 51),* generation plant *with a production capacity of more than 10 million cubic metre per day*.	● The legislative intent is to control the potential environmental impacts associated with a town gas generation plant such as the Towngas production plants in Tai Po (production capacity 10.22 million cubic metre per day) and Ma Tau Kok (production capacity 2.6 million cubic metre per day). ● A threshold of 10 million cubic metre per day is adopted as the Ma Tau Kok plant only serves as a "backup / reserved" plant and hence its current capacity is not representative. ● The Gas Safety Ordinance (Cap. 51) is added for better clarity.
16.	D.3 *Wind power plant with a production capacity of more than 100 megawatt.*	● It is suggested to include a new item D.3 to control the construction and operation of large-scale wind farm. ● Noise, ecological and visual impacts are the major environmental impacts associated with the construction and operation of wind power plant (i.e. windfarm). ● Based on our international review of EIA legislation, wind power plant is included in various regulations requiring EIA, normally with a threshold depending on the number of turbines and the power output ● Threshold of 100 MW is suggested based on both international and local experience of EIA projects below and is consistent with the threshold in item D.1: (a) Yangjiang Shaba Phase 4 offshore project 廣東陽江陽西沙扒四期海上風電場 (301 MW) (b) Cedar Point Wind Farm, Denver, US (253 MW) (c) Mount Storm Wind Farm, Washington, D.C., US (246 MW) (d) Hong Kong Offshore Wind Farm in Southeastern Waters (200 MW) (e) Development of a 100MW Offshore Wind Farm in Hong Kong (100 MW)

	PART I	**E-WATER EXTRACTION AND WATER SUPPLY**
	Suggested Amendments	**Justifications**
17.	E.1 A*n impounding ~~primary~~* reservoir.	● To replace "primary reservoir" with "impounding reservoir" as there is no definition or interpretation for "primary reservoir" in Hong Kong which might cause confusion. ● There are only two types of reservoirs in Hong Kong as advised by the WSD, namely impounding reservoirs and service reservoirs.

		● From environmental perspective, only impounding reservoir may bring significant environmental impacts during construction given that it is usually large in scale.
18.	E.2 Water treatment works with *storage of more than 500 tonnes of dangerous goods ~~a capacity of more than 100,000 m^3 per day~~*. .	● The WSD, the authority of water supply, considers that the current capacity threshold (i.e. 100,000 m^3) is rather small as compared with the existing water treatment works (WTW). Construction and operation of WTW, irrespective of their capacities, will generally not give rise to significant environmental impacts unless it involves the use / transportation / storage of dangerous goods (e.g. chlorine, sodium hypochlorite, liquid carbon dioxide) in the treatment process, which will lead to hazard to life concerns. ● Hazard to life concerns for WTW may be gradually relieved because of the WSD's upcoming plan for switching to on-site chlorine generation progressively for all WTW by mid-2024, resulting that a WTW with chlorine storage less than 10 tonnes will no longer be classified as a Potentially Hazardous Installations under the HKPSG. ● Dangerous goods godown is under the control of the EIAO. Hence, it is proposed to be consistent with the capacity threshold for dangerous goods in Item K.13 (i.e. a dangerous goods godown with a storage capacity exceeding 500 tonnes).
19.	~~*E.3 A submarine water supply pipeline with a diameter of 1 200 mm or more and a length of more than 1 km.*~~	● Based on past experience, laying of submarine pipeline will not cause significant environmental impact during construction. The major environmental impacts associated with submarine pipe laying works will be when the works are encroaching on environmentally sensitive areas, either adopting the traditional pipe-laying method or open cut method. Such kind of pipe laying works can also be covered by other designated project (DP) items, like item C.12 (dredging operation) and item Q.1 (works in environmentally sensitive areas). ● Meanwhile, it is more prevalent to apply specialised trenchless construction technology, e.g., Horizontal directional drilling (HDD) method in water pipe-laying works. HDD method adopts "minimum-dig" technique and avoids distortion of seabed and therefore it can significantly reduce the environmental impacts. Hence, if the pipelines are installed using tunnelling / trenchless method, the associated environmental impacts can be considered minimal. ● During operation of the pipeline, water leakage, if any, will not cause environmental impact since water, unlike sewage, is not a pollutant. ● The WSD, the authority of water supply, considers the deletion acceptable.

	PART I	F-SEWAGE COLLECTION, TREATMENT, DISPOSAL AND REUSE
	Suggested Amendments	**Justifications**
20.	F.2 Sewage treatment works (a) with an installed capacity of more than 5 000 m^3 per day; and (b) a boundary of which is less than 200 m from the nearest boundary of an existing or planned--- (i) residential area; (ii) place of worship; (iii) educational institution; (iv) health care institution; (v) site of special scientific interest; (vi) site of cultural heritage; (vii) bathing beach; (viii) marine park or marine reserve; *or* (ix) fish culture zone~~; or~~ ~~*(x) seawater intake point*~~.	• Delete "(b)(x) seawater intake point" as the sensitive receiver (see item no. 9 above).
21.	~~*F.3 A sewage pumping station---*~~ ~~*(a) with an installed capacity of more than 300,000 m^3 per day; or*~~ ~~*(b) with an installed capacity of more than 2,000 m^3 per day and a boundary of which is less than 150 m from an existing or planned---*~~ ~~*(i) residential area;*~~ ~~*(ii) place of worship;*~~ ~~*(iii) educational institution;*~~ ~~*(iv) health care institution;*~~ ~~*(v) site of special scientific interest;*~~ ~~*(vi) site of cultural heritage;*~~ ~~*(vii) bathing beach;*~~ ~~*(viii) marine park or marine reserve;*~~	• Based on past experience, a sewage pumping station generally has limited potential of giving rise to adverse environmental impacts and the impacts can be effectively mitigated to meet the EIAO-TM criteria and standards with appropriate mitigation measures properly taken during design, construction and operation stages. It is therefore proposed to remove this item from Schedule 2. • As advised by the Drainage Services Department (DSD), suitable mitigation measures (e.g. deodourization equipment, standby machines, etc.) can be incorporated as standard requirements into the latest design of sewage pumping station project. • However, sewage pumping station project may still constitute a DP if it is located in environmentally sensitive areas (i.e. item Q.1 of Schedule 2).

	~~*(ix) fish culture zone; or*~~ ~~*(x) seawater intake point.*~~	
22.	F.~~*43*~~ A~~*n facility activity*~~ for the *production of reclaimed water from* ~~*reuse of*~~ treated sewage effluent from a *sewage* treatment plant *for use by general public*.	● "Activity" is replaced by "facility" (see item no. 6 above). ● The WSD has been actively exploring the use of recycled water, namely: (a) reclaimed water, (b) treated grey water and (c) harvest rainwater. Since the reuse of "treated grey water" (collected from baths, showers, wash basins, kitchen sinks & laundry machines; and can be reused for toilet flushing) and "harvest rainwater" will not incur any significant adverse environmental impacts, production of such reuse are not considered as a DP under this item. The amendment is to avoid confusion of the interpretation under "recycled water" and only "reclaimed water" from sewage treatment plant will be controlled under the EIAO. ● Since it is the intention to regulate reclaimed water for use by general public, the qualifier, namely "for use by general public" is added.
23.	F.~~*54*~~ A submarine sewage pipeline with a diameter of 1 200 mm or more and a length of 1 km or more.	● Re-numbering.
24.	F.~~*65*~~ A submarine sewage outfall.	● Re-numbering.

	PART I	**G-WASTE STORAGE, TRANSFER AND DISPOSAL FACILITIES**
	Suggested Amendments	**Justifications**
25.	G.3 An incinerator with an installed capacity of more than ~~*50*~~*500* tonnes per day.	● The capacity of 50 tonnes per day is considered obsolete and not up-to-date (see Footnote 1). With global technological advancement in the incineration industry for the past 20 years, the capacity of incineration plants has substantially increased to more than 1000 tonnes per day (tpd) (reference is made to the Netherland, Japan, Singapore, Hong Kong and Mainland China) as follows: ➢ (a) Afval Energie Bedrijf (AEB) Incineration Plant in the Netherlands (4000 tpd) ➢ (b) Shin-Koto Incineration Plant in Japan (1800 tpd) ➢ (c) TuasOne Incineration Plant in Singapore (3600 tpd) ➢ (d) Integrated Waste Management Facilities (IWMF) in Hong Kong (3000 tpd) ➢ The capacity of the "two decommissioned incineration plants" in Hong Kong, i.e. (a) Kennedy Town and (b) Lai Chi Kok plants were built with a capacity of 750 tonnes per

			day. Hence a threshold of 500 tonnes per day is proposed for this item which also tallies with the threshold of other waste disposal facilities in the list. Footnote 1: The capacity of 50 tonnes per day is considered not up-to-date as such capacity is intended for a small incinerator used for the destruction by burning of wastes or refuse in a small-scale plant or operation. In Hong Kong, the "Specified Process" (SP) licence of the Air Pollution Control Ordinance provides control over small incinerators with the installed capacity exceeding 0.5 tonne per hour and which are used for the destruction by burning of wastes or refuse, not being any works described in any other specified process. It is considered that the associated environmental impacts from such a small incinerator are expected to be localised and less significant, involving mainly air quality issue which could be effectively dealt with under the SP license (usually require an air quality impact assessment to assess the resulting air quality upon the ASRs by air pollution dispersion modelling) and no need to have duplicated control under the EIAO. For large incinerators with installed capacity over 500 tonnes, although also falling within the control of the "Specified Process" licence, the associated direct and indirect environmental impacts are usually regional and therefore expected to be more significant, covering multiple issues including odour, traffic noise from vehicular movement, disposal of wastes, major site formation and sometimes reclamation, etc. which should be dealt with under an EIA study. For example, I-PARK1 and I-PARK2, their design capacity is over 3000 tonnes per day, and they will be controlled under the EIAO. Setting a lower limit of 500 tonnes per day is sufficient to catch all the key MSW incinerators. The updated threshold also reflects the advancement in incineration technology and the common incineration capacity of a single unit / module for incinerators worldwide (i.e. "average" capacity of Waste Incineration Plants in China from Year 2006 (more than 500 tpd) to Year 2018 (about 1100 tpd), see Fig. 7 of the following link) *(https://www.researchgate.net/figure/Number-and-average-capacity-of-waste-incineration-plants-in-China-Data-source-20_fig4_346120573)*
26.	G.4	A waste disposal facility (excluding any refuse collection point) *with an installed capacity of more than 500 tonnes per day~~, or waste disposal activity~~*, for (a) refuse; or (b) *food*, chemical, industrial or special wastes	● To tackle the food waste challenge in Hong Kong and to cater for future large-scale "waste digester or waste composter" whilst allowing small-scale waste disposal facilities in local communities, "food" is added under G.4 (b) with a capacity threshold of more than 500 tonnes per day under G.4 ● Reference of the threshold is made to (a) Item G.5 for treatment of construction waste (more than 500 tonnes per day); and (b) past EIA studies for "O.Park1" (capacity 200 tonnes per day) and "O.Park2" (capacity 300 tonnes per day), both of which concluded that environmental impacts are insignificant & therefore the threshold can be lifted. That said, their emissions

		are still subject to control under the pollution control ordinances.
27.	G.5. A facility for the treatment of construction waste--- (a) with a designed capacity of *more* ~~*not less*~~ than 500 tonnes per day; and (b) a boundary of which is less than 200 m from an existing or planned--- (i) residential area; (ii) place of worship; (iii) educational institution; or (iv) health care institution	● Replace "not less than" with "more than" for consistency with other items.

	PART I	**I-WATERWAYS AND DRAINAGE WORKS**
	Suggested Amendments	**Justifications**
28.	I.1 A drainage channel or river training and diversion works - *(*a) with a channel width of more than 100 m *;or* (b) ~~*which discharges or discharge into an area*~~ which is less than 300 m from the nearest boundary of an existing or planned- (i) site of special scientific interest; (ii) site of cultural heritage; (iii) marine park or marine reserve; (iv) fish culture zone; (v) wild animal protection area; (vi) coastal protection area; or (vii) conservation area.	● This item aims to control the impacts on water quality, hydrology and ecology arising from drainage channel or river training and diversion works. ● The proposed amendment to delete "*which discharges or discharge into an area*" serves to eliminate the ambiguity encountered in previous EIAO applications and focus has been put to control the environmental impacts from construction / operation of a drainage channel or river training and diversion works which is less than 300 m from the nearest boundary of an existing or planned environmentally sensitive receiver, instead of assessing the whole discharge area along which the channel / river discharges into. For instance, in some extreme cases the environmentally sensitive area(s) can be a few kilometres downstream from the project, which is obviously not the legislative intent of this DP item. ● During the focus group discussion, the DSD proposed and the EPD agreed to remove the provision of discharge area with a view to focusing the assessments on the impacts within the 300 m distance from the discharge point.

	PART I	**J-MINERAL EXTRACTION**

	Suggested Amendments	Justifications
29.	J.1 A~~n~~ *petroleum* ~~*oil*~~ or *natural* gas extraction ~~*activity*~~ *facility with throughput of more than 100 tonnes per day*.	● It is considered that the term "oil" is too generic and may as well cover food oil. The legislative intent of this item is to control the environmental impacts arising from petroleum extraction facility, which may involve air, noise, water quality issues. ● Under Dangerous Goods Ordinance, petroleum includes crude petroleum, oil made from petroleum or from coal, shale, peat or other bituminous substance, and other products of petroleum or of any of the above-mentioned oils, and mixtures containing petroleum or any of the above-mentioned oils. The term "petroleum" has a broader meaning to cover petroleum products in addition to crude oil. Hence, the proposed amendment aims to better reflect the original intention of this DP item. ● Since gas can be nitrogen, we suggest to add "natural" before "gas". A threshold of 100 tonnes per day is suggested for large-scale project and also tallies with that of item J.4. ● "Activity" is replaced by "facility" (see item no. 6 above).
30.	J.2 A mining operation *as defined in the Mining Ordinance (Cap. 285)*.	● Mining Ordinance (Cap. 285) is added for better clarity
31.	J.3 A *surface quarry as defined in the Factories and Industrial Undertakings Ordinance (Cap. 59)* ~~*quarrying or quarry rehabilitation*~~.	● This item aims to control the impact arising from "surface quarrying operation" which involves open air excavation of minerals and overburden (i.e. the rock or soil layer that needs to be removed in order to access the ore being mined) by the method of benching, normally developed from the top down. There are adverse environmental impacts in the aspects of air quality, noise, and waste management. ● The proposed amendment aims to confine the scope of "quarrying" to "surface quarrying operation". ● "Quarry rehabilitation" is after-quarry management which poses little environmental impact. Hence, it is proposed to be excluded from the control of EIAO. Nevertheless, existing mechanism is laid down in the Environment, Transport and Works Bureau Technical Circular (Works) No. 13/2003 requiring project department to conduct preliminary environmental review / environment study to identify suitable environmental mitigation measures to ensure acceptable environmental performance. ● Factories and Industrial Undertakings Ordinance (Cap. 59) is added for better clarity.

	PART I	K-INDUSTRIAL ~~ACTIVITIES~~ FACILITIES
	Suggested Amendments	**Justifications**

32.	K.7 A~~n~~ *petroleum ~~oil~~* refinery *with capacity of more than 500 tonne per day*	● Replace "oil" with "petroleum" for better clarity (see item no. 29 above). ● A threshold with capacity of 500 tonnes per day is added to tally with that of item K.13 for storage of "dangerous goods".
33.	K.9. A tobacco or cigarette manufacturing plant ~~*in a stand-alone, purpose built building*~~.	● Delete "in a stand-alone, purpose-built building" as the wording is considered redundant.
34.	K.10. A~~n *explosives*~~ depot or ~~*explosives*~~ manufacturing plant *for explosives, as defined in the Dangerous Goods Ordinance (Cap. 295)* ~~*in a stand-alone, purpose built building*~~.	● "Dangerous Goods Ordinance (Cap 295)" is added for clarity. ● Delete "in a stand-alone, purpose-built building" as the wording is considered redundant.
35.	K.13 A dangerous goods godown with a storage capacity *of more than* ~~*exceeding*~~ 500 tonnes.	● Replace "exceeding" with "of more than" for consistency with other items.

	PART I	**L-STORAGE, TRANSFER AND TRANS-SHIPMENT OF FUELS**
	Suggested Amendments	**Justifications**
36.	L.1. A storage, transfer and trans-shipment of liquefied petroleum gas facility with a storage capacity of *more* ~~*not less*~~ than 200 tonnes.	● Replace "not less than" with "more than" for consistency with other items.
37.	L.2 A storage, transfer and trans-shipment of liquefied natural gas *or hydrogen* facility with a storage capacity of *more* ~~*not less*~~ than 200 tonnes.	● Replace "not less than" with "more than" for consistency with other items. ● To align with Paris agreement, the Government is moving towards a hydrogen economy to reduce carbon emission from the transport sector. ● Considering that a storage, transfer and trans-shipment of hydrogen facility may pose environmental impacts, it is recommended to add "hydrogen facility" under item L.2 for better control. ● Having reviewed international practices, we note that a hydrogen facility with a storage capacity of over 200 tonnes will be required to complete a full EIA study in the jurisdiction of Germany, Sweden and Spain. A common threshold of more than 200 tonnes is therefore adopted for the facilities under this DP item.

38.	L.3. A storage, transfer and trans-shipment of coal or ore facility with a storage capacity of *more ~~not less~~* than 200 tonnes.	● Replace "not less than" with "more than" for consistency with other items.
39.	L.4 A storage, transfer and trans-shipment of *petroleum ~~oil~~* facility with a storage capacity of *more ~~not less~~* than 1 000 tonnes.	● Replace "oil" with "petroleum" for better clarity (see item no. 29 above). ● Replace "not less than" with "more than" for consistency with other items.
	PART I	**N-COMMUNITY FACILITIES**
	Suggested Amendments	**Justifications**
40.	N.1 An abattoir with a daily slaughter capacity of more than 500 numbers of *food animal, as defined in Abattoirs Regulation (Cap. 132A) ~~livestock~~*.	● "livestock" is replaced by "food animals" which are defined as live bovine animal, swine, goat, sheep or soliped [指活的牛類動物、豬、山羊、綿羊或單蹄動物] under the Abattoir Regulation (Cap. 132A).
41.	N.3 A wholesale market *for fish or livestock*.	● "Fish or livestock" is added to avoid catching other types of wholesale market such as "clothing", "food", "fruits", "green grocery", etc. which are of limited environmental concerns.

	PART I	**O-TOURIST AND RECREATIONAL DEVELOPMENTS**
	Suggested Amendments	**Justifications**
42.	O.2 A marina designed to provide moorings *~~or dry storage~~* for *more ~~not less~~* than 30 vessels used primarily for pleasure or recreation.	● This item aims to capture potential water quality and marine ecological impacts arising from the construction and operation of the proposed marina. ● The proposed amendment is to reflect that dry storage is a land-based facility which is not anticipated to generate water quality and marine ecological impact. ● Marine Department has no adverse comment on the proposed amendment. ● Replace "not less than" with "more than" for consistency with other items.
43.	O.3. A*n open air venue designed for* horse racing *with a capacity to accommodate more than 10 000 persons ~~course~~*.	● The main environmental impact caused by horse racing is noise nuisance due to the nature of open air without noise insulation. The noise sources include the use of loudspeakers and chanting noise of spectators. ● Considering that items O.3, O.6 and O.7 are of similar nature and environmental impacts, item O.3 is suggested to adopt a threshold of 10 000 persons to tally with that in items O.6 & O.7.
44.	O.4 A*n outdoor* motor racing circuit	● This item primarily aims to control the potential noise impacts arising from the operation of a

	(including that for training purpose).	motor racing circuit. ● While the major environmental impacts are air quality and noise, the proposed amendment is intended to control those outdoor facilities from which sensitive receivers will be affected by their operation. Such impacts can be mitigated if the venue is indoor. ● The proposed amendment is to extend the coverage to motor racing circuit of training purpose, which will generate similar air and noise impacts.

	PART I	**P-RESIDENTIAL AND OTHER DEVELOPMENTS**
	Suggested Amendments	**Justifications**
45.	~~*P.2 A residential development –*~~ ~~*(a) of not less than 2,000 flats; and*~~ ~~*(b) not served by public sewerage networks by the time a flat is occupied.*~~	● As discussed by the relevant LegCo Bills Committee on 27 June 1996, this item aims to control residential developments in unsewered areas where sewage disposal is a problem which might have water quality impact on nearby sensitive water bodies. ● Sewage from large-scale residential developments in unsewered areas (e.g. Fairview Park, Hong Lok Yuen and Palm Springs) have been/had been treated by on-site sewage treatment plants even well before the implementation of EIAO in April 1998. With the advancement of technology, it is evident that sewage can be treated via on-site "tertiary" sewage treatment plants so as to attain relevant tertiary treatment standards (if necessary) and generate quality effluent. ● In any event, sewage effluent generated from residential developments is under the control of WPCO licences. The water quality impacts arising from residential development can hence be redressed. ● The Government will continue to plan and extend the local sewerage infrastructure to improve water quality and cater for development needs.

