

**Confirmed Minutes of the 157th Meeting
of the Environmental Impact Assessment Subcommittee
on 13 February 2023 at 2:30 p.m.**

Present:

Prof Kenneth LEUNG, JP (Chairman)
Mr Alex KWAN (Deputy Chairman)
Ms Ada FUNG, BBS
Ms Linda HO
Dr Theresa KWONG
Prof Alexis LAU, JP
Mr Simon NG
Mr Daryl NG, SBS, JP
Mr Albert SU, MH, JP
Prof Dan TSANG
Dr WONG Kwok-yan, MH
Dr Raymond YAU
Ms Karen CHEK (Secretary)

In Attendance:

Mr Terence TSANG	Assistant Director (Environmental Assessment), Environmental Protection Department (EPD)
Miss Queenie NG	Principal Environmental Protection Officer (Territory South), EPD
Ms Eva LAU	Senior Environmental Protection Officer (Territory South) 6, EPD
Mr Jason TSE	Environmental Protection Officer (Territory South) 62, EPD
Dr Jackie YIP	Assistant Director (Country and Marine Parks), Agriculture, Fisheries and Conservation Department (AFCD)
Dr MAK Yiu-ming	Marine Conservation Officer (Advisory) 1, AFCD
Miss Sally SHEK	Executive Officer (CBD) 1, Environment and Ecology Bureau (EEB)
Miss Avynn WONG	Executive Officer (CBD) 2, EEB

In Attendance for Item 2:

Project Proponent Team

AFCD

Mr Patrick LAI, Assistant Director (Fisheries)
Mr WK CHOW, Senior Fisheries Officer
(Aquaculture Fisheries)
Dr Terence CHUNG, Fisheries Officer (Mariculture
Development) 1

ERM-Hong Kong Limited

Mr Raymond CHOW, Principal Consultant
Dr Jasmine NG, Managing Partner

The Chairman welcomed Members to the meeting. As this was the first meeting of the Environmental Impact Assessment Subcommittee (EIASC) in the new term, the Chairman briefed Members on the terms of reference and the possible recommendations of the subcommittee in the deliberation of EIA reports. Mr Terence Tsang supplemented that in accordance with the EIA Ordinance (EIAO) (Cap. 499), the ACE should give any comments it had on an EIA report to the Director of Environmental Protection (DEP) within 60 days of its receiving a copy of the report.

Item 1 : Matters arising

2. The draft minutes of the last meeting held on 17 October 2022 were confirmed by circulation on 18 November 2022 without any proposed amendments.

3. The Chairman reported that the ACE had endorsed by circulation the EIASC's recommendations on the EIA report on "Improvement of Lion Rock Tunnel". ACE's endorsement together with the conditions and recommendations was issued to the DEP on 8 November 2022, and Members were informed via email on the same day.

Item 2 : Discussion on EIA reports on Establishment of Fish Culture Zones at Wong Chuk Kok Hoi, Outer Tap Mun, Mirs Bay, and Po Toi (Southeast)
(ACE-EIA Paper 1/2023)

4. The Chairman advised Members that the meeting would discuss the following four EIA reports together in view of their similar nature –

- (i) Establishment of Fish Culture Zone (FCZ) at Wong Chuk Kok Hoi (WCKH);
- (ii) Establishment of FCZ at Outer Tap Mun (OTM);
- (iii) Establishment of FCZ at Mirs Bay (MB); and
- (iv) Establishment of FCZ at Po Toi (Southeast) (PT(SE)).

5. During the public inspection period from 29 November to 28 December 2022, a total of 10 sets of public comments had been received by EPD. All these public comments, together with a summary and gist of the major issues / concerns, were circulated to Members on 30 January 2023. Among them, there were suggestions on general project management and environmental issues including fish disease management, long-term monitoring mechanism and precautionary measures to avoid adverse impact on water quality as well as fisheries, artificial reefs and existing FCZs, etc. For the project at MB, it was suggested to avoid direct encroachment on coral communities. For the project at PT(SE), it was pointed out that Finless Porpoise was sighted in the site which should be taken into consideration in the assessment of ecological impact.

6. The Chairman declared that he was working with AFCDC in some studies on fisheries resources which were irrelevant to the EIA reports under consideration. The meeting agreed that the Chairman could continue to chair the meeting.

