

**EIA reports on
(a) North East New Territories New Development Areas
(b) Development of Lok Ma Chau Loop**

**Summary of issues discussed by the Environmental Impact Assessment
Subcommittee at the meeting on 19 August 2013**

The Environmental Impact Assessment Subcommittee (EIASC) discussed the EIA reports on “North East New Territories New Development Areas” (NENT NDAs) and “Development of Lok Ma Chau Loop” (LMC Loop) at its meeting on 19 August 2013. The issues discussed were summarized below.

NORTH EAST NEW TERRITORIES NEW DEVELOPMENT AREAS (NENT NDAs)

(Civil Engineering and Development Department (CEDD) as the project proponent (PP))

Ng Tung River Meanders and Rose Bitterling

2. Reference was made on the inconsistent information regarding the fresh water fish species Rose Bitterling (RB) being classified as “Rare” and “Uncommon” in the EIA reports on the NENT NDAs and the LMC Loop. AFCD clarified that RB should be classified as “Uncommon”. In the past, RB was taken a “Rare” species as it was found only in three sites in Hong Kong. The status was changed to “Uncommon” in 2013 as RB was now known from six sites including four meanders on Ng Tung River in Fanling North (FLN) (treated as one site), fish ponds in LMC and Tai Mei Tuk, and in significant populations in Kowloon Reservoir and Tai Lam Catchment. The population of RB in the FLN meanders was not known until after the NENT NDAs and LMC Loop EIA reports had been completed. They confirmed that RB was of conservation interest irrespective whether the species was of “Rare” or “Uncommon” status.

3. On the question of whether any of the meanders could be retained and thereby minimizing the impacts on RB and loss of the wetland habitats, PP advised that the meanders were created as wetland mitigation areas of the Ng Tung River realignment project in the 1990s. Rapid developments of Fanling in the past decade had diminished the ecological value and fauna use of the meanders. The meanders were fragmented and PP evaluated their ecological value only as low to moderate. Presence of RB would not change the evaluation. Under the project, PP planned to

develop the meanders except the one in FLN site A1-7, and to compensate for the loss in the proposed Long Valley Nature Park (LVNP). RB would be translocated to the meanders on the Sheung Yue River before commencing works related to the Ng Tung River meanders. The meander in FLN site A1-7 would be enhanced, fenced and managed to give an undisturbed environment for continuous use by RB and water birds.

4. Members shared strong views that PP should devise a comprehensive plan to protect RB and to ensure that the translocation plan would be properly implemented and monitored. They were also concerned about the sustained effectiveness of the mitigation measures. PP informed that 37 ha of wetland with high ecological value would be conserved and enhanced in the LVNP. The water quality in the park would be closely monitored and the habitat suitability for RB and the host mussel assessed before implementing the translocation plan. Further, a long-term ecological habitat management plan for the LVNP would be devised during the detailed design stage. The park would also be fenced to avoid casual human disturbance. Members were assured that a detailed translocation plan appropriate for RB would be worked out, notwithstanding that the population in the project site was not of conservation significance in the Hong Kong context. Assuming the worst case scenario, the impact on the loss in Ng Tung River would not affect the overall conservation status of RB as the species could still be found in significant populations in other sites in Hong Kong.

5. Suggestions were made that a phylogenetic study should be conducted to determine the origin, and hence the ecological value of RB before making any decision on translocation. The study should be on all RB populations in Hong Kong rather than restricting to those found in the Ng Tung River meanders or in LMC. PP advised that the origin of RB remained uncertain. They confirmed that irrespective of the native or exotic origin of the species, mitigation measures to be adopted would be the same, i.e. avoidance and minimization, with translocation as the alternative. The overall RB populations in Hong Kong would not be affected by the translocation plan in the Ng Tung River meanders.

6. Request was also made for PP to review/realign Fanling Bypass and re-design/adjust the housing development on the northwestern bank of Ng Tung River to avoid affecting the meander. PP advised that while it might be feasible to span the meander with Fanling Bypass, shading effects would change the ecological conditions of the site by changing the water temperature and vegetation. They confirmed that the road network at the location concerned was at-grade. Elevation of that road section might affect the connectivity of Fanling Bypass with other road networks in the FLN development area.

