HCAL 49/2012

**IN THE HIGH COURT OF THE**
**HONG KONG SPECIAL ADMINISTRATIVE REGION**
**COURT OF FIRST INSTANCE**
CONSTITUTIONAL AND ADMINISTRATIVE LAW LIST
NO 49 OF 2012

---

BETWEEN

LEUNG HON WAI (梁翰偉) Applicant

and

DIRECTOR OF ENVIRONMENTAL PROTECTION 1st Respondent

TOWN PLANNING BOARD 2nd Respondent

---

Before: Hon Au J in Court
Dates of Hearing: 14 – 16 November 2012
Date of Judgment: 26 July 2013

---

# JUDGMENT

---

## *A. INTRODUCTION*

1. This judicial review relates to a project ("the project") known as the Development of the Integrated Waste Management Facilities Phase I.

The project is to construct and operate the Integrated Waste Management Facilities ("IWMF") at either a Shek Kwu Chau ("SKC") site (to the west of Cheung Chau and south of Lantau Island) or a Tsang Tsui Ash Lagoon site in Tuen Mun. The IWMF is commonly known as the muncipal wastes incinerator.

2. The project falls within the definition of "designated project" under the Environmental Impact Assessment Ordinance (Cap 499) ("the Ordinance"). What it means practically is that, before the project could go ahead, it requires (a) the Director of Environmental Protection ("the Director") to approve an environmental impact assessment report required to be compiled for the project under the Ordinance, and (b) the Director to grant an environmental permit to construct and operate the same.

3. In January 2012, the Director approved the relevant environmental impact assessment report ("the EIA Report") compiled for the project, and also later granted the environmental permit.

4. In this judicial review, the applicant Mr Leung (who is a resident of Cheung Chau) challenges:

(1) The Director's decision ("the 1st decision") to approve the EIA Report;

(2) The Director's decision ("the 2nd decision") to grant the environmental permit; and

(3) The Town Planning Board's decision ("the 3rd decision") made on 17 January 2012 not to uphold the opposing representations

and to submit the draft SKC Outline Zoning Plan No S/I-SKC/1 to the Chief Executive in Council made under s 8(1) of the Town Planning Ordinance (Cap 131).

5. The applicant seeks to quash the 1st, 2nd and 3rd decisions (collectively "the decisions").

6. He raises eight grounds of judicial review. The first seven grounds relate to the 1st and 2nd decisions, while the eigth ground concerns the 3rd decision. In gist:

(1) The first to fifth grounds are challenges that the 1st and 2nd decisions are unlawfully made as (a) the EIA Report is not made in compliance with various provisions or requirements set out in the technical memorandum and the relvant study brief, and (b) the decisions are in any event *Wednesbury* unreasonable.

(2) The sixth and seventh grounds relate to the fact that the project proponent under the EIA Report (as the person responsible for carrying out the project) is the Director herself. This results in a breach of natural justice and of the Ordinance on a proper construction.

(3) The eighth ground is that the 3rd decision was made premised on the mistaken fact that the Director has lawfully approved the EIA Report and granted the environmental permit. This ground therefore depends entirely on the successful challenge of the 1st and 2nd decisions.

7. The applicant is represented by Mr Yim (together with Mr Pun) in this application. The Director and Town Planning Board ("TPB") oppose the application and are represented by Mr Johnny Mok SC, leading Ms Eva Sit.

8. I would deal with each of these grounds in detail below. But first, I would set out briefly the relevant background.

## *B. BACKGROUND*

### *B1. The Ordinance*

9. For the present purposes, under the Ordinance[1]:

(1) A person (the project proponent) who is planning a "designated project" (as listed in Schedules 2 and 3 of the Ordinance) shall apply to the Director for an environmental impact assessment study brief. The Director shall issue such a study brief in 45 days after receiving such an application.

(2) The project proponent shall prepare an environmental impact assessment report in accordance with (a) the requirements of the study brief so issued, and (b) the technical memorandum applicable to the assessment.

(3) After receipt of the environmental impact assessment report, the Director shall decide whether it has met the requirements of the study brief and the technical memorandum. Once he

---

[1] See ss 4-8, and 10 of the Ordinance.

has decided that it has so met the requirements, the Director shall also advise the project proponent (a) when to exhibit the report for public inspection and (b) whether the report shall be submitted to the Advisory Council on the Environment ("the Advisory Council"). The Advisory Council is an advisory body consisting of academics, green group representatives and professionals appointed by the Chief Executive.

(4) Within 30 days of the expiry of the public inspection or the receipt of comments from the Advisory Council or the receipt of further information from the application as requested by the Director (whichever is later), the Director shall approve, approve with conditions or reject the report.

(5) Based on the approval of the environmental impact assessment report, the project proponent who wishes to construct and operate the designated project is required to apply to the Director for an environmental permit. It is only with the grant of an environmental permit that the project proponent can proceed to construct and operate the designated project.

10. The technical memorandum is to be issued by the Secretary for the Environment ("the Secretary") under s 16 of the Ordinance. Up to the present, there has only been one such technical memorandum ("the TM") that has been issued by the Secretary. The TM is *not* a subsidiary legislation.

*B2. The project and the EIA Report*

11. The Environmental Protection Department ("EPD") is the project proponent of the project. The Director is the head of the EPD.

12. In March 2008, the EPD submitted an application to the Director for an environmental impact assessment study brief ("SB") under s 5 of the Ordinance for the purposes of the project.

13. The Director issued the SB in May 2008.

14. An environment impact assessment report for the project was first submitted in January 2011 for approval, and was exhibited for public inspection for a month from 17 February 2011.

15. At the same time, the Government indicated that, as between SKC and Tsang Tsui Ash Lagoon, it had identified the artificial island near SKC as the preferred site to develop the first modern IWMF, subject to the approval of the EIA report.

16. Further, on 21 March 2011, a subcommittee of the Advisory Council discussed the EIA report and recommended it to the Advisory Council that it be approved with conditions. The Advisory Council endorsed the report with conditions on 11 April 2011.

17. On 24 October 2011, EPD submitted a revised EIA report. The revised report was exhibited for public to comment for a month from November 2011. 268 sets of written comments were received from members of the public.

18. In December 2011, the Advisory Council endorsed the EIA report with conditions.

19. On 17 January 2012, the Director approved the revised EIA report for the project dated November 2011 (ie, the EIA Report) under s 8(3) of the Ordinance.

20. On 19 January 2012, the Director granted the environmental permit ("the EP") required to construct and operate the project under s 10 of the Ordinance. The EP was issued to the Director (being the head of EPD, the project proponent) and signed by a Senior Environmental Protection Officer for the Director.

21. On 20 April 2012, the Government presented the project to the Panel on Environmental Affairs of the Legislative Council in a special meeting. Members of the panel were invited to support the Government's proposal for upgrading the project to a Category A work with a view to seeking the Financial Committee's approval in June 2012. However, the Panel declared that it would not endorse the proposal.

22. As a result, the Environment Bureau indicated in a public statement that the Government would be unable to complete the funding request before the term of that Administration ended on 30 June 2012.

23. On the other hand, four leave applications[2] were made in April 2012 by four different applicants to judicial review the decisions.

---

[2] Under HCAL 28/2012, HCAL 46/2012, HCAL 49/2012 and HCAL 65/2012.

24. On 7 June 2012, after hearing counsel for both parties under all four applications, leave was granted by this court to the applicants to proceed with the judicial review based on the their respective Amended Form 86. It was further ordered that the respective applications under HCAL 28, 46 and 65/2012 be stayed pending the determination of the judicial review application under the present proceedings (ie, HCAL 49/2012).

25. This is now the hearing of Mr Leung's judicial review.

## *C. THIS JUDICIAL REVIEW*

### *General observations*

26. As I have mentioned above, most of the grounds raised in support of this judicial review are about the complaints that the EIA Report does not meet the requirements of the TM and the SB. The contesting arguments therefore evolve around the proper meaning of the relevant provisions under these two documents. It is therefore perhaps useful to set out some general principles developed by the authorities on the question of construction of the TM and the SB.

27. First, it is not disputed that an environmental impact assessment report shall meet the requirements of the TM and the SB (s 6(1) of the Ordinance). Whether the report does meet these requirements is a question of law for the court when the Director's decision made under s 8(3) of the Ordinance is being judicially reviewed. The court should find the meaning of the TM and the relevant study brief and the procedure they prescribe in order to determine the scope of the Director's power to

approve the relevant report: *Shiu Wing Steel Ltd v Director of Environmental Protection*[3], at paragraphs 23, 26-28.

28. Second, the question as to whether the relevant report meets the requirements of the TM and the relevant study brief is to be determined *objectively*. It is a question of construction, although the TM and the study brief are to be construed *not* as legislative instruments but as they would be understood by an expert risk assessor and should be read in a "*down-to-earth way*". Technical evidence may be needed to show that a report meets or does not meet the requirements so determined: *Shiu Wing*, supra, paragraphs 23, 29-30.

29. Third, the TM is a document which applies generally to all designated projects, while a study brief is project-specific. The study brief sets the agenda for the rest of the process: *Chu Yee Wah v Director of Environmental Protection* [2011] 5 HKLRD (CA) 469, at paragraph 31 *per* Tang VP, adopting the observations of Fok JA's judgment at first instance: [2011] 3 HKC 227 at paragraphs 46 and 47. I further agree with the submissions of Mr Mok SC that, as a matter of construction, the general requirements of the relevant provisions in the TM should be informed of and prescribed by what have been set out at corresponding provisions of the SB (if any), which is made specifically for the project.[4]

---

[3] (2006) 9 HKCFAR 478.

[4] In this regard, see *Chu Yee Wah*, supra, at paragraphs 80-81, where Tang VP finds force in the submissions (by leading counsel for the Director in that case) to the effect that when one ascertains what is required to be included in the EIA report specifically for a specific item of assessment, one should look at the SB to see if there are any specific provisions governing it, and it is only where the SB is silent that one turns to the TM as the more general instrument.

30. Fourth, although it is a matter of construction for the court to decide what is required by the TM and the SB, it is often a question of professional judgment what information is required to be contained in the relevant EIA report to enable the Director to perform her duties. Unless the judgment is *Wednesbury* unreasonable, the court will not interfere: *Chu Yee Wah*, supra, at paragraph 84.

31. Bearing these general principles in mind, I now look at each of the grounds raised in support of this judicial review.

*Ground 1 – The EIA Report is not in compliance with the requirements for ecological assessment in the TM and SB*

32. Annex 16 of the TM set outs the Guideines for Ecological Assessment. Paragraph 3.1 of it provides that any project that is likely to result in adverse ecological importance shall *not* normally be permitted *unless*:

(1) The project is *necessary*, in that it has been proven that no other practical and reasonable alternatives are available; and

(2) Adequate on-site and/or off-site mitigation measures are to be employed; and

(3) Any off-site measures shall be determined during the EIA study in accordance with the guidelines laid down in the TM, in particular Annexes 8 and 16.

33. The SB equally provides at paragraph 3.7.5.1 that the applicant shall follow the criteria and guidelines stated in Annexes 8 and 16 of the TM for evaluating and assessing ecological impact.

34. The EIA Report has identified that the project would have a significant ecological impact on Finless Porpoises having their habitat at the nearby waters of SKC. In particular, the report:

(1) Identifies that Finless Porpoises (a) are of great ecological importance and SKC is a "hotspot" for them, and (b) enjoy a protection status[5].

(2) Confirms that the coastal and marine waters at SKC is of high ecological value and is an important habitat for Finless Porpoises[6].

(3) Confirms that (a) Finless Porpoises would be seriously affected by the project, with a permanent loss of 31 ha of habitat in the nearby waters of SKC, and (b) the potential impact on Finless Porpoises due to the said loss of habitat is considered to be high[7].

(4) Anticipates that significant ecological impact would be resulted if no mitigation measures are implemented[8].

---

[5] Paragraphs 7b.3.3.23, 7b.4.10, 7b.6.1.2, 7b.6.1.3 and Tables 7b.31, 40-42. See also SB, paragraphs 2.1(vii), 3.5(v), 3.7.5.3 and 3.7.5.5.

