

1 Introduction

1.1 Project Background

The Planning and Development Study on North East New Territories (NENT Study, CE64/96) commenced in 1998 had identified areas in Kwu Tung North (KTN), Fanling North (FLN) and Ping Che/Ta Kwu Ling (PC/TKL) to be suitable for New Development Areas (NDAs). The NENT Study also confirmed the feasibility of NDAs based on the findings and recommendations from the technical assessments on various aspects including planning, environmental and engineering. In 2003, having regard to the housing demand at the time, the Government decided to shelve the NDAs proposal in the interim pending a comprehensive review of Hong Kong's overall planning under the Study on Hong Kong 2030: Planning Vision and Strategy (HK2030 Study).

The HK2030 Study carried out by the Planning Department (PlanD) completed in 2007 was a comprehensive review of Hong Kong's territorial development strategy for formulating a broad planning framework to guide the future development of Hong Kong up to 2030. It recommended proceeding with KTN, FLN and PC/TKL NDAs (i.e. NENT NDAs) as well as Hung Shui Kui NDA to address long-term housing demand and to provide job opportunities. NENT NDAs (Figure 1.1A) and Hung Shui Kui NDA were included as one of ten major infrastructure projects in the 2007-08 Policy Address. .

Further to the recommendations for NDAs in HK2030 Study, the Civil Engineering and Development Department (CEDD) and PlanD jointly commissioned the North East New Territories New Development Areas Planning and Engineering Study - Investigation (the Project) to formulate updated development proposals for NENT NDAs. The Project aims to review and update the findings and recommendations of the NENT Study, and to formulate revised proposals for NENT NDAs.

The Project has adopted a three-stage public engagement programme to foster consensus building. The Stage 1 Public Engagement which commenced in mid November 2008 and lasted for about three months aimed to engage key stakeholders (the general public, relevant organisations, district councils and rural committees) in discussions on key issues relating to the development of the NDAs.

The Stage 2 Public Engagement which aimed at collecting public views on the Preliminary Outline Development Plans (PODPs) for the three NDAs commenced in November 2009 and completed in January 2010. The Stage 3 Public Engagement (PE3) was carried out from mid June to end September 2012, to gauge public views on the Recommended Outline Development Plans (RODPs) for the NDAs. A series of community engagement activities were undertaken for different stakeholders including the Legislative Council Panel on Development, Town Planning Board, Heung Yee Kuk (HYK), North District Council, relevant Rural Committees, Advisory Council on the Environment,

Housing Authority, Land Development Advisory Committee, professional bodies, local concerns groups and other stakeholders such as green groups.

After careful and comprehensive consideration of comments received during the PE3 and taking into account all relevant considerations including the findings of various technical assessments, the current plan is to proceed with development in KTN and FLN NDAs to accommodate about 174,900 population. The RODPs for KTN and FLN NDAs have been suitably revised. PC/TKL NDA will be critically reviewed and re-planned. According to the 2013 Policy Address, the development potential in New Territories North (NT North) is to be explored in order to provide land to meet the demand for housing and economic development. In this context, it is recommended to include PC/TKL in the planning of NT North in order to comprehensively review relevant planning considerations. Thus, no revised RODP has been formulated for PC/TKL NDA and as such, no EIA assessment is required for PC/TKL NDA at this juncture.

1.2 The Assignment

On 16 June 2008, CEDD and PlanD commissioned Ove Arup & Partners Hong Kong Limited (Arup) as the Consultant for the Project.

The Project commenced on 16 June 2008 and is expected to complete in October 2013 to carry out planning, engineering and environmental studies with a view to reviewing and updating the findings and recommendations of the NENT Study to formulate revised proposals for NENT NDAs; confirming the feasibility of implementing the revised proposals for NENT NDAs to meet long-term housing, social, economic and environmental needs; and formulating the implementation strategies and programme for the NDAs with the first population intake by the year of 2023.

1.3 The Study Area

The NDAs under this Environmental Impact Assessment (EIA) Study include KTN NDA and FLN NDA covering a total area of about 614ha. The Study Area is shown in **Figure 1.1**.

KTN NDA

KTN NDA is located to the west of Sheung Shui and is generally bounded by Shek Sheung River to the east, Castle Peak Road and Fanling Highway (New Territories Circular Road) to the south, Pak Shek Au and Tit Hang villages to the west and the present Closed Area boundary to the north. The NDA has an area of some 450 ha and is proposed to accommodate a population of about 101,600 people on full development. The environmental impacts of the development of KTN NDA are assessed in this EIA report.

FLN NDA

FLN NDA is located immediately to the north-east of the established Fanling/Sheung Shui New Town and is bounded by Upper Ng Tung River to the north and east, Sha Tau Kok Road to the south, and Ma Sik Road and Tin Ping Road to the south-west. The NDA has an area of around 164ha and is proposed to accommodate a population of about 73,300 people on full development. The environmental impacts of the development of FLN NDA are assessed in this EIA report.