Ma Tso Lung Stream

7. Members were concerned about the impacts to ecology due to the construction of Road R1. They were advised that the at-grade option was adopted for Road R1. The road would align with Ma Tso Lung Stream to minimize the potential impacts, and be on viaduct at the upstream section where the areas were already partially channelized and disturbed by human activities. Small sections of the stream would be diverted having regard to the ecological values of the area. The proposed stream diversion of 130m would give a buffer distance of at least 15m on each side of the stream and create a fauna corridor to help retain/restore the existing riparian habitats. Road R1 would be linked to the LMC Loop. The present proposed alignment had also taken into account the nearby housing and ancestral burial grounds. Members felt that avoiding impacts on the streams should still be given further consideration if feasible from an engineering point of view.

8. As regards the impacts on the Three-banded Box Terrapin found along Ma Tso Lung Stream, Members were advised that there were survey findings confirming that the downstream riparian wetland was not the preferred habitat for the terrapins, and that the riparian corridor was used by a number of species of conservation significance. The EIA report intentionally did not disclose the locations where the terrapins were found in consideration of the “Critically Endangered” status of the species.

Long Valley and Ho Sheung Heung

9. Members noted that a Nature Park was proposed to be designated in Long Valley (LVNP) to compensate for the loss of wetland habitats as a result of the project. A contiguous 37 ha of land in Long Valley of high ecological value would be zoned as “Other Specified Uses (Nature Park)”. Apart from the increased area of wetland being conserved and managed, the LVNP would be administered by an integrated conservation plan. Under the proposed scheme, the management agent could determine the area and distribution of habitats as a whole and introduce suitable management activities to the site. Public access to the park would be controlled. An Ecological Habitat Management Plan (EHMP) would be devised at a later stage, with details to be agreed with stakeholders and relevant authorities.

10. Questions were raised on the rationale of zoning the LVNP as “Other Specified Uses (Nature Park)” and whether there was adequate protection to the agricultural lands in the south. PP explained that the zoning was to demonstrate that Long Valley would not only be protected but would be actively managed as an integral

element of the project. The areas to the south of the LVNP were a mixture of fragmented and small plots of dry farmland/woodland bushes, houses and burial grounds and were of lower ecological value. The lands would be protected by retaining the existing “Agriculture” (AGR) zoning which would afford sufficient protection against further development. Development of the area would be subject to the planning approval of the Town Planning Board (TPB), and ecological consideration would be taken into account.

11. Members suggested if the current “AGR” zoning of the northern part of the LVNP could be revised to “Conservation Area” (CA) in view of the high ecological importance of the area. They pointed out that there had been cases where villagers intentionally destructed the site first and then applied for building small houses. Also, ‘dry farming’ activities could be applied under “AGR” which would in effect change the ecological value of the wetlands. PP advised that TPB would consider the characteristics of the subject site and the related application. For a “destroy first develop later” case, the Board would either reject the application or ask the applicant to reinstate any destroyed site before the application would be considered further. TPB would also be recommended to include suitable statements in the Explanatory Statement of the Outline Zoning Plan (OZP) to accurately reflect the planning intention of the area and for the authority to consider relevant planning applications.

Arsenic-containing soil in Kwu Tung North NDA

12. Members asked for the assessment constraints of the geological and ground water investigations and how the relative bioavailability (RBA) value be derived in relation to different forms of arsenic as well as the assessment on human health risk.

13. PP first indicated that historical and current land use reviews confirmed that there were no anthropogenic activities leading to arsenic contamination in KTN. It could be inferred that soil arsenic in KTN should be naturally occurring. PP then explained that the 42% RBA value was adopted in the EIA report after comprehensive literature reviews conducted by their expert consultant, with another round of ground investigation conducted to re-confirm the adopted RBA value was not underestimated. Soil samples collected were sent to the UK for bioaccessibility test. The result was up to 21% which was lower than the 42% RBA value which PP had adopted for KTN.

14. As regards the concerns over possible water contamination, PP advised that water samples had been collected during the drilling process which simulated the excavation process to be conducted in future. The testing results indicated that the arsenic level was mostly below 0.001 mg/litre which was on the low side. That

showed arsenic content was below detectable level. The chance of leakage of soil arsenic during the construction activities in KTN was considered low.

15. Regarding health risk assessment, Members were advised that there were two major routes of entry of arsenic into human body, namely accidental ingestion of arsenic-containing soil and inhalation of arsenic-containing dust. PP pointed out that accidental ingestion of arsenic substance by children was unlikely given the highly urbanized living environment in Hong Kong. Arsenic-containing soil was located 15m below ground level and was unlikely to be excavated during the construction period. Water spraying of the construction sites would be adopted to allay concerns on dust inhalation.