	PART I	**Q-MISCELLANEOUS**
	Suggested Amendments	**Justifications**
46.	Q.1 All projects *involving* ~~*including new access roads, railways, sewers, sewage treatment facilities,*~~ earthworks, dredging works and other building works partly or wholly in an existing or gazetted proposed country park or special area, a conservation area, an existing or gazetted proposed marine park or marine reserve, a site of cultural heritage, and a site of special scientific interest, except for the following- (a) minor maintenance works to roads, drainage, *sewer*, slopes, ~~*and*~~	● Item Q.1 provides a catch-all mechanism for all projects falling within environmental sensitive areas, with an exception list to exclude those smaller scale works with lesser environmental implications from the statutory control. ● Delete "new access roads, railways, sewers, sewage treatment facilities" as the list of projects is immaterial to the definition of the DP and is therefore considered redundant. Moreover,

	public lightings and associated cabling, utilities *and desilting work to drainage*; (b) ~~*minor public utility works including*~~ the installation of telecommunications wires, joint boxes, power lines with a voltage level of not more than 66 kV, ~~*and*~~ *or* gas pipelines with a diameter of 120 mm or less; (c) education ~~*and*~~*,* recreation~~*al*~~ *and public enjoyment* facilities not otherwise designated projects listed in Parts A to P and approved by the Country and Marine Parks Authority; (d) all earthworks relating to forestry, agriculture, fisheries and the management of vegetation *and habitat*; (e) New Territories exempted houses *and associated structure, drainage and sewerage*; (f) footpaths and ~~*facilities relating to*~~ sitting out areas *and their related facilities*; (g) ~~*minor*~~ facilities *including fire-fighting, power supply, water supply, toilets, sewers and the associated sewage treatment facilities, slope works, drainage and roads,* relating to the management and protection of marine parks, marine reserves, country parks*, site of special scientific interest, conservation areas* and special areas; (h) all works not otherwise designated projects listed in Parts A to P undertaken by the Country and Marine Parks Authority under section 4 of the Country Parks Ordinance (Cap. 208) or section 4 of the Marine Parks Ordinance (Cap. 476) for developing and managing country parks and special areas, marine parks and marine reserves; ~~*(i) maintenance of existing waterworks installations; or*~~ (~~*i*~~*i*) minor works including- (i) *maintenance or* improvements to *existing waterworks* ~~*catchwaters*~~; (ii) the provision of- (A) *underground* water *and sewage* pipes *involving trench excavation with a width of not more than 1.5 m* and *the associated works for fittings and* valves ~~*of diameter 450 mm or less*~~;	these projects are normally associated with "earthworks, dredging works and other building works" which have already been covered in same provision. ● (a) Minor maintenance works to drainage & sewer are of similar nature. Unlike installing "new artificial lightings" in existing dark areas within the country park or special area which may cause negative effects on nocturnal wildlife and their behaviour, minor maintenance works to "existing" public lightings and associated cabling will not cause significant impacts on the ecological environment. Desilting work to drainage is one type of maintenance work for clarity purpose. ● (b)&(c) delete "minor public utility works" as they have been explained in the subsequent sentence. "public enjoyment" is added to cater for more general facilities which may be provided within the country park. ● (d) "habitat" is added to improve clarity and provide a more generic term to avoid ambiguity. ● (e) Development of a New Territories exempted house (NTEH) is not confined to the "building" itself. It will also include construction of storm water pipes & associated drainage channel (on ground level or pavement) to discharge rainwater from roof, balcony & the garden (if any). Sometimes, minor structures such as boundary / fence wall may be constructed. Small scale sewage treatment using septic tank & soakaway pit system is also part and parcel of the NTEH development. ● (f) Wording slightly "rephrased" to provide better clarity. ● (g) Works/facilities related to fire-fighting, power supply, water supply, toilets, sewers & associated sewage treatment facilities, slope works, drainage and roads in country parks are usually minor in nature. From DIR findings and past experience, these projects will unlikely give rise to adverse environmental impacts with proven mitigation measures in place. ● "Site of special scientific interest" and "conservation areas" are added for completeness. ● (i) Deleted and incorporated into (j) ● (i)(i) "catchwaters" is replaced by "existing

	(B) water and sewage pipes installed using trenchless method; *(C) water and sewage pipes of diameter 450 mm or less not involving trench excavation and the associated works for fittings and valves;* (*~~BD~~*) water tanks (*~~CE~~*) hydrological stations and associated *works ~~structures;and~~* (*~~DF~~*) village supply schemes *including electricity and gas supply, telecommunication, public lightings and associated cabling, water supply and sewerage; or* *(j) facilities relating to national security, safety, security, emergency, and life-saving.*	waterworks" as the latter is a general term. ● (i)(ii)(A) "underground" is added for better clarity. "sewage pipes, associated works for fittings and valves" are added for completeness. Based on past experience in laying of water/sewage pipes, the main environmental concerns are on the ecological impacts due to excavation works. Limiting the "trench size" to 1.5 m width (for 450 mm diameter pipe) would have the following environmental benefits, namely: (a) more effective in controlling the habit loss/impacts; (b) avoid contractors to make unnecessary wide trenches (hence causing more impacts) for their working convenience; (c) 1.5 m is a reasonable size for normal pipe/sewer laying works; and (d) 1.5 m is the common size of trial pits and should not cause significant impacts to the ecology. Hence "450 mm diameter" is replaced by "1.5 m width" trench size. ● (i)(ii)(B) laying of water pipe using trenchless method which does not involve ground surface excavation is considered to have insignificant environmental impacts. ● (i)(ii)(C) installation of "above ground" water and sewage pipes "of diameter 450mm or less and the associated works for fittings and valves (i.e. without trench excavation) is expected to have very limited environmental impacts. ● (i)(ii)(E) "structures" is replaced by "works" as the former is too specific. ● (i)(ii)(F) village supply schemes will usually involve both water supply and sewerage system and provision of electricity and gas supply, public lightings and associated cabling, telecommunication, etc. in smaller scale. Such an amendment will clarify the situation in future. ● (j) Facilities relating to *"national security, safety, security, emergency and life-saving"* are (a) of **"emergency"** nature; and

		(b) **"in the interests of public safety".** Inclusion of these items will tally with the spirit under s.26 (2) of the EIAO "*A person does not commit an offence under subsection (1) if he carries out an action in response to an emergency and in the interests of public safety or public health*".
47.	Q.2. Underground rock caverns *with any of the portals less than 100 m from the nearest boundary of an existing or planned-* *(a) residential area;* *(b) place of worship;* *(c) educational institution;* *(d) health care institution;* *(e) site of special scientific interest;* *(f) site of cultural heritage;* *(g) country park and special area;* *(h) conservation area;* *(i) bathing beach; or* *(j) marine park or marine reserve.*	● The key environmental impact of underground rock cavern is dust generation during construction phase near the portal (arising from excavation, material handling & vehicle movement, etc.). Construction work inside the cavern (virtually worked in a "confined-space") will unlikely have significant adverse impacts on the surrounding environment outside the portals. ● Hence, amendment is made to include a threshold of buffer distance of 100 m (reference made to Table 1.3 of Chapter 9 of the HKPSG for dusty uses) from the portal boundary to the relevant sensitive receivers to reflect the genuine environmental concerns.

	PART II Decommissioning Projects	
	Suggested Amendments	**Justifications**
48.	2. A *petroleum ~~oil~~* refinery *with capacity of more than 500 tonne per day*	● This item is proposed to be amended to be consistent with item K.7. ● A threshold with capacity of 500 tonnes per day is added to tally with that of item K.7.
49.	3. A municipal, chemical or clinical waste incinerator *with capacity of more than 500 tonnes per day.*	● This item is proposed to be amended to be consistent with item G.3.
50.	4. A*n ~~public utility~~* electricity power plant *running on fossil fuel with a production capacity of more than 100 megawatt*.	● This item is proposed to be amended to be consistent with item D.1.
51.	5. A *~~public utility~~ town* gas generation plant *with a production capacity of more than 10 million cubic metre per day.*	● This item is proposed to be amended to be consistent with item D.2.

52.	~~*6. A water treatment works of a treatment capacity of 100,000 m^3/day or more*~~	• The key concern of a water treatment plant is the chlorine storage tank. The WSD is not using chlorine in future. There is no environmental concern with the demolition of water treatment plant.
53.	~~*7*~~*6.* An installation for storage or disposal of radioactive waste.	• Re-numbering.
54.	~~*8*~~*7*. A waste disposal facility for pulverised fuel ash, furnace bottom ash or gypsum.	• Re-numbering.
55.	~~*9*~~*8*. A metallurgical works with melting capacity *of more than* ~~*exceeding*~~ 200 000 tonnes per annum (expressed as metal).	• Re-numbering. • Replace "exceeding" with "of more than" for consistency with other items.
56.	~~*10*~~*9.* A petro-chemical works *with an annual production capacity of more than 70 000 tonnes*.	• Re-numbering. • This item is proposed to be amended to be consistent with item K.8.
57.	~~*11*~~*10.* A~~n~~ depot *or manufacturing plant for* explosives ~~depot or explosives manufacturing plant~~.	• Re-numbering. • This item is proposed to be amended to be consistent with item K.10.
58.	~~*12*~~*11.* A bulk chemical storage facility *with a storage capacity of more than 80 000 tonnes*.	• Re-numbering. • This item is proposed to be amended to be consistent with item K.12.
59.	~~*13*~~*12*. A store for liquefied petroleum gas with a storage capacity *of more than* ~~*exceeding*~~ 200 tonnes.	• Re-numbering. • Replace "exceeding" with "of more than" for consistency with other items.
60.	~~*14*~~*13*. A store for liquefied natural gas with a storage capacity *of more than* ~~*exceeding*~~ 200 tonnes.	• Re-numbering. • Replace "exceeding" with "of more than" for consistency with other items.
61.	~~*15*~~*14*. A store for coal and ores with a storage capacity *of more than* ~~*exceeding*~~ 200 tonnes.	• Re-numbering. • Replace "exceeding" with "of more than" for consistency with other items.
62.	~~*16*~~*15*. A store for *petroleum* ~~*oil*~~ with a storage capacity *of more than* ~~*exceeding 200*~~ *1 000* tonnes.	• This item is proposed to be amended to be consistent with item L.4. • Replace "exceeding" with "of more than" for consistency with other items.
63.	~~*17*~~*16*. A facility for ship building or repairing more than 1 ha in	• Re-numbering.

	size or with a lifting capacity ~~*in excess of*~~ *more than* 20 000 tonnes.	• Replace "in excess of" with "of more than" for consistency with other items.

Schedule 3: Major Designated Projects Requiring Environmental Impact Assessment Reports

	Suggested Amendments	Justifications
64.	1. ~~*Engineering feasibility study of u*~~*U*rban development projects *or redevelopment projects* with a *project* ~~*study*~~ area covering more than ~~*20*~~ *50* ha ~~*or involving a total population of more than 100 000*~~.	• The legislative intent of this item is mainly (a) to provide a guiding framework for implementation of various packages of large-scale projects of new town development as well as major urban development and redevelopment for continued expansion and strategic development *(e.g. Comprehensive Feasibility Study for the Revised Scheme of South East Kowloon Development, North East New Territories New Development Areas, etc.)*; and (b) to address the overall environmental implications of development strategies, land use distribution/compatibility, and cumulative development impacts due to phased development (which cannot be tackled through individual DP items in Schedule 2 to the EIAO). • The EPD has reviewed all DPs under Schedule 3 to the EIAO. It is found that the "project nature" of those with a project area less than 50 ha are mainly related to "**Housing/Residential Developments and Arts & Cultural Development"** (e.g. *Tsuen Wan Bay Further Reclamation, Area 35, Tsuen Wan – Engineering Planning and Environmental Investigation*; *Planning and Engineering Feasibility Study for Development near Choi Wan Road and Jordan Valley*; *Infrastructural Works for Housing Development at Telegraph Bay – Engineering Feasibility Study*; *and Planning & Development Study of Potential Housing Site in Area 54 Tuen Mun*) **within a small district area**. • Since the EIAO is **not** intended to capture "housing development" projects and there is already existing mechanism to address environmental concerns for public housing sites (e.g. Environmental Assessment Study by the Housing Department and hence there is no need to duplicate the effort by a Schedule 3 DP), and there are specific Schedule 2 DPs to tackle the respective environmental issues under Schedule 3 DPs with a project area less than 50 ha, it is suggested that major development projects with a project area less than 50 ha will no longer serve as a guiding framework as stated in the legislative intent whilst the potential environmental impacts of individual components can be addressed as mentioned above. • On the other hand, it is found that Schedule 3 DPs with a project area more than 50 ha (e.g. *Comprehensive Feasibility Study for the Revised Scheme of South East Kowloon Development*; *Kai Tak Development*; *North East New Territories New Development Area*; *Tung Chung New Town Extension*; and *Hung Shui Kiu New Development Area*) will normally be **large-scale urban / new town development projects or new development areas associated with very extensive infrastructural works** (e.g. major or extensive road network and sewerage treatment facilities, reclamation, community facilities, etc.) which may bring about potential significant environmental impacts (including cumulative impacts). • Given their large scale, their development packages have ample opportunities to incorporate

		environmentally-friendly features (e.g. district cooling system, waterfront promenade, metropolitan park, visual corridor, breezeway, environmentally-friendly transport system, etc.) and redress interface problems, hence facilitate formulation of statutory plans, etc. as this item has originally intended to achieve. ● In sum, it can be concluded that the environmental impacts of projects with a project area <u>less than 50 ha</u> will be relatively minor and can be properly controlled under existing environmental legislation (including the EIAO). If individual Schedule 2 DP items are found in an Schedule 3 DP with a project area less than 50 ha, the associated potential environmental impacts arising from the individual DPs will be taken care of under the EIAO with the control of environmental permit (EP) [taking Schedule 3 DPs, namely: (a) "Planning & Development Study of Potential Housing Site in Area 54 Tuen Mun, N.T." (27ha) and (b) "Engineering, Planning & Environmental Investigation – Tsuen Wan Bay Further Reclamation, Area 35, Tsuen Wan" (31 ha) as examples, there are various DPs under Schedule 2, including Items A.1, A.2, A.7, C.11 and F.3, to be controlled under the EIAO.] ● The population threshold is proposed to be deleted as experience shows that such information may normally not be accurately available at the project profile stage. ● In view of the similarity of the control exercised over both urban development and redevelopment projects, it is proposed to combine this item with item 2 of Schedule 3 to the EIAO. ● The Planning Department and the Civil Engineering and Development Department were consulted during inter-departmental consultation, and they have no adverse comment on our proposed amendment.
65.	~~*2. Engineering feasibility study of redevelopment projects with a study area covering more than 100,000 existing or new population.*~~	● Merge with item no. 64 above.

Annex 4

Sampling Schedule for major faunal and floral groups

Major faunal or floral groups		Optimal time of the year												Minimum frequency	Optimal time of the day
Month		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Season		Dry			Wet							Dry			
Terrestrial															
Vegetation and higher plants		←											→	Half-yearly	Daytime.
Mammals		←											→	Monthly	Daytime for diurnal species. Night-time for nocturnal species. Dusk for bats.
Birds	Over-wintering	←		→							←		→	Monthly	Early morning and dusk. Night-time for nocturnal species.
	Over-summering					←				→					
	Passage migrant			←		→		←		→					
	Resident	←											→		
Reptiles					←						→			Every two months	Daytime for diurnal species. Night-time for nocturnal species.
Amphibians				←							→			Every two months	Night-time.
Butterflies				←								→		Every two months	Daytime.
Odonates					←						→			Every two months	Daytime.
Fireflies					←	→					←		→	Monthly	Dusk and night-time.
Freshwater															
Fish				←								→		Every two months	Daytime for diurnal species. Night-time for nocturnal species.
Freshwater invertebrates				←								→		Every two months	Daytime.
Marine															

Cetaceans	←	—	—	—	—	—	—	—	—	—	—	→	Monthly	Daytime.
Hard-bottom communities	←	—	—	—	—	—	—	—	—	—	—	→	Half-yearly	Daytime.
Soft-bottom communities	←	—	—	—	—	—	—	—	—	—	—	→	Half-yearly	Daytime.
Intertidal communities	←	—	—	—	—	—	—	—	—	—	—	→	Half-yearly	Ebbing tides.
Horseshoe crabs				←	—	—	—	—	—	—			Half-yearly	Ebbing tides.

(DRAFT)

TECHNICAL MEMORANDUM
ON ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

(ENVIRONMENTAL IMPACT ASSESSMENT ORDINANCE, CAP. 499, S.16)

TABLE OF CONTENTS

LIST OF ANNEXES

1. PRELIMINARY

1.1 Citation and Commencement

1.1.1 This technical memorandum is issued under section 16 of the Environmental Impact Assessment Ordinance (the Ordinance). It may be cited as the Technical Memorandum on Environmental Impact Assessment Process.

1.2 Application and Scope

1.2.1 This technical memorandum sets out the principles, procedures, guidelines, requirements and criteria for:

(a) the technical content of a project profile;

(b) the technical content of an environmental impact assessment (EIA) study brief or environmental impact assessment report;

(c) deciding whether a designated project is environmentally acceptable;

(d) deciding whether an environmental impact assessment report meets the requirements of the environmental impact assessment study brief;

(e) deciding whether the Director will permit an applicant to apply directly for an environmental permit under section 5(9), (10) or (11) of the Ordinance;

(f) resolving conflicts on the content of the environmental impact assessment study brief and the environmental impact assessment report;

(g) taking advice from other authorities;

(h) deciding what is a material change, addition or alteration to an environmental impact or to a designated project;

(i) the issue of environmental permits;

(j) the imposition of environmental monitoring and audit requirements for designated projects as conditions in environmental permits.

1.2.2 The Technical Memorandum on the Environmental Impact Assessment Process is a guide for the Director in deciding on matters under sections 5, 6, 8, 10, 12, 13 and 14 of the Ordinance. The Director is the Director of Environmental Protection. He will follow this technical memorandum according to the circumstances of a case.

1.3 Interpretation

1.3.1 This technical memorandum uses standard scientific terms. Where the Ordinance defines a term, that term applies.

2. PROJECT PROFILE

2.1 Purpose of a Project Profile

2.1.1 The purpose of the project profile is to enable the Director to determine:

(a) the scope of the environmental issues associated with a designated project which shall be addressed in the environmental impact assessment study, together with the technical and procedural requirements that the EIA Study shall meet; or

(b) whether the applicant can proceed directly to apply for an environmental permit.

2.2 Specified Information in Project Profile

2.2.1 A project profile shall contain the relevant specified information listed in Annex 1 or Annex 2. Annex 1 applies to designated projects, and Annex 2 applies to material changes to designated projects. In the case of specified information which is not applicable to the proposed project, the project profile shall contain an explicit statement to that effect. The descriptions and statements of applicability of the items should be sufficient for the Director to identify what issues are relevant and what matters the EIA study shall address.

3. ENVIRONMENTAL IMPACT ASSESSMENT (EIA) STUDY BRIEF

3.1 The EIA study brief sets out the purposes and objectives of the EIA study, the scope of environmental issues which shall be addressed, the requirements that the EIA study shall need to fulfil, and the necessary procedural and reporting requirements. The methodologies or approaches that the EIA study needs to follow, or the matters that the EIA study shall take into account, may be prescribed.

3.2 In setting out the scope of the issues to be addressed, the Director shall have due regard to the factors listed in Annex 3, other guidelines and criteria laid down in this technical memorandum, and the following criteria in limiting the scope of the EIA study:

(a) the scope of issues must be relevant to the project by virtue of its type, scale and location, or the likely emissions, discharges, waste generation, destruction, alteration or environmental changes that may result from the project;

(b) previous relevant EIA and environmental studies have identified such issues as being of relevance to the project and of having the potential for causing adverse environmental impacts;

(c) the issues under consideration have been causes of environmental complaints in the past;

(d) experiences on actual implementation of similar projects, scientific researches or overseas experiences show that a particular aspect of the project has potential to cause serious environmental effects.

3.3 The EIA study brief shall define the purposes, objectives and detailed requirements of the study and indicate the scope of issues, the timeframe of environmental issues, and the framework in which the applicant shall carry out an EIA study to meet the relevant requirements laid down in this technical memorandum. The study brief may stipulate the geographic and temporal boundaries of the assessment.

3.4 For a designated project under Item Q.1 of Schedule 2 to the Ordinance (i.e. a project involving works within a specific/sensitive area(s)), which is not otherwise a designated project listed in items A to P of Schedule 2 to the Ordinance, the EIA study brief shall set out in such a way that the assessments and derivation of mitigation measures will focus on the environmental implications of the project on the specific/sensitive area(s).

3.5 The EIA study brief may set out issues relating to the combined impacts of the entire project or the cumulative impacts of the existing, committed and planned developments in the vicinity of the project, but such issues shall be limited to those that may have a bearing on the environmental acceptability of the project. Such assessment shall be based on the best available information at the time of the assessment. Such information shall be that which the applicant has access to or is as provided or referred to by the Director in the EIA study brief.

3.6 The EIA study brief shall be limited to those issues for which compliance with the relevant guidelines or criteria in this technical memorandum has not been demonstrated or where there are doubts about their compliance with the relevant guidelines or criteria in this technical memorandum.

3.7 Where necessary, the Director may prescribe in the EIA study brief the assessment methodologies which are necessary for sound assessment of certain issues listed in the brief.

3.8 The EIA study brief may cover more than one designated project. The applicant shall state in the project profile the number and types of designated projects that shall be covered by the same EIA study.

3.9 The EIA study brief shall set out the duration of the validity of the study brief.

3.10 The Director shall specify the number of printed copies of the EIA reports and executive summaries and other reporting requirements, including any necessary appendix report, for the purpose of submission of the report for approval, for the public exhibition of the report, for the submission to the Advisory Council on the Environment where applicable, and for depositing the EIA report and the executive summary in the register. All reports, including the report, executive summaries and appendix report, should be provided with softcopies in the format specified by the Director. The upper limit of the number of printed copies of the reports required to be made available by the applicant free of charge is given below:

(a) for the purpose of review of the EIA report by the Director and other relevant departments, 30 copies of the EIA report and 50 copies of the executive summary may be required;

(b) for the purpose of public inspection of the report and the deposition of the report in the register, 40 copies of the EIA report and 80 copies of the executive summary may be required;

(c) for the purpose of consultation with the Advisory Council on the Environment, 20 copies of the EIA report and 50 copies of the executive summary may be required; and

(d) the number of reports as required by the relevant District Boards or other government consultative bodies.

3.11 Subject to the payment by the interested parties of the full costs of printing the EIA report and executive summary, the applicant is required to make additional copies available to interested parties.

4. ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT

4.1 General

4.1.1 An EIA report shall comprise a document or series of documents providing a detailed assessment in quantitative terms, wherever possible, and in qualitative terms of the likely environmental impacts and environmental benefits of the project. The requirements for the EIA report shall be set out in accordance with this technical memorandum. The EIA report shall be produced in accordance with the EIA study brief issued by the Director to the applicant.

4.2 Objectives and Contents of an EIA Report

4.2.1 The project-specific study objectives and the detailed scope of any required EIA study shall be set out in a study brief issued by the Director. The purpose of the EIA study is to identify the potential environmental impacts, the residual impacts and the mitigation measures required for the project. Typical objectives/scopes of EIA study are as follows:

(a) to describe the proposed project(s) and associated works together with the requirements and environmental benefits for carrying out the proposed project(s);

(b) to identify and describe the elements of the community and environment likely to be affected by the proposed project(s), and/or likely to cause adverse impacts to the proposed project(s), including both the natural and man-made environment and the associated environmental constraints;

(c) to identify and quantify emission sources and determine the significance of impacts on sensitive receivers and potential affected uses;

(d) to identify and quantify any potential losses or damage to flora, fauna and natural habitats;

(e) to identify any negative impacts on sites of cultural heritage and to propose measures to mitigate these impacts;

(f) to propose the provision of infrastructure or mitigation measures to minimize pollution, environmental disturbance and nuisance during construction, operation (or decommissioning) of the project(s);

(g) to investigate the feasibility, effectiveness and implications of the proposed mitigation measures;

(h) to identify, predict and evaluate the residual (i.e. after practicable mitigation) environmental impacts and the cumulative effects expected to arise during the construction, operation (or decommissioning) phases of the project(s) in relation to the sensitive receivers and potential affected uses;

(i) to identify, assess and specify methods, measures and standards, to be included in the detailed design, construction, operation (or decommissioning) of the project(s) which are necessary to mitigate these residual environmental impacts and cumulative effects and reduce them to acceptable levels;

(j) to design and specify the environmental monitoring and audit requirements; and

(k) to identify any additional studies necessary to implement the mitigation measures or monitoring and proposals recommended in the EIA report.

4.2.2 The contents of an EIA report shall fully meet the purposes and objectives set out in the EIA study brief issued by the Director, and shall adequately address all the issues set out in the EIA study brief.

4.2.3 Unless indicated otherwise in the EIA study brief, the contents of an EIA report shall include the relevant items listed in Annex 11.

4.3 General Approaches and Methodologies for Assessment

4.3.1 The EIA process aims at assessing the environmental impacts and identify mitigation measures required with respect to the designated project. This technical memorandum provides the standardized methodology and approach for assessing the environmental impacts arising from the designated project to enable evaluation of the performance and compliance with relevant criteria as well as identification of the mitigation measures required for the potential impacts. The general principles that the Director shall use in evaluating the assessment methodologies are described below:

(a) Description of the Environment: the characteristics of the existing environment shall be described in a way suitable for identification and prediction of environmental impacts. Where necessary, baseline environmental surveys shall be carried out to supplement existing information and results of relevant past studies to determine the environmental conditions on the site and in the environs likely to be affected by the proposed project. The issues described in the EIA study brief to be investigated would typically include existing water and sediment quality, air quality, noise environment, ecology, the cultural heritage and the man-made environment. These surveys shall include the site of the project, its access, and any other areas likely to be impacted during construction and operation (or decommissioning). The type and duration of baseline surveys shall be such that it can provide a standardized methodology for predicting and evaluating the impacts from the project so that the study objectives can be met.

(b) Impact Prediction: the guidelines on assessment methodologies are given in Annexes 12 to 19 relevant to this Technical Memorandum. The assessment methodologies proposed shall be relevant to the issues to be addressed, shall have been used successfully in similar situations or be demonstrated as

acceptable by recognized national/international organizations, and shall be capable of:

(i) identifying potential impacts which may be harmful or beneficial to the environment;

(ii) identifying receivers, habitats or resources which are vulnerable to change;

(iii) defining the project/environment interactions;

(iv) examining the chain of events or "pathways" linking cause with effect;

(v) describing and predicting the reasonable case scenario and/or the worst case scenario, or such scenarios as required in the EIA study brief; and

(vi) predicting the likely nature, extent and magnitude of the anticipated changes and effects such that an evaluation, in quantitative terms as far as possible, can be made with respect to the relevant criteria described in Annexes 4 to 10 inclusive.

