

The Director, Environmental Protection Department, Hong Kong SAR Government

1 March 2024

Dear Prof. Chui,

Comments on Agreement No. CE 20/2021 (CE)

<u>First Phase Development of the NT North - San Tin/Lok Ma Chau Development Node</u> <u>EIA</u>

We found certain key information missing in the captioned EIA, in particular the effectiveness and long-term sustainability of the proposed measures to fully mitigate the 90ha loss of fish ponds in the Deep Bay Wetland Conservation Area. We would like to raise the following comments for your consideration to ask for supplementary information and/or to put as conditions should you approve the EIA.

Alternative/Impact Avoidance

Alternative siting of the proposed project which would avoid or reduce the loss of Deep Bay wetlands has not been fully explored in the EIA. There are plenty of land south of the proposed development. By shifting it southward, much less fish ponds would need to be filled for the proposed project.

Impact minimization

There is a proposed 35m landscape and visual buffer between the San Tin Technopole and the SPS Wetlands Conservation Park (SPS WCP). This buffer would have to be built largely by filling fish ponds/wetlands. By having a narrower tree planting belt integrated with wetlands as a landscape and visual buffer, there will be less wetland loss and the tree + wetlands buffer would integrate better with the fish ponds/wetlands in SPS WCP both visually and ecologically.

Wetland Compensation Strategy

We have serious doubts about the effectiveness and long-term sustainability of the future SPS WCP that can fully compensate for the loss of fish ponds/wetlands and their multiple functions as



a result of the proposed development. The reasons are (1) key information in missing and (2) some of the proposed measures in the EIA are questionable.

Missing Key Information

- (a) the EIA does not mention how the private land in SPS WSP would be acquired
- (b) actively manage artificial wetlands such as fish ponds to deliver a much higher conservation value than the current level is costly. Details on the manpower, management costs and future funding for the "ecologically enhanced fishponds", "enhanced freshwater wetland habitat", "modernized aquaculture" and supporting facilities of the SPS WCP have not been provided in the EIA.

Doubts on the Proposed Measures

(a) Modernized aquaculture

It is not clear from the EIA which kind of modern aquaculture will be adopted and what species will be raised. No matter what products will be produced, they still face competition with imports from mainland China and would inevitably keep the price down. Something local fish pond operators have been facing for the last few decades despite attempts to raise higher-value fish species. It is foreseeable that the high investment costs of the modernized aquaculture would not result in a proportional high return.

Deep Bay actually has a natural advantage that cannot be matched by other fish-raising places. Its estuary is a nursery ground for many seafood species and has high productivity. Early settlers made wise use of the productive system to build *gei wais* and harvested the wild shrimps, mud crabs and the mixture of sea fishes. There was no need to stock nor to add feeds. All these seafood species just grew naturally in the *gei wais*. Hence, we recommend combing this traditional knowledge with modern technology to develop modernized gei wais for producing high-quality, live seafood. The operation of the *gei wais* would require regular filling and draining in accordance with the tidal cycle. This draining of *gei wais* several times per month would provide many times more foraging opportunities for wading water birds than aquaculture ponds. *Gei wais* are known to be of tremendous value to many migratory birds, the Eurasian Otter and other wildlife as testified by those in Mai Po.

The *gei wais* also have excess water storage capacity as the water level never reaches the top of the bunds under normal condition. This flood water storage function can be



further enhanced by installing sensors and electric sluice gate so that water can be discharged from these modernized *gei wais* in anticipation of heavy rainstorms and typhoons. The filling of over 90ha of fish ponds from the proposed development would increase the flood risk to surrounding low-lying areas. The modernized *gei wais* can help to alleviate this risk.

Moreover, the mangroves in *gei wais* not only provide additional habitats and nutrients for wildlife, but also capture and store carbon. A recent Chinese University research shows that 30 tons of carbon dioxide can be absorbed by one ha. of Deep Bay mangroves annually¹. Hence, the modernized *gei wais* can also contribute towards HKSAR's carbon neutral goal.

