

Chapter 2 STRATEGIC ENVIRONMENTAL ASSESSMENT OF CTS-3

2.1 *Structure of CTS-3*

2.1.1 The CTS-3 Study has been divided into two main stages. The first stage was the Initial Model Runs where transport scenarios were conducted to test the boundaries of input assumptions for the Main Model Runs. The Main Model Runs consist of various scenarios to test the acceptability of traffic conditions by varying the key input assumptions. Economic analysis on highways infrastructure projects were also conducted. The intention in testing various scenarios is to assist in the formulation of the Recommended Transport Strategy for the design years (2001, 2006, 2011 and 2016).

2.2 *Structure of the SEA and its interaction with CTS-3*

2.2.1 In line with the logistics of the main study, the SEA was also divided into two main stages. Environmental assessments (as described in the following section) were conducted so that the boundaries of the environmental conditions could be established. Environmental assessment in terms of air and noise were conducted for each of the scenarios of the Initial Model Runs. Ecological appraisals were also conducted for proposed new highway projects. The formulation of the scenarios for the Main Model Runs has also taken into consideration the results from the initial environmental assessment.

2.2.2 All the scenarios generated during the Main Model Runs were assessed by a more detailed environmental analysis. The environmental results were referenced when formulating the Recommended Transport Strategy. Ecological appraisals on the potential loss of habitats were also conducted for the recommended new highway projects.

2.3 *Methodology of Strategic Environmental Assessment (SEA)*

2.3.1 In order to establish the baseline environmental conditions so that the potential deterioration of future transport scenarios could be identified, a baseline environmental study was conducted at the beginning of the SEA study. The Study has established the baseline air quality in 1997 and the number of exceedances of Air Quality Objectives (AQO) were identified. The baseline noise study has established a network of roads and the noise exposure to population on these roads was established. The ecological baseline study has identified the ecologically sensitive areas within the territory of HKSAR.

2.3.2 The methodology for the CTS-3 SEA was developed based on research on SEA conducted elsewhere in the world and its applicability in HKSAR. A brief description of the methodology is described as follows and a more detailed methodology is presented in the respective sections of the report.

Air Quality Assessment

- 2.3.3 Emission Inventory Analysis: During the Initial Model Runs, territory-wide emission inventories were established for the transport scenarios. The inventory for each scenario was then compared with the base year (1997). During the Main Model Runs, the emission inventory was more spatially refined and represented the 18 district board boundaries of HKSAR. The increase or reduction in pollutant emissions in each of these districts was compared with the base year and the potential improvement or deterioration was identified.
- 2.3.4 PATH modelling: A detailed air quality modelling analysis was conducted for the four scenarios of the Recommended Transport Strategy in 2016 to determine the air pollutant concentrations and hence if exceedance of AQO is expected.

Noise Assessment

- 2.3.5 About 200 roads in the territory were selected and the noise exposures of the population on these roads were calculated taking into account new road infrastructure and population growth. The noise exposures for each transport scenario were compared with the base year.

Ecological Appraisal

- 2.3.6 A preliminary appraisal of the potential ecological impacts associated with the highway and railway alignments for examination in the CTS-3 initial model runs was undertaken in the Working Paper 7-1 and Addendum to Working Paper 7-1 and SEA Initial Assessment Report, based on the ecological information presented in the earlier SEA *Working Paper (WP) 1 - Baseline Environmental Conditions*. An initial indication of the relative overall impact of the different scenarios was provided.
- 2.3.7 The subsequent Main Model Runs recommended new strategic routes which have avoided as far as practicable known areas of conservation importance through avoidance of ecologically valuable areas identified as constraints at the early stage of the CTS-3 study in WP1. More detailed assessment of these strategic routes has been undertaken for this report and is presented in Chapter 7.