7. The Chairman informed Members that the discussion would be divided into the Presentation and Question-and-Answer (Q&A) Session which would be open to the public and the Internal Discussion Session which would not be open to the public.

8. The Chairman reminded Members to keep confidentiality of the discussion on the EIA reports.

(The presentation team joined the meeting at this juncture.)

Presentation Session (Open Session)

9. Mr Patrick Lai gave an opening remark while Mr Raymond Chow briefed Members on the project overview, project considerations and designs, key EIA findings and gist of public comments with the aid of a PowerPoint presentation.

Question-and-Answer Session (Open Session)

10. A Member was supportive of the modernisation and sustainable development of local fisheries industry and considered that the proposal should be taken forward as soon as possible. Mr Patrick Lai responded that the project proponent targeted to commence the legislative procedures for amending the FCZ (Designation) Order (Cap. 353B) by 2023 and subsequently grant new licences to operators after obtaining the Environmental Permits for the projects. Mr Lai shared that the total size of all existing FCZs in Hong Kong was about 200 hectares (ha) and the four proposed FCZs would amount to about another 600 ha. The projects were expected to bring a significant growth in local fish supplies.

FCZs Operation

11. In response to two Members' enquiry on the mode of operation, Mr Patrick Lai said that private operators would be required to submit business proposals for the application of marine fish culture licence. Eligible operators might apply for financial assistance from the Sustainable Fisheries Development Fund of AFCDC. In view of the high start-up cost, Mr Lai added that the government would explore the possibility of setting up several modernised steel truss cages and other types of deep-water cages in the proposed FCZs for renting to fishermen associations or organisations to lower their start-up cost. Funding to set up such hardware would be subject to the approval of the Finance Committee of the Legislative Council.

12. Highlighting that the water quality of the four proposed FCZs was amongst the best in Hong Kong, three Members expressed concern over possible malpractices of operators and inappropriate use of the FCZs for other purposes. They suggested to impose stringent control to ensure that the operation of the FCZs would not

adversely affect water quality and marine ecology. Mr Patrick Lai indicated that the operators would be required to submit a business proposal on the fish farm operation for AFCD's vetting. Only those operators with a proposal fulfilling the requirements would be granted a license. During the operational stage, there would be a monitoring mechanism to ensure compliance with the licensing requirements. Violators might be subject to prosecution and their licenses might be revoked. On renewal of licenses, the performance of the operators including their fish yields would also be taken into consideration.

13. A Member viewed that self-reliance in food supply was important. He remarked that measures should be taken to ensure the high-quality fish yields of the proposed FCZs were to be consumed locally. Mr Patrick Lai was confident that the fish yields of the four FCZs could be consumed locally as local aquaculture production only contributed about 1% of the total fisheries product consumption in Hong Kong.

14. On a Member's enquiry, Mr Patrick Lai advised Members that the fish cages would be about 6 m to 7 m deep from the sea surface and there would be sufficient space between the cages and the seabed to avoid the accumulation of organic matter and the need for regular maintenance dredging.

15. Noting the very high construction cost of the proposed fish farm structures and steel truss cages, the Chairman shared that modernised deep-water cages could be an alternative with much lower construction cost although the latter would be of shorter lifespan and smaller sizes. He suggested that the project proponent should provide comprehensive information on the different options available with their pros and cons for the potential operators' consideration. Mr Patrick Lai responded that the small-scale deep-water cages would require a separate structure such as a barge to support their operation. As the proposed modernised fish farm structure would be more sustainable and eco-friendly, the operators would be solicited to deploy the proposed structure. On the financial side, Mr Lai projected that the operators should normally manage to pay back the capital cost in around 5 years. With an expected lifespan of about 25 years for steel truss cages, he considered that the FCZ operation should be financially viable.

Water Quality and Marine Ecology

16. A Member was concerned about the conservation of coral communities, Finless Porpoise and amphioxus. She considered that conservation measures should be devised to protect the near-threatened coral communities in the long run. Mr Raymond Chow explained that in selecting the locations of the proposed FCZs, marine ecological surveys had been conducted to avoid locations with coral communities of high conservation value. Computer modelling indicated that there would be no adverse water quality impact and thus the corals should not be affected by the operation of the FCZs.