[6] Paragraph 7b.5.1.4.

[7] Paragraphs 7b.6.1.3, 7b.6.2.47, 7b.6.2.61, 7b.6.2.117, 7b.6.3.7, Tables 7b.54, 62-64.

[8] Paragraph 7b.6.1.3.

(5) Admits that on-site mitigation measures are inadequate[9].

(6) Proposes off-site mitigation measures by a firm commitment to designate the waters between Soko Islands and SKC as a marine park of approximately 700 ha in accordance with the statutory process stipulated in the Marine Parks Ordinance (Cap 476) ("MPO")[10].

35. Mr Yim submits that under paragraph 3.1(a) of Annex 16 of the TM, the project "*shall not normally be permitted*" unless three conditions are met: (a) "*the project is necessary*"; (b) "*it has been proven that no other practical and reasonable alternatives are available*", and (c) "*adequate on-site and off-site mitigation measures are to be employed*".

36. Mr Yim contends that this part of the ecological assessment in the EIA Report does not meet all these three conditions. It therefore does not comply with paragraph 3.1 of Annex 16 of the TM (and thus also paragraph 3.7.5.1 of the SB).

37. First, it is argued that the EIA Report does not contain any references or discussion to show that:

(1) The project is necessary.

(2) No other practical and reasonable alternatives are available.

---

[9] paragraph 7b.6.3.3.

[10] At paragraphs 7b.8.4.1 – 7b.8.4.8.

38. However, after seeing the evidence and arguments of the respondents, Mr Yim confirms at the hearing that he would no longer pursue this part of the challenge.

39. Mr Yim therefore only focuses on his second complaint under this ground: that is, the EIA Report fails to satisfy the requirements of the TM and the SB in relation to the provision of adequate off-site mitigation measures. I would explain this further.

40. The express requirements concerning off-site mitigation measures are set out in Annex 16 of the TM as follows:

> "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.
>
> ...
>
> 5.4.5 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 possible design measures and all practicable on-site ecological mitigation measures shall be fully investigated in the EIA study and exhausted to minimise 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 project proponent 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." *[Emphasis added]*

41. Thus, under paragraph 5.4.5 of Annex 16 of the TM, any off-site mitigation measures proposed have to be (a) on a "*like for like*" basis insofar as it is practicable, (b) technically feasible and practicable, and (c) that their feasibility, constraints, reliability, design and method of construction, time scale, monitoring, management and maintenance shall be confirmed during the EIA study.

42. Paragraphs 7b.8.4.1 to 7b.8.4.8 of the EIA Report set out the proposed off-site mitigation measures as follows:

"7b.8.4.1 Loss of 31 ha of marine habitat would be permanently resulted from the reclamation and breakwater construction at the southwestern waters of Shek Kwu Chau. The proposed works area is of high ecological value, as it is identified as an important habitat for Finless Porpoise; hence high level of adverse impact is predicted. As minimisation measures are exhausted, compensatory measure is therefore required.

7b.8.4.2 According to the Finless Porpoise data recorded between 2004 and 2009 (AFCD, 2010c), the waters between Shek Kwu Chau and Soko Islands is the nearest area to the proposed Project that has high sighting concentration of Finless Porpoise than the rest of the nearby waters. In addition, the extent of Finless Porpoise habitat is the most continuous and connected to other nearby important habitats of marine mammals, ie Soko Islands, which has records of both Finless Porpoise and Chinese White Dolphin.

7b.8.4.3 The Project Proponent has made a firm commitment to seek to designate a marine park of approximately 700 ha in the waters between Soko Islands and Shek Kwu Chau, in accordance with the statutory process stipulated in the Marine Parks Ordinance, as a compensation measure for the habitat loss arising from the construction of the IWMF at an artificial island near SKC.

7b.8.4.4 The firm commitment to seek to designate the marine park, where incompatible activities would be regulated and proper management regime imposed in accordance with the Marine Parks Ordinance, would significantly help conserve Finless Porpoise, and hence serve as an effective compensation measure for the permanent loss of Finless Porpoise habitat arising from the project. The Project Proponent shall seek to complete the designation by 2018 to tie in with the operation of the IWMF at the artificial island near SKC.

7b.8.4.5 A further study should be carried out to review relevant previous studies and collate available information on the ecological characters of the proposed area for marine park designation; and review available survey data for Finless Porpoise, water quality, fisheries, marine traffic and planned development projects in the vicinity. Based on the findings, ecological profiles of the proposed area for marine park designation should be established, and the

extent and location of the proposed marine park be determined. The adequacy of enhancement measures should also be reviewed.

7b.8.4.6 In addition, a management plan for the proposed marine park should be proposed, covering information on the responsible departments for operation and management (O&M) of the marine park, as well as the O&M duties of each of the departments involved. Consultation with relevant government departments and stakeholders should be conducted under the study. The study should be submitted to Director of Environmental Protection (DEP) for approval before the commencement of construction works.

7b.8.4.7 The Project Proponent should provide assistance to AFCD during the process of the marine park designation.

7b.8.4.8 The firm commitment to designate the waters between Soko Islands and Shek Kwu Chau as a marine park, where the control and management of the marine park would be in accordance with the Marine Parks Ordinance, is considered to be adequate to effectively mitigate the permanent loss of important habitat of Finless Porpoise to acceptable level."

43. In light of the above, Mr Yim submits that the designation of 700 ha of waters so identified to be a marine park is expressed in the EIA Report to be subject to further studies and the statutory process stipulated in the MPO (see in particular paragraphs 7b.8.4.3-7b.8.4.5 of the EIA Report). In the premises, whether the proposed marine park is in fact appropriate to compensate the loss of habitat for the Finless Porpoise caused by the construction of the project and whether it can in fact be carried out by satisfying all the statutory requirements of the MPO[11] are simply uncertain.

---

[11] See for examples ss 7-14 of the MPO which provide for the various matters that need to be satisfied and the objections that can be made by any persons aggrieved by such a proposal before a marine park can be successfully designated.

44. It is therefore contended that the off-site mitigation measures proposed in the EIA Report by a commitment to designate certain water areas as a marine park is nothing more than a blank proposal without any discussion or assessment of the measures' feasibility, effectiveness or practicality as required by Annex 16. There is also no guarantee that it can be carried out. It is therefore also in breach of the TM[12].

45. Further or alternatively, Mr Yim argues that the Director's acceptance of the proposed off-site mitigation measures was also *Wednesbury* unreasonable in light of the above.

46. With respect, I am not persuaded by Mr Yim's arguments.

47. Under this challenge, it is Mr Yim's central contention that the proposal for off-site mitigation measures by a commitment to designate a 700 ha marine park is a blank proposal, and without any assessment of its feasibility, effectiveness or practicality as required under Annex 16 of the TM.

48. In relation to these arguments, one must note that the most significant residual ecological impact on the Finless Porpoise as identified

---

[12] Although in the Amended Form 86, this challenge is premised on there being *both* inadequate on-site and off-site measures proposed in the EIA Report, I think Mr Yim has fairly focused only on the complaint about off-site measures both in his skeleton and oral submissions. I would regard counsel as not pursuing any challenge of the inadequacy of the proposed on-site measures. However, if I were wrong on this position, I would accept the Mr Mok's submissions made at paragraph 22(2) and the Appendix of his skeleton that it is clear to me that the EIA Report complies with the requirements in the TM and SB in relation to the proposed provision of on-site measures. Whether these on-site measures can be regarded as good ones or meritorious ones are not under the purview of this court in judicial review, and I do not in any event find them to be *Wednesbury* unreasonable in light of the materials that have been placed before the court.

in the report is the loss of 31 *ha* of their habitat[13]. In this regard, it should also be noted that paragraph 5.4.5(d) of Annex 16 of the TM requires the off-site mitigation measures to be on a "*like for like*" basis "*to the extent practicable*".

49. At the same time, it has been identified in the report (based on the information from a series of survey over the years) that the waters between SKC and Soko Islands is a hotspot with the highest sightings of Finless Porpoise. The proposed 700 ha marine park in the nearby waters of SKC *is* within such area.

50. In light of the above, I am satisfied that the said off-site measures as proposed in the EIA Report meets the requirements of the relevant parts of Annex 16 the TM, in providing for its feasibility, effectiveness and practicality as required:

(1) It is a "*like for like*" compensation for the loss of 31 ha of the habitat for Finless Porpoise by a nearby waters of 700 ha, which (given it is an area with one of the highest sightings of the species) is a comparable habitat for Finless Porpoise[14] and some 23 times bigger than the lost habitat. It is noted that once an area is designated as a marine park under the MPO, in gist, no further developments in that area would be permitted without prior approval by the Marine Parks Authority, and there would be stringent prohibition or restriction of activities

---

[13] In particular, after taking into account of all the on-site mitigation measures proposed in the report, which have been summarised helpfully in Mr Mok's skeleton by way of an Appendix.

[14] See paragraph 7b.6.2.6 of the EIA Report.

in the area, such as fishing, collection of marine life, discharging of matter into the area, killing, hunting, trapping, molesting or disturbance of any form of marine life[15].

(2) The report has set out why the measures are feasible. The MPO has provided for how that could be done with its elaborate statutory procedures, while the Marine Parks Authority under the MPO (being the Director of Agriculture, Fisheries and Conservation ("DAFC")) was already satisfied that the said designation of the 700 ha marine park constituted adequate mitigation measures for the loss of 31 ha of Finless Porpoise habitat[16]. It is pertinent to note that (a) paragraph 9.1of the TM requires the Director to take the advice of DAFC on matter pertaining to ecological assessment, and (b) the Marine Parks Authority (ie, the DAFC) *is* the very person to make recommendations to the Chief Executive in Council for the designation of areas as marine parks or marine reserves[17]. Further, a detailed Finless Porpoise monitoring programme has also been proposed in section 7b.10.2 of the EIA Report.

(3) The report has set out in effect why the compensation measures are also a reliable one to compensate the loss of habitat: as mentioned above, the 700 ha of waters is a comparable and suitable habitat for Finless Porpoise (given the high sightings of the species), the designated waters would

---

15 See for examples, ss 9, 19, 20 of the MPO, and the Marine Parks and Marine Reserves Regulation (Cap 476A).

16 See the Affidavit of Mr Tse Chin Wan, at paragraph 16.

17 See s 4(1) of the MPO.

always be present and protected under the MPO and the designation has the force of law.

(4) There is a timeframe and scale for the provision of the proposed measures: the EIA Report proposes the marine park to be designated by 2018, which is to tie in with the operation of the IWMF. Information on its location (between SKC and Soko Islands) has also been provided in the report.

(5) There is also sufficient confirmation of the marine park's "*monitoring, management and maintenance*" as the measures are a condition precedent to the commencement of construction works of the IWMF. In relation to this, it should be noted that it is a condition of the EP granted that the project proponent must submit the detailed design of the marine park to the Director for approval at least one month before the commencement of the construction of the IWMF.

(6) Given the nature of the proposed measures (to designate a marine park under the MPO), there are simply no "*constraints*" that could be identified, nor the need for "*construction*", other than the fact (which has been stated in the report) that it has to go through the statutory procedures under the MPO.

51. Mr Yim however contends at the hearing that, given the need to satisfy all the statutory procedures in the MPO, it is uncertain whether the measures could in fact be implemented. It therefore simply cannot satisfy the relevant requirements in the TM.

52. I am unable to accept this submission.

53. What the TM requires under paragraph 5.4.2 of Annex 16 of the TM is that all mitigation measures recommended shall be "*feasible*" to implement. Given that the nature of an EIA report is to assess the impact of a designated project on the environment, and the requirement of compensatory measures is to minimise any such impact, properly construed in that context, I am of the view that the meaning of the word "feasible" means that the proposed measures are *reasonably* possible to be practically implemented. This construction is consistent with the nature of the scope and type stipulated to be required of these measures as provided at paragraph 5.4.5, which focuses on practicability and feasibility.