KTN and FLN NDAs would become the extension of Fanling/Sheung Shui New Town to form the Fanling/Sheung Shui/Kwu Tung North (FL/SS/KTN) New Town, which will have a total population of about 460,000 upon full development, comparable to such new towns as Tuen Mun and Tseung Kwan O. FL/SS/KTN New Town will be an integrated community providing a wide range of employment opportunities as well as commercial, community, recreation and cultural facilities supporting a larger population.

1.4 EIA Study Brief

In accordance with the requirements of Section 5(1) of the Environmental Impact Assessment Ordinance (EIAO), a project profile (No. PP-337/2007) for NENT NDAs was submitted to the Director of Environmental Protection (the “DEP”) for application for an EIA Study Brief on 28 November 2007. Pursuant to Section 5(7)(a) of the EIAO, the DEP has issued a Study Brief (No: ESB-176/2008 dated 11 January 2008) for the EIA study.

This EIA Report is to address the environmental impacts for the works proposed under NENT NDAs in accordance with the said EIA Study Brief. The current proposal is to proceed with revised RODPs for KTN and FLN NDAs, whilst PC/TKL NDA will be put aside and re-planned, hence PC/TKL NDA is not covered in this EIA.

1.5 Designated Projects

The Project which covers KTN and FLN NDAs is a designated project (DP) under Item 1 Schedule 3 of EIAO - Engineering feasibility study of urban development projects with a study area covering more than 20 ha or involving a total population of more than 100,000.

In addition, the following work components also fall under various Schedule 2 DP categories as summarised in **Tables 1.1a & 1.1b**. The locations of the Schedule 2 DPs are shown in **Figures 1.2 – 1.4**

Table 1.1a: Schedule 2 Designated Projects in KTN NDA

Item	Work Component	Schedule 2 DP Category		Reason
1	San Tin Highway and Fanling Highway Kwu Tung Section Widening (between San Tin Interchange and Po Shek Wu Interchange) (Major Improvement)	A1	A road which is an expressway, trunk road, primary distributor road or district distributor road including new roads, and major extensions or improvements to existing road	To widen the concerned portion of San Tin Highway and Fanling Highway Kwu Tung Section from dual 3-lane to dual 4-lane configuration
2	Castle Peak Road (CPR) Diversion (Major Improvement)	A1	A road which is an expressway, trunk road, primary distributor road or district distributor road including new roads, and major extensions or improvements to existing road.	The CPR will be realigned and join with the Pak Shek Au Interchange at the western end and the original CPR near Yin Kong at the eastern end.
3	KTN NDA Road P1 and P2 (New Road) and associated new Kwu Tung Interchange (New Road) and Pak Shek Au Interchange Improvement (Major Improvement)	A1	A road which is an expressway, trunk road, primary distributor road or district distributor road including new roads, and major extensions or improvements to existing road.	Construction of new primary distributor roads inside KTN NDA.
4	KTN NDA Road D1 to D5 (New Road)	A1	A road which is an expressway, trunk road, primary distributor road or district distributor road including new roads, and major extensions or improvements to existing road.	Construction of new district distributor roads inside KTN NDA.
5	New Sewage Pumping Stations (SPSs) in KTN NDA	F3	A SPS---(b) with an installed capacity of more than 2,000 m ³ per day and a boundary of which is less than 150 m from an existing or planned residential area or educational	Construction of two new SPSs in KTN with installed capacity of more than 2,000 m ³ per day and less than 150m from existing and planned residential buildings.

Item	Work Component	Schedule 2 DP Category		Reason
			institution.	
6	Proposed railway station and associated facilities in KTN NDA (To be conducted under separate study).	A2	A railway and its associated facilities.	The construction of new Kwu Tung railway station
7*	Utilization of Treated Sewage Effluent (TSE) from Shek Wu Hui Sewage Treatment Works (SWHSTW)	F4	An activity for the reuse of treated sewage effluent from a treatment plant	Construction of service reservoir and watermain for the reuse of treated sewage effluent in KTN NDA.

*Work component serves both KTN and FLN NDAs.

Table 1.1b - Schedule 2 Designated Projects in FLN NDA

Item	Work Component	Schedule 2 DP Category		Reason
7*	Utilization of TSE from SWHSTW	F4	An activity for the reuse of TSE from a treatment plant	Construction of service reservoir and watermain for the reuse of treated sewage effluent in FLN NDA.
8	Po Shek Wu Interchange Improvement (Major Improvement)	A1	A road which is an expressway, trunk road, primary distributor road or district distributor road including new roads, and major extensions or improvements to existing road	Po Shek Wu Road is primary distributor. Major improvement works on primary distributor is a DP.
9	Fanling Bypass Western Section (New Road)	A1	A road which is an expressway, trunk road, primary distributor road or district distributor road including new roads, and major extensions or improvements to existing road	Construction of new district distributor inside FLN NDA.
10	Fanling Bypass Eastern Section (New Road)	A1	A road which is an expressway, trunk road, primary distributor road or district distributor road including new roads, and major extensions or improvements to existing road.	Construction of new primary distributor inside FLN NDA.