17. A Member and the Chairman suggested that the project proponent should draw references from the experiences of other places and put in place measures to boost coral populations such as through deploying artificial reefs beneath the fish rafts / cages. Mr Raymond Chow responded that it would be difficult to deploy artificial reefs in the FCZs due to their offshore soft-bottom locations with high current speed. Having said that, Mr Chow opined that the fish farm structures themselves would serve as artificial substrates which could bring potential benefits for marine ecology.

18. The Chairman suggested that the colour of the fish farm structures should be compatible with the surrounding natural environment. A Member further suggested and echoed by the Chairman that there should be control on the use of non-toxic coating materials for fish farm structures and steel truss cages in order to avoid adverse impact on the water quality and marine ecology. Mr Patrick Lai agreed that relevant requirements on the coating or painting materials could be included in the specifications for the fish farm structures.

19. Responding to a Member's question, Mr Raymond Chow advised that red tide occurrences in the four locations were rare in the past ten years, which could be attributed to the deep waters with high water circulation in the areas.

20. Pointing out that the Dissolved Oxygen (DO) level and Total Inorganic Nitrogen (TIN) level would exceed the criteria stipulated in the Water Quality Objectives (WQO) in some locations, a Member enquired about the mitigation measures. Mr Raymond Chow responded that the TIN level of the PT(SE) site was within the acceptable range for mariculture operation according to the national standard. As for the DO level in WCKH, while the depth-averaged 10th percentile level would occasionally exceed the criteria, he stressed that the DO level in the fish rafts / cages near the water surface was within the suitable range for mariculture.

21. A Member sought more details on the baseline level of nitrogen and phosphorous as well as the discharge of wastewater in the vicinity of the PT(SE) site. Mr Raymond Chow indicated that the closest wastewater discharge would be over 2.5 km away from the project site and it was projected that the water quality of the FCZ would not be affected. With reference to the Member's suggestion on the provision of detailed DO level at different depths of the FCZs, the Chairman shared that there should be a monitoring programme on the DO level of different depths in the environmental monitoring and audit (EM&A) programme. In response to the Chairman's enquiry, Mr Chow explained that the DO and TIN levels mentioned in the EIA report were the projected depth-averaged values whereas the limit levels in the EM&A Manual were set out in accordance with the WQO for the purpose of water quality monitoring during the operational phase. In any event of exceedance, the operators should take appropriate mitigating actions.

22. Pointing out that the use of aeration to increase the DO in the water would incur high energy consumption, carbon emissions as well as operating cost, a Member suggested the provision of the relevant information to the operators so that

marine species with suitable DO tolerant level could be selected. Mr Raymond Chow explained that among the four locations, only the DO level of WCKH FCZ might be occasionally slightly lower than the set limit. The operators would only deploy aeration when needed.

23. A Member further enquired about the scope of modelling simulation of the water quality impact and marine ecology outside the project boundary. Mr Raymond Chow replied that the modelling simulations for the MB, WCKH and OTM FCZs covered a large assessment area including Tolo Channel, Sai Kung area and Kwo Chau Islands whereas that of the PT(SE) FCZ reached as far as the Hong Kong Island. The simulations showed that the organic matters would be dispersed and even water sensitive receivers within a few hundred meters of the FCZs would not be affected.

24. Given that particles such as organic matters and food wastage would drift away from the fish farms, the Chairman pointed out that particle tracking modelling should be utilised to analyse their movement pathways with a view to monitoring sediment accumulation outside the fish farms. Mr Patrick Lai concurred with the Chairman that sediment monitoring could be incorporated in the EM&A programme.

25. Noting that the modelling simulations were calculated based on the assumption of 25% of food wastage, the Chairman pointed out that some species such as groupers had higher food wastage rate and suggested the project proponent to take into account the feeding habits of different species to minimise food wastage. Mr Patrick Lai remarked that AFCD would share with the operators the relevant experiences gained in the demonstration farm in Tung Lung Chau.