54. Understood as such, I am satisfied that the proposed off-site mitigation measures by way of a commitment to designate a 700 ha marine park in the nearby waters of SKC, subject to the completion of the statutory process of the MPO, is one that is reasonably possible to be implemented. I repeat my observations at paragraph 50(2) above.

55. Mr Yim further argues that the express statement in the EIA Report to call for a "further study" in relation to the proposed off-site measures does not satisfy the requirement under Annex 16 paragraph 5.4.5(g). That paragraph of the TM states that the proposed measures' feasibility, constraints, reliability, design and method of construction, time scale, monitoring, management and maintenance shall be confirmed during the EIA Report.

56. For the reasons set out in paragraph 50 above, I already held that these elements have been confirmed in the EIA Report. Insofar as the

further study is concerned, the unchallenged evidence shows that it is *not* another EIA report, but one that is to determine (involving various relevant government departments) the exact extent and location of the proposed marine park, and its detailed management plan. The management plan is to be submitted to the Director for approval before the commencement of construction works for the IWMF as required under the environmental permit[18]. This is also required to draw up the draft map to be submitted to the Chief Executive in Council for proposing to designate a marine park by the Marine Parks Authority under the MPO.

57. These further studies thus in my view do not affect the confirmation of the proposed measures' feasibility, constraints, reliability, design and method of construction, time scale, monitoring, management and maintenance already provided in the EIA Report, but are only to provide for the fine tuning for implementing the measures.

58. I therefore also reject Mr Yim's submissions that because of the need to conduct further studies as suggested at paragraphs 7b.8.4.5 - 6 of the EIA Report, paragraph 5.4.5(g) of Annex 16 of the TM is not complied with.

59. For these reasons, I am satisfied that the EIA Report has complied with the relevant requirements in the TM and the SB in relation to its ecological impact assessment. For the same token, I do not find the Director's acceptance of EIA Report to have complied with these requirements to be *Wednesbury* unreasonable.

---

[18] See paragraphs 7b.8.4.5-6 of the EIA Report; Tse's Affidavit (under HCAL 65/2012), paragraph 15.3.

60. Ground 1 of the judicial review must therefore fail.

*Ground 2 - The EIA Report fails to comply with the requirements for health impact assessment in the TM and the SB*

61. This ground of challenge relates to the EIA Report's health impact assessment. It is contended that the assessment fails to meet certain requirements under the SB and the TM.

62. Before examining the complaints in detail, it is helpful to set out the relevant parts of the SB first.

63. Section 3.7.8 of the SB provides for the health impact assessment. It states:

> "3.7.8 Health Impact
>
> 3.7.8.1 A health risk assessment shall be conducted to assess the potential health impact associated with construction and operation of the Project. Particular attention should be paid to assess aerial emissions from the IWMF, biogas from the sorting and recycling plant, fugitive emissions during transportation, storage and handling of the waste and ash; and any other potential accidental events.
>
> 3.7.8.2 The health risk assessment shall include the following key steps:
>
> (i) a systematic identification of the risks from the handling, storage, transport and disposal (including accidental or disastrous release) of solid and liquid wastes that may contain Toxic Pollutants including POPs, especially dioxin and dioxin-like substances as incineration by-products;
>
> (ii) an assessment of the likelihood and consequences of exposure to aerial emissions and solid and liquid wastes that may contain Toxic Pollutants including POPs, especially dioxin and dioxin-like substances;

(iii) an identification of means by which the risks could be further reduced; and

(iv) recommendation of all reasonably practicable measures to reduce risks during the operation of the Project.

3.7.8.3 The health risk assessment shall be based on established practices in countries around the world. A literature search shall be carried out to determine the best approach for the risk assessment, including any codes of practices, guidelines etc. applied locally in Hong Kong and elsewhere in the world. The approach shall be agreed by the Director prior to the commencement of assessment. For toxic air pollutants, the review list shall follow the criteria in Section 1.1(d) in Annex 4 of the TM.

3.7.8.4 The environmental health risk assessment on Toxic Pollutants including POPs especially dioxins and dioxin-like substances, shall include all pathways by which the Toxic Pollutants including POPs may enter the human body, including inhalation, direct dermal contact as well as consumption of food and water which may be contaminated by the Toxic Pollutants including POPs emitted from IWMF and all relevant existing, committed and planned sources.

3.7.8.5 It is also necessary to perform a quantitative environmental health risk assessment for the risk of exposure to and the potential impacts from the release of Toxic Pollutants including POPs, especially dioxins and dioxin-like substances, from the operation of the Projects. The assessment shall also include risk of exposure to and the potential impacts from release of Toxic Pollutants including POPs through stack emissions, as well as the handling, storage, transport and disposal of any solid or liquid wastes that may contain Toxic Pollutants including POPs during the operation of the Project. Any mitigation measures recommended should be aimed to minimize the environmental health risks from the release of Toxic Pollutants including POPs during operation of the Project."

64. Paragraph 3.7.8.1 of this section therefore provides that when the project proponent carries out the health risk assessment, it has to pay

particular attention to assess four matters, namely, (a) aerial emissions from the IWMF, (b) biogas from the sorting and recycling plant, (c) fugitive emissions during transportation, storage and handling waste and ash, and (d) any other potential accidental events. Further, under the other paragraphs of this section, the assessment required to be carried would have to assess the impact of, among others, persistent organic pollutants ("POPs") as a form of toxic pollutants.

65. Under this ground, Mr Yim contends that the EIA Report does not comply with the requirements for health impact assessment in the TM and SB in failing to:

(1) Properly particularise the "*other potential accidental events*" identified therein.

(2) Properly assess the likelihood and consequences of the "*other potential accidental events*" identified therein.

(3) Include Hexachlorobenzene ("HCB") as a POP in its assessment.

66. Alternatively, these parts of the assessment are (Mr Yim further says) *Wednesbury* unreasonable.

67. The complaints therefore can be divided into two groups:

(1) One relates to what needs to be done as a matter of requirement in carrying out the assessment concerning "*the other potential accidental events*".

(2) The other relates to whether a particular kind of pollutant should be included as a matter of requirement in the assessment related to POPs.

68. I would examine these two complaints in turn.

*Complaint 1 - The assessment of "other potential accidental events"*

69. In the EIA Report, section 9b.5 deals with "Health Impacts Associated with other Potential Accidental Events". It is thus under this section that the assessment of subject matter (d) above (ie, any other potential accidental events) is related to.

70. Paragraph 9b.5.1.1 thereof refers to Table 9b.10 for listing out the "*possible accidental events associated with health impacts and their corresponding preventive measures*". In the column entitled "Risks", the following items are set out:

(1) Aerial emissions (emissions discharge exceed the discharge limit) ("Item 1");

(2) Transportation, storage and handling ("Item 2");

(3) Chemical spillage and leakage ("Item 3"); and

(4) Employee health and safety ("Item 4").

71. Mr Yim submits that this part of the health risk assessment is not in compliance the SB in the following ways:

(1) Paragraph 3.7.8.1 is not complied with:

(a) As a matter of construction, paragraph 3.7.8.1 requires the identification of the particulars of the *specific accidents* that would lead to "*the other accidental events*". This is so because the methodology of "health risk assessment" expects adequate particulars of the accidental scenarios to be given so that the further steps listed under paragraph 3.7.8.2(ii), (iii) and (iv) of the SB could be properly carried out.

(b) However, no such identification of the specific accidents has been done in this part of the EIA Report:

(i) Items 1 and 3 are *consequences* of certain accidents, but no particulars are given as to what type of "accidents" would or are likely to lead to these events. For examples, no particulars are given in respect of what are the potential accidents that would lead to "aerial emissions" or "chemical spillage and leakage".

(ii) Items 2 and 4 are only generic categories in respect of which no particulars even of the "accidental events" themselves or their consequences are given whatsoever, let alone any identification of the potential accidents.

(2) Paragraph 3.7.8.2(i) is not complied with as, in any event, it has failed to show how the risk of those accidental events have been "*systematically identified*".

(3) The step required of under paragraph 3.7.8.2(ii) (ie, an assessment of the likelihood and consequence of exposure to aerial emissions and solid and liquid wastes that may contain Toxic Pollutant including POPs, especially dioxin and dioxin-like substances) was omitted in relation to these accidental events.

72. On the other hand, it is Mr Mok's submissions that on a proper construction of the whole section:

(1) Not every step provided under paragraph 3.7.8.2 is required to be carried out in respect of each of the four subject matters set out in paragraph 3.7.8.1.

(2) It is not a requirement to set out every possible potential accident that may lead to the identified "*accidental events*".

73. Thus, Mr Mok further says, this part of the EIA Report is in compliance with the requirements under the SB.

74. It can immediately be seen that this complaint is essentially a question of construction: Whether (a) the relevant paragraphs under section 3.7.8 of the SB require the identification of the potential actual accidents that would lead to the "*other accidental events*", and (b) the step under

paragraph 3.7.8.2(ii) is required to be carried out for "*the other accidental events*".

75. In my view, in construing objectively paragraphs 3.7.8.1 and 3.7.8.2, the following elements are of significance.

76. As a start, under paragraph 3.7.8.1, a health risk assessment is required over both the construction *and* operation phases of the project.

77. Further, under that paragraph, it is said that when carrying out the health risk assessment, special attention is to be paid to the four subject matters identified, namely, (a) aerial emissions from the IWMF, (b) biogas from the sorting and recycling plant, (c) fugitive emissions during transportation, storage and handling waste and ash, and (d) any other potential accidental events. A few things arise from this sentence:

(1) First, it does not mean that the health risk assessment is only about this four subject issues. It is only that special attention should be paid to them when carrying out the assessment.

(2) Second, these four subject matters may be considered both in the construction phase and the operation phase of the project.

(3) Third, given that "*any other potential accidental events*" is separately identified as a subject matter, a proper construction should mean that insofar as the other three subject matters are concerned, the assessment is focused on their ordinary and normal course of events and operations.

78. Insofar as paragraph 3.7.8.2 is concerned, all it means is that when carrying out the *entire* health risk assessment of the project, four key steps must be considered. As a matter of language, it does not say that all those four steps must necessarily apply to each of the four subject matters identified under paragraph 3.7.8.1.

79. Moreover, as I think rightly submitted by Mr Mok, it is clear that not all the steps set out under paragraph 3.7.8.2 are applicable or apposite to all the four subject matters. For example, step (i) relates to the identification of risk from the dealings with *solid and liquid wastes* that may contain toxic pollutants. It cannot (or at least may not) be applicable to the subject matter of "*aerial emissions from the IWMF*". Thus, it cannot be said (as Mr Yim suggests) that, as a matter of construction, all the four steps provided under paragraph 3.7.8.2 *must be applied* to each of those four subject matters identified under paragraph 3.7.8.1.

80. Therefore, on a proper construction together with the above observations, when one reads paragraphs 3.7.8.1 and 3.7.8.2 together objectively, their meanings should in my view be as follows:

(1) In carrying out the entire health risk assessment of the construction and operation phases of the project, the four key steps set out under paragraph 3.7.8.2 should be considered.

(2) In going through that exercise, special attention should be paid to the four subject matters identified under paragraph 3.7.8.1.

(3) However, as a matter of construction, the four steps are *not* necessarily applicable to all or any of the four subject matters.

As I mentioned above, say when carrying out step (i) (which relates to solid and liquid wastes), it is clear that it would not be applicable to the subject matter of aerial emissions from the IWMF.

(4) In other words, on a proper construction of paragraph 3.7.8.2 together with paragraph 3.7.8.1, all they require in the exercise of the health risk assessment is that the four steps would only need to be undertaken *insofar as* they are applicable vis-à-vis those four subject matters.

81. Once so construed, the question raised under this ground of challenge is thus whether step (ii) of paragraph 3.7.8.2 is applicable to an assessment of the potential accidental events.

82. In this regard, I accept Mr Mok's submissions that it is not, as it is practically and realistically impossible to be carried out:

(1) In order to properly carry out step (ii), which involves the assessment of the "likelihood" of the exposure and "consequence" of such exposure to toxic pollutants contained in both aerial emissions and solid and liquid wastes under the "*potential accidental events*", it would necessarily require the identification of what are the specific potential accidents that would lead to those accidental events as identified in the report. The assessment under step (ii) (to be a meaningful one) must thus be an accident-specific assessment. This is also part of Mr Yim's submissions as to why specific accidents have to be identified in the exercise: see paragraph 71(1) above.