16. Members were concerned about the oxidation potential and solubility of arsenic under low pH value (acid rain) during the excavation process as the bioavailability of different forms of arsenic would vary immensely. PP informed that ground water samples had been collected down to the depth of 20m below ground level and the lowest value was around pH 5. This could indicate that the solubility of arsenic soil should be relatively low. PP had used “total arsenic” in the health risk assessment, regardless of how many different forms of arsenic which the water samples had. This was taken a conservative approach to safeguard the health of residents in KTN.

17. Members also asked about the treatment method for arsenic-containing soil in KTN and its potential impacts on the environment. PP advised that the total volume of arsenic-containing soil which required treatment was estimated to be 1.2M m³ located in central, west, and southwest regions of KTN. The proposed treatment methods would be “Cement Stabilization/Solidification” which were well established world-wide and had been adopted in other local projects such as North Tsing Yi Shipyard and Kai Tak Development project. All cemented/solidified soil would be backfilled on site.

18. Members requested PP to conduct a more detailed study on the toxicity of arsenic-containing soil, to devise the appropriate treatment plan for the specific construction sites before commencement of excavation works, and to further examine if the treated materials were fit for backfilling.

Relocation of Man Kam To Road Egretry and compensatory planting

19. Members asked about the engineering constraints of avoiding the Man Kam To Road Egretry and how the effectiveness of the relocation plan could be guaranteed. PP explained that the western end of Fanling Bypass was connected to Man Kam To

Road and an interchange for the road networks was required. The location of the proposed Man Kam To Road Roundabout was constrained by the existing development in the north and the bridge over Ng Tung River in the south. The existing Man Kam To Road Egretty had been damaged by site clearance activities in 2012 and was evaluated as of low to moderate ecological value. Future occupation of the egretty was uncertain even without the project in place. In order to ensure that the impacts of the project on the egretty would not affect the egret population as a whole, the new egretty was proposed on a precautionary basis to provide an alternative nesting/foraging site for egrets. There were no previous overseas cases of egretty relocation for use as reference. Locally, the MTR Corporation had provided a tree and bamboo habitat in the mitigation wetland as potential egretty location for the LMC Spur Line Extension project on a voluntary basis. The site was now used as a winter roost by egrets, which might be a prelude to its future use as a breeding site. A recent example was in Ocean Park. PP advised that it would take a few years to demonstrate the effectiveness of the relocation plan.

20. Members were advised that there were 9-11 nests at the existing Man Kam To Road Egretty which represented only a small proportion of the breeding egret populations in Hong Kong. PP pointed out that the loss of an egretty site was different from the loss of egret populations. They would conduct clearance of the Man Kam To Road Egretty in the non-breeding season to avoid impacts on nesting birds as set out in the Environmental Monitoring and Audit (EM&A) Manual. Pre-site clearance check would be conducted. The worst case scenario would be that egrets would choose not to return but to nest in other sites in the next season.

21. Members considered that the proposed roundabout at Man Kam To Road was unduly large and encroached on the Man Kam To Road Egretty. They enquired if the size of the roundabout could be reduced or replaced by a signalized junction. PP advised that the proposed roundabout was required in light of its significance in connecting Fanling Bypass to Man Kam To Road and access for local villagers. The proposed roundabout would serve five legs of roads and a signalized junction was not suitable. The size was also designed in accordance with the Transport Planning and Design Manual. The egretty unavoidably would be impacted as a result.

22. As regards the question on the viability of the alternative egretty, PP informed that they would establish bamboos and appropriate trees in the proposed site based on knowledge of the nesting habitat requirements for egrets. Members were assured that the alternative egretty would be established well before the Man Kam Road construction works so as to allow suitable nesting habitat be readily available for egrets which chose to use the site.

23. There were also questions on the feasibility of enhancing the Ho Sheung Heung Egretty rather than creating a new alternative egretty site, as the former had a larger colony of nests and a long history of regular patronage by different species of birds. PP advised that the Ho Sheung Heung Egretty was outside the boundary of the NDA project. Further, active conservation would be constrained by land ownership concerns. AFCD supplemented that as the Ho Sheung Heung Egretty was located outside the present EIA project, any proposal on enhancing that egretty as mitigation for the affected Man Kam To Road Egretty would be an offsite mitigation measure. Under the EIA regime, PP had to prove that onsite mitigation measures were not available or not practicable before they could propose any offsite measures.