(c) Impact Evaluation: an evaluation of the anticipated changes and effects shall be made with respect to the relevant criteria described in Annexes 4 to 10 inclusive. The methodologies for evaluating the environmental impact shall be capable of addressing the following issues:

(i) the existing or projected environmental conditions without the project in place;

(ii) the projected environmental conditions with the project in place and the cumulative environmental impacts taking into account all relevant existing, committed and planned projects;

(iii) a differentiation between the environmental impact caused by the project and that caused by other projects, and to what extent the project aggravates or improves the existing or projected environmental conditions;

(iv) the environmental impact during different phases of construction and development of the project; and

(v) the evaluation of the seriousness of the residual environmental impacts (see Section 4.4.3).

(d) Impact Mitigation: the methodologies proposed for mitigation shall give priority to avoidance of impacts. The assessment methods shall be capable of:

(i) identifying and evaluating mitigation measures in order to avoid, reduce or remedy the impacts;

(ii) assessing the effectiveness of mitigation measures; and

(iii) defining the residual environmental impacts, which are the net impacts remaining with the mitigation measures in place.

4.3.2 For cases in which the background environmental conditions have already exceeded the respective standards or criteria laid down in this technical memorandum, the evaluation should be based on the guidelines stated in the respective Annexes of this technical memorandum. Furthermore, in considering whether the environmental impact is acceptable, the following factors shall take into account:

(a) whether there are strategic action plans or policies to improve the background environmental conditions to comply with relevant standards or criteria; and

(b) whether the environmental impacts contributed from the project itself will materially affect the state and/or the programme of attainment of relevant standards or criteria.

4.3.3 For issues described in Annexes 12 to 19 relevant to this Technical Memorandum, the Director shall evaluate the assessment approaches and methodologies in accordance with the guidelines in these annexes, unless otherwise stated in the study brief.

4.3.4 The applicant shall be required to evaluate the environmental impacts resulting from the project over a period of time, through interactions among different environmental pollutants or emissions, or in combination with other existing, committed and proposed developments. Any such requirements shall be clearly set out in the study brief and are only limited to those that is relevant to this Technical Memorandum and may have a bearing on the environmental acceptability of the project. The assessment methodologies shall allow for the assessment and evaluation of the cumulative environmental effects if the following circumstances apply:

(a) the impacts arising from the project are predicted to extend beyond the boundaries of the project or over a long period of time;

(b) there may be interactions between the environmental impacts of the project, affecting the cumulative environmental impacts; or

(c) there may be interactions between the environmental impacts of the project and the environmental impacts of other developments, resulting in accumulation of impacts and affecting the sum total of their environmental impacts.

4.4 The Review of the EIA Report

The EIA report shall be reviewed according to the following steps:

4.4.1 Compliance with the Study Brief and Technical Memorandum: The coverage and approaches adopted in the EIA report shall be reviewed against the EIA study brief and the relevant guidelines and criteria in this technical memorandum.

4.4.2 Quality of the EIA Report: The EIA report shall be prepared, checked and signed by qualified professionals or experts. The quality of the EIA report shall be reviewed having regard to the guidelines in Annex 20 and in Section 4.3. The report shall be considered as adequate if there are no omissions or deficiencies identified which may

affect the results and conclusions of the assessment. In particular, the following factors shall be considered:

(a) whether the scope and extent of the project as presented in the EIA report covers all the phases and key sequences of the project which the application under consideration is intended to cover;

(b) whether the information and descriptions in the EIA report are factually correct;

(c) whether the assessment methodologies adopted in the EIA report are consistent with the methodologies set out in Annexes 12 to 19 inclusive and with the general principles laid down in Section 4.3, and whether the evaluation of the predicted impacts are consistent with the relevant criteria listed in Annexes 4 to 10 inclusive. Where specific methodologies are not listed in the annexes or where the methodologies for certain issues can only be established on a case-by-case basis, the Director will assess whether the proposed methodologies are consistent with the methodologies adopted for Hong Kong projects having similar issues or with methodologies accepted by recognized national/international organizations;

(d) whether the identification and descriptions of the potential environmental impacts in the EIA report are complete and whether all relevant criteria in Annexes 4 to 10 inclusive have been considered;

(e) whether the assumptions and methodologies used are sound and adequate;

(f) whether adverse environmental effects are avoided to the maximum practicable extent;

(g) whether the assessment has considered and compared the environmental benefits and disbenefits of various scenarios with or without the project;

(h) whether lessons learned from other similar projects are incorporated into the project;

(i) whether the report has sufficiently defined all environmental protection requirements and measures necessary to avoid or reduce the adverse environmental impacts to within the applicable standards or criteria;

(j) for impacts where there are no applicable quantitative standards or criteria, whether the report has defined the best practicable mitigation measures that shall be adopted for the project;

(k) whether the report has assessed and determined the feasibility, practicability, programming and effectiveness of the recommended mitigation measures;

(l) whether the report has adequately addressed the need for environmental monitoring and audit, and if it is considered to be necessary, whether it has sufficiently defined the required environmental monitoring and audit programme; and

(m) whether the report has listed out in a schedule the environmental protection requirements and mitigation measures that the applicant is prepared to implement.

4.4.3 Evaluation of the Residual Environmental Impacts: The residual environmental impacts refer to the net environmental impacts after mitigation, taking into account the background environmental conditions and the impacts from existing, committed and planned projects. When evaluating the residual environmental impacts (the net impacts with the mitigation measures in place), the following factors shall be considered:

(a) the importance of the residual environmental impacts in terms of the following factors:

(i) effects on public health and health of biota or risk to life: If the impacts may cause adverse public health effects and/or adverse impacts to the health of rare and/or endangered species or pose an unacceptable risk to life and/or survival of a wildlife species, they are considered as key concerns;

(ii) the magnitude of the adverse environmental impacts: Magnitude refers to the scale of the adverse environmental impacts. If the impacts are major, they are considered as key concerns. The extent to which the project would trigger or contribute to any cumulative environmental impacts when considered in conjunction with the existing or potential impacts from other projects shall also be considered;

(iii) the geographic extent of the adverse environmental impacts: Widespread environmental impacts are of greater concern than localized adverse environmental impacts. The extent to which adverse environmental impacts may occur in areas away from the site for the designated project, including the long range transportation of pollutants shall also be considered;

(iv) the duration and frequency of the adverse environmental impacts: Normally more weight shall be given to long term, persistent and/or frequent environmental impacts in determining a project's environmental acceptability. Future adverse environmental impacts as well as their likelihood shall also be considered;

(v) the likely size of the community or the environment that may be affected by the adverse impacts: Those adverse impacts affecting larger numbers of people or greater areas of ecosystem shall be considered of greater importance;

(vi) the degree to which the adverse environmental impacts are reversible or irreversible: Irreversible adverse environmental impacts shall be considered as key concerns. The planned decommissioning or rehabilitation activities that may influence the degree to which the adverse environmental impacts are reversible or irreversible may be considered;

(vii) the ecological context: More weight shall be given to those adverse environmental impacts that occur in areas or regions that are ecologically fragile and/or rare or undisturbed or which have little resilience to imposed stresses;

(viii) the degree of disruption to sites of cultural heritage: Which means what disruptions would be caused to the site which would affect its archaeological, historical and/or palaeontological significance;

(ix) international and regional importance: Those adverse impacts which affect an issue of international or regional concern shall be regarded as important; and

(x) both the likelihood and degree of uncertainty of adverse environmental impacts: If the adverse environmental impacts are uncertain, they shall be treated more cautiously than impacts for which the effects are certain and the precautionary principle shall apply.

(b) the degree of compliance with relevant established principles and criteria as listed below:

(i) standards and criteria laid down in the ordinances and regulations applicable at the time of processing of the applications;

(ii) any guidelines, standards and criteria laid down in Annexes 4 to 10 in this technical memorandum;

(iii) criteria and guidelines, other than (i) and (ii), published and adopted in Hong Kong in the conduct of EIA and in the application of the EIA process; and

(iv) where the matters are outside the jurisdiction of the Director and where there are no applicable ordinances and regulations, the principles, guidelines and criteria published by relevant authorities in Hong Kong.

4.5 Approval of the EIA Report

4.5.1 After the public inspection of the report and, if required, the consultation with the Advisory Council on the Environment, the EIA report shall be approved with or without conditions if

(a) the requirements in the EIA study brief have been met;

(b) the quality of the report meets the requirements as set out in Section 4.4 and the results and conclusions are technically sound and reliable;

(c) it addresses relevant environmental issues raised by the public and the Advisory Council on the Environment during the public inspection period; and

(d) all relevant environmental principles and criteria laid down in this technical memorandum can be met and the residual environmental impacts are acceptable.

4.5.2 In case the report requires certain amendments but such amendments will not affect the validity of the assessment and the overall results and conclusions of the report, the Director may approve the report with conditions.

5. PERMISSION TO PROCEED DIRECTLY TO APPLY FOR AN ENVIRONMENTAL PERMIT

5.1 The Director will permit an applicant to proceed directly for an environmental permit if the conditions set out in section 5(9) (a) and (b) of the Ordinance are satisfied. The environmental impact is considered to be adequately assessed in an EIA report in the register if the project is covered by that EIA report, the environmental impact of the project has been demonstrated to comply with the relevant guidelines and criteria adopted in that report, and the mitigation measures have been defined.

5.2 For a material change to an exempted project, the Director will permit the applicant to proceed directly to apply for an environmental permit if the conditions laid down in section 5(10) of the Ordinance are satisfied. If the environmental impact cannot be determined or if there are serious doubts or uncertainties on whether the mitigation measures can reduce the impacts to meet the criteria or guidelines, an EIA study shall be required to particularly address such issues.

5.3 By definition, the projects listed in the Schedules of the Ordinance have potential for causing adverse environmental impacts. Section 5(11) of the Ordinance applies to those projects which are proved beyond reasonable doubt that the environmental impact of the project falls well within the relevant guidelines and criteria laid down in this technical memorandum and the effectiveness of the mitigation measures has been demonstrated in practice. For the purpose of determining whether the environmental impact is likely to be adverse, it refers to the environmental impact of the project without mitigation measures in place. The Annexes 3 to 10 and other relevant factors in this technical memorandum shall be used to determine whether the environmental impact of the project is likely to be adverse. If the environmental impact of the project requires detailed assessment to evaluate and confirm its acceptability, the Director will require an EIA study to be undertaken to particularly address such issues.

6. MATERIAL CHANGE TO A DESIGNATED PROJECT OR TO AN ENVIRONMENTAL IMPACT

6.1 The definition of "material change" in the Ordinance shall be used for a material change to a designated project. The material change shall only refer to significant changes which cause an adverse environmental impact. As a matter of principle, an environmental impact is considered to be adverse if any factor listed in Annex 3 applies and the criteria in Annexes 4 to 10 may be violated. As a general rule, changes under the following circumstances without additional mitigation measures in place are regarded as material changes to a designated project:

(a) a change to physical alignment, layout or design of the project causing an adverse environmental impact likely to affect existing or planned community, ecologically important areas or sites of cultural heritage;

(b) a physical change resulting in an increase in the extent of reclamation or dredging affecting water flow or quality likely to adversely affect ecologically important areas , or disrupting sites of cultural heritage;

(c) an increase in pollution emissions or discharges or waste generation likely to violate guidelines or criteria in this technical memorandum;

(d) an increase in throughput or scale of the project leading to physical additions or alterations that are likely to violate the guidelines or criteria in this technical memorandum; or

(e) a change resulting in physical works that are likely to adversely affect a rare, endangered or protected species, or an important ecological habitat, or a site of cultural heritage.

6.2 The environmental impact of a designated project, for which an environmental permit has been issued, is considered to be materially changed if the environmental requirements set out in the EIA report for this project (including relevant documents submitted under the Ordinance for that EIA report) may be exceeded or violated, even with the mitigation measures in place.

7. ISSUING ENVIRONMENTAL PERMIT

7.1 The Director will grant an environmental permit to the applicant if an EIA report covering the project has been approved with or without conditions under this Ordinance. For cases where permission is given to the applicant under section 5(9), 5(10) or 5(11) of the Ordinance to proceed directly to apply for environmental permit, the Director will grant an environmental permit if

(a) the applicant satisfies the conditions of approval under section 5(12) of the Ordinance that relate to the issue of environmental permit; and

(b) the applicant is prepared to implement the mitigation measures recommended in the previously approved EIA report referred to by the applicant, or the mitigation measures described in the project profile.

7.2 The Director will use the following criteria in determining the conditions to be imposed in an environmental permit:

(a) the mitigation measures set out in the project profile or the findings and conclusions of the approved EIA report, whichever is applicable;

(b) the conditions of approval of the EIA report;

(c) the conditions of approval for proceeding directly with the application for environmental permit;

(d) the advice given to him by other relevant authorities on matters within their jurisdiction as listed in Section 9 of this Technical Memorandum, or

(e) the measures that are necessary to meet the relevant guidelines, standards or criteria laid down in this technical memorandum; and

the Director will follow any advice received from the Secretary under Section 10 of this Technical Memorandum.

7.3 In addition, the following principles shall be followed when setting the conditions:

(a) conditions which would be imposed through other applicable ordinances or regulations shall not normally be imposed in environmental permits issued under the Ordinance;

(b) conditions may be imposed in addition to the requirements laid down in other applicable ordinances upon the advice of the relevant authorities, but this must be in accordance with section 10(8) of the Ordinance. There shall be adequate justification in the EIA report to demonstrate the need for such conditions to reduce the cumulative impacts of the project to avoid the violation of other applicable ordinances or exceedances of any applicable criteria, standards, guidelines or principles as defined in accordance with this technical memorandum.

7.4 Although the requirement for the EIA study for an industrial estate shall relate to the overall environmental impact of the entire estate, the Hong Kong Science and Technology Parks Corporation (HKSTPC) is not held responsible for the EIA studies for individual industrial factories listed as designated projects in the Ordinance. For an environmental permit to be issued to the HKSTPC, the Director shall not set conditions that are not within the control of the Corporation. The mitigation measures to be implemented by the HKSTPC shall be laid down in the EIA report. The conditions to be set in the environmental permit for an industrial estate shall not relate to individual factories and shall only be restricted to:

(a) the site formation, reclamation or the construction of the infrastructure of the industrial estate; or

(b) any mitigation measures for which it is the sole responsibility of the HKSTPC or within the control of the corporation to implement during the operational phase.

7.5 The principles and criteria laid down in Section 7.4 shall apply to other statutory Corporations similarly empowered by law with providing land for multiple private developments.

7.6 Any refusal of environmental permit shall only be on environmental grounds in accordance with the ordinance and this technical memorandum, not on land use grounds.

8. ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS

8.1 The environmental permit may impose requirements for monitoring the environmental impacts of the project for verification of predictions or the effectiveness of measures to mitigate its environmental impacts, whether such impacts occur within or outside the physical boundary of the project. The environmental permit may also impose requirements for the formulation of environmental audit requirements, including any necessary compliance and post-project audit programme, in order to review the environmental monitoring data, assess compliance with regulatory requirements, policies and standards, and identify any remedial works required to redress unacceptable or unanticipated environmental impacts. In determining the

need for and the scope of the environmental monitoring and audit programme, the Director shall have regard to the findings and recommendations in an approved EIA report.

8.2 In cases where any exceedances are likely to be limited either in time, space or magnitude and no environmentally sensitive uses shall be adversely affected in the long term, the Director may issue an environmental permit with appropriate conditions.

8.3 Implementation of environmental monitoring and auditing programme shall be required under the following circumstances:

(a) the project has the potential of causing environmental impacts which are or are likely to be prejudicial to the health or well being of people, the flora, fauna or ecosystem if the recommended mitigation measures are not properly implemented;

(b) the project is situated in any area of high conservation value;

(c) the project involves mitigation measures of which the effectiveness may require a long period to establish, e.g. compensatory planting of trees or mangroves;

(d) the project involves an unproven technology;

(e) the project involves unproven mitigation measures;

(f) an otherwise familiar or routine mitigation measure is proposed for a new or unfamiliar environmental setting;

(g) the analysis is based on a new technique or model, or there is other uncertainty about design assumptions and/or the conclusions; or

(h) project scheduling is subject to change such that significant environmental impacts could result.

8.4 The contents of a full environmental monitoring and auditing programme can include but are not limited to, the items listed in Annex 21.

9. TAKING ADVICE FROM OTHER RELEVANT AUTHORITIES

9.1 The Director shall take the advice from the following authorities on the matters prescribed below:

Director of Agriculture, Fisheries and Conservation	on	Nature conservation, ecological assessment, agriculture, animal and plant health, fisheries
Director of Planning	on	Landscaping and visual aspects
Director of Marine	on	Marine matters
Director of Electrical & Mechanical Services	on	Hazards associated with fuel gas dangerous goods, electromagnetic field

Director of Health	on	Human health matters
Director of Food and Environmental Hygiene	on	Collection of domestic waste and public cleansing; hazard to life related to food consumption
Director of Fire Services	on	Storage and conveyance of dangerous goods (except explosives) on land
Secretary for Development	on	Antiquities and monuments
Director of Drainage Services	on	Drainage matters
Director of Civil Aviation	on	Civil aviation matters
Director of Water Supplies	on	Developments or works within water gathering grounds or in the vicinity of waterworks installations
Commissioner for Transport	on	Traffic and transport matters

10. RESOLVING CONFLICTS UNDER SECTION 16(1)(f) OF THE ORDINANCE

10.1 The Director may seek and be authorized to follow the advice of the Secretary for cases referred to the Secretary by the Director under the following circumstances:

(a) where there is likely to be unresolved conflicts on the content of the EIA study brief or the EIA report under section 16(1)(f) of the Ordinance;

(b) where there is disagreement regarding the EIA findings and conclusions of the report between the Director and other Authorities listed under section 9 of this Technical Memorandum which requires resolution under section 16(1)(f) of the Ordinance; or

(c) where the mitigation measures described in the EIA report lead to conflicts which require resolution under section 16(1)(f) of the Ordinance.

10.2 In giving such advice, the Secretary shall ensure that the effect of his advice is to protect the environment.

10.3 Where the Secretary gives advice following the request under Section 10.1, the Director is required to follow such advice.

11. USE OF PREVIOUSLY APPROVED EIA REPORTS

11.1 Where a previous EIA report was prepared and deposited in the register, the applicant may make reference to or use the results of that report in his submissions. The applicant shall state in the project profile or the EIA report whether or not:

(a) the relevant findings of the report are still valid;

(b) the project is covered by that report, or is similar in nature, scale and locational characteristics of a project covered by that report; and

(c) necessary additions, amendments and adjustments have been made to take into account any changes in the environment, assessment criteria and methodologies, or in the nature, scale, location and design of the project.

11.2 Neither any previous submission nor prior approval of such material shall prejudice the need for an individual submission to fulfil the requirements either set out in this technical memorandum or under the Ordinance.

12. HAZARD ASSESSMENT

12.1 Hazard Assessment (HA) shall be conducted for projects if, and only if, risk to life is a key issue with respect to Hong Kong Government Risk Guidelines. Reference shall also be made to Section 4.4.3 (a) (i) in so far as risk to life is concerned. The need for a HA and its technical requirements and procedures shall be considered by the Director subject to the advice of the authorities stated in Annex 22. The Risk Guidelines are set out in Annex 4 and Figure 1.

ANNEX 1: PROJECT PROFILE FOR DESIGNATED PROJECTS

Use of the following checklist for preparing a project profile shall ensure that the important environmental factors of a proposed project are to be considered by the Director in deciding what matters an EIA study shall address or whether the applicant can proceed directly to apply for an environmental permit.

2. If the applicant feels that additional or alternative types of information would also be useful, this information shall also be provided in the profile. The information shall include all existing and planned pollution sources or sensitive receivers or sensitive parts of the natural environment to the best knowledge of the applicant at the time of the submission. The provision of details may vary from case to case.

3. Wherever appropriate, the information shall be accompanied by relevant plans, process flowcharts, diagrams, illustrations and other information which may assist in deciding what matters an EIA study shall address and what requirements an EIA study shall meet, or whether an applicant can proceed directly to apply for an environmental permit.

BASIC INFORMATION

Project title

Purpose and nature of the project

Name of project proponent

Location and scale of project (include plans) and history of site

Number and types of designated projects to be covered by the project profile

Name and telephone number of contact person(s)

OUTLINE OF PLANNING AND IMPLEMENTATION PROGRAMME

How will the project be planned and implemented ? (consultant, contractor or in-house)

What is the project time-table ? (e.g. for appointment of consultants, finalizing of design, commencement of construction, commissioning and operation)

Are there any interactions with broader programme requirements or other projects which shall be considered ?

POSSIBLE IMPACT ON THE ENVIRONMENT

Outline any processes involved, including process flow diagrams, site plans, storage requirements, and information on emissions and discharges

Describe the environmental impacts or issues that may arise during the construction, operation or decommissioning of the project, where applicable:

- gaseous emissions
- dust
- odour
- noisy operations

- night-time operations
- traffic generation
- liquid effluents, discharges, or contaminated runoff
- generation of waste or by-products
- manufacture, storage, use, handling, transport, or disposal of dangerous goods, hazardous materials or wastes
- risk of accidents which would result in pollution or hazard
- disposal of spoil material, including potentially contaminated material
- disruption of water movement or bottom sediment
- unsightly visual appearance
- ecological impacts

MAJOR ELEMENTS OF THE SURROUNDING ENVIRONMENT

a. Outline existing and planned sensitive receivers and sensitive parts of the natural environment which might be affected by the proposed project, such as:
   - residential developments
   - temporary housing areas
   - educational institutions, including schools, kindergartens and nurseries
   - health care facilities, including hospitals, clinics, and homes for the aged
   - places of worship, including temples, churches, amphitheatre
   - agricultural areas
   - water courses, nullahs and confined bodies of water
   - beaches, gazetted or otherwise
   - water catchment areas and gathering grounds
   - ground-water resources
   - marine water resources including those for industrial uses, recreational uses or fisheries activities such as fishing grounds, shellfish harvesting/culture areas, fish spawning and nursery areas or fish culture zones
   - industries which are sensitive to pollution
   - airsheds with limited capacity to disperse pollution
   - areas of conservation value, including Country Parks, Special Areas, Marine Reserves, Marine Parks, Ramsar Site, Sites of Special Scientific Interest, Conservation Area and ecologically significant areas such as woodland, wetland and other wildlife habitats
   - places of high visual value
   - sites of cultural heritage
   - key public viewing points

b. Outline the major elements of the surrounding environment and existing and/or relevant past land use(s) on site which might affect the area in which the project is proposed to be located, such as:
   - existing pollution blackspots
   - nearby existing and/or discontinued industrial operations
   - nearby trunk roads, and primary or secondary distributors
   - nearby noisy commercial, community or recreational activities
   - aircraft noise, helicopter noise, rail noise
   - existing or planned waste handling, treatment and disposal facilities
   - potentially hazardous installations
   - noisy or dusty open storage uses
   - existing and past land uses of the project site and environs

ENVIRONMENTAL PROTECTION MEASURES TO BE INCORPORATED IN THE DESIGN AND ANY FURTHER ENVIRONMENTAL IMPLICATIONS

a. Describe measures to minimize environmental impacts, including the following:
- pollution control technology
- source control
- waste management systems and practices
- potential for waste and wastewater minimization
- risk mitigation measures and accident emergency response plans
- acoustic barriers and insulation
- buffer zones and landscaping
- different siting of activities
- site layout and building design
- retention of natural environmental features
- control of construction work practices
- application of the Guidelines for dredging, reclamation & drainage works
- application of Chapters 9 and 10 of the Hong Kong Planning Standards & Guidelines

b. Comment on the possible severity, distribution and duration of environmental effects, where applicable:

- beneficial and adverse effects
- short and long term effects
- secondary and induced effects
- cumulative effects
- transboundary effects

c. Comment on any further implications, such as :

- history of similar projects
- public consultation to date
- public interest and political sensitivity

USE OF PREVIOUSLY APPROVED EIA REPORTS

Where a previous EIA report was prepared for a project of similar nature and the subject EIA report has been approved by the Director and deposited in the register under the Ordinance, the applicant may make reference to or use the results of that EIA report. The following information is to be provided:

- state the title of the approved EIA Report
- state the date of its approval
- state what environmental aspects of the project were addressed in that approved EIA report
- refer to the findings on environmental impacts, and state the relevance of such findings to this project
- state the measures recommended in the approved EIA report and their relevance to this project

ANNEX 2: PROJECT PROFILE FOR MATERIAL CHANGE TO A DESIGNATED PROJECT

Use of the following checklist for preparing a project profile shall ensure that the significant environmental factors of a proposed development are able to be considered by the Director in deciding what matters an EIA study shall address.