(2) However, this is something which is practically almost impossible to be carried out, given (a) the almost infinite numbers of the types and variations of accidents that may happen in both the construction and operation phases of the project, and (b) thus, the also almost infinite numbers of computations or variations of the "likelihood" and "consequence" of exposure to toxic aerial emissions (if any) and wastes (if any) that may arise under each of these potential specific accidents. To take a simple example to illustrate this: an accident involving the overturning of a lorry carrying municipal wastes to the IWMF from the point of collection to the site of the incinerator for management. Where, when and how this lorry overturns by reason of the accident, and what type of accident it involves in causing the overturning (say crashing onto another car at high speed or within safety speed, or simply swivelling on a wet road) would, in all likelihood, have an impact on the assessment of the said "likelihood" and "consequence" of the exposure, if any. And this is only but one of perhaps hundreds of types accidents that may potentially occur.

(3) In the premises, step (ii) simply cannot be realistically and meaningfully carried out vis-à-vis the subject matter of "*other potential accidental events*". As said in *Shiu Wing*, the provisions should be construed in a "*down-to-earth*" manner.

(4) The step is therefore not applicable to this subject matter.

83. I therefore reject the complaint that the EIA Report has not complied with paragraph 3.7.8.2(ii) of the SB in relation to the health risk assessment of "*the other accidental events*".

84. Further, I accept Mr Mok's submissions that it is not a requirement of the SB to set out every potential accident that may lead to the accidental events so identified:

(1) It is not expressly provided in any of the paragraphs under the section. All that is required under paragraph 3.7.8.1 is a health risk assessment on "*other accidental events*". When this subject matter is read together with the other three types of subject matters set out therein, as a matter of construction, the "*other accidental events*" refer to the *generic types of events* that may arise accidentally and pose a risk on health, such as accidental aerial emission or chemical spillage. It does not require the project proponent to identify in the report precisely what are the likely specific accidents (such as the overturning of a lorry, the negligent operation (and what operation) by an employee) that may lead to these events.

(2) It is also unrealistic and impracticable, and thus objectively cannot be the intention of the draftsman, to require such specific accidents by way of particulars be identified. I repeat my observations at paragraph 82(2) above. All that it requires is to identify all the potential *events* that may result from accidents which would have an impact on or affect the health. That is consistent with the purpose of the assessment and the impracticality of identifying every single specific

accident that may happen relating to the construction and operation of the project.

(3) Further, in my view, it also cannot be said that the identification of the actual accidents could be impliedly required by way of necessity (as submitted by Mr Yim) given the obligation under paragraph 3.7.8.2(ii) to assess the likelihood of exposure to aerial emissions and solid and liquid wastes with toxic substances. I again repeat my conclusion above in rejecting the applicability of paragraph 3.7.8.2(ii) to the health impact assessment of "*other accidental events*".

85. Finally, I also reject Mr Yim's complaint that the Table 9b.10 does not in fact even identify the "accidental events" by reference to the four items stated therein.

86. Section 9b.5 deals with health impact assessment associated with other potential accidental events. Under this section, there are the table and paragraphs 9b.5.1.1 and 9b.5.1.2. Paragraph 9b.5.1.1 says as follows:

> "9b.5.1.1 The IWMF will be designed and operated as a modern facility. The operator must also be well trained to avoid any accidental events. The possible accidental events associated with health impacts and their corresponding preventive measures are listed in **Table 9b.10**."

87. Following this paragraph is Table 9b.10. The table states as follows:

| Risks | Preventive Measures |
|---|---|
| Aerial emissions<br>(emission discharge exceed the discharge limit) | ➢ Use of best available techniques in emission stack design, implement continuous and regular emission monitoring |
| Transportation, storage and handling | ➢ Implement good waste/ash transportation, storage and handling practices (see **Section 9.4**)<br>➢ Plan transport routes to avoid highly populated / sensitive areas<br>➢ Develop procedures for and deploy as necessary emergency response including spill response for accidents involving transport vehicles<br>➢ Enforce strict driver skill standards and implement driver / navigator and road / marine safety behaviour training |
| Chemical spillage and leakage | ➢ Implement proper chemicals and chemical wastes handling and storage procedures<br>➢ Develop and implement spill prevention and response plan including provision of spill response equipment and trained personnel |
| Employee health and safety | ➢ Implement industry best practice with reference to international standards and guidelines |

88. It should be noted that on the left column (where the four items are set out), it is entitled "Risks" (but not "Accidental Events"), while the right column is entitled "Preventive Measures", where various descriptions of the proposed preventive measures are set out by reference to each of the

four subject matters. Once this table and the paragraph are read together (and the table should objectively be so read), and bearing paragraph 9b.5.1.1 in mind, objectively the table in effect identifies that:

(1) The events arising from potential accidents that would have an impact on health are aerial emissions and chemical spillage and leakage.

(2) These events may arise in accidents associated with the stack design, transportation, storage and handling of wastes and ash (which the table also refers to details under section 9.4) and the operation process of IWMF by the staff and employees.

(3) The proposed preventive measures in relation to these phases and stages concerning the construction and operation of IWMF.

89. One may fairly criticise the way this section of the EIA Report is presented. However, once the entire section is understood that way, I am satisfied it has as a whole identified the potential accidental events and satisfied the requirement under paragraph 3.7.8.1 of the SB in relation to "*other potential accidental events*".

90. For the same reasons, the report has in compliance with paragraph 3.7.8.2(i) "*systematically identified*" the risks from "*the hanlding, storage and disposal of solid and liquid wastes*" of those accidental events. In particular, as pointed out by Mr Mok, these risks have also been so identified in the EIA Report: (a) for "handling" and "storage" at paragraphs 9b4.3.1, 4.4.2, (b) for "transport" at paragraphs 9b.4.3.1, 4.4.1,

(c) for "chemical spillage and leakage" at paragraphs 6b.6.2.3, 6.3.2 and 9.1.3, and (d) for "disposal" at paragraphs 9b.5.5.1, 5.1.2 and 6.1.5.

91. Given the above conclusion, there is also no question that the Director's decisions are *Wednesbury* unreasonableness in these respects.

92. This complaint must be rejected.

*Complaint 2 - the assessment relating to POPs*

93. Mr Yim's arguments in support of the complaint about the failure to include HCB as a POP can be summarised as follows:

(1) Under section 3.7.8 of the SB, the health impact assessment required to be carried out includes the assessment of toxic pollutants, which include POPs.

(2) Under the Stockholm Convention (to which Hong Kong is a party through China), it is stipulated that the parties should take various measures to reduce or eliminate the total release of three types of POPs, namely (a) PCCD/PCDF[19], (b) HCB and (c) PCB[20].

(3) HCB has been listed under the Toxipedia as an "extremely hazardous" substance, which would have both acute and chronic health effects.

---

[19] Polychlorinated dibenzo-p-dioxins and dibenzofurans.

[20] Polychlorinated biphenyls.

(4) Thus, for the purpose of section 3.7.8 of the SB, HCB should be included as one of the POPs to be assessed.

(5) The health assessment in the EIA Report included assessment based on PCDD/PCDF and PCB but not HCB.

(6) The EIA Report therefore fails to comply with the provisions in the SB. Alternatively, given the above information, it is *Wednesbury* unreasonable not to have included HCB in the assessment.

94. I am unable to accept these submissions.

95. In making a reference to POPs, the SB has not defined what that term means, nor has it prescribed what should be included in them. There are no specific requirements provided under the SB as to what *must* be included in POPs for the purpose of the health impact assessment. It has certainly not provided that HCB must be included in the POPs.

96. It is also not Mr Yim's contention that the term bears an universally accepted definition that HCB *must be* included under it.

97. It is thus a matter of professional judgment as to what should be included in POPs for the purpose of the health impact assessment, as long as POPs are included as required under the SB.

98. As mentioned above, Mr Yim has referred me to the Stockholm Convention and the Toxipedia to say POPs do and could include HCB, and that HCB is toxic and hazardous.

99. On the other hand, the evidence filed by the Director has also demonstrated that[21]:

(1) Paragraph 2.3.3 of USEPA's [22] "*Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facility*" (September 2005) ("HHRAP") provides that the USEPA no longer recommended the automatic inclusion of HCB in quantitative assessment for waste combustion,

(2) As a matter of fact, the waste feeds in Hong Kong are most unlikely to contain HCB and PCP, and it is not expected that this compound would be contained in Hong Kong's waste feeds in the foreseeable future,

(3) Even if the waste feeds were to contain any HCB and PCP, the modern incineration technologies adopted by the IWMF would ensure their complete destruction[23]; and

(4) The combustion properties of HCB and PCP indicate that they are not likely to be formed as by products of incomplete combustion[24].

100. In response to the Director's above evidence, Mr Yim points to various parts of the evidence to say that the USEPA still generally

---

21 See Affidvait of Tse Chin Wa, paragraph 26, and Affirmation of Linda Yu, paragraphs 10-12.

22 United States Environmental Protection Agency.

23 See EIA Report, paragraph 15.1.12.1.

24 HHRAP, paragraph 2.3.3.

recommends carefully considering various factors before deciding whether or not to include HCB and PCP for quantitative assessment.

101. In my view, all the above reinforces that whether to include HCB in the assessment of POPs as required under the SB is clearly a matter of professional judgment. In such circumstances, there is no question that there is non-compliance of the provisions under section 3.7.8 of the SB, and this court is *not* concerned with the merits of that judgment unless it can be shown it is *Wednesbury* unreasonable.

102. Despite Mr Yim's effort, the evidence read as whole (as summarised above) shows that it is within a reasonable range of professional judgment in deciding whether or not to include HCB as a POP substance in a health impact assessment relating to modern waste incineration, in particular in the circumstances where the unchallenged evidence is that the wastes to be fed for incineration are unlikely to contain HCB and PCP.

103. In the premises, I do not think Mr Yim can even remotely show that the decision not to include HCB as a POP substance in the assessment can be said to be *Wednesbury* unreasonable.

104. I therefore also reject this complaint.

105. For all the above reasons, I am not persuaded that the EIA Report has not complied with paragraphs 3.7.8.1 and 3.7.8.2(ii) of the SB. Similarly, I also do not accept that the Director's decision to approve the report is *Wednesbury* unreasonable. There is nothing before me that could show the identifications of various events, conclusions, and proposed

measures set out in this part of the report are ones that go beyond what a reasonable person in the place of the Director could have accepted.

106. The second ground of judicial review should also fail.

*Ground 3 –Technology selection: failure to consider or assess reasonable alternatives*

107. Section 3.6.2 of the SB provides as follows:

> "The EIA study shall review the international mixed MSW management practices and take into consideration, with clear and objective comparison of the environmental benefits and disbenefits, of different technologies for mixed MSW treatment. The technologies to be considered shall include, but not limited to landfilling, incineration, heat drying and composting."

108. Under this ground, it is challenged that the EIA Report has failed to comply with the SB in failing to:

(1) Carry out a review but just state the conclusions;

(2) Compare the benefits and dis-benefits of the discarded options;

(3) Compare health impact on the basis that, on any one of the technologies discussed, the risk would be very low; and

(4) Address landfilling, heat drying and composting technologies.

109. Before one could properly understand the complaint, it is necessary to first summarise the relevant parts of the EIA Report.

110. Section 2.3 of the EIA Report deals with the SB's said requirements of technology selection.

111. By way of history, it recounts that in the "Expression of Interest" ("EoI") exercise conducted in 2002, a total of 59 submissions were received. An Advisory Group was set up to consider these submissions, and it recommended that:

(1) IWMF should adopt a multi-technology approach. Incineration may be adopted as the major component of the IWMF strategy.

(2) Other technologies (co-combustion, gasification or similar systems) may be considered if the concerns over the technologies such as cost, market, technical feasibility could be resolved.

(3) Mechanical biological treatment ("MBT") should also be considered at a suitable scale under particular circumstances and as a component of the overall IWMF strategy.