To optimize the multiple functions mentioned above, it is crucial to launch a pilot scientific research to determine the appropriate design, sluice gate management regime and the necessary equipment for modernized *gei wais*. We suggest that this should be one of the interim wetland enhancement works. The findings of such a study would be invaluable for the large-scale adoption of modernized *gei wais* in the SPS WCP. Moreover, the study would provide opportunities for fish pond operators to visit, see the benefits and learn how to operate them.

(b) Ecologically Enhanced Fish Ponds

Cormorant predation can cause serious loss of fish raised in fish ponds and is the main complaint by fish pond operators. Removing the deterrent wiring and other enhancement measures will be in conflict with commercial fish production. Hence, it is questionable how many operators will be willing to manage the ecologically enhanced fish ponds without a hefty subsidy.

The modernized gei wais mentioned above rely on natural processes and would be less management intense. They can also support far more wildlife including Eurasian Otter throughout the year as demonstrated by Mai Po. Hence, for ponds next to tidal rivers and creeks (which can be restored as mentioned below), they should be modified as modernized gei wai based on the pilot research. That would cut down the future management cost of the SPS WCP and hence increase its long-term sustainability.

¹ Liu, J., & Lai, D.Y.F. (2019). Subtropical mangrove wetland is a stronger carbon dioxide sink in the dry than wet seasons. *Agricultural and Forest Meteorology, 278*, 107644, doi: <u>10.1016/j.agrformet.2019.107644</u>.



For other ponds without tidal water intake, the bird deterrent wire should only be taken down during pond drain-down to allow wading birds to forage and roost. When the ponds are filled for fish rearing, wire should be reinstalled to prevent cormorant predation on large commercial fish, thus enhancing the fish production function.

There is a strong need to expand the regulation and management of dogs to those that might be kept by the future fish pond operators. Should operators be allowed to keep dogs in the SPS WCA, their dogs should be neutered, micro-chipped and not allowed to run loose in the park.

(c) Enhanced Freshwater Wetland Habitat

Many of the plant species in Table 10.45 are not up-to-date and a good number of the species are not commercially available. As far as we know, there has not been any successful local example in recreating freshwater wetland habitats using the mixture of listed plant species. Moreover, regular vegetation management would be needed to maintain such habitat from the invasion of tall weedy plants. The management and associated cost needed is not mentioned for this proposed mitigation component.

We would suggest using Water Buffalo to manage vegetation in the enhanced freshwater wetland habitat. Such approach has been studied and is now adopted by WWF-HK in managing Mai Po Nature Reserve because it resulted in higher density and richness of avifauna while requiring less manpower².

Other suggestions on mitigation/enhancement measures

Restore the western creeks in San Tin and the neighbouring fish ponds into a river and floodplain wetland system

This approach has been increasingly adopted by developed areas such as the Room for the River Programme in the Netherlands. It would not only minimize the number of creeks and area of wetlands that would be impacted by engineering works, but also recreate riverine wetlands, a longlost habitat type of high biodiversity value locally.

² WWF-HK, (2012). Freshwater Pond Vegetation Management Trial using Asian Water Buffalo *Bubalus bubalis* at Mai Po Nature Reserve. Phase II (2009-10): Project Report. World Wide Fund For Nature Hong Kong.



Deflate the fabridam in Eastern San Tin Channel to return it to tidal condition

This will make the channel a lot more attractive to waterbirds as exemplified by the Ngau Tam Mei drainage channel and the Tin Shui Wai channel. The fabridam can be re-inflated when needed.

Our comments and suggestions above would significantly increase the biodiversity and other functions of the proposed wetland compensation/enhancement measures. Moreover, the management costs would be reduced with a positive effect on their long-term sustainability. We hope they will be duly considered.

Best regards,

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Michael Lau Founder Hong Kong Wetlands Conservation Association