Item	Work Component	Schedule 2 DP Category		Reason
11	Shek Wu Hui Sewage Treatment Works - Further Expansion at FLN NDA	F1	Sewage treatment works with an installed capacity of more than 15,000 m ³ per day.	The design capacity of the proposed expansion and upgrading of SWHSTW is of 190,000 m ³ per day.
12	Reprovision of temporary wholesale market in FLN NDA.	N3	A wholesale market.	A wholesale market is a DP under EIAO.
13	New SPSs in FLN NDA	F3	A SPS---(b) with an installed capacity of more than 2,000 m ³ per day and a boundary of which is less than 150 m from an existing or planned residential area or educational institution.	The installed capacity of 4 new SPSs is more than 2,000m ³ per day and less than 150m from existing or planned residential building or educational institution.

*Work component serve both KTN and FLN NDAs.

Broad descriptions of the Schedule 2 DPs listed in **Tables 1.1a & 1.1b** above are given in **Section 2.4.2**.

1.6 Objectives of the EIA Report

The objectives of the EIA study are as follows:

to describe the Project and associated works together with the requirements and environmental benefits for carrying out the Project and associated works;

to identify and describe elements of the community and environment likely to be affected by the Project and associated works and/or likely to cause adverse impacts on the sensitive uses at the Project, including both the natural and man-made environment and associated environmental constraints;

to provide information on the consideration of alternatives to avoid or minimise the potential adverse environmental impacts on the sensitive uses at the Project and adjacent areas that may be subject to the adverse environmental impacts of the Project and associated works; to compare the environmental benefits and dis-benefits of each of different options; to provide justifications and constraints for selecting the preferred option(s); and to describe the part environmental factors played in the selection;

to identify and assess air quality impact, noise impact, water quality impact, waste management, land contamination, hazard to life, ecological impact, fisheries impact, landscape and visual impact, impacts on sites of

cultural heritage, quantify emission sources and determine the significance of impacts on sensitive receivers and potential affected uses;

to identify the negative impacts and propose measures to avoid or provision of mitigation measures to minimise pollution, environmental disturbance and nuisance during construction and operation of the Project;

to investigate the feasibility, practicability, effectiveness and implications of the proposed impact avoidance and/or mitigation measures;

to identify, predict and evaluate the residual environmental impacts (i.e. after practicable avoidance or mitigation measures) and the cumulative effects expected to arise during the construction and operation of the Project and associated works in relation to the sensitive receivers and potential affected uses;

to identify, assess and specify methods, measures and standards to be included in the detailed design, construction and operation of the Project and associated works which are necessary to mitigate these environmental impacts and cumulative effects and reduce them to the acceptable levels;

to investigate the extent of the secondary environmental impacts that may arise from the proposed mitigation measures and to identify constraints associated with the mitigation measures recommended in the EIA study, as well as provision of any necessary modification;

to identify any individual project(s) that fall under Schedule 2 of the EIAO; to ascertain whether the EIA study has adequately addressed the environmental impacts of those projects; and, where necessary, to identify the outstanding issues that need to be addressed in any further detailed EIA study; and

to design and specify environmental monitoring and audit requirements to ensure effective implementation of the recommended environmental protection and pollution control measures.

1.7 Structure of the Report

The structure of this Report is as follows:

Section	Title	Aims
1	Introduction	To provide project background, purpose and scope of the EIA study as well as to define the EIA study area and the Schedule 2 DP within the NDAs
2	Project Description	To describe the project inception, public aspirations, consideration of alternatives, green initiatives and project visions leading to the development of revised RODPs and major activities in the project scope

Section	Title	Aims
3	Air Quality	To assess the potential air quality impact of the project and recommend mitigation measures
4	Noise	To assess the potential noise impact of the project and recommend mitigation measures
5	Water Quality	To assess the potential water quality impact of the project and recommend mitigation measures
6	Sewerage and Sewage Treatment Implications	To assess the potential sewerage and sewage treatment implication of the project and recommend mitigation measures
7	Waste Management Implications	To assess the potential waste management Implications and recommend mitigation measures
8	Land Contamination Impact	To assess the potential land contamination impact of the project and recommend mitigation measures
9	Hazard to Life	To assess the potential hazard to life of the project and recommend mitigation measures
10	Landfill Gas Hazard	To assess the potential landfill gas hazard of the project and recommend mitigation measures
11	Impact on Sites of Cultural Heritage	To assess the potential cultural heritage impact of the project and recommend mitigation measures
12	Landscape and Visual Impact	To assess the potential landscape and visual impact of the project and recommend mitigation measures
13	Ecological Impact	To assess the potential ecological impact of the project and recommend mitigation measures
14	Fisheries Impact	To assess the potential fisheries impact of the project and recommend mitigation measures
15	Environmental Outcome	To summarise the assumptions and limitation of assessment methodologies as well as findings of environmental impacts, outcome and mitigation measures adopted
16	EM&A Requirements	To summarise the requirement of environmental monitoring and audit
17	Conclusions	To conclude the assessment results of the EIA study