Chapter 1

Introduction

1.1 Background and Objective

Temburong district is the easternmost part (*daerah*[1]) of Brunei Darussalam. It is an exclave–detached land located in Malaysia, separate from the Brunei mainland. Most of the area is covered by tropical forest and morass.

In Temburong district, development needs such as tourism will increase with the opening of a new bridge from Bandar Seri Begawan (BSB) district in 2020. Most of Temburong district's land is included in the Heart of Borneo (HOB) advocated by the World Wildlife Fund (WWF), so it is important to achieve economic development that coexists with extensive wetland, jungles, or ecosystems with abundant nature.

Demand for smart city and eco town development has been increasing, since these concepts make a huge contribution to energy conservation in the business and commercial sector. Brunei Darussalam's 'Wawasan Brunei 2035' vision[2] assumes a sustainable society for the future and advocates a departure from oil dependence, development of human resources, creation of new green industry, and development of small and medium-sized enterprises.

This project formulates a nature-friendly eco town master plan for Temburong district. The master plan considers the country's development vision and ecological protection.

1.2 Rationale

The rationale of this study is based on the Temburong Eco Town Project Phase 1 and 2 studies, which were discussed by the Economic Research Institute for ASEAN and East Asia (ERIA) and the Ministry of Energy and Industry.

The phase 1 study in 2015–2016 investigated the idea of turning Temburong district into an eco town, with energy-saving technologies (e.g. buildings, automobiles, and smart-grids). the Phase 2 study in 2016–2017 estimated the electrical power that Temburong eco town would need; and simulated the power generation, including a combination of diesel power, solar power, and storage batteries. Although solar power and storage batteries could generate enough uninterrupted power for Temburong eco town, without a diesel power source, the cost would

[1] *daerah* is the principal administrative divisions of Brunei. The country is divided into four districts, consisting of Brunei-Muara, Belait, Tutong, and Temburong.

[2] Wawasan Brunei 2035 is the vision of the nation toward 2035 announced by the Government of Brunei Darussalam in January 2008. It aims to raise the quality of life of its citizens, and transform Brunei from an economy relying heavily on oil and natural gas into a more economically diversified and dynamic social nation. Section 2.1 discusses Brunei Vision 2035.

be quite high. Therefore, this study suggests continuing to use diesel power and slowly shifting the balance toward solar power and storage batteries, with the expectation that the cost will decrease in the future.

This phase 3 study (2017–2018) of the Temburong Eco Town Project continues the master plan, based on the recommendations for eco-friendly solar power and storage battery use described in phases 1 and 2.

1.3 Study Method

This project comprised the formulation of (i) the basic concept plan and (ii) the master plan for the development hub.

(1) Formulation of Basic Concept Plan

(i) Collection, analysis, and evaluation of current conditions

- Collect material and data
- Analyse current natural, social, infrastructure and environmental conditions
- Evaluate site location, relationship with the surrounding district, potential for land use, traffic, infrastructure, environment, potential for sightseeing, research and development (R&D), convention, etc.

