



33/F, Revenue Tower, 5 Gloucester Road, Wan Chai, Hong Kong
香港灣仔告士打道 5 號稅務大樓 33 樓

ACE Paper 14/2023
For information by circulation

**Expansion of Hong Kong International Airport into a
Three-Runway System (“3RS”)**

**Update on the Implementation of Environmental Mitigation and
Enhancement Measures in association with the 3RS Project**

This paper encloses an information paper prepared by the Airport Authority Hong Kong to the ACE providing an update on the implementation of environmental mitigation and enhancement measures related to the 3RS Project.

ACE Secretariat
August 2023

Expansion of Hong Kong International Airport into a Three-Runway System (“3RS”)

Update on the Implementation of Environmental Mitigation and Enhancement Measures in association with the 3RS Project

PURPOSE

This paper provides an update to Members on the implementation of environmental mitigation and enhancement measures related to the 3RS Project.

BACKGROUND

2. This paper covers: (a) overall progress of the 3RS construction works; (b) environmental monitoring and audit (“EM&A”) programme; (c) progress on the implementation of marine ecology and fisheries enhancement measures; (d) green building design and sustainable construction; and (e) stakeholder engagement related to the 3RS Project.

OVERALL PROGRESS OF 3RS CONSTRUCTION WORKS

3. The construction of the 3RS at Hong Kong International Airport (“HKIA”) comprises different components, including the formation of about 650 hectares of land; expansion of the Terminal 2 (“T2”); construction of the Third Runway¹, taxiways and aprons, and the T2 Concourse (“T2C”); provision of a new automated people mover (“APM”) system and a high-speed baggage handling system (“BHS”); reconfiguration of the Centre Runway² and construction of airport support infrastructure, utilities and facilities.

4. The Third Runway was officially commissioned on 25 November 2022. The Third Runway has been operating smoothly and the air traffic at HKIA has been undergoing solid recovery, leveraging on the lifting of the quarantine requirements.

5. Although there remain various challenges which could impact individual construction fronts, with various programme control and enhancement measures in place, works progress steadily on all fronts with the target to complete the 3RS in 2024.

¹ The Third Runway was designated as the North Runway in February 2022.

² The former North Runway was re-designated as the Centre Runway in December 2021.

EM&A PROGRAMME FOR 3RS PROJECT

6. The implementation of the EM&A programme for the 3RS Project is ongoing. All EM&A information, including monitoring results, implementation status of mitigation measures, events of non-compliance and the corresponding follow-up actions, etc. are reported on a monthly basis. The EM&A information together with finalised Environmental Permit (“EP”) submissions are publicly available on a dedicated website³. The EM&A programme and all the required environmental mitigation measures for the 3RS Project have been properly implemented since the commencement of construction.

7. Chinese White Dolphin (“CWD”) monitoring has continued during 2022 with monitoring results indicated a slight increase in dolphin usage of Southwest and West Lantau waters comparing to 2021 and 2020, with overall dolphin abundance in Hong Kong waters estimated at 35 in 2022, against 34 in 2021 and 32 in 2020. Although the estimate of total dolphin abundance is marginally higher this year, the trend over the last decade is a decreasing one. This decline in the estimate of total dolphin abundance was anticipated in the 3RS EIA Report, which stated that dolphins may shift their habitats away from North Lantau waters during the construction period of the 3RS Project and other concurrent projects (e.g. Tung Chung New Town Extension project) in the vicinity. The findings of the CWD monitoring programme conducted since the commencement of construction of the 3RS Project show that dolphins have been continuing to use the western waters of Hong Kong, primarily West Lantau waters, for important ecological activities including foraging and socialising with mother-calf pairs.

8. Vessel-based line-transect monitoring results continue to identify West Lantau waters as the most important CWD habitat in Hong Kong, with an apparent increase of CWD abundance in Southwest Lantau waters and a stable CWD abundance in Northwest Lantau waters also observed during 2022. With the substantial completion of reclamation and marine works, impacts on CWD habitat are expected to subside, with dolphin usage expected to recover in the long run.

9. While the line-transect surveys show a low usage of the waters around the south of Sha Chau, the continuous passive acoustic monitoring (“PAM”) effort provides evidence that dolphins do continue to use this area, especially in winter. As an initiative beyond the EM&A requirements, AAHK has deployed four F-PODs⁴ in North Lantau waters from early 2020, and increased to six F-PODs from May 2022, to provide supplemental information on the temporal and spatial patterns of dolphin usage in these waters. The PAM effort continues to identify the presence of dolphins across this area, with higher detections during night-time compared to daytime and throughout late autumn and winter compared to other seasons of the year.

³ Dedicated 3RS Project webpage for environmental-related issues:
<http://env.threerunwaysystem.com/en/index.html>

⁴ An underwater passive acoustic monitoring device for marine mammal monitoring.