24. Members were concerned that there were no details on the compensatory planting plan for the 8.88 ha of woodland that would be impacted or lost directly as a result of the project. Comments were also made that there should be no topping of trees as they would have very low survival rate after the relocation. PP advised that there would be a loss of secondary woodland and hillside plantation of low to moderate ecological value. That would be compensated by planting of some 80 000 trees and shrubs at a ratio of 2:1 relative to the area of habitat that would be lost. A detailed plan would be prepared in the detailed design stage of the project and be incorporated in the EM&A Manual. AFCD supplemented that compensatory woodland planting was a standard mitigation measure in most EIA studies. Details covering a list of native planting materials were included in the present EIA report. AFCD was the maintenance agent and had ample experience in afforestation.

Farming activities

25. Members noted that 28 ha of farmlands would be affected, and that only 5 ha amongst the 34 ha of agricultural lands identified as having potential for rehabilitation/resite were on public lands. They urged for Government's assistance/support for all affected farmers to continue their farming practices if they so chose. Members were advised that specific agricultural rehabilitation scheme for affected farmers would be introduced. This would include actively liaising with those private land owners for leasing or resuming the lands. PP had also identified 160 ha of lands of good potential for agricultural rehabilitation in the vicinity of the NDAs in order to facilitate resite for those affected farmers who wished to continue their farming activities.

Synergy of new towns

26. Suggestion was made to develop the KTN NDA to serve the hinterland of NENT after the KTN was extended to form the new Fanling (FL)/Sheung Shui (SS)/

Kwu Tung (KT) New Town. Members were concerned that particular attention should be made to the livelihood and economic development of the KTN and FLN NDAs to avoid recurrence of the plight of the Tin Shui Wai New Town.

27. PP informed that the NDAs would be provided with well-established community, amenity and shopping facilities. Green transportation and pedestrian/cycling networks would be designed to provide convenient access linking up different parts of the New Town. The whole design concept was a coherent new town through integration of the old and new communities. Some 37 000 job opportunities were expected to be generated in the NDAs. This would account for a 22% job-to-population ratio, as compared to the 8% ratio for Tin Shui Wai.

28. Members considered that there should be regular reviews on the changing needs of FL/SS/KT New Town to give a better integration to serve the NENT hinterland. The concept of green and sustainable community should be incorporated in the project design. Opportunity should also be taken to revitalize the existing FL and SS new town where practicable.

DEVELOPMENT OF LOK MA CHAU LOOP (LMC LOOP)

(Civil Engineering and Development Department (CEDD) as the project proponent (PP))

Eastern Connection Road (ECR)

29. Members noted that the LMC Loop would be developed as a higher education hub, to be complemented by research and development (R&D) and cultural and creative (C&C) industries. They questioned the traffic assessment of the Eastern Connection Road (ECR) in terms of the traffic composition and traffic flow assessments. They considered that the need of the proposed ECR had been overestimated. There was also the observation that the road could not blend well with the natural environment of the Loop

30. PP explained the basic assumptions regarding the number of teaching staff and students on campus and the expected travel characteristics in and out of the Loop. One of the assumptions was that only half of the full-time students would reside in campus. The teaching staff as well as people working in the R&D and C&C sectors would require daily commuting to and from the Loop. It was not intended to provide housing facility in the LMC Loop other than the student hostel. Housing needs were to be met by developments in KTN NDA nearby. The proposed ECR was essential to link up the two communities to bring synergy, namely the Loop to provide job opportunities and the NDA to provide housing and other community/supporting

services. On green transport initiatives, car parks would be provided only at both ends of the Loop, and public transport using environmental friendly shuttle bus service would be arranged within the Loop.

31. As regards the question on whether the Western Connection Road (WCR) could be widened to meet the additional traffic demand and absorb the expected need for the proposed ECR, PP advised that substantial land resumption, including residential land, would be involved if the WCR was to be further widened to provide an additional lane. The additional traffic loading arising from developments of the LMC Loop would overload the WCR and block up the San Tin Interchange. Any works on the interchange would have great implications on the cross-boundary traffic and involve major re-design of the transport networks. The proposed ECR would provide good connectivity of the Loop with the surrounding areas including KTN NDA in order to complement the Loop in providing various services and facilities. There would also be an MTR station in KTN NDA in future. This would give access to the Loop from the east with the new MTR KTN station cum the proposed ECR, while from the west with the MTR LMC station cum the Direct Link. All the planning designs were to give high accessibility to the Loop.