(ii) Vision and goals

- Define the vision and goals
- Define the concept

(iii) Setting the planning framework for urban planning

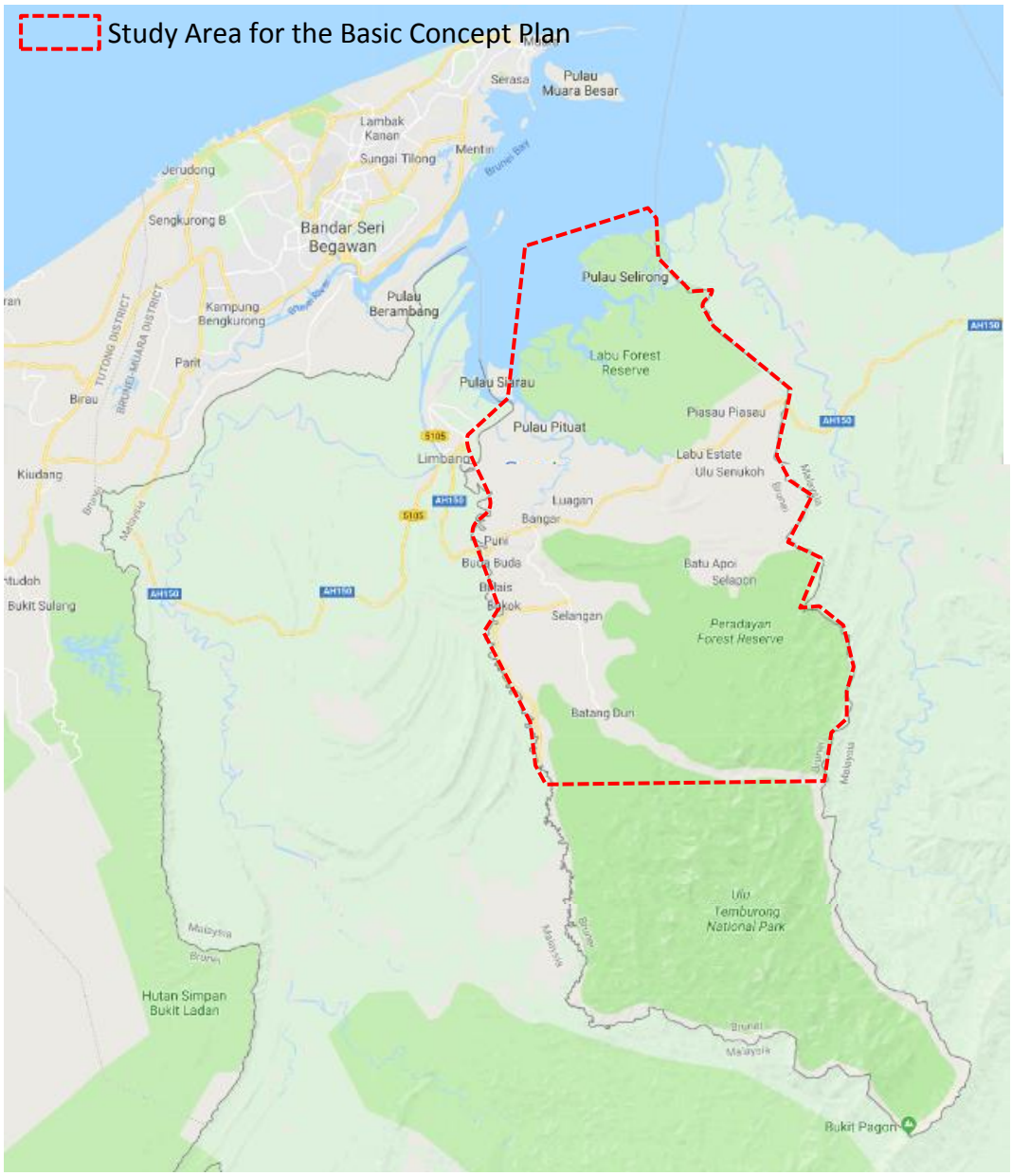
- Set up the following planning framework based on the evaluation of current conditions and the vision/goals/target:
  + Population–residential, working, and tourist
  + Urban function to introduce–convention area, R&D, commercial, sightseeing, education, medical, residence
  + Land use frame
  + Size/Scale of the facilities to be introduced

(iv) Selection of development hub (growth centre) location

- Select two areas for the development hub
- Set the scale and function for each area.

(v) Prepare the zoning map

Figure 1.1: Study Area for the Basic Concept Plan



Source: Study team.

(2) Formulation of Master Plan for Development Hub

This task is based on the preliminary development hubs selected in task 1.

(i) Detailed analysis and evaluation of current conditions

(ii) Detailed development concept and frame

(iii) Formulation of land use plan

(iv) Study of smart cities policy in this masterplan

- Study the way to create an 'eco friendly city' based on city development style and lifestyles.
- Examine the introduction of smart energy such as solar energy and hydrogen gas for urban infrastructure, e.g. electricity (energy), water, and transportation.

(v) Proposal of priority project