MARINE ECOLOGY AND FISHERIES ENHANCEMENT MEASURES

10. AAHK is committed to enhancing the marine environment for the benefit of marine ecology (including CWD habitats), and fisheries resources in the vicinity of the 3RS Project area. Among others, AAHK has explored and is implementing a range of initiatives and programmes that are beyond the statutory EP requirements. A Marine Ecology Enhancement Fund (“MEEF”) and a Fisheries Enhancement Fund (“FEF”) were established in late 2016 with a total budget of HKD 400 million. As of now, over HKD 80 million has been granted from the MEEF and FEF to 59 qualifying projects. Details of the MEEF and FEF funded projects, including completed project reports, are posted on the dedicated websites⁵. In addition to operating the two funds, AAHK continues to voluntarily explore and/or implement a wide range of marine ecology and fisheries enhancement measures in Lantau waters with details described below.

11. Several types of eco-enhanced seawall blocks (“eco-block”) have been designed and the installation of more than 500 number of eco-blocks in different arrangements along the new seawall is now largely complete. The eco-block design incorporates differing arrays of rough surfaces, pits, holes and/or rock pool features intended to facilitate and promote colonisation of epifauna, to increase microhabitat complexity and to provide protection and refuge for marine organisms. The post-installation monitoring survey has demonstrated that the number of sessile species (including barnacles and mussels as shown in Photos A and B in Annex) and mobile species (such as limpets and crabs as shown in Photos C and D in Annex) found on the eco-blocks was higher than that on general seawall blocks nearby. The post-installation monitoring is ongoing and the results so far suggest that eco-blocks can enhance seawall biodiversity and promote recruitment of organisms that are typically not found on general seawall blocks nearby.

12. Following the pilot deployment of shellfish reefs (“SRs”) and artificial reefs (“ARs”) in 2021, the twelve-month post-deployment monitoring surveys of the SRs and ARs have now been completed. The results of the SR monitoring work identified that a large number of species colonised and populated on the restored limestone and shellfish reef structures (Photos E and F in Annex), with the recycled shell substrates effectively in boosting biodiversity. The SR pilot study also showed that the survival rate of live reef building oysters was promising with high potential value for further reef development in future. Whereas the results of the AR monitoring work showed that the ARs were successful in promoting the growth of a number of mobile and sessile species including goby fish, barnacles, bryozoans, oysters, sponges and hydroids, with some hard coral species and several commercial fish species also observed

⁵ Marine Ecology Enhancement Fund webpage:
<http://env.threerunwaysystem.com/en/meeef/index.html>
Fisheries Enhancement Fund webpage:
<http://env.threerunwaysystem.com/en/fef/index.html>

inhabiting the ARs (Photos G to J in Annex). Overall, the AR pilot test also demonstrated good potential value for considering further AR deployment in future.

13. Following the fish restocking pilot test completed in 2019, a second trial on fish fry restocking is now underway in the vicinity of the AR units deployed within the vessel-restricted Hong Kong International Airport Approach Area. In May 2023, around 10,000 fish fingerlings of commercially important species, including green groupers, seabreams and white flower croakers were released (Photos K to N in Annex), with another 10,000 to be released in September 2023. To monitor the fish restocking effectiveness at the AR units, pre- and post-release monitoring surveys, involving a combination of underwater video monitoring and acoustic telemetry surveys, would be conducted.

14. As recommended in the approved 3RS EIA Report, a new marine park namely the proposed North Lantau Marine Park (“NLMP”) comprising an area of approximately 2,400 hectares will be designated in North Lantau waters. The Agriculture, Fisheries and Conservation Department (“AFCD”) is taking forward the relevant statutory procedures in accordance with the Marine Parks Ordinance (Cap. 476) and a draft map of the NLMP was gazetted by the Government on 3 March 2023 with no objections received during a 60-day public inspection period. AFCD is proceeding with the statutory process and aims to complete the designation of NLMP in 2024 to tie in with the commissioning of the 3RS.

15. In recent years, AAHK has tried and tested several potential marine ecology and fisheries enhancement measures within the vicinity of the proposed NLMP area and the surrounding waters. The implementation of enhancement measures in pilot scale has enabled AAHK to better understand the performance and effectiveness of these measures for their potential to be ‘scaled-up’ and considered for larger-scale implementation in the vicinity of the proposed NLMP and/or the surrounding waters in future. Monitoring results to-date have affirmed that there are many potential marine ecological and fisheries benefits from these measures and AAHK is planning for further implementation of marine ecology and fisheries enhancement measures focusing on an area to the west of HKIA, which may act as a ‘sanctuary’ for marine life. Three enhancement pilots, namely SRs, ARs and fish fry release, are proposed to be scaled up in this area, providing benefit to marine habitats across the large, interlinked marine protected areas in North Lantau and beyond. A holistic monitoring plan is also being developed to take stock of the broader biodiversity value created by the scale-up measures in future.