112. At paragraphs 2.3.1.2 to 2.3.1.4, it states that based on the Advisory Group's recommendations, a review of 7 technologies was conducted, namely, (1) moving grate, (2) fluidized-bed, (3) rotary kiln incineration technologies, (4) eco-co-combustion system, (5) gasification, (6) plasma gasification and (7) pyrolysis technologies. The conclusions of that review are:

(1) Regarding (1): Incineration technology (ie, moving grate incineration technology) could play a role in the IWMF for MSW (municipal solid waste) treatment.

(2) Regarding (3): Most of the rotary kiln incineration systems installed are used for sludge, industrial or hazardous waste treatment; whereas their applications for MSW treatment are uncommon and limited to relatively small scale, and therefore are not well proven for the IWMF.

(3) Regarding (4): The key issues of the eco-co-combustion including its technical feasibility, environmental performance, proprietary or monopoly issue and long-term commercial viability have still not been satisfactorily solved.

(4) Regarding (6) and (7): Application of the plasma gasification and pyrolysis technologies for untreated MSW treatment is still limited and are of small-scale. These technologies are not able to meet the criteria in the EoI exercise for forming the core technology of the IWMF for treating 3,000 tpd of mixed MSW.

113. It therefore says that technologies (3), (4), (6) and (7) are, for the above reasons, not included for further evaluation. It then goes on to compare technologies (2) and (5) with technology (1).

114. In support of this ground, Mr Yim first submits that section 3.6.2 of the SB envisages a "clear and objective comparison" of different technologies including their "environmental benefits and dis-benefits". Counsel therefore contends that such "comparison" should at least involve comparison of their (i) environmental impacts, (ii) health impact, (iii) efficiency in achieving the desired treatment capacity, and (iv) costs. He

refers these as the "four categories" in his submissions, and I for convenience would adopt the same.

115. Mr Yim then points out that this part of the report is not in compliance with the SB for the following reasons.

116. First, in carrying out the exercise as summarised above, the report has not explained why the 7 technologies were selected over the rest of the submissions made in the EoI exercise.

117. Secondly, it is clear that the so-called "review" of technologies (3), (4), (6) and (7) are no more than stating the conclusions. It is not "objective". It is far from "clear". For instance,

(1) Regarding (4): it is unknown as to why technology (4)'s "technical feasibility, environmental performance, proprietary or monopoly issue and long-term commercial viability" are not satisfactory, or how technologies (1), (3), (4) are better than technology (4) in these aspects.

(2) Regarding (6) and (7): Other than the scale, there is no discussion at all on the environmental benefits and disbenefits thereof when compared to technology (1). Further, it is unknown why, for example, multiple small-scale plasma gasification and pyrolysis facilities cannot achieve the required capacity.

(3) Regarding (3): Most of the rotary kiln incineration systems installed are used for sludge, industrial or hazardous waste

treatment; whereas their applications for MSW treatment are uncommon and limited to relatively small scale, and therefore is not well proven for the IWMF.

(4) Having eliminated technologies (3), (4), (6), (7), the EIA Report (at paragraph 2.3.2) compares technologies (2) and (5) with technology (1) in terms of (a) "environmental factor", (b) "engineering factors" and (c) costs. It largely coincides with 3 of the four categories. As regard category (ii), "health impact", the report (at paragraph 2.3.2) gives the following reason why it is omitted:

> "Public health is also not compared since the most advanced flue gas treatment system will be adopted for all the three technologies to meet the most stringent air quality"

118. Thirdly, there is no comparison of the "*environmental benefits and disbenefits*" regarding technologies (3), (4), (6), (7) at all. None of the four categories is discussed. Mr Yim submits that there is a complete lack of elaboration of the stated conclusions before these technologies were all eliminated. The report only purports to support the conclusions with the Advisory Group's recommendations. However, citing the conclusion from a group of expert does not mean that the SB's requirements are complied with.

119. Fourth, the approach adopted in the EIA Report as mentioned above is untenable and unreasonable because:

(1) Such omission is not permissible. The SB has not provided for any situation where comparison can be omitted altogether.

(2) Health impact is obviously a significant consideration in the choice of rival technologies. The public has an interest to know the inherent impact of each technology without the treatment system. Only because "*most advanced flue gas treatment system*" is installed does not mean the report may omit the comparison.

(3) The report cannot even particularize what type of advanced flue gas treatment system it is referring, rendering it impossible to assess whether such system can really reduce the health impact as alleged.

(4) The report cannot state in clear language that the health impact shall be insignificant. Instead, it states "*all the three technologies should pose very low or insignificant risk to public health*".

(5) Apart from aerial emission, there are other aspects of impacts on public health associated with each technology. Paragraph 3.7.8.1 of the SB requires assessment in regard to "*biogas from the sorting and recycling plant, fugitive emissions during transportation, storage and handling of the waste and ash; and any other potential accidental events*". For instance, the "*transportation, storage and handling of the waste and ash*" and "*potential accidental events*" for each technology can be very different.

120. Fifth, as such, the "evaluation methods" adopted (both with regards to technologies (3), (4), (6) and (7) and that with regards to

technology (2) and (5)) are inadequate and fall short of the SB's requirement. Most of those are technologies or proposals properly presented to the Director but had not been considered or properly assessed.

121. Lastly, as regards the need to consider reasonable alternatives, in a recent English town planning case, *City and District Council of St Albans v S of S for Communities and Local Government* [2009] EWHC 1280 (Admin), 20 May 2009, Article 5.1 of the *European Parliament and Council Directive (EC) 2001/42* and reg 12(2) of the Environmental Assessment of Plans and Programmes Regulations 2004 required that reasonable alternatives to the challenged policies be identified, described and evaluated before the choice was made. The environmental report produced did not attempt that task. The Secretary of State's adoption of certain policies based on this environmental report was quashed. Mitting J said (at paragraph 21):

> " It [the environmental report] should have done so and the Secretary of State should not have decided to adopt the challenged policies until that had been done. The consequence of omitting to comply with the statutory requirement is demonstrated by the outcome. A decision has been made to erode the metropolitan green belt in a sensitive area without alternative to that erosion being considered. It is no answer to point to the requirement in the policies for green belt reviews to be undertaken at the local development framework stage. All that will do is to determine where within the district of the three towns erosion will occur, not whether it should occur there at all."

122. With respect to Mr Yim, I am not persuaded by his submissions. I will explain why.

123. As rightly submitted by Mr Mok, although the SB requires a clear and objective comparison of the environmental benefits and disbenefits of different technologies, it does *not* prescribe the evaluation

criteria. Thus, it involves a professional judgment as to how such comparison should be carried out provided it is clear and objective as to its criteria and actual evaluation process.

124. In this respect, in the EIA Report:

(1) Given that previous studies (under the EoI exercise) have already concluded that incineration (thermal treatment) should be the core technology, the comparison was first done with respect to it.

(2) The evaluation criteria and the evaluation itself of the different thermal technologies are respectively set out at paragraphs 2.3.2 and 2.3.3 of the report. The criteria have been set out under Table 2.1 and further explained at paragraph 2.3.2.2. There is nothing before me to show that these criteria cannot be said to be objective.

(3) Qualitative assessment of those thermal technologies as against these criteria are then summarised at Table 2.2 and the conclusions are explained further in paragraphs 2.3.3.2 to 2.3.3.6. There is no suggestion that the evaluation did not in fact comply with the criteria of evaluation.

125. Insofar as the comparison of the discarded options is concerned, it has been done in the EIA Report in the following manner.

126. For the comparison between landfilling and incineration:

(1) It has been considered at paragraphs 2.1.1.3, 2.1.1.5 to 2.1.1.6, whereby it is set out that:

(a) The 3 strategic landfills are projected to approach their capacities in 2014, 2016 and 2018.

(b) There was a pressing need to adopt advanced waste treatment technologies to reduce MSW volumes so as to extend the life span of landfills and their future extensions.

(c) The benefits of IWMF includes substantial bulk reducing for landfill disposal, energy recovery and green house has reduction.

(2) Landfilling as a method is thus not discarded but considered and concluded to be inappropriate and insufficient to deal with the increasing volume of municipal wastes in Hong Kong.

127. For the comparison between other technologies and incineration:

(1) This has been done under paragraphs 2.3.4.1 to 2.3.4.4, whereby:

(a) 4 other technologies were considered, namely mechanical treatment alone ("MT"), mechanical biological treatment, involving composting MBT; biological mechanical treatment, involving composting

("BMT"); mechanical heat treatment, involving heat drying ("MHT")[25].

(b) As between these 4 technologies, MBT was considered preferable, as it could potentially recover both materials and energy from the mixed MSW, whereas the others could only recover recyclables[26].

(c) As between MBT and incineration, MBT:-

(i) is ineffective in waste volume reduction;

(ii) requires relatively large footprint (about 2-3 times of the footprint of incinerator); and

(iii) produces low quality compost and refuse-derived fuel[27].

(d) However, this technology could help to minimize the use of incineration and landfilling. MBT is recommended to be adopted at a small scale in the IWMF. A MT process of suitable scale can be put in place in future phases, should this be found to be viable and cost effective[28].

---

[25] The EIA Report, paragraph 2.3.4.2.

[26] The EIA Report, paragraph 2.3.4.1.

[27] The EIA Report, paragraphs 2.3.4.1; 2.3.4.3 - 2.3.4.4.

[28] The EIA Report, paragraphs 2.3.4.1; 2.3.4.4.

(2) These other technologies are thus not discarded but considered together under certain objective criteria set out in those paragraphs.

128. For the comparison between moving grate and other incineration technologies:

(1) This has been carried out at paragraphs 2.3.1 to 2.3.3 of the report, whereby it is stated that:

(a) in relation to Eco-co-combustion, key issues including technical feasibility, environmental performance, proprietary and monopoly issue and long-term commercial viability have still not been satisfactorily solved[29].

(b) in relation to plasma gasification and pyrolysis technologies, these are still limited and are of small-scale; and are not able to meet the criteria for forming the core technology of the IWMF for treating 3,000 tpd of mixed MSW[30].

(c) in relation to rotary kiln incineration technology, these systems are used for sludge, industrial or hazardous waste treatment; whereas their applications for MSW

---

[29] The EIA Report, paragraph 2.3.1.2.

[30] The EIA Report, paragraph 2.3.1.2.

treatment are uncommon and limited to relatively small scale, and therefore are not well proven for the IWMF[31].

(d) In relation to moving grate incineration, fluidized bed incineration and gasification are comparable to each other from the points of view of visual impacts, employment opportunities, public acceptance and public health (all three being able to meet the most stringent air quality standards of the world). However, when compared on the basis of environmental impact, engineering and cost considerations, moving grate is preferable because it:-

(i) is the only thermal technology for treating over 3,000 tpd of mixed MSW, whereas fluidized bed incineration and gasification are of much smaller scale.

(ii) has the least scale-up risks;

(iii) has the longest track record of operation (over 100 years);

(iv) shows the highest capability to tolerate fluctuation of MSW characteristics;

(v) requires the least land area;

---

[31] The EIA Report, paragraph 2.3.1.3.

(vi) has over 10 suppliers, thereby ensuring tender competition;

(vii) has the least operation complexity compared to fluidized bed incineration and gasification technologies; and

(viii) requires the least capital and operating costs compared to fluidized bed incineration and gasification technologies[32].

(e) In addition, there is little published data on emissions from full-scale gasification process, compared to incineration. If available, much of the data is from small scale or pilot operations. There is also a concern from operation failure due to unpleasant experience in Germany[33].

(f) In conclusion, moving grate incineration was the most preferable option and would be adopted as the core treatment technology, supplemented with demonstration-scale mechanical treatment facilities, in the IWMF[34].

---

[32] The EIA Report, paragraphs 2.3.3.1 - 2.3.3.2; 2.3.3.5.

[33] The EIA Report, paragraphs 2.3.3.2 - 2.3.3.3. It is also noted that, as set out at paragraph 2.3.3.6 of the EIA Report, the Advisory Council, an advisory body consisting of academics, green group representatives and professionals appointed by the Chief Executive, endorsed moving grate incineration as the core technology for the IWMF in December 2009.