2. If the applicant feels that additional or alternative types of information would also be useful, this information shall be provided in the profile. The information should include all existing and planned pollution sources and sensitive receivers to the best knowledge of the applicant at the time of the submission.

3. Wherever appropriate, the information shall be accompanied by relevant plans, process flowcharts, diagrams, illustrations and other information which may assist in deciding whether an applicant can proceed directly to apply for an environmental permit, or what matters an EIA study shall address and what requirements an EIA study shall meet.

BASIC INFORMATION

Project description

Nature of the project

Name of project proponent

Location of project (include plans)

Name and telephone number of contact person(s)

Proposed addition, modification and alteration

What is the time-table for the addition, modification or alteration (e.g. for appointment of consultants, finalizing of design, commencement of construction, commissioning and operation)

POSSIBLE IMPACT ON THE ENVIRONMENT

Comment on any activities associated with the proposed addition, modification or alteration which may result in environmental impacts, either during the construction or operation (or decommissioning) of the addition, modification or alterations:

(a) description of the environmental changes arising from the changes, additions or alterations;

(b) description of how the environment and the community might be affected by the above change;

(c) description of the findings or recommendations of any previous EIA report or environmental studies;

(d) description of possible environmental impacts arising from the proposed addition, modification or alteration;

(e) description on how these modification, addition or alteration deviate from or invalidates the previous assumptions in previous EIA reports.

DESCRIPTIONS OF MITIGATION MEASURES

(a) description on how the currently adopted measures address the likely environmental impacts arising from the changes;

(b) description of additional measures proposed to deal with such changes and whether this technical memorandum's requirements can be met.

USE OF PREVIOUSLY APPROVED EIA REPORTS

Where a previous EIA report was prepared for the project or a project of similar nature and the subject EIA report has been approved by the Director and deposited in the register, the applicant may make reference to or use the results of that EIA report. The following information is to be provided :

- Title of the approved EIA report
- Time of its approval
- Whether the EIA report is approved under the EIA Ordinance or by other means
- The environmental aspects of the project that have been addressed in that approved EIA report
- The findings with regard to environmental impacts, and the relevance of such findings to this project
- The measures recommended in the approved EIA report and their relevance to this project

ANNEX 3: FACTORS FOR CONSIDERATION IN IDENTIFYING ADVERSE ENVIRONMENTAL IMPACTS

Environmental Changes	Effects Resulting from Environmental Changes
(a) negative effects on the quality and/or quantity of the chemical, physical and biological environment including - marine waters, - surface water, - groundwater, - soil, - land, - air, - marine bottom sediments (b) emissions, discharges or releases to the environment, including - persistent and/or toxic chemicals, - sediments, - biological or microbial agents, - nutrients, - agricultural wastes, - domestic or industrial liquid/ semi-solid/solid wastes, - electromagnetic field, - noise, - gaseous emissions, dust, odour, - thermal energy (c) threats to, loss of, or damage to flora and fauna and/or their habitats including habitat fragmentation (d) disruption of food webs (e) negative effects on the health of biota including flora and fauna (f) the removal of resource materials from the environment (g) reduction in productivity of operations involved in primary or secondary production (h) changes to existing landscapes (i) obstruction of migration, or passage of wildlife (j) negative effects on the protection of cultural heritage	(a) negative effects on human health, including increases in mortality or morbidity, and/or decreases in personal well-being (b) disruptions to normal learning, sleeping, and communication activities (c) reduction of the quality or quantity of recreational opportunities, amenities or perceived aesthetics (d) loss of, or damage to commercial species or renewable or non-renewable resources (e) foreclosure of future resource use or production (f) reduction in biodiversity and/or extinction of species in the area/region concerned (g) loss of or risk to human lives (h) effects of deposits on materials, material corrosion and damage (including nuisance and discomfort), and reduction in visibility (i) disruption to social activities (j) temporary or permanent loss of recreational area (k) acute and chronic toxicity effects on biota due to discharge of pollutants (l) bioaccumulation and biomagnification of toxic substances in biota especially on commercial food supplies (m) long term and short term change on population size of biota including mortality, reproduction, maturity and distribution (n) temporal and spatial cumulative effects resulting from environmental changes

ANNEX 4: CRITERIA FOR EVALUATING AIR QUALITY IMPACT AND HAZARD TO LIFE

1. Air Quality Impact

1.1 The criteria for evaluating air quality impact include the following:

(a) meet the Air Quality Objectives and other standards established under the Air Pollution Control Ordinance;

(b) meet 5 odour units based on an averaging time of 5 seconds for odour prediction assessment;

(c) for air pollutants not established under the Air Pollution Control Ordinance nor above: meet the standards or criteria adopted by recognized international organizations such as the World Health Organization or the United States Environmental Protection Agency as to be agreed with the Director.

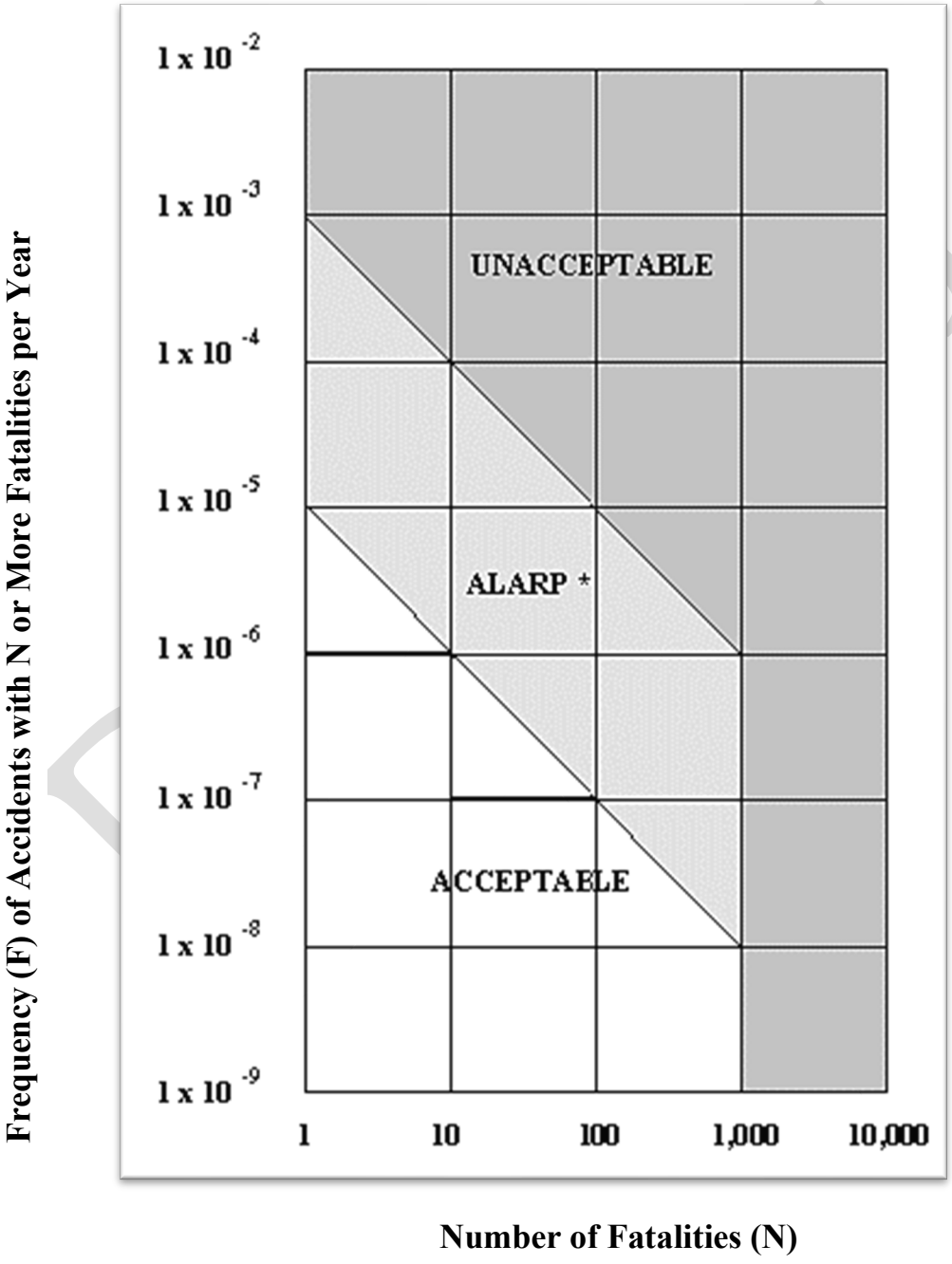
2. Hazard to Life

2.1 The criterion for hazard to human life is to meet the Risk Guidelines, as shown in Figure 1.

Figure 1: RISK GUIDELINES

1. **INDIVIDUAL RISK GUIDELINE FOR ACCEPTABLE RISK LEVELS**
   Maximum level of off-site individual risk should not exceed 1 in 100000 per year, ie. 1 x 10-5/ year

2. **SOCIETAL RISK GUIDELINES FOR ACCEPTABLE RISK LEVELS**
   Societal risk for off-site population should conform to the following societal risk guideline:



∗ **ALARP Means As Low As Reasonably Practicable. Risk within ALARP Region Should Be Mitigated To As Low As Reasonably Practicable**

ANNEX 5: CRITERIA FOR EVALUATING NOISE IMPACT

Summary of Noise Criteria

Table 1 gives a summary of criteria for evaluating noise impact of designated projects. The Director would apply these criteria in the following manner:

(a) noise criteria laid down in relevant technical memoranda issued under the Noise Control Ordinance must be met;

(b) noise criteria, as listed in Table 1A, for planning and design of designated projects, shall be met, unless it can be demonstrated by the applicant that the residual noise impact, exceeding the criteria as listed in Table 1A would not have long term, adverse implications for the environment and community. The Director would use the criteria listed in Section 4.4.3 (a)(ii)-(v), (x) and (b) of this Technical Memorandum to evaluate whether there would be long term, adverse environmental noise implications;

(c) noise criteria, as listed in Table 1B, for construction or decommissioning of designated projects, shall be met as far as practicable. All practicable mitigation measures shall be exhausted and the residual impacts are minimized;

(d) for noise matters not fully listed in the annex, the criteria for evaluating such noise impacts shall be determined on a case by case basis;

(e) wherever such terms exist in the relevant technical memoranda issued under the Noise Control Ordinance, the definitions of such terms shall apply to this technical memorandum.

Table 1 : A Summary of Noise Criteria

Table 1A

Noise Standards for Planning Purposes

Noise Sources Noise Standards Common Uses	Aircraft Noise (Noise Exposure Forecast: NEF)	Helicopter Noise L_{max} dB(A) 0700 to 1900 Hours	Road Traffic Noise Peak Hour Traffic L_{10} (1 hour) dB(A)	Rail Noise	Fixed Noise Sources
• All domestic premises • Temporary housing accommodation • Hostels • Convalescent homes, and • Homes for the aged	25	85	70	The appropriate Acceptable Noise Levels shown in the Technical Memorandum for the Assessment of Noise from Places Other than Domestic Premises, Public Places or Construction Sites	(a) 5 dB(A) below the appropriate Acceptable Noise Levels (ANL) shown in the Technical Memorandum for the Assessment of Noise from Places Other than Domestic Premises, Public Places or Construction Sites, or (b) the prevailing background noise levels (For quiet areas with level 5 dB(A) below the ANL)
• Educational institutions (including kindergartens and nurseries) • Places of public worship, and • Courts of law	25	85	65		
• Hospitals and medical clinics	25	85	55		

Notes:

(1) The above standards, or equivalent, apply to uses which rely on opened windows for ventilation and are assessed at 1m from the external facade

Table 1B

Noise Standards for Daytime Construction Activities

Noise Sources Noise Standards Uses	0700 to 1900 hours on any day not being a Sunday or general holiday Leq (30 mins) dB(A)
• All domestic premises, • Temporary housing accommodation, • Hostels, and • Homes for the aged	75
• Places of public worship, • Courts of law, and • Hospitals and medical clinics	70
• Educational institutions (including kindergartens and nurseries)	70 65 (during examinations)

Notes:

(1) The above standards apply to uses which rely on opened windows for ventilation and are assessed at 1m from the external façade.

(2) A Construction Noise Permit (CNP) shall be required for the carrying out of the construction work during restricted hours under the Noise Control Ordinance (NCO). In case the applicant would like to evaluate whether construction works in restricted hours as defined under the NCO is feasible or not in the context of programming construction works, reference should be made to relevant technical memoranda issued under the NCO.

Table 2 : Suitable Window Types for Noise Insulation

Suitable window type when the estimated noise level will exceed the relevant standard by β value.

Window types / Exceedance over standard / Noise source	I	II	III
Road Traffic	$\beta < 10$	$10 \leq \beta < 15$	$\beta \geq 15$
Aircraft	-	$\beta < 10$	$\beta \geq 10$
Helicopter	$\beta < 5$	$5 \leq \beta < 10$	$\beta \geq 10$

Window Types and Noise Insulation Performance

I - openable well-gasketted window, transmission loss (TL) of 28dB or above in 250 Hz octave-band and sound transmission class (STC) 31 or above

II - openable well-gasketted window, TL of 32 dB or above in 250 Hz octave-band and STC 34 or above

III - openable well-gasketted windows, TL of 33 dB or above in 250 Hz octave-band and STC 38 or above

ANNEX 6: CRITERIA FOR EVALUATING WATER POLLUTION

1. General Criteria

1.1 The Aquatic Environment

1.1.1 Criteria for protection of the aquatic environment against water pollution include consideration of the relevant aquatic components: **water, sediments** and **aquatic life**.

1.2 The Water Quality Objectives (WQOs)

1.2.1 Under the Water Pollution Control Ordinance (WPCO), the Water Quality Objectives (WQOs) are established in terms of measurements of physical, chemical and microbiological water quality in each Water Control Zone (WCZ) to achieve the required level of protection of the beneficial uses. Based on the beneficial uses, the WQOs can be broadly categorized as follows:

(a) Aesthetic Enjoyment: criteria concerning these aesthetic characteristics are general and descriptive. They depend on subjective senses of sight and smell. Criteria generally include:

- not to cause objectionable odours or discolouration of the water;
- not to cause visible matters on the water surface.

(b) Human Health: criteria concerning the quality of waters for bathing and secondary contact recreation uses, fish culture zones, mariculture subzones, and inland waters for abstraction of water for potable water supply. Key criteria include:

- to limit the maximum levels of bacteria in waters used for, bathing and secondary contact recreation activities, fish culture zones, mariculture subzones, etc.

(c) Aquatic Life: criteria concerning protection of the water quality to maintain the integrity and balance of the aquatic ecosystem. Criteria include:

- not to alter the physico-chemical properties e.g. turbidity, suspended solids, temperature, salinity, pH and dissolved oxygen of the water to such an extent that will cause unacceptable water quality impact on aquatic life;
- to control nutrient inputs so as to help reduction of eutrophication or excessive algal growth;
- to prevent concentration of toxic substances from reaching unacceptable levels.

(d) Industrial Use: criteria concerning prevention of deleterious chemicals, floatables and settleable matters affecting industrial uses of the water such as that for cooling systems, flushing water supply, etc.

1.3 The Mixing Zone Criteria

1.3.1 A mixing zone is a region of a water body where the initial dilution of an effluent discharge takes place and where water quality criteria can be exceeded. It

generally consists of a zone of initial dilution (ZID, where initial mixing and dilution by momentum and buoyancy of the discharge occur), and the subsequent dilution zone which is extended to cover the secondary mixing from the ZID out to the edge of the mixing zone where water quality criteria need to be met.

1.3.2 It has been a well-established international practice to allow a mixing zone not fully meet all water quality criteria. The characteristics of a mixing zone such as the size, siting, shape and quality, depend on the quantities and properties of the effluent discharge and the characteristics of the receiving water body, and should be determined on a case-by-case basis. In general, the criteria for acceptance of a mixing zone are that:

(a) it shall not impair the integrity of the water body as a whole;
(b) it shall not endanger or diminish areas of sensitive beneficial uses, e.g. gazetted beaches and ecologically sensitive sites;
(c) it shall not result in the accumulation of substances to such levels as to produce unacceptable toxic effects in aquatic organisms;
(d) within a mixing zone the following basic water quality criteria shall be met
    - materials not in such concentrations that settle to form objectionable deposits;
    - floating debris, oil, scum, and other matter not in such concentrations that form nuisances; and
    - substances not in such concentrations that produce objectionable colour, odour, or turbidity.
(e) at the boundary of the mixing zone, the discharge of any effluent shall not cause the WQOs or applicable criteria for pH, 5-day Biochemical Oxygen Demand (BOD_5), dissolved oxygen, suspended solids, ammonia nitrogen, bacteria and ecotoxicity to be exceeded; and
(f) for total inorganic nitrogen (TIN), which is set to prevent undesirable algal bloom, as the level is heavily influenced by the background seasonal estuarine input, the criteria should be assessed such that the discharge will not cause any further deterioration by more than 30% of the annual average levels, if their existing levels have exceeded or are close to the established WQO.

1.4 Cumulative Impacts

1.4.1 Cumulative impacts occur when multiple inputs of pollutants enter the same aquatic environment, leading to overlapping zones of influence, or where there is potential cumulative reduction in assimilative capacity caused by marked reduction in water exchange following sequential implementation of projects over a period of time. Criteria for evaluation are based on identification of the relevant pollution inputs and their impact zones, and consideration of the assimilative capacity of the water body that encompasses the relevant overlapping zones of influence over a certain period of time.

2. Activity / Project Specific Criteria

These criteria are to supplement and to be considered in conjunction with the General Criteria.

2.1 Discharges of Wastewater and Treated Sewage Effluent

2.1.1 It should be noted that the effluent standards of discharges are set by the Authority under the WPCO. The purpose of the EIA study is to assess whether the proposed discharge can meet the criteria as stated in Section 1.3.2 through quantitative or qualitative analysis such as water quality modelling based on the hydrodynamics and assimilative capacity of the receiving water body, as well as the average effluent quality of the treatment level adopted.

2.1.2 Nutrients (i.e. total inorganic nitrogen (TIN) and phosphorus (P)), though essential to aquatic life, may lead to eutrophication if over-enrichment occurs, causing increases in undesirable algal blooms. However, algal blooms in coastal waters (including Hong Kong) are generally controlled by a combination of natural hydrodynamic, weather and biological factors, such as water current, wind speed and direction, sunlight intensity, turbidity, temperature, water stratification, biological grazing or consumption, etc., in addition to nutrients. Moreover, the nutrient levels in Hong Kong waters are heavily influenced by the background seasonal estuarine input. Hence, it is acceptable to adopt an applicable benchmark treatment level as an alternative acceptance criteria to the TIN criteria and prevention of undesirable algal blooms set out in Section 1.3.2 for discharges of treated sewage effluent, which is a common practice worldwide. The acceptable treatment levels for discharges from sewage treatment facilities are listed in the table below. In general, submarine discharge outfall may not be necessary for discharges already undergoing secondary treatment plus disinfection, provided that its mixing zone would not encroach into water sensitive receivers (WSRs) such as gazetted beaches, fish culture zones, mariculture subzones, ecological sensitive sites, etc.

Water Control Zone (WCZ) / Waters Receiving the discharge	**Acceptable Sewage Treatment Level**[1]
Tolo Harbour and Channel, Deep Bay[2]	Secondary treatment, nitrogen removal[3], phosphorus removal[4], and disinfection[5]
Other WCZs	Secondary treatment, nitrogen removal[3] and disinfection[5]

Notes:

1. Subject to feasibility investigation and water quality assessment, other alternative treatment level can be proposed and considered.
2. The phosphorus removal requirement shall not be applied for temporary discharges into Deep Bay and Tolo Harbour, for example due to maintenance of the effluent export systems.
3. For nitrogen removal, the target is 75% total inorganic nitrogen reduction with respect to the annual average influent nitrogen loads or concentrations.
4. For phosphorus removal, the target is 80% phosphorus reduction with respect to the annual average influent phosphorus loads or concentrations.
5. Disinfection may not be required if membrane filtration is provided which can meet the relevant discharge standards for bacteria.

2.2 Dumping of Wastes

2.2.1 Criteria for acceptability and control of dumping of wastes in the aquatic environment are governed by the Dumping at Sea Ordinance. The criteria laid down

in the annexes to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention) and its Protocol also apply.

2.3 Stormwater Runoff

2.3.1 Criteria for control of diffuse pollution shall be based on measures to control pollution at source and to abate pollutants in the stormwater runoff. These criteria are to be met through the implementation of stormwater management practices which include, but not be limited to:

(a) erosion and sedimentation control;
(b) runoff quantity and quality control;
(c) identification and minimization of point source discharges;
(d) prevention of "first flush" pollution;
(e) avoidance of discharges into poor flushing areas except artificial wetlands designed for pollution abatement;
(f) filtration of polluted stormwater or diversion for further treatment.

2.4 Toxic and Prohibited Substances

2.4.1 The criteria are that there shall be no threat to aquatic life through control of toxic substances mainly at source by pollution prevention, pretreatment, and recycle and reuse. Substances that are toxic, persistent and accumulative in water, sediment or biota, and that cannot be rendered harmless by dilution, dispersion and other natural processes of the aquatic system and for which no numerical water quality criteria are available shall be controlled at source. Discharges of radioactive substances are prohibited.

2.4.2 The whole effluent toxicity criteria for discharge of treated sewage effluent should not exceed 0.3 Acute Toxic Unit (TUa) after the ZID and 1.0 Chronic Toxic Unit (TUc) after the mixing zone, respectively.

ANNEX 7: CRITERIA FOR EVALUATING WASTE MANAGEMENT IMPLICATIONS

1. General

1.1 The criteria for assessing waste management implications are:

(a) provide waste handling, storage, collection, transfer, treatment and disposal facilities to deal with waste arising from the development;

(b) meet relevant requirements under the Waste Disposal Ordinance and its Regulations;

(c) provide handling, storage, collection and disposal of waste generated during construction phase in accordance with the requirements of the Waste Disposal Ordinance and the Dumping at Sea Ordinance;

(d) provide facilities to facilitate waste reduction and explore beneficial use of waste generated, taking into account :

- the quantity of waste arising;
- the physical and chemical nature of the waste materials;
- the practicality of on-site measures to render the waste acceptable for beneficial use;
- the availability of outlets for beneficial use of the waste in Hong Kong;
- the environmental effect in any waste reduction practice and additional handling of waste for beneficial use;

(e) explore alternatives which generate minimal amount of waste through design modifications and programming of works;

(f) for residential and community developments close to existing landfills, safety and precautionary measures to minimize the risks due to landfill gas (LFG) migration or leachate contamination. In particular, for development or re-development that is within 250 m of the edge of waste, a landfill gas hazard assessment is typically required to assess the risk associated with LFG and, where necessary, design practical precautionary / mitigation measures to protect the proposed development against the associated risk.

ANNEX 8: CRITERIA FOR EVALUATING ECOLOGICAL IMPACT

Ecological impact refers to the effect on a habitat or species due to direct or indirect changes in the environment brought about by a project. Besides magnitude and scale, the significance of an ecological impact is also related to the asserted importance of the habitat or species to be affected. In general, the impact on an important habitat or species will be more significant in comparison to other less important ones.

2. The following are some general criteria that can be used for evaluation of the significance of an ecological impact and the ecological importance of a site/habitat or a species. These criteria are not exhaustive and may carry different weight in different cases.