26. A Member and the Chairman suggested to put in place appropriate reporting mechanism and guidelines to handle the adverse impact of invasive species such as Sabah Groupers on the local marine ecology in case of fish escape incidents. Mr Patrick Lai advised that due consideration would be given in selecting the appropriate marine species for the fish farms. To minimise the chance of fish escape incidents, he added that the fish cages would be made of durable and weather resilient materials. The operators would be required to report any incidents of fish loss to AFCD. Mr Lai advised Members that appropriate guidelines and requirements would be included in the license or operational manuals for mariculturists. The Chairman opined that the manuals to be provided to the mariculturists should be simple and easy-to-understand which could base on the relevant manuals published by the Food and Agriculture Organization of the United Nations (e.g. *Understanding and Applying Risk Analysis in Aquaculture*, FAO Papers 519 and 519/1).

27. Two Members highlighted the importance of proper usage and dosage of pharmaceutical products and disinfectants in the fish farms so as to avoid adverse impact on water quality and marine ecology. The Chairman suggested that there should be control on the handling of dead fishes as mariculturists often disposed of them in the sea. A reporting mechanism should be in place for problems such as outbreak of fish diseases and local veterinary institutions or experts should be

consulted in such cases. Mr Patrick Lai advised that AFCD had been liaising with the City University of Hong Kong on the provision of veterinary advice on fish disease management as well as the usage of pharmaceutical products. One of the above Members commended the use of smart data management and suggested that the project proponent should make good use of the real-time data in collaboration with local institutions for analysis and studies of the correlations between operational and environmental parameters including water quality.

Carbon Emissions

28. A Member suggested and Mr Patrick Lai agreed that more durable materials should be used to reduce embodied carbon and to extend the lifespan of the fish rafts / cages. To achieve carbon neutrality, another Member added that carbon reduction measures, such as through using low-carbon materials, local production for the fish farm structures, renewable energy in marine vessel traffic as well as proper treatment of the fish farm structures at the end of their lifespan, should be adopted. Mr Lai indicated that the consumption of local fish supplies would contribute to the reduction of carbon footprint in comparison with imported fisheries. He highlighted that in the Tung Lung Chau Demonstration Farm, 95% of the energy required for operating the fish farms would be met by renewable energy such as solar and wind energy. Mr Lai added that the project proponent would liaise with the operators to minimise carbon emissions by minimising marine transportation.

29. A Member enquired if there would be any positive environmental impact in relation to the proposed projects. Mr Patrick Lai considered that the proposed FCZs might bring positive impacts to the fisheries resources due to the reduction in capture activities in the proposed 600 ha FCZs, though further studies might be needed to collect the relevant data in the operational phase.

Conclusion

30. There being no further questions from Members, the Chairman thanked the project proponent team for their presentation and clarification. Mr Patrick Lai thanked Members for their valuable comments which would be taken into consideration in the projects.

(Three Members left during the Q&A Session while the presentation team left the meeting at the end of this session.)

Internal Discussion Session (Closed-door Session)

31. The Chairman advised Members that the EIASC could make recommendations to the ACE on the four EIA reports such as -

- (i) endorse the EIA report(s) without condition; or
- (ii) endorse the EIA report(s) with conditions and / or recommendations; or

- (iii) defer the decision to the full Council for further consideration, where issues or reasons for not reaching a consensus or issues to be further considered by the full Council would need to be highlighted; or
- (iv) reject the EIA report(s) and inform the project proponent of the right to go to the full Council.

32. The Chairman proposed and Members agreed to endorse the four EIA reports with conditions and recommendations.

33. A Member was concerned about the risk of inappropriate use of the fish farms and the adverse impact associated with the invasive species that might be reared in the FCZs. Another Member suggested that AFCD should keep in view of the need to impose control or guidelines on the marine species to be reared in the fish farms having regard to the ecosystem protection. Three other Members were of the view that there might be difficulty to impose control on the species to be reared as the operators would need to consider profits in their business. These three Members and another Member suggested that appropriate monitoring mechanism such as real-time surveillance should be deployed to ensure the proper operation of the farms as well as for research purposes. The Chairman explained that real-time monitoring data of basic water quality parameters would be available within the fish rafts / cages whereas manual data collection would be required outside the fish farm.