[34] The EIA Report, paragraph 2.3.5.1.

(2) Thus, it is clear that such moving grate technologies have not been discarded in the EIA Report as contended by Mr Yim.

129. Thirdly, I accept Mr Mok's submissions that the applicant's allegation that the evaluation has failed to take into account of efficiency, cost, health impact and environmental impact is without basis. Efficiency, costs and environmental impact are part of the criteria adopted in Table 2.1. As for health impact, the EIA Report at paragraph 2.3.2.2 explains that it was not compared because the most advanced flue gas treatment system would be adopted for all of the techniques reviewed to meet the most stringent air quality standard in the world, and so any one of those techniques would pose very low or insignificant risk to public health. In any event, public health risks caused by the IWMF have been separately assessed in the EIA Report.

130. Fourthly, the evaluation of landfilling, incineration, heat drying and composting has also been done:-

(1) The evaluation concerning landfilling is found in the EIA Report at paragraph 2.1.1.6.

(2) The evaluation concerning heat drying (described as "Mechanical Heat Treatment") is considered in the EIA Report at paragraph 2.3.4.2.

(3) The evaluation concerning composting (described as "Mechanical Biological Treatment") is contained in the EIA Report at paragraphs 2.3.4.2 - 2.3.4.4.

131. For these reasons, I am satisfied that the EIA Report through its various sections as explained above has dealt with the comparison of different technologies of their benefits and disbenefits in a clear and objective manner as required under section 3.6.2 of the SB. Mr Yim's reliance on *and District Council of St Albans* does not assist him, as it is a question of whether section 3.6.2 of the SB, on a proper construction, has been complied with.

132. Mr Yim's contentions amount to asking this court to prefer and mandate the applicant's suggested criteria and presentation in carrying out the comparison instead of the ones adopted in the EIA Report. As I have repeatedly said, this is not within the court's purview unless the criteria adopted in the EIA Report are *Wednesbury* unreasonable, which in my view is not the case here.

133. I therefore also reject Ground 3.

*Ground 4 – The EIA Report fails to provide a sufficient quantitative or qualitative assessment of the project's impact on public health as required by the TM, the SB and Ordinance*

134. This ground of judicial review focuses on paragraphs 9b.2.6.15 and 9b.2.6.20 of the EIA Report, which state as follows:

> "9b.2.6.15 Since the assessment results meet both the cancer risk and non-cancer hazard index criteria, no further analysis is presumed to be necessary.
>
> 9b.2.6.20 In summary, the IWMF would make only small additional contributions to local concentration of CO, $SO_2$ and $NO_2$. While it is not possible to rule out adverse health effects from the IWMF with complete certainty, the impact on health from small additional air pollutants is likely to be very small and unlikely to be quantifiable."

135. At the same time, there are provisions in the Ordinance, the SB and the TM that require the assessment of the project's impact on public health.

136. S 10(2) of the Ordinance provides:

> "Application for environmental permit
>
> ...
>
> (2) In granting or refusing an environmental permit, the Director shall have regard to-
>
> ...
>
> (c) whether the environmental impact caused or experienced by the designated project is or is likely to be prejudicial to the health or well being of people, flora, fauna or ecosystems..."

137. Paragraphs 3.7.8.1 and 3.7.8.5 of the SB also state:

> "3.7.8.1 A health risk assessment shall be conducted to assess the potential health impact associated with construction and operation of the Project...
>
> 3.7.8.5 It is also necessary to perform a quantitative environmental health risk assessment for the risk of exposure to and the potential impacts from the release of Toxic Pollutants including POPs, especially dioxins and dioxin-like substances, from the operation of the Project. The assessment shall also include risk of exposure to and the potential impacts from release of Toxic Pollutants including POPs through stack emissions, as well as the handling, storage, transport and disposal of any solid or liquid wastes that may contain Toxic Pollutants including POPs during the operation of the Project. Any mitigation measures recommended should be aimed to minimize the environmental health risks from the release of Toxic Pollutants including POPs during operation of the Project..."

138. Sections 4.4.3(a)(i) and (v) of the TM provide:

> "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;
>
> ...
>
> (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."

139. Mr Yim says the EIA Report has not complied with these requirements. His submissions are:

(1) Looking at the above requirements, there is no discussion in the above section of the EIA Report on whether and how the aerial emission caused by the project is or is likely to be prejudicial to public health beyond the assessment that the projected emission would not breach the relevant index. Moreover, analysis of the nature, type and extent of impact or the cumulative effect of aerial emission from the IWMF facilities on public health is absent.

(2) In the premises, the conclusion in the report that "*the impact on health from small additional air pollutants is likely to be*

*very small and unlikely to be quantifiable*" is not one that can be properly drawn.

(3) The report is therefore in breach of the above requirements in the SB, the TM and the Ordinance.

(4) Alternatively, it would be *Wednesbury* unreasonable for the Director to have merely relied on satisfaction of the relevant index to demonstrate there will be no public health impact from the project. In this respect, Mr Yim says the EIA Report has not referred to certain well-known literature on the subject matter. In the Amended Form 86, a report entitled "Incineration and Human Health" published in March 2001 was referred to by way of an example of such literature. This report sets out various health risks caused by incineration.

140. Mr Yim further argues at the hearing that the report has also not complied with paragraph 3.7.8.5 of the SB in its failure to include HCB as a COPC. In this respect, he relies on his arguments raised under Ground 2 in relation to the failure to include HCB as a POP substance for assessment.

141. This ground is in my view also misplaced.

142. I agree with Mr Mok's observation that, in essence, this ground is in effect a complaint that some other assessment benchmarks should be used instead of the one chosen in the EIA Report. As such, there is no merit in it for the following reasons.

143. This is a matter where the SB has not prescribed a specific benchmark for the project proponent to adopt in preparing the EIA Report. The SB has expressly left it to the project proponent, to be agreed with the Director:

(1) Paragraph 3.7.8.3 of the SB provides that:

> "The health risk assessment shall be based on established practices in countries around the world. A literature search shall be carried out to determine the best approach for the risk assessment, including any codes of practices, guidelines etc. applied locally in Hong Kong and elsewhere in the world. *The approach shall be agreed by the Director prior to the commencement of assessment. For toxic air pollutants, the review list shall follow the criteria in Section 1.1(d) in Annex 4 of the TM.*" (emphasis added)

(2) Section 1.1 of Annex 4 of TM provides as follows:

> "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 hourly Total Suspended Particulate concentration of 500 microgrammes per cubic metre measured at 298K (25C) and 101.325 kPa (one atmosphere) for construction dust impact assessment;
>
> (c) meet 5 odour units based on an averaging time of 5 seconds for odour prediction assessment;
>
> (d) 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 WHO or USEPA as to be agreed with the Director of Environmental Protection."

144. In relation to that, the project proponent has chosen the HHRAP issued by the USEPA as the assessment methodology. She has

then followed the requirements of the SB and HHRAP in identifying the assessment standards in the following ways:

(1) As explained in EIA Report at paragraph 9b.2.5.1, adverse health effects are typically characterized in the health risk assessment as carcinogenic or non-carcinogenic for long-term exposure and acute hazard for short-term exposure.

(2) Paragraph 3.7.8.3 of the SB refers to the standards for air pollutants in paragraph 1.1(d) of Annex 4 of the TM. That paragraph refers to (a) the standards for air pollutants prescribed under Air Quality Objectives ("AQOs") promulgated under the Air Pollution Control Ordinance, Cap 311 ("APCO") and (b) standards for pollutants outwith the AQOs be based on international standards to be agreed with the Director.

(3) To that end, for compounds covered by the AQOs, the project proponent has adopted the AQO standard in the assessment: see EIA Report, paragraphs 9b.2.5.4 and 9b.2.5.21. For compounds not covered by the AQOs, the project proponent has adopted standards derived from the WHO, the USEPA and other international organizations: see EIA Report at paragraphs 9b.2.5.5 and 9b.2.5.22-24.

(4) In the risk characterization exercise, the project proponent assesses (i) the long-term non-carcinogenic risks by reference to the AQOs (for AQO compounds) and the risk ratio (or hazard index) developed by the USEPA for non-AQO

compounds; (ii) the long-term carcinogenic risks by reference to the USEPA risk management guidance; as well as (iii) the short-term exposure: see EIA Report at paragraph 9b.2.6.2-21.

(5) The non-carcinogenic risks (long-term and short-term) are assessed cumulatively taking into account the impacts arising from the IWMF as well as background contribution: see EIA Report at paragraphs 9b.2.6 and 9b.2.6.21.

(6) The assessment shows that both carcinogenic risks and non-carcinogenic risks are within the AQO and international standards selected.

(7) Those assessment standards and results were accepted by the Director of Health[35] as well as the Director.

145. In the premises, I cannot see how it could be said that the choice of standard in the EIA Report is in breach of the SB, or alternatively *Wednesbury* unreasonable.

146. In relation to the relevant provisions of the Ordinance and the TM relied on by Mr Yim, I also agree with Mr Mok that they do not take the complaint any further:

(1) S 10(2)(c) of the Ordinance sets out one of the matters which the Director should have regard to in deciding whether to issue an environmental permit (human health), but the EIA Report has concluded that the IWMF would not pose any

---

[35] See the memo from the Director of Health dated 26 October 2012.

unacceptable risk to human health, which conclusion was endorsed by the Director of Health and the Advisory Council. The applicant has not been able to point to anything (other than an assertion that there should be more assessment) to show why the Director could not rely on the EIA Report in coming to the decision under s.10.

(2) As for paragraph 4.4.3(i) and (v) of TM, it concerns the evaluation of residual environmental impacts, which is defined to mean "*net environmental impacts after mitigation*". In the present case, since the health impacts from the IWMF are either insignificant or within acceptable limits, no question of mitigation or residual impacts arises, and this provision simply has no application.

147. Finally, Mr Yim's reliance on the study report "Incineration and Human Health" also does not assist:

(1) There is simply no requirement in the SB or TM that the project proponent must refer to any *specific* study. The SB only requires that in determining the methodology of assessment, the project proponent's choice should be justified by reference to, among others, literature search. This has been already completed to the satisfaction of the Director in agreeing with the methodology proposed.

(2) As to whether a specific report should be referred to and used to justify a choice, the court should not be in judicial review asked to weigh up different views of experts and academics.

> This must be left to the professional judgment of the project proponent and the Director, and the court should not interfere unless *Wednesbury* unreasonable. In the present case, the mere reference to the said specific report could not in any view render the Director's decision in approving the EIA Report *Wednesbury* unreasonable. This is underlined by the fact that the applicant has not even established in evidence the standing or reputation of this study or the personnel involved.

148. Finally, insofar as the contended failure to include HCB to satisfy the requirement of paragraph 3.7.8.5 of the SB is concerned, I would reject it for the same reasons I have rejected the similar arguments raised in Ground 2 above.

149. In the premises, Ground 4 should also be rejected.

*Ground 5 – Failure to make assessment based on the actual IWMF facilities in the project as required by the TM, SB and the Ordinance*

150. This ground initially consists of three main complaints in the Amended Form 86: (a) a failure to conduct facility specific assessment, (b) a failure to consider the impacts of $PM_{2.5}$, and (c) a failure to make reference to the report entitled "*Incineration and Human Health*".

151. Mr Yim has not pursued complaints (a) and (c) at the hearing. Thus, only complaint (b) needs to be considered.

152. Counsel's arguments run as follows.

153. Paragraphs 3.7.8.1 and 3.7.8.4 of the SB (as quoted above) in essence require a health assessment to be carried out in relation to the impact of toxic pollutants contained in aerial emissions in all phases relating to the operation of the IWMF facilities.

154. Paragraph 9b.2.6.20 of the EIA Report states, in relation to "Classical COPCs (CO, $SO_2$ and $NO_2$)":

> "In summary, the IWMF would make only small additional contributions to local concentration CO, $SO_2$ and $NO_2$. While it is not possible to rule out adverse health effects from IWMF with complete certainty, the impact on health *from small additional air pollutants* is likely to be very small and unlikely to be quantifiable". (emphasis added)

155. Under complaint (b), the focus is that this conclusion of the EIA Report has not (in its quantitative assessment of the health impact of aerial emission) taken into account in its study the impact of $PM_{2.5}$, a form of fine particulars of air pollution.