Table (1) Evaluating the significance of an ecological impact

Criteria	Remarks
Habitat quality	The impact will be more significant if ecologically important habitats are affected. The criteria used for evaluating the ecological importance of a site / habitat are shown in Table (2). Habitat types that are considered as important in the territory are listed in Note below.
Species	The impact will be more significant if ecologically important species are affected. The criteria used for evaluating the ecological importance of a species are shown in Table (3).
Size/Abundance	The impact will be greater if larger area of a habitat or greater numbers of organisms are affected. (e.g. The impact of indiscriminate clearance of woodland is more severe than that of selective felling of trees at the same site.)
Duration	Long term impacts are usually more significant than short term ones.
Reversibility	Permanent and irreversible impacts are usually more significant than temporary and reversible ones.
Magnitude	Usually the greater the magnitude of the environmental changes (e.g. increase in pollution loads, decrease in food supply), the more significant is the impact.
Regional significance	The impact will be more significant if the habitats and species affected constitute a higher proportion of such habitats or species in the territory. Habitats or species with restricted distribution will be subject to greater impact than those with wider occurrence, particularly if they are rare in the territory or region. The distribution of habitats or species and the connectivity among different habitat patches or populations in the territory or region should be considered in assessing the significance of impacts.

Note : Important habitat types in the territory

1. mature native woodland and secondary woodland dominated by native species larger than one hectare
2. undisturbed natural coastal area larger than one hectare or longer than 500 metres in linear measurement
3 intertidal mudflats larger than one hectare
4 established mangrove stands of any size
5. brackish or freshwater marshes larger than one hectare
6 established seagrass bed of any size
7 natural stream courses and rivers longer than 500 metres
8. established coral communities of any size
9. other habitats found to have special conservation importance by documented scientific studies

Table (2) Evaluating a site / habitat

Criteria	Remarks
Naturalness	Truly natural habitats (i.e. not modified by man) are usually highly valued. However, most areas of the territory have been modified. Generally, those habitats less modified will tend to be rated higher.
Size	In general larger area of habitat(s) shall be more valuable than smaller ones, all else being equal.
Diversity	The more diverse the species assemblages and communities of a site, the higher is its conservation value.
Rarity	Rarity can apply to habitats as well as species. The presence of one or more rare habitats and species will give a site higher value than those without rarity.
Re-creatability	Habitats which are difficult to be re-created naturally or artificially are usually valued higher.
Fragmentation	In general, the more fragmented habitat, the lower is its value.
Ecological linkage	The value of a habitat increases if it lies in close proximity and/or links functionally to a highly valued habitat of any type.
Potential value	Certain sites, through active management or natural processes, may eventually develop a nature conservation interest substantially greater than that existing at present. Factors limiting such potential being achieved shall be noted.
Nursery/breeding ground	Such areas are very important for the regeneration and long term survival of many organisms and their populations
Age	Ancient natural or semi-natural habitats are normally highly valued. For some habitats such as woodlands, older ones are normally valued much higher than recent ones.
Abundance/Richness of wildlife	In general sites supporting more wildlife will be rated higher.

Table (3) Evaluating species found within a site / habitat

Criteria	Remarks
Protection status	Species listed in threatened categories or protected under local legislation and international conventions for conservation of wildlife shall be given special attention. References shall also be made to those protected by law in Mainland China, especially Guangdong Province.
Distribution	Species with restricted distribution (locally or regionally) will be rated higher than those more widespread ones. More weight shall be given to species which are endemic to Hong Kong or South China.
Rarity	Normally the rarer the species, the more value it has. However care shall be taken in assessing exotic weeds, escaped cultivars or captive species, vagrants and introduced species which have lower value. Greater weight shall be given to those which are internationally rare, then to regionally rare (within South China) and finally locally rare (within Hong Kong) species. Reference could be made to Red Lists and species lists of international conventions for conservation of wildlife.

ANNEX 9: CRITERIA FOR EVALUATING FISHERIES IMPACT

The following table is some general criteria that can be used for evaluation of fisheries impact of a proposed project:

Criteria	Conditions under which the fisheries impacts of a project would be rated higher.
Nature of impact	Impacts are permanent, irreversible or long term.
Size of affected area	The area of fisheries habitats, fishing grounds or aquaculture sites affected constitutes a high proportion of the total area of fisheries habitats, fishing grounds or aquaculture sites in Hong Kong.
Loss of fisheries resources / production	The loss of fisheries resources / production (including capture fisheries and aquaculture production) constitutes a high proportion of total fisheries resources / production in Hong Kong.
Destruction and disturbance of nursery and spawning grounds	Nursery and spawning grounds of commercially important species are disturbed or destroyed, affecting the recruitment of juveniles and hence the adult population in future.
Impact on fishing activity	Large number of fishermen or fishing vessels are affected.
Impact on aquaculture activity	Large number of aquaculturists or aquaculture farms are affected.

ANNEX 10: CRITERIA FOR EVALUATING LANDSCAPE AND VISUAL IMPACT, AND IMPACT ON SITES OF CULTURAL HERITAGE

1. Criteria for Assessment of Landscape and Visual Impact

1.1 The evaluation of landscape and visual impact may be classified into five levels of significance based on type and extent of the effects concluded in the EIA study:

(a) The impact is beneficial if the project will complement the landscape and/or visual character of its setting, and/or will improve overall landscape and visual quality;

(b) The impact is negligible if the assessment indicates that there will be no noticeable or insignificant effects on landscape with distinctive character/resources and/or there will be no noticeable or insignificant visual effects caused by the project;

(c) The impact is slight if there will be slight adverse effects on landscape with distinctive character/resources and/or there will be slight adverse visual effects caused by the project;

(d) The impact is moderate if there will be some adverse effects on landscape with distinctive character/resources, and/or there will be some adverse visual effects caused by the project, but these can be eliminated, reduced or moderated to a certain extent by design/mitigation measures; and

(e) The impact is substantial if the adverse effects are considered too excessive and obstructive, and significant modification is required to mitigate the impacts.

2. Criteria for Assessment of Impact on Sites of Cultural Heritage

2.1 The criteria for evaluating impact on sites of cultural heritage include:

(a) The general presumption in favour of the protection and conservation of all sites of cultural heritage because they provide an essential, finite and irreplaceable link between the past and the future and are points of reference and identity for culture and tradition.

(b) Adverse impacts on sites of cultural heritage shall be kept to the absolute minimum.

ANNEX 11: CONTENTS OF AN ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT

EXECUTIVE SUMMARY IN ENGLISH AND CHINESE

- Summary of main issues, findings, conclusions and recommendations

INTRODUCTION

- Background of the project
- Purpose of the EIA study
- The approach

DESCRIPTION OF THE PROJECT

- Key project requirements
- Site location and site history
- Nature, scope and benefits of the project
- Size or scale, shape and design of the project
- Project timetable and phasing of the project
- Means by which the project will be implemented
- Any related projects
- Type, scope, scale, frequency and duration of the construction, operational or decommissioning (if relevant) activities
- Background and history of the project, including considerations given to different options, and the project's different siting or alignment
- Description of scenarios with or without the project

ENVIRONMENTAL LEGISLATION, POLICIES, PLANS, STANDARDS AND CRITERIA

- Applicable environmental ordinances and regulations
- Applicable government environmental policies and plans
- Applicable environmental standards and criteria
- Other references

DESCRIPTION OF THE ENVIRONMENT

- Baseline environmental conditions
- Environmental trends

DESCRIPTION OF ASSESSMENT METHODOLOGIES

- Assessment methodologies, assumptions and criteria, including sample calculations and input and output files of a typical model run for all mathematical modelling

IDENTIFICATION OF ENVIRONMENTAL IMPACTS

- Potential environmental impacts including the types, characteristics and estimated quantities of emissions, discharges, wastes, potential risks, disturbances or displacement associated with the activities relating to the project during construction, operation and decommissioning phases
- Description of resources or receivers which are vulnerable to change or environmental impacts

PREDICTION AND EVALUATION OF ENVIRONMENTAL IMPACTS

- Prediction of environmental impacts (including beneficial or adverse; direct or indirect; short term or long term; reversible or irreversible; transboundary; cumulative)
- Evaluation of predicted environmental impacts against relevant environmental legislation, policies, plans, standards and criteria

MITIGATION OF ADVERSE ENVIRONMENTAL IMPACTS

- Measures to eliminate, reduce or remedy adverse environmental impacts

DEFINITION AND EVALUATION OF RESIDUAL ENVIRONMENTAL IMPACTS

- Definition and evaluation of net environmental impacts with mitigation measures in place

ENVIRONMENTAL MONITORING AND AUDIT

- Need for and scope of monitoring and audit
- Environmental monitoring and audit requirements, if found to be necessary, and the related environmental monitoring and audit programme

CONCLUSIONS AND RECOMMENDATIONS

SCHEDULE OF RECOMMENDED MITIGATION MEASURES

- A schedule of all mitigation measures recommended in the EIA report, listing out what the mitigation measures are, by whom, when, where and to what requirements, and including the key environmental monitoring and audit requirements

APPENDIX - Responses to comments received

ANNEX 12: GUIDELINES FOR AIR QUALITY ASSESSMENT

1. General

1.1 This annex describes the commonly adopted approaches and methodologies for assessment of air quality impact arising from designated projects. The methodologies may vary from case to case, depending on the nature of air quality issues and the latest development in methods and techniques.

2. Determination of Air Sensitive Receiver

2.1 Any domestic premises, hotel, hostel, hospital, clinic, nursery, temporary housing accommodation, school, educational institution, office, factory, shop, shopping centre, place of public worship, library, court of law, sports stadium or performing arts centre shall be considered to be a sensitive receiver. Places / premises in which exposure is transient in nature, e.g. cycle track, pedestrian walkway, bus stop, mini-bus stop, and taxi stand are not considered to be air sensitive receivers.

2.2 Any other premises or place with which, in terms of duration or number of people affected, has a similar sensitivity to the air pollutants as the aforelisted premises and places shall also be considered to be a sensitive receiver.

3. Assessment Methodology

The air quality assessment shall take into consideration the following aspects:

3.1 Identification of Emission Characteristics

It involves the identification of emission characteristics for major sources (including new source(s) proposed in the EIA study, if any) within the study area including, but not limited to, the following elements:

(a) emission rates, exit velocity and exit temperature as a function of load, time and air pollutants emitted for maximum, average and nominal operating/design conditions;

(b) location, height of emission, grade level above mean sea level and physical dimensions (areas, volumes and lines) of emission points;

(c) anticipated growth changes over the time horizon of the EIA study.

3.2 Description of Study Area

The study area for assessing air quality impact may vary from case to case and the EIA study brief may prescribe the study area. It involves the description of the topographical and man-made features which may affect the dispersion characteristics of air pollutants within the study area. This includes terrain height, existing and potential land use within the study area.

3.3 Description of Sensitive Receivers

It involves the description of locations, height, and grade level of sensitive receivers.

3.4 Baseline Study

It involves the description of the existing air quality based on, but not limited to, existing air quality monitoring on-site or quality assured measured data which can be obtained from government agencies, companies or institutions. The baseline study involves a discussion of background air quality value due to other non-project emission sources in the study area and contributions from sources outside the study area.

3.5 Meteorological Conditions

Assessment shall use recent and representative sequential hourly meteorological data obtained from monitoring site or numerical weather simulation. When meteorological data from a monitoring site is adopted, justification is required to demonstrate the representativeness of the monitoring site for the study area. When meteorological data from numerical weather simulation is adopted, it shall refer to EPD Guidelines for Local-Scale Air Quality Assessment Using Models.

3.6 Impact Prediction and Assessment

(a) Quantitative assessment results shall provide information on the areas of maximum impacts in the study area and cumulative impacts due to background and identified sources.

(b) Presentation of quantitative assessment results shall be assisted by summary tables and contour map of pollutant concentration.

(c) Quantitative assessment results shall be compared with acceptable air quality standards as defined according to Annex 4.

(d) Dust emission from a construction site is controlled under the Air Pollution Control (Construction Dust) Regulation, under which construction dust can be effectively controlled by covering the dusty materials and keeping ground surface wet by water spraying to suppress the release of construction dust. Construction dust assessment should be conducted qualitatively to ensure that the Air Pollution Control (Construction Dust) Regulation is complied with.

ANNEX 13: GUIDELINES FOR NOISE ASSESSMENT

1. General

1.1 The annex describes the commonly adopted approaches and methodologies for assessment of noise impacts arising from designated projects. The methodologies may vary from case to case, depending on the nature of noise issues and the latest development in methods and techniques.

2. Potential Noise Sources

2.1 The potential noise sources could be, but not limited to, the following:

(a) aircraft noise

(b) helicopter noise

(c) road traffic noise

(d) rail noise

(e) fixed noise sources (including, but not limited to, general industrial noise sources, concrete batching plants, pump houses, gas pressure reduction plants, rock crushing plants, quarries, railway depots/marshalling yards, airport facilities, wholesale markets, bus depots/termini, open car/lorry parks, vehicle pounding areas, refuse handling areas, abattoirs, container terminals, sand depots, public cargo working areas, multi-purpose terminals, fire stations, ambulance depots, tram depots)

(f) construction noise

3. Noise Sensitive Receivers

3.1 The potential noise sensitive receivers, including existing, committed and planned, could be, but not limited to, the following:

- all domestic premises
- temporary housing accommodation,
- hostels,
- convalescent homes,
- homes for the aged,
- educational institutions (including kindergarten and nurseries) .
- places of public worship,
- courts of law,
- hospitals,
- medical clinics, and
- any other premises or places that are considered by the Director to have similar sensitivity to noise as the above.

4. Noise Tolerant Uses

4.1 The potential noise tolerant uses could be, but not limited to, the following:

(a) multi-storey carparks,
(b) multi-storey markets,
(c) warehouses,
(d) community uses (e.g. sports complexes, community centres),
(e) commercial centres/premises, or
(f) other premises (not rely on opened windows for ventilation)

5. Assessment Methodology

Road Traffic Noise

5.1 The assessment methodology shall be agreed with the Director prior to the commencement of assessment. Predictions shall normally be based on the design traffic conditions or the maximum traffic projections within 15 years upon operation of the roadworks or occupation of the noise sensitive receivers or uses, whichever appropriate, and shall take into consideration future (both committed and planned) as well as existing roadworks and land uses.

Fixed Noise Sources

5.2 The EIA Study shall identify the potential sources and implications for mitigation measures at operation phase. The applicant shall, unless otherwise agreed by the Director, qualitatively demonstrate no adverse fixed noise impact in association with the project in EIA study. During the pre-tender stage and before commencement of the project, the applicant shall submit the quantitative fixed noise sources impact assessment for approval, unless otherwise agreed by the Director. The assessment methodology shall be agreed with the Director prior to the commencement of assessment. For assessment point and correction of tonality, impulsiveness and intermittency, reference shall be made to the Technical Memorandum for the Assessment of Noise from places other than Domestic Premises, Public Places or Construction Sites, issued under the Noise Control Ordinance.

Construction Noise

5.3 The applicant shall, unless otherwise agreed by the Director, qualitatively demonstrate no adverse construction noise impact would be associated with the project in EIA study by adopting quieter construction method and equipment. During the pre-tender stage and before commencement of the project, the applicant shall submit the quantitative construction noise impact assessment with the project implementation details and proposed noise mitigation measures for approval, unless otherwise agreed by the Director. The assessment methodology shall be agreed with the Director prior to the commencement of assessment.

5.4 In case the proponent or consultant would like to assess whether a Construction Noise Permit (CNP) could be issued or not in the context of programming construction works, reference should be made to the relevant technical memoranda issued under the Noise Control Ordinance (NCO): the Technical Memorandum on Noise from Percussive Piling, the Technical Memorandum on Noise from Construction Work other than Percussive Piling, and the Technical Memorandum on Noise from Construction Work in Designated Areas. Where no sound power levels can be found in the Technical Memoranda, reference shall be made to sound power levels adopted in previous projects in Hong Kong or agreed with the Director. However, whether the Noise Control Authority would issue a CNP would depend on the application submitted according to the procedures laid down in the relevant technical memoranda issued under the NCO rather than under the EIA process.

Rail Noise

5.5 The assessment methodology shall be agreed with the Director prior to the commencement of the assessment.

Aircraft/Helicopter Noise (Civil Aviation)

5.6 The assessment methodology shall be agreed with the Director, in consultation with the Director-General of Civil Aviation, prior to the commencement of the assessment.

5.7 For designated projects specified in Items B.1 and B.2 in the Schedule 2 to the Ordinance, noise sensitive receivers, located under or close to the aircraft flight paths of the Hong Kong International Airport (including those outside NEF 25 contour of the Hong Kong International Airport) and/or any helicopter routes, shall be assessed by making reference to the relevant information, including but not limited to aircraft flight paths and helicopter routes published in the Hong Kong Aeronautical Information Publication.

6. Consideration of Mitigation Measures

6.1 Where the predicted noise impacts exceed the applicable noise criteria, direct mitigation measures as shown below shall be considered and evaluated in an appropriate manner :

(a) treatment of source
(b) low noise road surfacing
(c) quieter construction method and quieter construction equipment
(d) alternative land use arrangement
(e) setback of buildings
(f) screening by noise tolerant buildings
(g) noise barrier/enclosure
(h) decking over
(i) extended podium
(j) building orientation
(k) architectural features
(l) acoustic windows/balconies [Note 1]
(m) special building design

Note 1: When adopting direct mitigation measures on the façade of noise sensitive receivers, the mitigated noise levels shall take into account the noise reduction performance of the measures.

6.2 If mitigation measures are required on the planned land uses even after adoption of all practicable direct measures on the noise sources not controlled under the Noise Control Ordinance, the practicality of these mitigation measures shall be evaluated and confirmed with relevant authorities.

6.3 Upon exhaust of direct mitigation measures, indirect mitigation measures in the form of window insulation and air-conditioning is often the "last resort" in an attempt to abate the residual impact from noise sources not controlled under the Noise Control Ordinance, such as aircraft, road traffic and helicopter, because it will practically deprive the receivers of outdoor activities and an "open-window" life style. If a compromise is necessary when there are overriding constraints on the location and design of a development, which prevent full

compliance with the appropriate noise standards laid down in Annex 5, an attempt shall be made to maximize the proportion of receivers protected, using effective noise mitigation measures at sources, at path or building layout designs of the development. The remaining unprotected receivers shall be insulated using the suitable single frame double pane window types described in Table 2 of Annex 5. The acoustic insulation shall also require the provision of air-conditioning systems because of the warm and humid climate in Hong Kong.

ANNEX 14: GUIDELINES FOR ASSESSMENT OF WATER POLLUTION

1. General

1.1 The annex describes the commonly adopted approaches and methodologies for assessment of water pollution arising from designated projects.

2. Aquatic System subject to Water Pollution Impact

2.1 In identifying and evaluating water pollution impacts on the aquatic environment, the following aspects shall be considered:

(a) **Water** as characterized in terms of:

(i) physical and chemical properties such as temperature, salinity, conductivity, pH, colour, dissolved oxygen, turbidity, suspended solids, and organic material concentration measured by 5-day Biochemical Oxygen Demand (BOD_5), Chemical Oxygen Demand (COD) or Total Organic Carbon (TOC);
(ii) pathogenic indicator organisms;
(iii) toxic substances such as ammonia, heavy metals, residual chlorine, pesticides and industrial chemicals / by-products; and
(iv) eutrophication related factors and indicators reflected by dissolved oxygen, nutrients, chlorophyll-a, frequency of red tide occurrence, and marked changes in density and composition of key phytoplankton groups such as diatoms and dinoflagellates.

(b) **Sediments** as characterized in terms of physical and chemical properties and constituents, including parameters such as pH, organic contents, nutrients, sulphide, toxic substances, etc.

3. Beneficial Uses Sensitive to Water Pollution

3.1 Existing or potential beneficial uses that are sensitive to water pollution shall include, but not be limited to:

(a) areas of ecological or conservation values including existing or gazetted proposed marine parks and marine reserves, aquatic systems of the sites of special scientific interest (SSSI), and existing or gazetted proposed country parks and special areas, wetlands, conservation area, mangroves and important freshwater habitats;
(b) areas for abstraction of water for potable water supply, aquaculture and irrigation;
(c) fish spawning grounds, fish culture zones, mariculture subzones including shellfish culture site and brackish/freshwater fish ponds;
(d) gazetted beaches and other secondary contact recreation areas;
(e) water abstraction for cooling, flushing and other industrial purposes;
(f) enclosed or sheltered water bodies including typhoon shelters, marinas and boat parks.

4. Assessment Approach

4.1 Assessment shall rely on the concept of assimilative capacity of the receiving water body and Water Quality Objectives (WQOs). Assimilative capacity will depend on the characteristics of each site, the type and number of discharges or activities as well as the beneficial uses in question. Evaluation of the assimilative capacity of the receiving waters shall take into account

the relevant physical, chemical and biological processes. Sensitive receivers based on beneficial uses shall be identified and the water quality impact shall be assessed with reference to the WQOs or other relevant criteria covered in Annex 6. The implementation of the project shall not result in exceedance of the relevant WQOs for turbidity, suspended solids, temperature, salinity, pH, dissolved oxygen and bacteria for the beneficial uses to be protected for the water body.

4.2 For nutrient and prevention of undesirable algal bloom, as the level of total inorganic nitrogen (TIN) is largely influenced by the estuarine background inputs, the criteria may be assessed such that the discharge of wastewater or treated sewage effluent shall not cause any further deterioration by more than 30% of the annual average TIN levels, if the background levels have exceeded or are close to the established WQO, as set out in Section 1.3.2 of Annex 6. Alternatively, the nutrient requirement for any sewage treatment facilities can be met through adopting the acceptable treatment level set out in Section 2.1.2 of Annex 6, for the purpose of preventing undesirable algal bloom.

4.3 The discharge of wastewater and treated sewage effluent shall not cause any toxic impact that may affect aquatic life. The whole effluent toxicity criteria for such discharge should not exceed 0.3 Acute Toxic Unit (TUa) after the zone of initial dilution (ZID) and 1.0 Chronic Toxic Unit (TUc) after the mixing zone, respectively.

4.4 In evaluating water pollution impacts, both point and non-point sources of water pollutants shall be considered. Non-point pollutants refer to those substances which can be introduced into the receiving water body as a result of urban or rural runoff. Point sources are related to specific discharges from municipal or industrial facilities.

5. Assessment Methodology

5.1 Assessment methodology shall be site- and activity-specific. Assessment framework shall include the following elements:

Identification of Impact-causing Factors

5.2 It involves the identification and characterization of the impact-causing factors associated with a project. Information shall be based on specific features of the project, including coastline and river modifications, construction activities such as dredging and dumping, quality and quantity of wastewater and thermal discharges, changes in land-use and drainage, maritime wastes, waste disposal facilities and leachates, and non-point pollution sources. Consideration shall also include threat to aquatic life from exposure to toxic substances, and reduction in flushing or assimilative capacities of the water body.

Determination of the Impact Boundary

5.3 An essential first step in assessing the impact of an activity on the water body is the determination of the impact boundaries. The impacted area can be defined as the near-field and far-field. The near-field is where the initial dilution occurs and is determined by physical or hydrodynamic processes. The far-field refers to the subsequent, more complicated dilution which depends on water transport, physio-chemical processes, biological processes, etc. Estimating the impact area has to be carried out at the early stage of the assessment but may have to be revised in the light of information that emerges during the assessment process.

Baseline Study

5.4 It involves the compilation of existing information in the database characterising the relevant water body with emphasis on water quality parameters including turbidity, suspended solids, temperature, salinity, pH, dissolved oxygen, BOD_5, COD, nitrogen, phosphorus, bacteria, etc. Field surveys shall be carried out to supplement existing information in situations when existing data are outdated or insufficient. Baseline study involves the development of a survey and sampling programme which shall cover aspects of meteorological, geological and hydrodynamic factors, water quality characteristics, and beneficial uses of the water body. The study should also consider changes that may arise from seasonal variations and impacts from other current or proposed developments in the area.

Impact Prediction and Assessment

5.5 Assessment shall make use of the scientific knowledge of near-field and far-field transport and dispersion of pollutants coupled with modelling and information obtained from the baseline study. Both construction and operation aspects of the project shall be considered. Assessment shall be based on quantitative techniques which can range from the use of simple mass balance approaches to sophisticated computer models. Models to be selected shall be well proven and be satisfactorily calibrated and verified with field data. The modelling capabilities and approach shall meet the relevant prevailing government requirements.