GREEN BUILDING DESIGN AND SUSTAINABLE CONSTRUCTION

16. AAHK continues to pursue excellence in green building design and sustainable construction. Subsequent to obtaining the highest Platinum rating in

the BEAM Plus⁶ Provisional Assessment for both the T2 Expansion Works and also the Terminal 2 Concourse and Air Traffic Control Tower in 2020 and 2022 respectively, AAHK has completed the final Sustainability Performance Assessment under the Civil Engineering Environmental Quality Assessment and Awards Scheme (CEEQUAL)⁷ for the Third Runway and Associated Works and achieved the top Excellent rating for the Whole Team Award in April 2023.

STAKEHOLDER ENGAGEMENT

17. To enhance transparency and communication with the community in a proactive way, AAHK continues to engage stakeholders through the Professional Liaison Group (“PLG”) and the Community Liaison Groups (“CLGs”), with a view to facilitating communications, enquiries and complaints handling on environmental issues related to the 3RS Project. The last CLGs and PLG meeting-cum-airport-visits were held in February 2023 and April 2023 respectively. CLGs and PLG members were briefed on the latest 3RS works progress and related environmental issues, including the aircraft noise issue as well as other airport related matters.

18. AAHK strives to be highly transparent in its works. The dedicated 3RS Project website provides the general public with up-to-date information on the 3RS Project, including EM&A data and results, updated plans and submissions in accordance with requirements in the EP, presentation materials of the liaison group meetings, as well as information on the status and operation of the MEEF and FEF. Flyers introducing the environmental initiatives of the 3RS Project and short videos on selected MEEF and FEF funded projects are also available on the website for the general public’s information and viewing.

WAY FORWARD

19. AAHK will continue to implement all environmental mitigation and enhancement measures, as well as proactively engage with relevant stakeholders on environmental matters for the 3RS Project through the established engagement platforms.

20. Members are invited to note the above and advise.

Airport Authority Hong Kong July 2023

⁶ BEAM Plus, being recognised and certified by the Hong Kong Green Building Council Limited, offers a comprehensive set of performance criteria for a wide range of sustainability issues relating to the planning, design, construction, commissioning, management, operation and maintenance of a building.

⁷ CEEQUAL is an international evidence-based sustainability assessment, rating and awards scheme for civil engineering, infrastructure, landscaping and public realm projects.

Eco-enhancement of seawall designs



Photo A



Photo B



Photo C



Photo D

Photos A to D: Relatively high percentage cover of sessile species and mobile species were observed on the installed eco-blocks

Shellfish reef deployment pilot study



Photo E: Sieving of samples collected from shell bags



Photo F: Guaiagorgia sp. (gorgonian coral) found on a shell from shell bag

Photos E to F: Large number of species recorded on spat collectors and shell bags during pilot shellfish reef monitoring

Artificial reef deployment pilot test



Photo G: Balanophyllia sp. (hard coral)

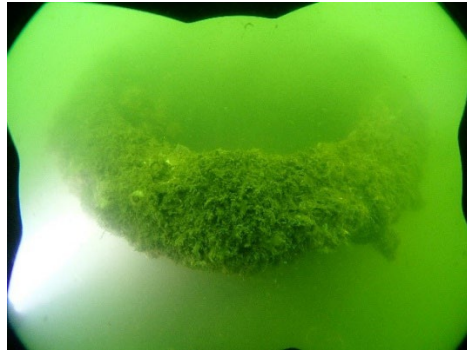


Photo H: Balanus amphitrite (barnacles)



Photo I: Thalamita sp. (crab)

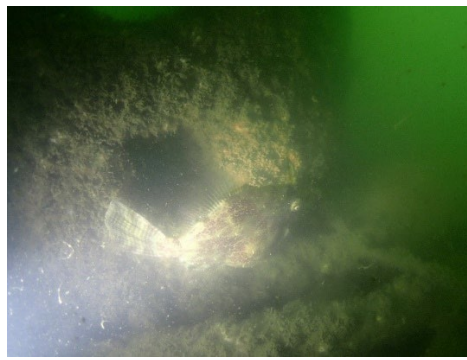


Photo J: Monacanthus chinensis (fish)

Photos G to J: Marine fauna recorded during dive monitoring surveys

Phase 2 fish restocking pilot test

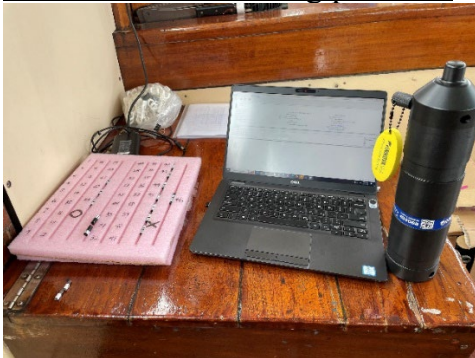


Photo K: Acoustic tags and hydrophone



Photo L: Tagging of fish



Photo M: Release of fish fingerlings



Photo N: Green groupers were observed on an AR unit after release

~ END ~