156. It is contended that in the 2nd edition of the 4th Report of the British Society for Ecological Medicine[36], the authors have stated and emphasised the significant adverse impact of $PM_{2.5}$ on health for air pollution[37]. Mr Yim in his skeleton further relies on (a) the guideline ("the Guideline") in the World Health Organization website to underline the obvious impact of particulate matter (in particular $PM_{2.5}$) on human health,

---

[36] Original report published in December 2005, 2nd edition published in June 2008.

[37] See the Preface and the Executive Summary as quoted at paragraphs 98 and 99 of the Amended Form 86.

and (b) the fact that the Director has been aware of the importance of $PM_{2.5}$ for quite some time by reference to the Secretary for the Environment's answer in the LegCo on 11 January 2011.

157. As Mr Yim relies a lot on the Guideline, it is only fair to set it out in full as follows:

> "Particulate matter
>
> Guideline values
>
> **$PM_{2.5}$**
> 10 $\mu g/m^3$ annual mean
> 25 $\mu g/m^3$ 24-hour mean
>
> **$PM_{10}$**
> 20 $\mu g/m^3$ annual mean
> 50 $\mu g/m^3$ 24-hour mean
>
> The 2005 AQG set for the first time a guideline value for particulate matter (PM). The aim is to achieve the lowest concentrations possible. As no threshold for PM has been identified below which no damage to health is observed, the recommended value should represent an acceptable and achievable objective to minimize health effects in the context of local constraints, capabilities and public health priorities.
>
> *Definition and principle sources*
> PM affects more people than any other pollutant. The major components of PM are sulfate, nitrates, ammonia, sodium chloride, carbon, mineral dust and water. It consists of a complex mixture of solid and liquid particles of organic and inorganic substances suspended in the air. The particles are identified according to their aerodynamic diameter, as either $PM_{10}$ (particles with an aerodynamic diameter smaller than 10 µm) or $PM_{2.5}$ (aerodynamic diameter smaller than 2.5 µm). The latter are more dangerous since, when inhaled, they may reach the peripheral regions of the bronchioles, and interfere with gas exchange inside the lungs.
>
> *Health effects*
> The effects of PM on health occur at levels of exposure currently being experienced by most urban and rural populations in both developed and developing countries. Chronic exposure to particles contributes to the risk of developing cardiovascular and respiratory diseases, as well as of lung cancer. In developing

> countries, exposure to pollutants from indoor combustion of solid fuels on open fires or traditional stoves increases the risk of acute lower respiratory infections and associated mortality among young children; indoor air pollution from solid fuel use is also a major risk factor for chronic obstructive pulmonary disease and lung cancer among adults. The mortality in cities with high levels of pollution exceeds that observed in relatively cleaner cities by 15–20%. Even in the EU, average life expectancy is 8.6 months lower due to exposure to $PM_{2.5}$ produced by human activities." (emphasis added)

158. Mr Yim argues that, looking at these literatures, $PM_{2.5}$ should have been included in the assessment to satisfy the requirements under the SB (given that $PM_{2.5}$ falls within the general meaning of "Toxic Pollutants"). However, Mr Yim submits that this has not been done in the EIA Report:

(1) At paragraph 9b.2.2.6 of the 2nd EIA Report, the list of identified COPCs includes "Particulate matter (respirable)". A discussion of "RSP" (respirable suspended particulates) can be found in paragraphs 9b.2.6.3 but RSP has not been defined. Paragraph 9b.2.6.5 says *"The detailed percentage contributions of $SO_2$, $NO_2$ and RSP by the IWMF are presented in Appendix 9.3."*. No definition of RSP is found in Appendix 9.3 of the 2nd EIA Report. Therefore, one cannot ascertain whether $PM_{2.5}$ is in fact assessed under this category.

(2) Even if it is included in RSP, $PM_{2.5}$ is more dangerous than $PM_{10}$ and therefore must be separately considered in order to properly ascertain the actual effect thereof.

(3) From paragraph 9b.2.6.3 of the 2nd EIA Report, it can be seen that the highest cumulative "annual average RSP" would range from 39 to 46 ug/$m^3$, which is way higher than the abovementioned Guideline values for either $PM_{2.5}$ or $PM_{10}$.

(4) What is even more problematic is that only the "annual mean" has been considered. In Appendix 9.3, hourly maximum has been considered for $NO_2$, $SO_2$ and CO, but not RSP. Therefore, one cannot tell whether the "24-hour mean" falls within acceptable level when compared with the abovementioned Guideline values.

159. Mr Yim therefore says the report has not complied with the SB. In any event, it is *Wednesbury* unreasonable for the Director to approve the report when $PM_{2.5}$ has not been included in the health impact assessment of aerial emissions.

160. I do not agree.

161. It is clear that the SB has not provided for or defined what should be included in toxic pollutants for the assessment. Instead, by paragraph 3.7.8.3, it says for toxic air pollutants, the review list shall follow the criteria in paragraph 1.1(d) of Annex 4 of the TM.

162. As mentioned in Ground 4 above, for the purpose of evaluating air quality impact, paragraph 1.1(d) of Annex 4 of the TM refers to (a) the standards of air pollutants prescribed under the AQO promulgated under the APCO, and (b) standards of pollutants outwith the AQO be based

on international standards (such as WHO or USEPA) to be agreed with the Director.

163. At the same time, paragraph 9b.2.2.6 of the EIA Report has included "Particulate matter (respirable)", also known as $PM_{10}$, as one of the identified COPCs for its health impact assessment. It has been recognised that under the present AQO, $PM_{2.5}$ is *not* included as an independent category of air pollutant. Thus, a health assessment of the impact $PM_{10}$ as air pollutants would comply with the existing AQO as prescribed under APCO.

164. In this respect, it is relevant to note that there was a similar challenge that $PM_{2.5}$ was not adopted in the relevant EIA report in the case of *Chu Yee Wah*. In relation to this challenge, Fok JA (sitting at First Instance) in *Chu Yee Wah* observed at paragraphs 185-186 as follows:

> "185. So far as the pollutant $PM_{2.5}$ is concerned, the Director's case is that this is subsumed within $PM_{10}$, i.e. RSP, and so is a pollutant assessed in the EIA Reports against the relevant AQOs for $PM_{10}$: per the affidavit of Mr Tse at §38. It is apparent from the comparative table of international standards and guidelines that there is no uniform practice of treating $PM_{2.5}$ separately to $PM_{10}$. The current review of AQOs is considering whether to adopt and establish new AQOs for $PM_{2.5}$ separately to those for $PM_{10}$.
>
> 186. In the circumstances, I accept the submission of Mr Shieh that it was not irrational or *Wednesbury* unreasonable for the Director not to insist on the selection of TAPs and $PM_{2.5}$ as key/representative pollutants for the purposes of the EIA Reports or to approve the EIA Reports without requiring the project proponent to agree standards for assessing those pollutants. In short, there is nothing to demonstrate that issues concerning these pollutants from these particular projects were raised so that it would be perverse for the Director to proceed to approve the EIA Reports and grant the environmental permits in the absence of TAPs and $PM_{2.5}$ being assessed in the EIA Reports. Whilst $PM_{2.5}$ may be separately classified in new AQOs, until that occurs,

> I am not persuaded the Director can be said to be acting irrationally or *Wednesbury* unreasonably in treating them as being in the same category and subject to same standards as $PM_{10}$."

165. Fok JA's above observations and conclusion are endorsed by the Court of Appeal in *Chu Yee Wah* at paragraphs 114-118 *per* Tang VP (as he then was).

166. These observations apply with equal force in the present case, which I fully adopt.

167. Further, with the evidence placed before me, I also accept Mr Mok's submissions that:

(1) $RSP/PM_{10}$ is one of the pollutants prescribed under the AQOs[38].

(2) The standards for $RSP/PM_{10}$ under the AQOs are defined by reference to 24-hour average and annual average only. Both averages have been assessed in the EIA Report.[39]

168. Finally, I also agree with Mr Mok that the applicant's contentions under this ground amount to asking this court to mandate the adoption of the WHO standards now. This cannot be right. It is pertinent to note that the current statutory standards are the AQO (under the APCO), which has been incorporated under paragraph 1.1 of Annex 4 of the TM and the relevant provisions of the SB. Although there has been discussion to revise the AQO to include $PM_{2.5}$ as a separate category, at the time of the EIA Report, no political consensus had yet been reached, and

---

[38] See Technical Memorandum for Specifying Air Quality Objectives for Hong Kong.

[39] See the Affirmation of Linda Yu, at paragraph 14.

that had not been adopted as the statutory AQO. For the present purposes, it is the statutory AQO that was applicable at the time of the EIA Report that matters.

169. As the court has repeatedly pointed out, the questions on environmentally acceptable standards or air quality protection in Hong Kong are questions of policy and are thus outside its purview[40].

170. In the premises, there is no question of non-compliance of the SB, the TM and the Ordinance, nor *Wednesbury* unreasonableness under this challenge.

171. Ground 5 must also fail.

*Grounds 6 – Breach of natural justice*

172. Central to this complaint is the fact that the project proponent is the Director herself.

173. Given this fact, Mr Pun[41] submits that:

(1) There is a breach of natural justice where the Director acted both as the applicant for and the grantor of the approval of the

---

[40] See: *Clean Air Foundation v HKSAR Government* (unrep, HCAL 35/2007, 26 July 2007) at paragraphs 28, 36-41 *per* Hartmann J (as he then was); *Chu Yee Wah*, supra, paragraphs 114-118 (CA) and paragraphs 168-173, 185 (CFI).

[41] For Grounds 6 and 7, it was Mr Pun who argued in support of the judicial review.

EIA Report and the EP. In other words, she is the judge in her own cause[42].

(2) For the same reasons, the 1st and 2nd decisions in approving the EIA Report and granting the EP must also be tainted by apparent bias[43].

174. Mr Pun's arguments therefore raise two challenges to the 1st and 2nd decisions. First, the decisions are in breach of natural justice because the Director has in fact acted as a judge in her own cause. Second, the decisions are in any event tainted by *apparent* bias given that the Director was both the applicant and the judge in the EIA process.

175. I would deal with the arguments of breach of natural justice first.

176. This relates to the question of whether *as a matter of fact* the Director did act as a judge in her own cause in the EIA process. In relation to this, the following facts (as helpfully summarised in Mr Mok's skeleton) are not challenged[44]:

(1) The Director's powers and functions under the Ordinance, particularly those of approval of the EIA Report under ss 6 and

---

42 See for examples: *Lerwick Port Authority v The Scottish Ministers* (2008) SLT 74; *Blusins Ltd v City of Dundee Licensing Board* (2001) SLT 176 at 186C-D.

43 *Deacons v White & Case* (2003) 6 HKCFAR 322, where the CFA has laid down the test for apparent bias being whether all the relevant circumstances would lead to a fair-minded and informed observer to conclude that there was a real possibility of bias.

44 See the 1st Affidavit of Tse, paragraph 38, and 2nd Affidavit of Tse, paragraphs 17-23.

8, and the decision concerning the grant of the EP under s.10, have been delegated to specific officers of the Environment Assessment Division ("EAD"), including Deputy Director of Environment Protection (1) (Benny Wong) ("DDEP(1)"), Assistant Director (Environment Assessment) (CW Tse) ("AD(EA)") and 4 Principal Environmental Protection Officers (Environmental Assessment) (including HM Wong) ("PEPO(EA)").[45] The EIA Report would only be approved and an EP issued after the EAD is satisfied that all the requirements of statutory EIA process have been met.[46]

(2) The Instrument of Authorization was issued pursuant to s.43 of the Interpretation and General Clauses Ordinance (Cap 1) ("IGCO"). S 43(1) of IGCO provides *inter alia* that, upon delegation, "*the person delegated shall have and may exercise such powers and perform such duties*" as were delegated to him.