5.6 To conduct water quality modelling for effluent discharges from domestic and municipal sewage treatment facilities, reference should be made to the average effluent quality of relevant local sewage treatment facilities or the parameters and data given in the prevailing government guidelines or database.

5.7 The predictions will provide information which can be used as the basis for determining whether the aquatic resources and beneficial uses are at risk, or if there is any unacceptable impact on water sensitive receivers (WSRs) or beneficial uses as a result of implementation of the project.

Mitigation Measures

5.8 Mitigation shall aim to minimize any potential impact. Consideration shall also be given to opportunity to enhance existing conditions. The principle shall be to prevent rather than to rectify environmental damage at source. The approach shall be to minimize the risk of impairment to the beneficial uses, and to apply relevant solutions to prevent and rectify pollution problems.

Monitoring

5.9 Monitoring is generally conducted to gather information about compliance with regulations and licence requirements, model verification, and trends. Monitoring is required when there is uncertainty about the level, extent or duration of impacts, or the effectiveness of proposed mitigation measures. Monitoring provides the information for the validation process and the feedback needed for verifying the predictions and improving the monitoring programme as well as to justify any later changes to a project.

6. Activity / Project Specific Guidelines

Discharge of Wastewater and Treated Sewage Effluent

6.1 Wastewater discharges shall be pretreated to levels sufficient to protect the sewerage system downstream and the receiving water. The near-field and far-field effects shall be addressed by quantitative modelling techniques. Model for predicting the physical, chemical and microbiological processes which determine the transport and fate of pollutants associated with outfalls shall include initial dilution, effects of water stratification, advection towards shore, coliform die-off, dissolved oxygen depletion, dissolution of metals, particles settling, biotransformation, etc.

6.2 To control the organic and nutrient loads entering various waters with different environmental settings, the assessment criteria and approaches for discharges as detailed in Section 1.3.2 and 2.1.2 of Annex 6 of this Technical Memorandum should be followed. Connection of wastewater discharges to public sewers leading to a public sewage treatment facility is always the preferred solution. Discharge into public sewerage systems shall not overload the hydraulic capacities nor contain substances that will cause damage to the sewerage systems.

6.3 Assessment of wastewater discharges shall address the potential toxicity to aquatic life. Toxic substances that may interfere with or pass through the treatment processes shall be controlled at source. For wastewater discharge of complex nature or containing constituents of unknown aquatic toxicity, the whole effluent toxicity test (WETT) in line with the prevailing guidelines and procedures shall be conducted to assess the potential toxicity to aquatic environment. The whole effluent toxicity criteria for the discharge should not exceed 0.3 TUa after the ZID and 1.0 TUc after the mixing zone, respectively. Sewage shall be discharged at a distance away from gazetted beaches, secondary contact recreation waters, fish culture zones and mariculture subzones. The use of chlorination disinfection shall be carefully evaluated as it can result in increase in effluent toxicity and has its own adverse effects on the aquatic environment. If disinfection by chlorination is unavoidable, the chlorinated effluent shall meet the relevant discharge standards or otherwise de-chlorination facilities shall be provided.

6.4 On-site treatment and disposal facilities shall include stand-by power and equipment and other provisions to prevent and minimize breaking down of the facilities, to facilitate rapid repair and to avoid by-pass of wastewater discharge. By-pass outfall designed to cope with emergency and unavoidable maintenance situations shall be located away from any WSRs. With the implementation of the above-mentioned standard preventive and mitigation measures as set out in the Sewerage Manual issued by the Drainage Services Department, discharges from facilities under emergency and unavoidable maintenance should be rare, and the associated water quality impact, if any, would be transient and insignificant. Water quality monitoring programmes covering pre-identified locations for the protection of WSRs should be developed for the unavoidable maintenance situations leading to the discharge of untreated sewage to the receiving water body.

Breakwaters, Reclamations and Other Works Involving Coastline and Bathometry Modifications

6.5 Assessment shall focus on the impacts on overall reduction in assimilative capacity of the affected flow channels, hydrology, and water quality of the water body within and outside the structures (e.g. typhoon shelter). Modelling shall be used to quantify these effects with a view to assessing potential water quality impact within and outside the structures as being acceptable.

Dredging, Sand Filling, and Dumping

6.6 Simulation modelling can be used to determine the short-term as well as the long-term fate of sediments. The size of the plume depends on type of dredging equipment used, quantities of sediments suspended and hydrodynamic conditions at the sites. The nature of the sediments is the first factor to consider to predict sediment suspension. When toxic or harmful constituents are found present in the sediments, the chemical effects shall also be addressed. Contaminants in the sediments shall be determined and analysed by bulk sediments, elutriate and pore water tests. In some special circumstances, assessment on the toxicity effects may be necessary. The principle in managing contaminated sediments is to minimize disturbance and isolate them from contact with the aquatic environment. If dredging cannot be avoided, a survey and sampling of potential contamination of bottom sediments shall be undertaken before dredging. The proposal should cover detailed assessment of the characteristics of the sediments, objective comparison of relevant alternatives for disposal, careful selection of site and disposal methods, and careful selection of dredging methods and equipment, while making reference to the prevailing government technical circulars and the guidelines under the London Convention as mentioned in Section 2.2.1 of Annex 6.

Thermal Discharges

6.7 Assessment shall be based on mathematical model studies using plume model to characterize the near-field and hydrodynamic and advection-diffusion model to characterize the far-field to predict the extent of the impacted area which can be defined by criteria based on temperature change and the residual of chemical additives (e.g. biocides, anti-fouling agents, anti-foaming agents, etc.) used. The assessment shall also cover and address cumulative impacts, if present. Mitigation shall include minimization of the use of chemical additives or by the use of alternative means of chemical dosage control.

Toxic Substances

6.8 Toxic substances can be classified into five subcategories: (a) non-metallic inorganic toxicants (e.g. ammonia, cyanide); (b) heavy metals and sub-metallic inorganic substances (e.g. mercury, cadmium); (c) easily degradable organic toxicants (e.g., volatile phenols, benzene); (d) refractory organic substances (e.g., DDT, PCBs, PAHs); and (e) radioactive substances. The prevailing legislation (i.e. Water Pollution Control Ordinance, WPCO) prohibits discharge or disposal of toxic and certain harmful substances into the water environment. The most effective and viable approach is to reduce at source the amount of these substances entering the sewer or discharging to the environmental waters. The four basic source control alternatives are pollution prevention, pretreatment, recycle and reuse.

6.9 If the project involves making a waste or wastewater discharge of complex nature or containing constituents of unknown aquatic toxicity, the WETT in line with the prevailing guidelines and procedures shall be included in the assessment to ensure that the discharge will not impose unacceptable toxicity impact on the receiving water environment.

Non-point Pollution Sources and Stormwater Discharges

6.10 Non-point or diffuse sources include inputs that are not point sources. Assessment shall include: (i) identifying these sources including surface runoff from construction sites, urban areas, livestock farms and agricultural lands; and (ii) quantifying the pollution levels where necessary. For prediction and assessment of the impacts on the aquatic environment, models shall be used where necessary and shall take into account the pollution loads from non-point sources.

6.11 The strategy to control non-point source pollution is to minimize the potential of pollutants coming into contact with rainfall or runoff. The most common source reduction measures

include removal of expedient connections, prevention of illegal dumping of wastes, covering of chemical storage areas, prevention and containment of spills, minimization of chemical applications, catch basin cleaning, erosion control, and land use control. Devices designed to control pollution in a drainage system include, minimization of directly-connected impervious areas, provision of filter strips, trenches, road-side gully traps, petrol interceptors, dry weather flow interceptors, detention facilities, infiltration basins, swales, artificial wetlands, etc.

ANNEX 15: GUIDELINES FOR ASSESSMENT OF WASTE MANAGEMENT IMPLICATIONS

1. General

1.1 The annex describes the commonly adopted approaches and methodologies for assessment of waste management implications arising from the project. The methodologies may vary from case to case, depending upon the nature of wastes and the latest development in methods and techniques.

2. Uses with Special Requirements for Waste Disposal

2.1 The uses that need special requirements for waste disposal shall be, but not be limited to, the following:

(a) Offensive Trades:

as declared under the Public Health and Municipal Services Ordinance, section 48.

(b) Chemical Waste Producing Industries:

. electricity and gas generation
. metal finishing
. electroplating
. printed circuit board production and electronics
. tannery and leather finishing
. textile (involving dyeing, bleaching or finishing)
. chemical processing and formulation
. land transport and shipping
. manufacture of professional and scientific equipment

(c) Livestock Rearing: pigs, chickens, ducks, geese, pigeons and quails

(d) Community Facilities with Special Requirements for Waste Disposal:

. abattoirs
. hospitals/clinics and other health care premises
. other community facilities which generate radioactive waste, use ozone depleting substances or include incinerators may need special attention in the EIA processes.

3. Waste Management

3.1 Prior to considering the disposal options for various types of wastes, opportunities for reducing waste generation shall be evaluated taking into account the following factors:

- avoiding or minimising waste generation through changing the design approach in the project planning stage;
- adopting management practices on site to reduce cross contamination and promote waste segregation during construction stage;
- reusing or recycling waste materials in other construction activities in the construction stage;
- diverting waste to other construction sites or to the public fill reception facilities for beneficial use in the construction stage, and monitoring the transportation of construction waste by means of dump trucks equipped with real-time tracking and monitoring devices;

- using recycled materials for construction where practicable in the construction stage;
- installing facilities for segregation of various types of wastes during the operational stage; and
- arranging and facilitating collection of wastes by relevant waste recyclers where practicable in the operational stage.

3.2 Having taken into account the factors in Section 3.1 above, the types and quantities of the wastes generated as a consequence shall be estimated, with the transportation and disposal options and methods for each type of waste described in detail.

3.3 The impact caused by handling (including labelling, packaging and storage), collection, and disposal of wastes shall be addressed in detail. When large quantities of wastes are identified, the impact on the capacity of waste collection, transfer and disposal facilities, especially the existing or strategic solid waste disposal facilities have to be assessed.

3.4 In addition to the waste management practices recommended for the project, the handling, collection and disposal of wastes shall comply with the Waste Disposal Ordinance, and the Dumping at Sea Ordinance.

ANNEX 16: GUIDELINES FOR ECOLOGICAL ASSESSMENT

1. Introduction

1.1 This annex describes the general approach and methodology for assessment of ecological impact arising from a project.

1.2 An ecological assessment is part of an EIA study for a designated project which may have an impact on the natural environment including existing flora, fauna and wildlife habitats. The term "ecology" includes both marine and terrestrial ecology. The main objective of ecological assessment is to make an objective identification, prediction and evaluation of the potential ecological impacts, based on ecological information collected through literature review and samplings that are essential for evaluating the ecological impact in accordance with the criteria laid down in Annex 8 of this Technical Memorandum. The methodology used may vary from case to case depending on the natural environment to be affected and the nature and scale of the project.

2. The Need for Ecological Assessment

2.1 The procedures for determining the need for ecological assessment are outlined in Appendix A. The key factors to be considered are described in Notes 1 to 3 attached to Appendix A.

3. General Principle

3.1 The guiding principle for ecological assessment shall be that:

(a) areas and/or habitats of ecological importance (e.g. those listed in Note 1 and 2 of Appendix A) shall be conserved as far as possible. Any project that is likely to result in adverse ecological impacts in areas of ecological importance shall not normally be permitted unless the impacts can be minimized and/or compensated;

(b) both on-site and off-site impacts shall be identified and evaluated;

(c) both on-site and off-site mitigation measures shall be considered as integral parts of the EIA process;

(d) an applicant is required to mitigate any adverse environmental impacts arising from his project and to implement the necessary on-site and off-site measures. Where site constraints preclude the possibility of implementing on-site ecological mitigation measures, the feasibility of implementing off-site measures should be explored on a territory-wide basis;

(e) any mitigation measures shall be determined during the EIA study in accordance with the guidelines laid down in this technical memorandum, in particular this annex and Annex 8.

4. The Scope and Content of Ecological Assessment

4.1 An ecological assessment shall consist of 5 parts of equal importance:

(a) provision of comprehensive and accurate information on the ecological baseline;

(b) identification and prediction of potential ecological impacts;

(c) evaluation of the significance of the impacts identified;

(d) recommendations of effective and practicable alternatives and mitigation measures; and

(e) recommendations of the need for and the scope of ecological monitoring and audit programme.

5. Assessment Methodology

5.1 Ecological Baseline Information

5.1.1 The main objective of the baseline study of an ecological assessment is to provide adequate and accurate ecological baseline information of the proposed development and its vicinity for

(a) evaluation of the ecological importance of the flora, fauna and habitats found;

(b) identification, prediction and evaluation of impacts; and

(c) formulation of mitigation measures and monitoring programme.

5.1.2. The baseline study shall include at least the following:

5.1.2.1 Review of existing information

Existing information regarding the proposed development site and its vicinity shall be reviewed. Such information includes both published materials (books, journals, reports, registers, etc.) and those made available by government and non-government bodies. Due weight should be given to published data of recognized sources.

The accuracy and usefulness of the ecological information obtained must be carefully evaluated and verified before adopting its use in the ecological assessment report. Aspects such as time of survey (is the information out of date ?), methodology, etc., shall be taken into account. Unless the information obtained is determined to be still valid, they shall be verified by on-site survey(s).

5.1.2.2 Habitat survey

A habitat map of suitable scale showing the various habitats of the site and its surrounding area (500 m from the site boundary or the area likely to be impacted by the project) shall be prepared. Characteristics of each habitat type shall be fully described with such information as species list, dominant flora and fauna found, presence of species of conservation importance, etc. Any habitat features of particular value to various ecological groups shall

also be identified and described. Important habitats (Note 2 of Appendix A) shall be highlighted and described. Colour photos of each habitat type and any features of ecological importance identified shall be provided.

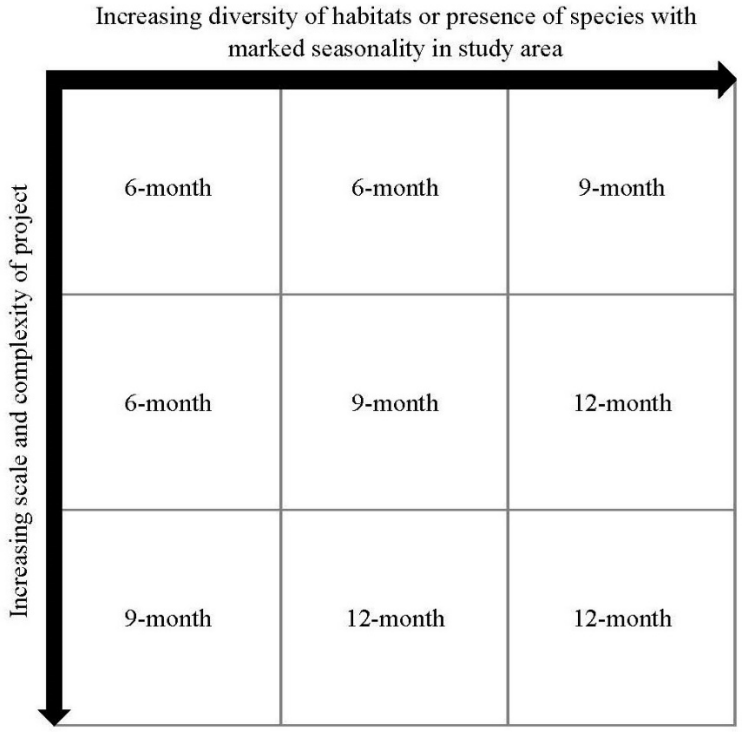
To ensure that the baseline information obtained is accurate, reproducible and can be easily verified, the methodology used must be clearly stated in the ecological assessment report. The methods employed must be sound and scientific. References shall be made to those standardized or accepted internationally. Results of survey shall be recorded in specifically designed standard forms wherever applicable. Data obtained shall be quantified and statistical analysis shall be applied wherever applicable.

5.1.2.3. Description of recognized sites of conservation importance

All recognized sites of conservation importance (Note 1 of Appendix A) within, and in the vicinity of the proposed development site should be described. Whether these sites will be affected by the proposed development or not shall be assessed.

5.1.3 All field surveys carried out must not cause any unnecessary stress or damage to the existing habitats and wildlife. Relevant permits for collecting specimens must be obtained from the Agriculture, Fisheries and Conservation Department prior to the surveys. Results of all relevant field surveys, the names and relevant experience of the persons leading and conducting the surveys, shall be documented in field survey reports prepared, checked and signed by relevant professionals or experts.

5.1.4 To establish the ecological profile of the study area, an ecological baseline survey of at least 6-month and up to 12-month duration shall be conducted. The actual duration of such surveys shall be determined by considering the diversity of habitats of the study area, presence of species with marked seasonality, as well as scale and complexity of the project according to the figure below.



5.1.5 The faunal and floral groups that are relevant to the study area should be determined through a review on the findings of relevant studies/surveys, or specified in the study brief. Optimal time of the year, minimum survey frequency and optimal time of the day for conducting the ecological baseline surveys shall be determined according to Appendix B, unless otherwise agreed by the Director.

5.1.6 The information gathered from the ecological baseline surveys shall be valid for 36 months upon their completion, after which the information should be verified through field surveys to confirm its validity for the purpose of ecological impact assessment.

5.2 Impact Identification and Prediction

5.2.1 Based on the project profile and ecological baseline information gathered, the ecological assessment shall identify and predict potential ecological impacts caused by the proposed development. There may be direct or primary impacts such as loss of habitats and loss of species. However many ecological impacts are induced or secondary such as loss of feeding grounds. Hence an ecosystem perspective highlighting the existing key relationships between different species and the surrounding environment shall be adopted.

5.2.2 An overlay of the project layout on the habitat map of the site (Section 5.1.2.2) shall be prepared to provide an overview of the impacts to local habitats.

5.2.3 All potential impacts, including direct, indirect, on-site, off-site, primary, secondary, induced, additional, synergistic, cumulative impacts, etc. shall be listed out. Suitable methodology such as checklists (descriptive, scaling, etc.), matrices, networks, features mapping, etc. shall be used and clearly stated whenever applicable. Predictions must be made with sound scientific basis.

5.3 Evaluation of Impacts

5.3.1 Impact significance is a product of the magnitude and scale of an impact and the asserted importance of the species or habitat(s) likely to be affected. However, it shall be noted that evaluating nature conservation interest is a difficult and complex process. Value or professional judgement is involved. Nevertheless the conservation value of a site or species and hence the significance of an impact shall be evaluated systematically using well defined criteria. The general criteria used are shown in Annex 8.

5.3.2 Impact significance shall be evaluated on a suitable geographical scale. The importance of the species or habitat(s) to be affected in the territory-wide scale should be considered.

5.4 Impact Mitigation

5.4.1 The general policy for mitigating impacts on important habitats and wildlife, in the order of priority, are :

(a) Avoidance

Potential impacts shall be avoided to the maximum extent practicable such as adopting suitable alternatives (e.g. change of site, design, construction method, alignment, layout, programme, etc.). In cases when the ecological assessment identifies significant impacts, modification of the project shall be considered first.

(b) Minimizing

In case the impacts could not be avoided, such impacts shall be minimized by practicable measures such as translocating important animal and plant specimens, confining works in specific area or season, restoration of disturbed areas, etc.

(c) Compensation

The loss of important species and habitats, if assessed to be significant, shall be compensated by re-provision of similar species/habitats or enhancement of existing habitats.

5.4.2 All mitigation measures recommended shall be feasible to implement within the context of Hong Kong. The effectiveness of the proposed mitigation measures shall be carefully evaluated and the significance of any residual impacts after implementing them shall be clearly stated.

5.4.3. From an ecological point of view, mitigation measures for ecological impact shall preferably be carried out on-site, and well in advance of the works rather than off-site, and after the completion of works.

5.4.4 Where off-site mitigation measures are involved, they shall be considered along with other alternatives e.g. change of site, layout, etc., including modifying the project.

5.4.5 The need for and the type and scope of the off-site ecological mitigation measures to be adopted for a particular project shall be determined according to the following guidelines:

(a) all relevant design measures and all practicable on-site ecological mitigation measures shall be investigated in the EIA study and exhausted to minimize the loss or the damage caused by the project to the ecological habitats or species;

(b) with the on-site ecological mitigation measures in place, the residual impacts on ecological habitats or species shall be defined, quantified and evaluated according to the methods and criteria laid down in this annex and Annex 8. Before off-site ecological mitigation measures are to be adopted, the EIA study needs to confirm that it is necessary to mitigate the residual ecological impacts based on ecological considerations set out in this annex and Annex 8, and that such residual impacts arise from the Project in question;

(c) if the residual ecological impacts require mitigation and all practicable on-site ecological mitigation measures have been exhausted, off-site ecological mitigation measures shall be provided;

(d) the off-site mitigation measures shall be on a "like for like" basis, to the extent that this is practicable. That is to say, any compensatory measures to be adopted for mitigating the residual ecological impacts must be directly related to the habitats or species to be protected. Either the same kind of species or habitats of the same size shall be compensated, or the applicant shall demonstrate that the same kind of ecological function and capacity can be achieved through the measures to compensate for the ecological impacts. For example, the loss of a natural woodland shall be compensated by the replanting of native trees to form a woodland of a similar size where possible;

(e) the off-site ecological mitigation measures shall only be implemented within the boundaries of Hong Kong, and must be technically feasible and practicable;

(f) the extent of such mitigation measures shall be limited to what is necessary to mitigate the residual ecological impacts arising from the project; and

(g) any proposed off-site mitigation measures shall not require further EIA study for their implementation. Their feasibility, constraints, reliability, design and method of construction, time scale, monitoring, management and maintenance shall be confirmed during the EIA study.

5.5 Ecological Monitoring and Audit Programme

5.5.1 The purposes of ecological monitoring and audit are :

(a) to verify the accuracy of the predictions of the ecological assessment study;

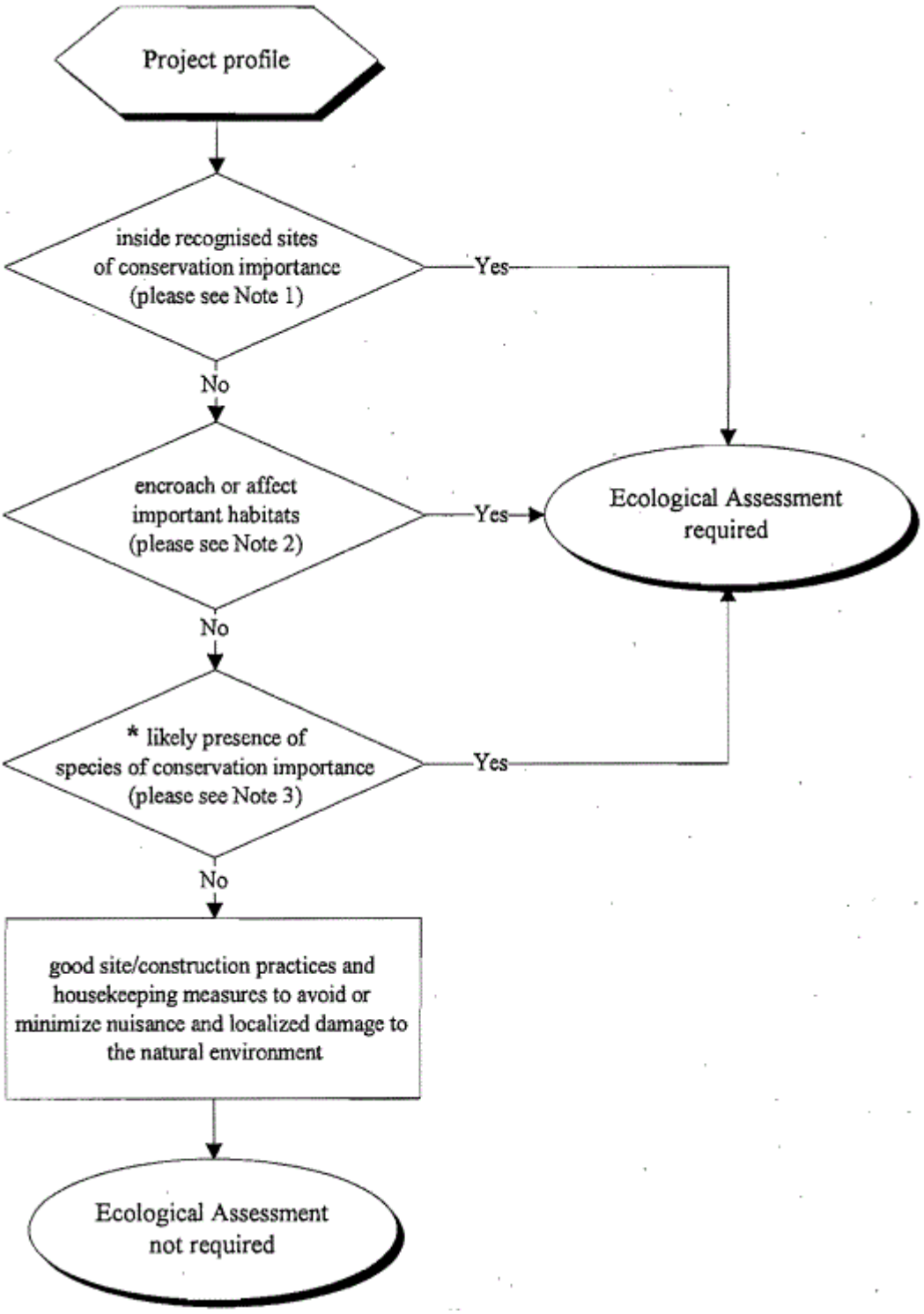
(b) to detect any unpredicted ecological impacts arising from the proposed development;

(c) to monitor the effectiveness of the mitigation measures; and

(d) to recommend action plans in response to unpredicted impacts, and/or failed mitigation.