32. Members considered that the carrying capacity of the existing transit service to LMC should prove adequate to cater for the traffic demand for the whole Loop area. There were requests for further justification for the proposed ECR to be used as an alternative access road for emergency situation, as there was already a link to Shenzhen in case of emergency. Comments were also made that the EIA study had not assessed the proportion of people commuting between the Loop and Shenzhen, as this group would not use the ECR but other road networks. PP clarified that the link to Shenzhen was a long-term proposal for pedestrian access only. The proposed ECR would serve as an alternative route and provide a more reliable vehicular connection network to the LMC Loop in case the WCR failed. There were also plans for green measures by connecting the Loop to the adjacent facilities, including the LMC and KTN MTR stations using environmental friendly electric shuttle service within the Loop

33. Members shared that there should be a balance between environmental protection and engineering consideration for the proposed ECR. They considered that PP had to clarify whether the ECR was intended as a routine connection road, which would be very different from an alternative emergency access. While Members accepted the creation of another access point to the LMC Loop, if considered necessary, they opined that the choice of location, design and carrying capacity of that access point could be reviewed/adjusted having due regard to avoiding the greater impacts on the ecology and landscape in the east side of the Loop. In promoting the

concept of low carbon travel, consideration could be made for all vehicular traffic leading to the Loop to stop at KTN and LMC MTR stations. Passengers should then commute to the Loop either on foot, by green public transport or cycling.

Ecological compensation measures

34. Members asked if the existing reed bed areas proposed to be removed and re-created in another part of the LMC Loop could be revised by retaining and integrating part of them in the Amenity/Activity Corridor zone. PP explained that the existing reed marsh was fragmented, and re-creating the marsh in one piece in another location would make it more integrated. Their plan was that in the areas where the amenity zone met with the ecological area, there would be an open freshwater marsh area. This would provide visual amenities for people living and working in the LMC Loop. There were also fragmentation problems if buildings were to be erected around the existing reed marsh.

35. Members were also advised that the whole Hoo Hok Wai Wetland area including the fish ponds was zoned as “CA” in the draft OZP. This should ensure protection of the fish ponds and preserve the integrity of the birds flight path.

36. There were also the questions on the study and mitigation on possible bird collisions. Members were advised that the following mitigation measures had been recommended in the EIA report –

- (i) Use of non-reflective materials for buildings;
- (ii) No lighting at top of buildings or pointing to the sky or adjacent habitats to minimize disorientation of the birds; and
- (iii) Use of non-transparent non-reflective materials for noise barriers in rural areas, particularly along the major birds’ flight line corridors.

Plot ratio and urban design

37. Members suggested that a more comprehensive urban design approach could be adopted for the development of the LMC Loop viz. (i) promotion of a people-oriented community; (ii) low carbon and green initiatives; and (iii) integration of natural heritage. PP advised that a Master Urban Design and Landscape Plan had been prepared. Major urban design concept and features included an east-west running boulevard serving as wind and activity corridor, green connectors serving as visual corridors, and public open space/courtyards amongst buildings for people to interact. All these were aimed to foster interaction amongst different users and

vibrancy. Detailed guidelines would be drawn up to promote people-oriented community when working on the detailed layout proposals at a later stage.

38. In response to the enquiry on any plans to introduce solid waste treatment system in the Loop, PP informed that they would introduce the necessary initiative on separation and recycling of solid waste. As regards the water quality of Shenzhen River, the Shenzhen City Government was planning under the Shenzhen City 2020 plan to improve the water quality of the tributaries leading to Shenzhen River.

Recommendations to ACE

(A) NENT NDAs EIA report

39. Having regard to the findings and recommendations of the EIA report and information provided by CEDD and their consultant team, EIASC agreed to recommend to the full Council that the report could be endorsed with conditions. The Subcommittee has also made a number of recommendations to CEDD as well as a few comments/observations to the Government on the social and other impacts of the project which were outside the purview of the EIA regime.

40. EIASC agreed that CEDD and their consultant team should attend the full Council meeting on 9 September 2013 to explain the feasibility, practicability, programming and effectiveness of the mitigation measures proposed in the NENT NDAs EIA report, and to take any questions which Council Members may have on the project.

(B) Development of LMC Loop EIA report

41. EIASC would request CEDD to provide supplementary information on the project before the Subcommittee would make recommendations to the full Council on the EIA report.

EIA Subcommittee Secretariat

August 2013