(3) There is "structural segregation between the EAD and the IPG (Infrastructure Planning Group)" ("IPG"). The former is headed by CW Tse and reports to DDEP(1). Within the EAD, the IWMF EIA study was managed by the Strategic Assessment Group ("SAG") headed by HM Wong, who reports to Mr Tse. On the other hand, the IPG is headed by Principal Environmental Protection Officer (PH Lui), under Assistant DEP (Conservation & Infrastructure Planning) (Elvis

---

45 The Instrument of Authorization has been put in evidence.

46 1st Affidavit of Tse, paragraph 37.

Au), who reports to Deputy Director (2) (Albert Lam) ("DDEP(2)"). It is deposed that "*None of these officers have responsibilities relating to or concerning the EAD or the [statutory] EIA process*"[47], and "*[t]here is no overlap in personnel or reporting line in respect of matters which fall within the responsibilities of the EAD and IPG respectively*".[48]

(4) The EAD (including SAG) and the IPG are also "physically segregated" – the office of all the groups of EAD is in Southern Centre in Wanchai, whereas the IPG is housed in Kennedy Town, Western District.[49]

(5) The IWMF was managed by Infrastructure Planning (1) of the IPG under the officer rank S(IP)1 (TK Cheng). This team's responsibilities include (a) conducting public engagement and consultation; (b) carrying out feasibility and EIA studies; (c) liaising with China Light and Power on electricity export from the IWMF; (d) handling matters relating to OZP and Foreshore and Seabed Ordinance gazettals; and (e) managing the design and construction of the IWMF.[50]

(6) The EP was issued *in the name* of the Director only because she is the head of the EPD, not because she has played any

---

47 1st Affidavit of Tse, paragraph 38.

48 3rd Affidavit of Tse, paragraph 17.

49 3rd Affidavit of Tse, paragraph 18.

50 3rd Affidavit of Tse, paragraph 20.

actual role in the approval of the EIA Report or the decision to issue the EP.[51]

177. In light of this unchallenged factual segregation of personnel and duties within the EPD in (a) the infrastructure planning aspect including the preparation of the EIA Report, and (b) the EIA process relating to the project, I am satisfied that the Director herself has played *no* actual or active role in either the planning of the IWMF (including the preparation of the EIA Report) or the approval of the EIA Report and the decision to issue the EP[52]. The Director's name was used only *nominally* as the project proponent on the one hand, and the approval of the EIA Report and issue of the EP on the other hand as she is the head of the Department.

178. In the circumstances, there is no question of the Director being the judge in her own cause. The complaint of breach of natural justice is simply not established on the evidence.

179. Mr Mok has further made two alternative submissions that the ground of natural justice should still not succeed if in fact the breach was established. The first one is that the Ordinance has authorised the said arrangement given that it is well anticipated in the Ordinance that an applicant therein could well be a government department. Second is that the breach in the present case is curable by way of the judicial review,

---

51 3rd Affidavit of Tse, paragraph 23.

52 See also the unchallenged confirmation at paragraph 38 of the 1st Affidavit of Tse.

which is equipped to address all the other complaints of applicant, which are not dependent on any fact findings by the Director[53].

180. However, given my above conclusion that breach of natural justice has not been established, I do not find it necessary or appropriate to deal with these arguments.

181. Insofar as apparent bias is concerned, the following principles are relevant.

182. First, the Court of Final Appeal has laid down that the question to be asked in a case apparent bias is whether all the relevant circumstances would lead to a fair-minded and *informed* objective observer to conclude that there is a reasonable apprehension of of bias[54]. The fair-minded and informed observer is *assumed* to have access to all the facts that are *capable* of being known by members of the public generally, bearing in mind it is the appearance that these facts give rise to that matters, not what is in the mind of the person under scrutiny. The observer is neither complacent nor unduly sensitive or suspicious when he examines the facts and will be able to distinguish what is relevant and what is irrelevant, and decide what weight should be given to the facts that are relevant when exercising his judgment[55].

---

53 Mr Mok relies in support the authorities of: *Lam Siu Po v Commissioner of Police* (2009) 12 HKCFAR 237 at paragraphs 18, 137 and 136 *per* Ribeiro PJ; *Wong Tak Wai v Commissioner of Correctional Services* [2010] 4 HKLRD (CA) 409 at Headnotes, and paragraph 70 *per* Kwan JA; *Re Otis Elevator Co (HK) Ltd* (unrep, CACV 184/1994, 11 April 1995, Litton VP, Nazareth VP, Liu JA) at paragraph 37 *per* Litton VP.

54 *Deacons v White & Case* (2003) 6 HKCFAR 322 at paragraphs 20 and 30.

55 *Gillies v Secretary of State for Work and Pensions* [2006] 1 WLR 781 at paragraphs 17 and 39.

183. Second, the courts do have regard to the actual segregation of personnel and duties within the subject administrative or government department in applying the principle of apparent bias. If there are clear segregation of responsibilities and personnel in the complaint decision making process, which would be taken to be the background the observer informed of, the court has held that there is no actual or apparent bias in the circumstances of those cases. See: *Cheng Chui Ping v The Chief Executive of HKSAR and the USA*[56], at paragraphs 26, 86 and 87 *per* Hartmann J (as he then was); *Cheng Chong Gui v Chief Executive of HKSAR*[57] at p 433D-H *per* Yeung J (as he then was); *Lee Hong Dispensary Superstore Co Ltd v Pharmacy and Poisons Board*[58] at paragraphs 18 and 20 *per* A Cheung J (as he then was).

184. The following facts in present case should thus be read with the above principles in mind:

(1) The factual and complete segregation in personnel, physical location and responsibilities between the EAD (including the SAG) and the IPG. These are the background facts where an objective and informed observer could have had[59].

---

56 Unrep, HCAL 1366/2001, 7 January 2002 (subsequent appeal dismissed CACV 138/2002).

57 [1998] 4 HKC 426.

58 (2007) 12 HKPLR 152.

59 For example, in *Cheng Chui Ping v The Chief Executive of HKSAR and the USA*; *Cheng Chong Gui v Chief Executive of HKSAR*, there was no suggestion that the fact that there was internal segregation of powers and duties within the legal department in providing separate relevant advices to the Chief Executive on the question of extradition should not be taken as one which was capable of being known by the observer on the question of apparent bias.

(2) The fact that the EIA process is designed to be objective, transparent and prescriptive as provided in the Ordinance, with the relevant principles, procedures, guidelines, requirements and criteria specified in the TM.

(3) The EIA Report was also considered and vetted separately by the independent Advisory Council, which endorsed it *before* it was approved by the Director. There is no evidence to suggest that those conditions have not been accepted by the Director in approving the EIA Report

185. Applying the above principles to these facts, I am satisfied that the fair-minded and informed observer, having regard to the above facts, would not conclude that there was a reasonable apprehension of bias on the part of the decision maker.

186. Mr Pun finally argues that, even with and notwithstanding the factual segregation of powers and responsibilities, the fact is the "heads" of the segregated departments are the Director's subordinates. There is thus at least an apprehension of risk that the segregated decision maker may be influenced by a sense loyalty to the Director. As such, the risk of bias is there.

187. The argument in my view is also misplaced. As said above, the Director in the process only acts *nominally*. She has no actual or active involvement in either of the segregated processes or decisions. There is also nothing to suggest that she somehow has a personal interest in favour of either of the processes or its outcome. She is thus entirely neutral to the process. In the premises, the question of risk of apparent

bias arising from the Director's influence or the division head's loyalty to her is purely theoretical and simply does not arise.

188. The complaint of apparent bias is therefore also not made out. I reject Ground 6.

*Ground 7 - Illegality*

189. Under this ground, Mr Pun argues that, on a proper construction, the "applicant" under the Ordinance cannot include the Director herself for a number of reasons:

(1) An otherwise construction would lead to absurdity resulting in (as mentioned above) breach of natural justice and real or apparent bias in the process envisaged under the Ordinance. That cannot be the objective intention of the legislature. This is particularly so, as it is vital for the Director to remain impartial given that she is entrusted with the responsibility to oversee the EIA process to take into account the interest of the public as the "*unrepresented third party*"[60]. Further, the court would not construe even on the plain language of a statute if that would lead to an infringement of fundamental common law principles, such as natural justice, unless the statute provides expressly for the infringement[61].

---

[60] Cf: *Bushell v Secretary of State for the Environment* [1981] AC 75 at 102B *per* Lord Diplock.

[61] *The Mersey Docks Trustees v Gibbs* (1866) LR 1 HL 93 at 110.

(2) Moreover, to construe "the applicant" to include the Director herself would also lead to absurdity in the operation of various provisions of the Ordinance. For example:

(a) Under s 8, the Director may reject the EIA report and must give reasons for doing so. It is absurd to envisage the Director rejecting a report tendered by *herself* and to give reasons to *herself* in so doing.

(b) Under s 17, the Director (as the applicant) may appeal to the Appeal Board if she is aggrieved by a decision of the Director (herself). It is again absurd to envisage the Director being aggrieved by her own decision and lodge an appeal.

190. As a result, when in the present case the Director acted as the applicant for the approval of the EIA Report and the granting of the EP, those were made outside the scope of the Ordinance, and the 1st and 2nd decisions are thus made illegally.

191. In my view, none of these arguments are made out.

192. It must first notice that the Ordinance does not by any express language exclude the Director as an applicant. Quite to the contrary, the plain words of the Ordinance does not seek to exclude any identified person or party, not least the Director, as an applicant. See ss 3(1) and 5 of the Ordinance.

193. To construe otherwise would involve departing from the natural and plain meaning of the Ordinance in this respect.

194. Thus, *fundamental* to Mr Pun's arguments is that if to include the Director as an applicant by way of an ordinary construction, it would *necessarily* lead to absurdity and breach of natural justice.

195. However, this foundation is simply not made out for the reasons I have set out under Ground 6. In other words, there are procedures and practices that could be adopted to ensure that there would be no breach of natural justice even if the Director is to act *nominally* as an applicant.

196. As such, the ordinary and plain construction of the Ordinance of the meaning of an applicant to include the Director would not *necessarily* lead to breach of natural justice or absurdity. The reference to the operation of ss 8 and 77 of the Ordinance also would not assist. The segregation of responsibilities and duties would equally eliminate the alleged absurdity of their operations.

197. Of course if *in fact* there is a breach of natural justice in a particular case by reason of the Director being the applicant in an EIA process under the Ordinance, the decision so rendered would be subject to the proper scrutiny of judicial review on that basis. But that is not because of the construction of the meaning of applicant in the Ordinance.

198. I therefore also dismiss Ground 7.

*Ground 8 – Illegality of the 3rd decision*

199. This ground is that the TPB's decision (ie, the 3rd decision) was illegally made as it was based on the "mistaken material facts" that the 1st and 2nd decisions were lawfully made. This ground therefore would only succeed if any of the above grounds made to challenge the 1st and 2nd decisions is successful.

200. Given I have rejected all the above grounds against the 1st and 2nd decisions, this ground must therefore also fail.

201. In light of this conclusion, I do not find it necessary to deal with Mr Mok's further submissions that, notwithstanding any successful challenge of the 1st or 2nd decisions, the 3rd decision is not subject to any challenge because the alleged "material error of facts" in the present case are not operative to quash to 3rd decision[62].

## *D. CONCLUSION*

202. For the above reasons, all the grounds raised by Mr Leung in support of the judicial review have failed. I would therefore dismiss the application.

203. I further make an order *nisi* that costs of this application be to the Director and TPB, to be taxed if not agreed, with certificate for two counsel. The applicant's own costs be taxed in accordance with legal aid taxation with certificate for two counsel.

---

[62] See paragraphs 101 and 102 of Mr Mok's submissions.

204. Lastly, I thank counsel for their assistance in this matter.

(Thomas Au)
Judge of the Court of First Instance
High Court

Mr Valentine Yim, with Mr Hectar Pun, instructed by Lee Chan Cheng, for the applicant

Mr Johnny Mok SC leading Ms Eva Sit, instructed by Department of Justice, for the 1st and 2nd respondents