Appendix A

The flow chart below summarizes the general procedures in determining the need for an ecological assessment for a designated project.* A literature review and/or a preliminary site visit may be required for checking the "likely presence of species of conservation importance."



Note 1 : Recognized Sites of Conservation Importance

1. existing or gazetted proposed Special Areas
2. existing or gazetted proposed Country Parks
3. existing or gazetted proposed Marine Reserves
4. existing or gazetted proposed Marine Parks
5. Wild Animals Protection Area
6. Sites of Special Scientific Interest
7. Ramsar Site
8. Inner Deep Bay and Deep Bay Buffer Zones
9. any other areas declared by the Government as having special conservation importance

Note 2 : Important Habitats Where an Ecological Assessment Will Be Necessary

An ecological assessment will be needed if a proposed development will affect

1. over one hectare of woodland
2. over one hectare/500 metres of undisturbed natural coast
3. over 0.5 hectare of intertidal mudflats
4. established mangrove stands of any size
5. over 0.5 hectare of freshwater or brackish marshes
6. established seagrass (*Zostera* or *Halophila* or *Ruppia* species) bed of any size
7. over 100 metres of natural stream courses and rivers of significant length
8. over one hectare of wetlands (as defined by the Ramsar Convention) other than those mentioned in 2 to 7 above
9. established coral communities of any size
10. other habitats considered as having special conservation importance by documented scientific studies

Note 3 : Species of Conservation Importance

An ecological assessment will be needed if the proposed development will affect habitats supporting significant population of wild fauna or flora that are :

1. listed in Threatened Categories of IUCN Red List or those of the South China region;

2. listed in international conventions for conservation of wildlife;

3. endemic to Hong Kong or South China;

4. listed under local legislation :
   (a) Forestry Regulation (under Forests and Countryside Ordinance Cap. 96);
   (b) Wild Animals Protection Ordinance Cap. 170;
   (c) Protection of Endangered Species of Animals and Plants Ordinance Cap. 586;
   (d) Other relevant Ordinances or Regulations such as Marine Parks and Marine Reserves Regulation (under Marine Parks Ordinance Cap. 476);

   (References shall also be made to species protected by legislation in Mainland China, especially the Guangdong Province.)

5. considered as rare in the territory or having special conservation importance by scientific studies other than those listed above.

Appendix B

The figure below provides the optimal time of the year, minimum frequency and optimal time of the day for conducting surveys of major faunal and floral groups, unless otherwise agreed by the Director.

Major faunal or floral groups		Optimal time of the year												Minimum frequency	Optimal time of the day
Month		J	F	M	A	M	J	J	A	S	O	N	D		
Season		Dry			Wet							Dry			
Terrestrial															
Vegetation and higher plants		←	—	—	—	—	—	—	—	—	—	—	→	Half-yearly	Daytime
Mammals		←	—	—	—	—	—	—	—	—	—	—	→	Monthly	Daytime for diurnal species. Night-time for noctural species. Dusk for bats.
Birds	Overwintering	←	—	→							←	—	→	Monthly	Early morning and dusk. Night-time for noctural species.
	Oversummering					←	—	—	—	—	→				
	Passage migrant			←	—	→		←	—	—	→				
	Resident	←	—	—	—	—	—	—	—	—	—	—	→		
Reptiles					←	—	—	—	—	—	→			Every two months	Daytime for diurnal species. Night-time for noctural species.
Amphibians				←	—	—	—	—	—	—	→			Every two months	Night-time.
Butterflies				←	—	—	—	—	—	—	—	→		Every two months	Daytime.
Odonates					←	—	—	—	—	—	→			Every two months	Daytime.
Fireflies					←	—	→				←	—	→	Monthly	Dusk and night-time.
Freshwater															
Fish				←	—	—	—	—	—	—	—	→		Every two months	Daytime for diurnal species. Night-time for noctural species.
Freshwater invertebrates				←	—	—	—	—	—	—	—	→		Every two months	Daytime.
Marine															
Cetaceans		←	—	—	—	—	—	—	—	—	—	—	→	Monthly	Daytime.
Hard-bottom communities		←	—	—	—	—	—	—	—	—	—	—	→	Half-yearly	Daytime.
Soft-bottom communities		←	—	—	—	—	—	—	—	—	—	—	→	Half-yearly	Daytime.
Intertidal communities		←	—	—	—	—	—	—	—	—	—	—	→	Half-yearly	Ebbing tides.
Horseshoe crabs					←	—	—	—	—	—	→			Half-yearly	Ebbing tides.

ANNEX 17: GUIDELINES FOR FISHERIES IMPACT ASSESSMENT

1. General

1.1 These guidelines describe the general approach and methodology for conducting a fisheries impact assessment study, which may vary from case to case depending on the nature of the fisheries issues and the latest development in methods and techniques.

1.2 A fisheries impact assessment is part of an environmental impact assessment (EIA) study for a designated project which may affect capture and culture fisheries. It aims at providing adequate and accurate data to allow a complete and objective prediction and evaluation of the potential fisheries impacts.

2. Determination on the Need for Fisheries Impact Assessment

2.1 The types of projects that may require a fisheries impact assessment include:

(a) proposed projects which involve the marine and intertidal environment and inland fish ponds, and may affect fishing grounds and aquaculture sites, fishing and aquaculture activities, as well as fisheries resources and habitats; or

(b) proposed projects with direct or indirect discharges of any kind which may affect fishing grounds and aquaculture sites, fishing and aquaculture activities, as well as fisheries resources and habitats.

3. Fisheries Impact Assessment Study

3.1 A fisheries impact assessment study shall consist of 5 parts of equal importance:

(a) provision of comprehensive and accurate baseline information on fisheries;

(b) identification and prediction of potential fisheries impacts;

(c) evaluation of the significance of the impacts predicted;

(d) recommendations of effective and practicable alternatives and mitigation measures;

(e) recommendations of the need for and the scope of fisheries monitoring and audit programme.

3.2 Fisheries Baseline Information

3.2.1 The baseline study of a fisheries assessment shall provide adequate and accurate fisheries baseline data of a proposed project site and its adjacent area of probable impact (the study area) for accurate prediction and evaluation of fisheries impacts. The baseline study shall include at least the following:

(i) Review and Collation of Existing Information

Existing information regarding the study area shall be reviewed. The most recent and updated information should be used and due weight should be given to published data of recognized sources. Useful information can also

be obtained from consultation of local fishermen/aquaculturists, marine and fisheries scientists, and relevant government departments.

The accuracy and usefulness of the fisheries information obtained must be carefully evaluated and verified before adopting it in the EIA report. Unless the information obtained is determined to be still valid, field survey(s) shall be conducted to verify the information.

(ii) Fisheries Baseline Surveys

Based on the results of (i) above, the study shall determine if there is any need for fisheries baseline surveys taking into account the location, scale and potential impacts of the project. The aim of the fisheries baseline surveys is to gather adequate information for subsequent fisheries impact prediction and evaluation, formulation of proposed mitigation measures and monitoring requirements. If fisheries baseline surveys are considered necessary, the surveys shall cover fisheries resources and habitats and / or fisheries activities of the study area. The study shall recommend methodology, duration and timing for the surveys that are suitable for collecting the required data. The field surveys and data analyses must be undertaken by adequately trained and competent personnel with adequate knowledge and experience in fisheries. The data obtained shall be quantified and statistical analyses shall be applied wherever applicable. Results of all relevant field surveys, the names and relevant experience of the competent personnel undertaking the surveys, shall be documented in field survey reports prepared, checked and signed by relevant professionals or experts.

Where fisheries baseline surveys are considered necessary for a project, the duration shall be at least 6 months and up to 12 months. A project of larger scale and higher complexity or with a study area with higher importance in fisheries resources / production shall normally require a longer duration of survey. The minimum duration of the surveys shall be defined in the relevant EIA study brief issued under the Ordinance.

3.2.2 Fisheries information required for fisheries impact assessment shall include, but not be limited to -

(i) level of fisheries resources/production and composition of commercially important species in the study area;

(ii) the level and pattern of fishing and aquaculture activities in the study area;

(iii) sites of fisheries importance such as aquaculture sites, fisheries habitats, nursery and spawning grounds of commercially important species, and any known seasonal occurrence of juvenile and spawning stocks in the study area;

3.3 Identification and Prediction of Impacts

3.3.1 Based on the project profile and fisheries baseline information gathered, the fisheries impact study shall identify and predict potential fisheries impacts caused by a proposed project. All potential impacts, including direct, indirect, long term, short term, on-site, off-site, primary, secondary, induced, additional, synergistic, cumulative impacts, etc, shall be listed out. Suitable methodology such as checklists (descriptive, scaling, etc.), matrices, networks, features mapping, etc, shall be used and clearly described whenever applicable. The nature and extent of impacts on aquaculture and capture fisheries shall be described and quantified.

3.3.2 Identification and prediction of impacts on fisheries shall take into account, but not exclusively rely upon, assessments for water quality and ecological impacts.

3.4 Evaluation of Impacts

3.4.1 The significance of the predicted impacts of a proposed project on aquaculture and capture fisheries shall be evaluated as systematically as practicable using well defined criteria. The general criteria used are presented in Annex 9.

3.5 Mitigation of Impacts

3.5.1 The general policy for mitigating impacts on fisheries, in order of priority, are:

(i) Avoidance

Potential impacts shall be avoided to the maximum extent as practicable such as adopting suitable alternatives (e.g. change of site, design, construction method, alignment, layout, programme, etc.). In cases where the fisheries impact assessment study identifies very serious impacts that cannot be mitigated, modification of the project shall be considered.

(ii) Minimizing

Unavoidable impacts shall be minimized by practicable measures such as confining works in specific area or season, restoration of disturbed fisheries resources and habitats, etc.

(iii) Compensation

The loss of fisheries resources and habitats and aquaculture sites, if assessed to be significant, shall be compensated. Measures such as enhancement of fisheries resources and habitats and re-provisioning of aquaculture sites shall be considered.

3.5.2 All mitigation measures recommended shall be practicable and effective within the context of Hong Kong. The effectiveness of the proposed mitigation measures shall be carefully evaluated and the significance of any residual impacts after implementing them shall be clearly stated.

3.6 Fisheries Monitoring and Audit Programme

The purpose of fisheries monitoring and audit are:

(i) to verify the accuracy of the predictions of the fisheries impact assessment study;

(ii) to detect any unpredicted fisheries impacts arising from the proposed project;

(iii) to monitor the effectiveness of the mitigation measures; and

(iv) to recommend action plans in response to unpredicted impacts, and/or ineffective mitigation.

ANNEX 18: GUIDELINES FOR LANDSCAPE AND VISUAL IMPACT ASSESSMENT

1. General

1.1. Landscape and visual impact assessment shall be directed towards the predicting and judging the significance of the effects that new development may have on landscape and visual resources, landscape with distinctive character and visual amenity. This annex describes the general approach and methodology for assessment of landscape and visual impacts. The methodology may vary from case to case, depending on the nature of the issues. However, it must be admitted that such an assessment involves subjective judgement and preference. The perception and aspiration of the community on particular landscape features must be taken into account.

2. The Need for Landscape and Visual Impact Assessment

2.1 The procedures for determining the need for landscape impact assessment and visual impact assessment are outlined in Appendices A and B respectively. The landscape with distinctive character/resources to be considered are described in Note 1 to Appendix A.

2.2 The need for landscape impact assessment and visual impact assessment will be considered independently following the approach as set out in the Appendices.

3. Study Process

3.1 A landscape and visual impact assessment shall cover the following:

(1) defining the scope and contents of the study;

(2) a baseline study to provide for a comprehensive and accurate description of the baseline landscape and visual characters and resources;

(3) impact studies to identify the potential landscape and visual impacts and predict their magnitude and potential significance; and

(4) recommendations on design and/or mitigation measures and implementation programme.

4. Scope and Contents

4.1 In setting the scope of the study, the following aspects shall be considered:

. limits of the assessment area;

. key issues to be addressed;

. level of details required for baseline studies;

. key public viewing points to be covered;

. approach and methodology to be used for impact assessment and judging impact significance;

. alternatives;

. other development if cumulative impacts are to be assessed.

5. Baseline Study

5.1 The main objective of the baseline study is to provide an understanding of the landscape in the area that may be affected, and to establish a visual envelope or a zone of visual influence in which the development might be visible, the visual amenity which might be affected, and public viewers who may experience views towards the development.

5.2 The baseline study shall present a brief account of the landscape and visual characters and resources of the assessment area. Their levels of details should be appropriate and proportional to the scale and type of development and the significance of the landscape and visual impacts likely to occur. It shall focus particularly on the sensitivity of the landscape and visual system and its ability to accommodate change.

6. Landscape Impact Assessment Study

6.1 Landscape impact assessment shall assess :

. direct impacts upon specific landscape elements, in particular on landscape with special interest, distinctive quality and value;

. the overall pattern of landscape elements that give rise to landscape character, and local and regional distinctiveness;

6.2 Examples of landscape with distinctive character/resources are set out in Note 1 to Appendix A.

7. Visual Impact Assessment Study

7.1 Visual impact assessment shall focus on permanent impacts and assess the significance thresholds including magnitude of changes and sensitivity of viewers.

7.1.1 Magnitude of Changes

. Visual composition – Impacts on visual balance, compatibility, harmony, unity or contrast;

. Visual obstruction – Impacts on condition, quality and character of visual resources;

. Visual change – Impacts on changes with direct sightlines (considering degree of visibility and viewing distance) to the existing and future public views by comparing before and after the proposed development.

7.1.2 Sensitivity of Viewers

. Type of viewers and value of existing views (if applicable).

8. Design and Mitigation Measures

8.1 Alternative design that would avoid or reduce the identified impacts on landscape; and/or visual amenity shall be thoroughly examined before adopting other mitigation or compensatory measures to alleviate the impacts.

8.2 Possible measures that may mitigate or compensate the impacts include:

- remedial - e.g. facade treatment, design elements/features and buffer plantings; and

- compensatory - e.g. landscape treatment, compensatory planting, creation of interesting landscape or visual features.

8.3 A practical programme for the implementation of the recommended mitigation measures with responsible parties shall be worked out. These shall be integrated with the overall development programme of the whole project.

8.4 While design that would enhance the landscape and visual quality shall be encouraged and adopted, architectural design and landscaping arrangement would normally be revised or further developed in the detailed design stage. Flexibility would be allowed for applicant to enhance the landscape and visual design at later stages of the project.

8.5 For the project under Schedule 3 to the Ordinance without Designated Projects (DPs) under Schedule 2 or if detailed information for the DPs under Schedule 2 is not available, the landscape and visual impact assessment should contain a broad assessment of the potential landscape and visual impacts arising from the project.

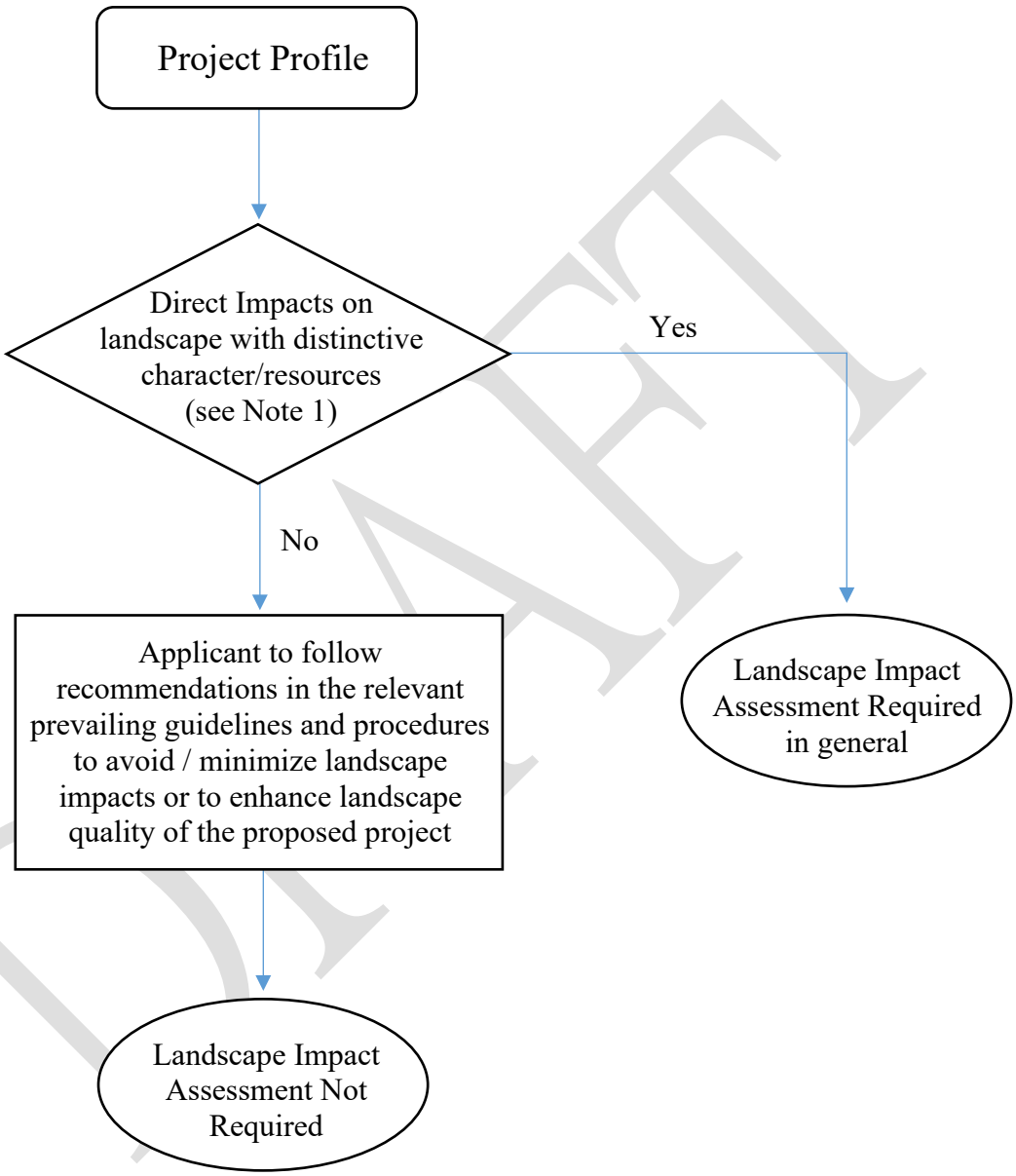
9. Presentation Methods

9.1 To illustrate the landscape and visual impacts of a project, as well as effects of the mitigation measures, choice of appropriate presentation methods is important. These methods include perspective drawings, plans and section/elevation diagrams and photomontage to demonstrate the relationship with the setting. These methods shall be used extensively to facilitate communication among the concerned parties.

9.2 The technical details of preparing the illustrations shall be recorded. To facilitate verification of the accuracy, the Authority will reserve the right to examine the full details.

Appendix A

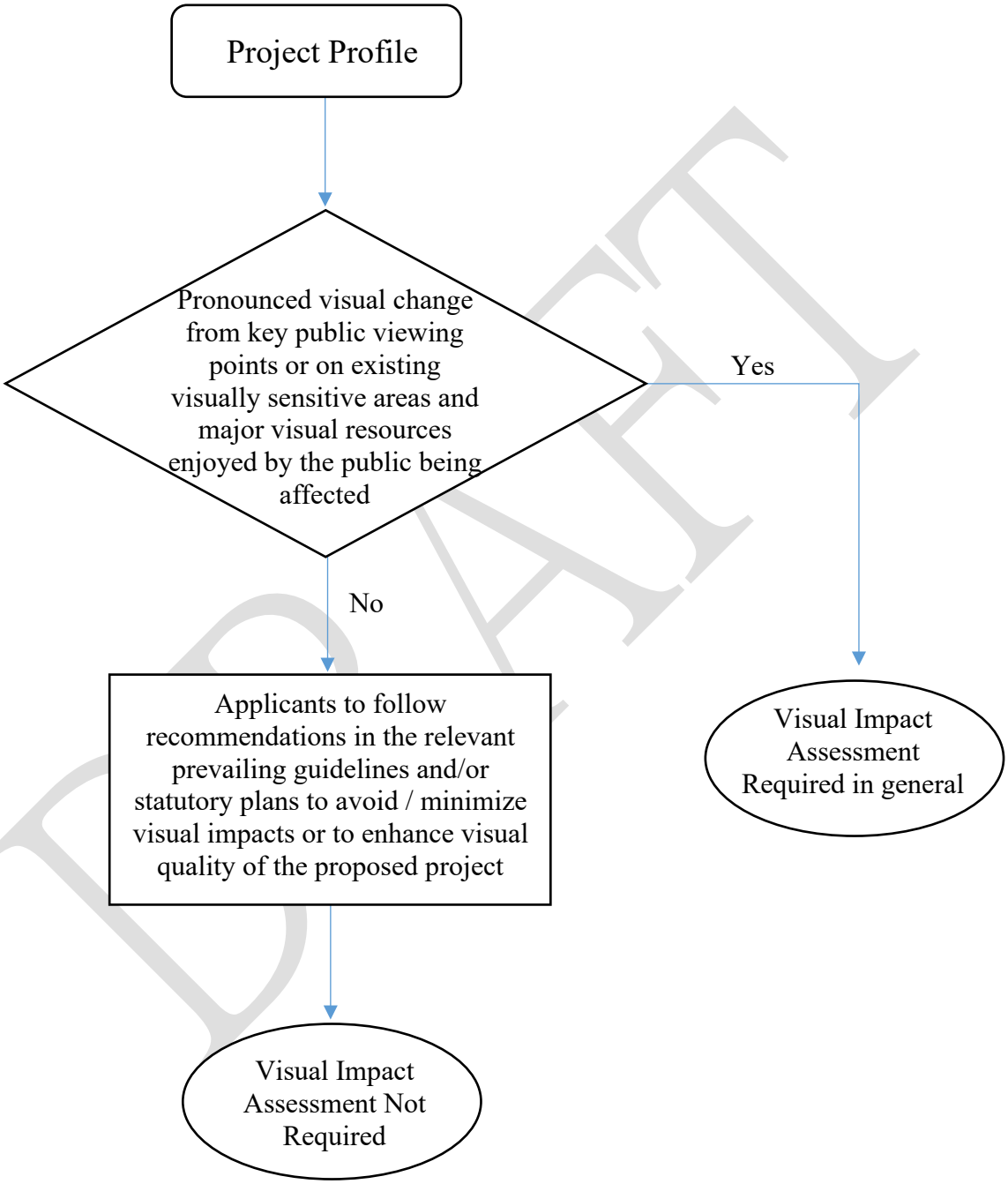
The flow chart below summarizes the general procedures in determining the need for a landscape impact assessment for a designated project. A literature review and/or preliminary site visit may be required for checking whether there will be any direct impact of special landscape significance.