34. In response to a Member's suggestion on assisting mariculturists to sell their fish products, the Chairman said that AFCD had implemented the Accredited Fish Farm Scheme to help local mariculturists increase the competitiveness of their products by the Scheme branding. Another Member added that it might be useful for AFCD to issue guidelines on the ratio for local sale and export of the fisheries.

35. A Member suggested the adoption of visual image technology to record the fish farm operations which might help future analysis and research. Another Member enquired about the possibility of extending the surveillance to bird foraging activities in the site. Dr Jackie Yip responded that based on the EIA study, no adverse impact on birds was anticipated as there should be no migratory birds in the area. Surveillance on birds was thus not relevant to the project. Dr Mak Yiu-ming added that it would be unlikely for sea birds to eat the fishes in the rafts / cages based on previous experience.

Condition and Recommendations

36. In the light of the discussions made, the Chairman suggested and the meeting agreed to –

- (a) impose a condition to require the project proponent to devise a Sediment Monitoring Plan (the Plan) to be incorporated in the EM&A programme. The Plan should identify appropriate locations for sediment monitoring by grab samples based on modelling simulations for tracking the particles flow, and propose monitoring parameters and frequency with a view to

monitoring any potential impacts on sediment quality of the seabed due to sediment deposits caused by the project. The Plan should be submitted to the DEP for approval before commencement of construction of the project; and

(b) recommend the project proponent to:

- (i) explore ways to achieve carbon neutrality in the project such as through the use of renewable energy in the operation of the FCZs as well as the marine transportation involved, as well as low-carbon but durable materials for constructing the fish rafts / cages;
- (ii) seek veterinary advice on the appropriate usage and dosage of any pharmaceutical products including prescription drugs and disinfectant for diseases so as to minimise potential impacts on water quality and marine ecology;
- (iii) deploy non-toxic and eco-friendly coating materials for fish raft / cage so as to minimise potential impacts on water quality and marine ecology; and
- (iv) explore the use of big data as well as technologies such as satellite images and video image analytics for real-time surveillance and monitoring with a view to ensuring compliance with licensing requirements and to supporting related research and analysis.

37. There being no other comments from Members, the meeting agreed that the EIA reports could be endorsed by ACE with one condition and four recommendations. The project proponent team would not be required to attend the subsequent full ACE meeting.

*(Post-meeting notes: The list of proposed condition and recommendations was circulated to Members for comment on 16 February 2023. A Member further expressed concerns on the potential impact on the environment which could be brought by the economic activities and eco-tourism of the project on 6 March 2023. The project proponent provided their written responses on 9 March 2023, which were attached at **Appendix**, for Members' consideration.)*

Item 3 : Any other business (Closed-door Session)

Report on Members' comments on project profiles

38. The Chairman explained that upon receipt of a project profile from a project proponent, EPD would forward a copy of it to Members. The ACE and any person might submit comments on the project profile to EPD within 14 days of its being advertised for their consideration in drawing up the EIA Study Brief to be issued to the project proponent. The project proponent would be required to follow the requirements set out in the Study Brief as well as the Technical Memorandum on EIA Process in preparing the EIA report.

39. In response to a Member's enquiry, Mr Terence Tsang responded that issues beyond the scope of EIAO such as carbon neutrality might not be included in the Study Brief. This notwithstanding, relevant suggestions might be passed to the project proponent for their consideration. Given the tight statutory timeframe for commenting on the project profile, another Member suggested with the agreement of Mr Tsang that EPD would draw Members' attention on major issues of concerns, if any, to facilitate Members' consideration in future. EPD

40. The Chairman informed Members that the EIA Study Brief of the following project was circulated to the ACE since the last EIASC meeting held on 17 October 2022:

	Project Title	Public inspection period of the Project Profile	No. of comments from ACE on the Project Profile
(i)	Relocation of Yau Tong Group Fresh Water and Salt Water Service Reservoirs to Caverns	16 to 29 September 2022	NIL

41. There was no other business for discussion at the meeting.

Item 4 : Date of next meeting (Closed-door Session)

42. The Chairman advised Members that the EIASC meeting scheduled for 27 March 2023 would be cancelled. Members would be advised on the date of the next meeting and the agenda in due course.

43. There being no other business, the meeting was adjourned at 5:15 p.m.

**EIA Subcommittee Secretariat
March 2023**