Note 1: Examples of Landscape with Distinctive Character/Resources
Country Parks, coastal protection areas, conservation areas, wetlands, areas of high landscape value, scenic spots, hilltops, ridgeline, rivers, mature woodlands, special water features, nature reserves, Sites of Special Scientific Interest, historic landscapes, sites of cultural heritage, sites with Old and Valuable Tree, stone wall tree, tree of particular interest, etc.

Appendix B

The flow chart below summarizes the general procedures in determining the need for a visual impact assessment to identify and predict the permanent impacts of a designated project.



ANNEX 19: GUIDELINES FOR ASSESSMENT OF IMPACT ON SITES OF CULTURAL HERITAGE AND OTHER IMPACTS

1. General

1.1 The annex describes the commonly adopted approaches and methodologies for assessment of impact on sites of cultural heritage and other environmental issues. The methodologies may vary from case to case, depending on the nature of the issues and the latest development in methods and techniques.

2. Impact on Sites of Cultural Heritage

2.1 There is no quantitative standard in deciding the relative importance of these sites, but in general, sites of unique archaeological, **historical or architectural value will be considered as highly significant.**

Baseline Study

2.2 A baseline study shall be conducted

(a) to compile an inventory of all known places, buildings, sites and structures of architectural, archaeological and historical value within the proposed project area; and

(b) to identify possible threats of, and their physical extent, destruction in whole or in part of sites of cultural heritage arising from the proposed project.

Methodology

2.3 The best available information shall be assembled for the assessment of the identified sites of cultural heritage. The entry point shall be the Antiquities and Monuments Office, public libraries and archives and tertiary institutions.

2.4 The assessment shall provide detailed geographical, historical, archaeological, ethnographical and other cultural data. Published papers, records, archival and historical documents as well as oral legends shall also be consulted.

2.5 In cases where the above sources of information prove to be inadequate or where the proposed project area has not been adequately studied before, field surveys and site investigations shall be conducted to assemble the necessary data.

Impact Assessment

2.6 Preservation in totality will be a beneficial impact and will enhance the cultural and socio-economic environment if suitable measures to integrate the sites of cultural heritage into the proposed project are carried out.

2.7 If, due to site constraints and other factors, only preservation in part is possible, this shall be fully justified with alternative proposals or layout designs which confirm the impracticability of total preservation.

2.8 Total destruction shall be taken as the very last resort in all cases and shall only be recommended with a meticulous and careful analysis balancing the interest of preserving the archaeological, historical, architectural and other cultural values as against that of the community as a whole.

Mitigation Measures

2.9 Mitigation measures shall not be recommended or taken as *de facto* means to avoid conservation and preservation of sites of cultural heritage. They must be proved beyond all possibilities to be the only practical course of action.

2.10 Designs, layouts, external treatments, colour and texture of materials, but not limiting to such, shall be worked out for the integration of the sites of cultural heritage to be preserved in whole or in part into the proposed project.

2.11 For total destruction, a comprehensive and practical rescue plan must be worked out. This is also applicable to sites of cultural heritage where only partial preservation is proposed.

2.12 A practical programme proposal for the implementation of the recommended mitigation measures shall be included as part of the assessment. This shall form an integral part of the overall development programme of the proposed project. Competent professionals or experts must be engaged to design and carry out the mitigation measures.

3. Potential Contaminated Land Issues

3.1 Existence of pollutants on land may be due to natural occurrence or contamination by anthropogenic activities. For example, the land in the northern New Territories consists of high background arsenic levels due to natural occurrence. For all development and redevelopment projects listed under Schedule 2, Part I and Schedule 3, the applicant who is preparing an EIA report as stipulated in Clause 6 of the Ordinance, shall give consideration to historical land uses which have the potential to cause or have caused land contamination. Such uses include, but are not limited to, the following:

(a) oil installations including oil depots and petrol filling stations
(b) gas works for production of flammable or fuel gas from fossil fuel
(c) power plants
(d) shipyards/boatyards
(e) chemical manufacturing/processing plants
(f) steel mills/metal workshops
(g) car repairing and dismantling workshops
(h) municipal solid waste dumping ground and landfill

3.1.1 If the above land uses are identified, the applicant shall conduct a site appraisal to identify the potential contamination sources that may have impacted the site. If potential land contamination sources are identified at the site, the applicant shall plan and conduct site investigation for contamination assessment, and then compile a Contamination Assessment Report (CAR) revealing the site investigation findings for the Director's review. During the preparation of the CAR, if land contamination due to anthropogenic activities is confirmed, a Remediation Action Plan (RAP) shall be prepared. The CAR and RAP can be submitted as a combined report to the Director for endorsement.

3.1.2 The applicant shall, prior to any development or redevelopment of the site, follow the endorsed RAP to remediate the contaminated site by means of the "Source-Pathway-Receptor Paradigm" by adopting one or a combination of the following control methods:

- **Source control**: remove or contain the source(s) of contamination by soil extraction or excavation followed by adequate treatment/ disposal; or modify the source(s) of contamination by using bioremediation, extraction, solidification, immobilization or other proven soil treatment methods, to

remove or immobilize the contaminants or prevent any further release of contaminants to the environment.

- **Pathway control**: inhibit or control the potential pathways by proper capping the source(s) of contamination by soil or concrete slabs or by the use of membranes or solidification, etc., to prevent migration of contaminants, to reduce the ability of the contaminant source(s) from posing a threat to receptors.

- **Receptor control**: alter the likelihood of receptors coming into contact with the contaminants by changing the site layout or by preventing receptors' accessibility to the contaminated areas.

3.1.3 For natural occurring contaminations such as arsenic, the applicant shall consider pathway or receptor control instead of source control to minimize secondary contamination or generation of significant amount of waste due to cleaning up of the naturally occurring materials[1].

3.1.4 Upon completion of remediation, a Remediation Report (RR) shall be prepared and submitted to the Director for endorsement.

3.1.5 The land contamination assessment and remediation, including the planning and implementation of site investigation, preparation and submission of various deliverables including CAR, RAP and RR, etc. shall be pursued in accordance with relevant guidelines issued by the Director. If the project site is not available during the EIA stage, the EIA report may be approved with condition(s) that the land contamination assessment submissions will be made after the site is resumed or made accessible for the required investigation and assessment.

3.2 For all decommissioning projects as designated under Schedule 2, Part II, the above requirements apply regardless of the historical land use.

3.3 For development or re-development projects adjacent to landfill, the applicant shall note the following additional specific requirements when the need for a landfill gas (LFG) hazard assessment is confirmed:

(a) carry out a LFG hazard assessment to evaluate the degree of risk associated with the proposed development;

(b) design suitable precautionary / protection measures to render the proposed development as safe as reasonably practicable;

(c) ensure that the precautionary / protection measures will be implemented and constructed in accordance with the design;

(d) establish a maintenance and monitoring programme for ensuring the continued performance of the implemented protection measures.

The LFG hazard assessment shall be carried out and completed for submission to the Director for vetting at the early planning stage of the project. The early completion of the assessment study will ensure that the identified protection measures be considered and incorporated in to the overall design process for the proposed development.

[1] Please see relevant guidance note (https://www.epd.gov.hk/eia/hb/content/index.htm).

ANNEX 20: GUIDELINES FOR THE REVIEW OF AN EIA REPORT

1. General Approach

Organization of the Information

1.1 Is information logically arranged in sections ?

1.2 Is the location of information identified in an index or table of contents ?

1.3 When information from external sources has been introduced, has a full reference to the source been included ?

Presentation of Information

1.4 Has information and analysis been offered to support all conclusions drawn ?

1.5 Has information and analysis been presented so as to be comprehensible to the non-specialist using maps, tables and graphical material?

1.6 Are all the important data and results discussed in an integrated fashion within the information ?

1.7 Has superfluous information (i.e. information not needed for the decision) been avoided ?

1.8 Has the information been presented in a concise form with a consistent terminology and are there logical links between different sections ?

1.9 Have prominence and emphasis been given to severe adverse impacts, to substantial environmental benefits, and to controversial issues ?

1.10 Is the information objective ?

Public Concerns

1.11 Does the information identify and address the main concerns of the general public and special interest groups (clubs, societies etc.) who may be affected by the project.

1.12 Does the information take account of the main concerns of the relevant statutory or advisory bodies.

2. Description of the Project

Features of the Project

2.1 Are the purpose(s) and objectives of the project explained ?

2.2 Are the nature and status of project decision(s), for which the EIA study is undertaken, clearly indicated ?

2.3 Is the estimated duration of the construction phase, operational phase and, where appropriate, decommissioning phase given, together with the programme within these phases ?

2.4 Is the design and size of the project described, using diagrams, plans and/or maps necessary ?

2.5 Are the methods of construction described ?

2.6 Are the nature and methods of production or other types of activity involved in operation of the project described ?

2.7 Has the land taken up by the project site(s), construction sites, and any associated access arrangements, auxiliary facilities and landscaping areas, been clearly shown on a scaled map?

2.8 For a linear project, has the land corridor, vertical and horizontal alignment and need for tunnelling, and earthworks been described ?

2.9 Have the uses to which the project will be put been described and the different land use areas demarcated ?

Residues and Emissions

2.10 Have the types and quantities of waste matter, energy (noise, vibration, light, heat, radiation etc.) and residual materials generated during construction and operation of the project, and the rate at which these will be produced, been estimated ?

2.11 Have the ways in which it is proposed to handle and/or treat these wastes and residual materials prior to release/disposal been indicated, together with the routes by which they will eventually be disposed of to the environment ?

2.12 Have any special or hazardous wastes which will be produced been identified as such and the methods for their disposal been described, as regards their likely main environmental impacts?

2.13 Have the means by which the quantities of residuals and wastes were estimated been indicated and has uncertainty been acknowledged and ranges provided where appropriate ?

3. Background and History of the Project

3.1 Where appropriate does the information include reference to the consideration of the project's siting or alignment by the applicant?

3.2 Are the reasons for selecting the proposed project or its siting and alignment, and the part environmental factors played in the selection, adequately described ?

3.3 Have the main environmental impacts of different siting or alignment options been compared clearly and objectively with those of the proposed project and with the likely future environmental conditions in the absence of the project ?

4. Description of the Environment

Description of the Area Occupied by and Surrounding the Project

4.1 Have the areas expected to be significantly affected by the various aspects of the project been indicated with the aid of suitable maps ?

4.2 Have the land uses on the site(s) and in the surrounding areas been described ?

4.3 Has the affected environment been defined broadly enough to include any potentially significant effects occurring away from the immediate areas of construction and operation ?

Baseline Conditions

4.4 Have the components of the environment potentially affected by the project been identified and described sufficiently for the prediction of impacts ?

4.5 Were the methods used to investigate the affected environment appropriate to the size and complexity of the assessment task ?

4.6 Has a prediction of the likely future environmental conditions in the absence of the project been developed ?

4.7 Have existing technical data sources, including local records and studies carried out for environmental agencies and/or interest groups been searched ?

4.8 Have local, regional and national plans and policies been reviewed and other data collected as necessary to predict future environmental conditions ?

4.9 Have relevant departments and agencies holding information on baseline environmental conditions been approached ?

5. Description of Impacts

5.1 Have the direct and indirect/secondary effects of constructing, operating and, where relevant, after use or decommissioning of the project been considered (including both positive and negative effects) ?

5.2 Does the information include consideration of whether effects will arise as a result of "consequential" development i.e. whether additional development, which it would be difficult to resist, will be included in the area, leading to further environmental effects ? For a project with multiple stages, are the impacts caused by overlapping of different stages considered and determined ?

5.3 Have the above types of impacts been investigated in so far as they affect the following:

- air and climate;
- water and soils;
- noise;
- landscape;
- ecology;
- historic and cultural heritage;
- land use;
- impacts on people and communities;
- impacts on agriculture and fisheries activities.

5.4 If any of the above are not of concern in relation to the specific project and its location is this clearly stated in the information ?

5.5 Is the investigation of each type of impact appropriate to its importance for the decision, avoiding unnecessary information and concentrating on the key issues ?

5.6 Are impacts which may not be themselves significant, but which may contribute incrementally to a significant effect considered ?

5.7 Does the information include a description of the methods/approaches used to identify impacts and the rationale for using them ?

5.8 If the nature of the project is such that accidents are possible which might cause severe damage within the surrounding environment, has an assessment of the risk and likely consequences of such events been carried out and the main findings reported ?

Magnitude of Impacts

5.9 Are impacts described in terms of the nature and magnitude of the change occurring and the nature (location, number, value, sensitivity) of the affected receiver ?

5.10 Has the timescale over which the effects will occur been predicted such that it is clear whether impacts are short, medium or long term, temporary or permanent, reversible or irreversible?

5.11 Where possible, have predictions of impacts been expressed in quantitative terms ? Otherwise, have qualitative descriptions been defined ?

5.12 Where quantitative predictions have been provided is the level of uncertainty attached to the results described ?

Data and Methods

5.13 Have the methods used to predict the nature, size and scale of impacts been described and to indicate the importance of each projected impact ?

5.14 Are the data used to estimate the size and scale of the main impacts sufficient for the task, are they clearly described and have their sources been clearly identified ?

6. Mitigation

Description of Mitigating Measures

6.1 Has the mitigation of significant negative impacts been considered and, where feasible, have specific measures been proposed to address each impact ?

6.2 Have the reasons for choosing the particular type of mitigation measures been described ?

6.3 Where mitigating measures are proposed, has the significance of any impact remaining after mitigation been described ?

6.4 Where appropriate, do mitigation methods considered include modification of project design, construction and operation, the replacement of facilities/resources, and the creation of new resources, as well as "end-of-pipe" technologies for pollution control ?

6.5 Is it clear to what extent the mitigation methods will be effective ?

6.6 Where the effectiveness is uncertain or depends on assumptions about operating procedures, climatic conditions, etc, or where there is a risk that mitigation will not work, is this made clear and has data been introduced to justify the acceptance of the assumptions ?

Implementation of Mitigation Measures

6.7 Have details of how the mitigation measures will be implemented and function over the time span for which they are necessary been presented ? Does the report list out clearly what mitigation measures would be implemented, by whom, when, where and to what requirements ? Is the responsibility for implementing the recommended mitigation measures clearly defined ?

Environmental Effects of Mitigation

6.8 Have any adverse environmental effects of mitigation measures been investigated and described ?

6.9 Has the potential for conflict between the benefits of mitigating measures and their adverse impacts been considered ?

7. Evaluation of Residual Impacts

7.1 Have the available standards, assumptions and criteria which can be used to evaluate the impacts been discussed ?

7.2 Have the predicted impacts been compared to the relevant standards and criteria ?

7.3 Have the residual impacts, which are the net impacts with the mitigation measures in place, been described and evaluated against the relevant Government policies, standards and criteria ?

7.4 Have the residual impacts been discussed and evaluated in terms of the impact on the health and welfare of the local community and on the protection of environmental resources ?

7.5 Have the magnitude, location and duration of the residual impacts been discussed in conjunction with the value, sensitivity and rarity of the resource ?

7.6 Where there are no generally accepted standards or criteria for the evaluation of residual impacts, have alternative approaches been discussed and, if so, is a clear distinction made between fact, assumption and professional judgement ?

7.7 Have the residual impacts, if any, arising from the implementation of the proposed mitigation measures, been considered ?

8. Environmental Monitoring and Audit Proposals

8.1 If impacts are uncertain, have monitoring arrangements been proposed to check the environmental impacts resulting from the implementation of the project and their conformity with the predictions made ?

8.2 Does the scale of any proposed monitoring arrangements correspond to the potential scale and significance of deviations from expected impacts ?

8.3 Is the need for and the scope of the monitoring and audit requirements defined in the report ?

8.4 Does the report contain an Environmental Monitoring and Audit programme, as prescribed in Annex 21, if it is found to be needed ?

9. Difficulties Compiling the Information

9.1 Have any gaps in the required data been indicated and the means used to deal with them in the assessment been explained ?

9.2 Have any difficulties in assembling or analysing the data needed to predict impacts been acknowledged and explained ?

10. Executive Summary

10.1 Does the executive summary contain at least a brief description of the project and the environment, an account of the main mitigation measures to be implemented by the developer, and a description of any remaining or residual impacts ?

10.2 Have technical jargons been avoided as far as possible in the executive summary ?

10.3 Does the executive summary present the main findings of the assessment and cover all the main issues ?

10.4 Does the executive summary include a brief explanation of the overall approach to the assessment ?

10.5 Does the executive summary provide an indication of the confidence which can be placed in the results ?

10.6 Is the executive summary presented in both English and Chinese ?

11. Quality Assurance

11.1 Has the relevant part of the report been prepared, checked and signed by relevant professionals or experts?

11.2 Has the report provided the names, relevant experience and any other required information of the competent persons as required in study brief ?

ANNEX 21: CONTENTS OF AN ENVIRONMENTAL MONITORING AND AUDIT (EM&A) PROGRAMME

This annex describes the commonly adopted approaches for carrying out an EM&A programme. The following are the key steps in an EM&A programme:

Environmental Monitoring

(a) the systematic collection of environmental data through a series of repetitive measurements. A number of different monitoring activities are identified below:

  (i) **Baseline Monitoring** refers to the measurement of environmental parameters during a representative pre-project period for the purpose of determining the nature and ranges of natural variation and to establish, where appropriate, the nature of change;

  (ii) **Impact Monitoring** involves the measurement of environmental parameters during project construction and implementation so as to detect changes in these parameters which can be attributed to the project; and

  (iii) **Compliance Monitoring** unlike the previous monitoring activities, takes the form of periodic sampling and/or continuous measurement of environmental parameters, levels of waste discharge or process emissions to ensure that regulatory requirements are observed and standards met. (Surveillance and inspection may also form a part of this activity but need not necessarily involve measurement of a repetitive activity).

(b) the organization and interpretation of the environmental monitoring data to establish a record of change associated with the implementation of a project or the operation of an organization;

(c) the process of verification that all or selected parameters measured by an environmental monitoring programme are in compliance with regulatory requirements, policies, relevant standards and criteria of this technical memorandum, and established environmental quality performance limits;

(d) the comparison of project impact predictions with actual impacts for the purpose of assessing the accuracy of predictions;

(e) the assessment of the effectiveness of the environmental management systems, practices and procedures;

(f) event and action plans shall be included and linked to the environmental quality performance. The determination of the degree and scope of any necessary remedial measures in case of exceedance of compliance, for which environmental monitoring forms the basis, or the recommendation of environmental controls and operations measures in the event that the organization's environmental objectives are not achieved;

(g) for projects which are assessed to have potential impacts on nearby fish culture zones, the part of EM&A programme to address such impacts shall be approved by Director of Agriculture, Fisheries and Conservation (DAFC). A copy of the EM&A manual as well as the regular and summary reports shall be made available to DAFC; and

(h) the environmental monitoring and audit work shall be carried out by qualified personnels.

Environmental Quality Performance Limits

For the purpose of environmental monitoring and audit, environmental quality performance limits are normally in the form of a set of action / limit levels, which are defined as:

(i) **Action Levels** - the levels beyond which there is an indication of a deteriorating ambient environmental quality. Appropriate remedial actions may be necessary to prevent the environmental quality from going beyond the limit levels, which would be unacceptable.

(ii) **Limit Levels** - the levels stipulated in relevant pollution control ordinances, this Technical Memorandum, or the Hong Kong Planning Standards and Guidelines, or other appropriate criteria established by the Director for a particular project, beyond which the works shall not proceed without appropriate remedial action, including a critical review of plant and work methods.

In addition to the action/limit levels, a trigger level below the action level may be set up to provide early warning of deteriorating environmental quality that may exceed the action level.

Environmental Monitoring and Audit Documentation

For the purpose of EM&A, the following documents are normally required by the Director:

(a) **EM&A Manual**

The Manual shall be a stand-alone document and shall include the following:

(i) project background including organization and programme;

(ii) purpose of the manual;

(iii) an implementation schedule, summarizing all recommended environmental mitigation measures with reference to the programme for their implementation. The measures shall include those identified at detailed design, contract preparation, construction, and operation stages of the project;

(iv) drawings showing all environmentally sensitive receivers;

(v) an EM&A programme for the construction of the project including:

- responsibility for EM&A work;
- EM&A organization and management structure;
- EM&A methodology;
- equipment to be used and calibration required;
- locations, parameters, frequency and duration for baseline, impact and compliance monitoring;
- environmental quality performance limits (Action and Limit levels);
- Event-Action plans and decision audit flow charts;
- procedures for reviewing the monitoring results;
- compliance audit procedures and follow-up;

(vi) implementation programme and impact prediction review procedures;

(vii) site inspection, deficiency and action reporting procedures;

(viii) complaint/consultation procedures; and

(ix) reporting format and procedures.

(b) **Baseline Monitoring Report**

The report shall include at least the following:

(i) drawings showing locations of the baseline monitoring stations;

(ii) monitoring results (in both hard and soft copies) together with the following information:

- monitoring methodology;
- equipment used and calibration details;
- parameters monitored;
- monitoring locations (and depth);
- monitoring date, time, frequency and duration;

(iii) details on influencing factors, including:

- major activities, if any, being carried out on the site during the period;
- weather conditions during the period;
- other factors which might affect the results;

(iv) determination of the action and limit levels for each monitoring parameter and statistical analysis of the baseline data;

(v) revisions for inclusion in the EM&A Manual.

(c) **Regular and Summary EM&A Reports**

The results and findings of each audit shall be documented in regular EM&A reports prepared by the Applicant. EM&A reports shall include at least the following :

(* Where applicable, items which have already been included in the EM&A Manual need not be repeated in each EM&A report unless there are substantial amendments.)

(i) 1-2 pages executive summary;

(ii) * basic project information including a synopsis of the project organization, programme and management structure, and the work undertaken during the month;

(iii) * a brief summary of EM&A requirements including:

- all monitoring parameters;
- environmental quality performance limits;

- Event-Action Plans;
- environmental mitigation measures, as recommended in the EIA report;
- environmental requirements in contract documents.

(iv) advice on the implementation status of environmental protection, mitigation and pollution control measures, as recommended in the project EIA report, summarized in the updated implementation schedule;

(v) * drawings showing the project area, any environmental sensitive receivers and the locations of the monitoring and control stations;

(vi) monitoring results (in both hard and soft copies) together with the following information:

- monitoring methodology;
- equipment used and calibration details;
- parameters monitored;
- monitoring locations (and depth);
- monitoring date, time, frequency, and duration;

(vii) graphical plots of trends of monitored parameters over the past four reporting periods for representative monitoring stations annotated against the following:

- major activities being carried out on site during the period;
- weather conditions during the period;
- any other factors which might affect the monitoring results;

(viii) a summary of non-compliance (exceedances) of the environmental quality performance limits;

(ix) a review of the reasons for and the implications of noncompliance including review of pollution sources and working procedures;

(x) a description of the actions taken in the event of noncompliance and deficiency reporting and any follow-up procedures related to earlier noncompliance;

(xi) a summary record of all complaints received (written or verbal) for each media, including locations and nature of complaints, liaison and consultation undertaken, actions and follow-up procedures taken and summary of complaints;

(xii) a summary record of notification of summons, successful prosecutions for breaches of environmental protection/pollution control legislation, and actions taken to rectify such breaches;

(xiii) a forecast of the works programme, impact predictions and monitoring schedule for the next three months; and

(xiv) comments, recommendations and conclusions for the monitoring period.

ANNEX 22: RELEVANT AUTHORITIES FOR HAZARD ASSESSMENT

Source of Risk	**Authority**
The manufacture, storage, use, or transport of dangerous goods (DGs):	
- Fuel gas DGs (Note 1)	DEMS
- Other DGs (Note 2)	DEP

Notes :

1. Defined in the Gas Safety Ordinance (Cap. 51).

2. Defined in the Dangerous Goods Ordinance (Cap. 295), but not covered by the Gas Safety Ordinance (Cap. 51).