



สำนักงานนโยบายและแผนทรัพยากรธรรมชาติและสิ่งแวดล้อม  
กระทรวงทรัพยากรธรรมชาติและสิ่งแวดล้อม

# EXECUTIVE SUMMARY

## Strategic Environmental Assessment for Land Use Planning



February 2020



## Executive Summary

### Strategic Environmental Assessment in Land Use Planning

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## Preface

In the past, Area-Based and Economic development in Thailand hadn't been extensively conducted about land potential and limitation assessment, including natural resources in the area. Therefore, Development Projects according to government policy had been troubled about congruity and worthwhileness of land use, area-based approach and public utility investment, including environmental management and acceptance from people. Although, government had been defined type of land use in various ways such as agricultural land, industrial land, residential land and commercial land, or even land use for transportations and logistics. However, the most oblivious thing is inefficient of public participation in area as expects. As a result, an area-based approach or a variety of development projects by government had been conducted in due time. Which may cause slowly and misunderstanding between people and government. The problem was caused by two actors. Because people have not recognized the data inefficiently. Especially own data potential of land use where they live that have been suited with any types of land use or activities. Including public participation process in areas has been conducted ineffectively or public participation that happened are listening data or news information about development project commonly. While government agencies who is responsible for imposing policy, strategy, development plan and development project has been considered suitability of area-based approach incomprehensiveness. As a result, any development project by government couldn't be achieved objectives under policy or strategy as expected. Because Development Planning with Strategic Environmental Assessment in Thailand had been conducted incomprehensiveness. The Strategic Environmental Assessment is an extremely important tool for area-based approach and economic get the most out of high potential. Because it has been determined a principle and guideline clearly in every procedure that have to be public participation. In order to policymaker or project owner acknowledged the need of people in the development project area. Although, Thailand have many laws, policies, strategies, development plans and management plans but area-based approach and economic development still be a main issue that have to lay down measure for resolve that problem urgently. Especially land use



management and area-based planning. In order to development that happened base on a potential and suitability of land use in Thailand. In addition to consistency of national development in all dimensions. As a result, environmental get the most out of using and development that happened be sustainable.

The Office of Natural Resources and Environment Policy and Planning

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## Glossary

Strategic Environmental Assessment: SEA	A process that helps establish a context for sustainable development by integrating environmental and sustainability issues in decision-making and evaluation of development options to cover economic, social and environmental dimensions.
Environmental Impact Assessment: EIA	A process of identifying, forecasting, assessing and mitigating the biophysical effects (physical and ecological effects), social effects and other relevant effects of development proposals before fundamental decisions are taken and commitments made.
Vision	An image that is expected to occur in the future, based on the present reality.
Policy	Vision and overview of operations which specifies the principles and methods of practice which is a framework or general guidelines. In order to be a concept for decision making, the plan must be more detailed and clear to be able to respond to the needs or solve problems or as a commitment to achieve development that is the purpose of that policy.
Plan	Guidelines for implementing each sector to achieve the goal required by determining priorities, options and measures for resource management, including personnel, budgets, materials, appliances and proper management including setting a time frame for the implementation of that policy into practice.
Program	A group of projects that are consistent and linked which is established with one or many purposes leading to the objective of the plan and the above policy. Implementation of the plan requires activities, resource scheduling, importation and the way to achieve certain outputs for evaluation.
Decision Problem	The problem of finding a way to decide whether a formula or class of formulas is true or probable within the framework or given system of axioms. The reasons that motivate the need for a decision. It is what decision-makers need to resolve for a decision to be made. Identification of a problem implies identification of what is at stake considering the level of uncertainty.





## Glossary

Participation	A process in which a person/organization is called in to participate in the decision making by exchanging information, showing interest, comments and concerns, including consultation (Consultation), which provides recommendations and opinions on the report, especially from the public.
Driving Forces	Determinants of change in strategic decision-making, important to understand deep trends related to a focal issue. It is a conceptual tool popularized in the context of scenario building. In SEA it refer to forces that set change in a strategic development process determining trends. Driving forces can be distinguished as enablers and inhibitors, may be internal or external forces. Population growth and land use changes account for the most relevant direct drivers of change (MEA, 2005). The OECD DPSIR (D-Drivers; P-Pressures; S-state; I-Impact; R-Response) model uses the concept of driving forces. Driving forces are often categorized in demographics, economics, political, social, science and technology
Critical Decision Factors: CDF	Key integrated themes that are seen as success factors of a strategic decision and upon which SEA must be focused. The CDF act as windows of observation to focus attention on the strategic environment and sustainability issues that matter in the assessment. CDF materialize the concept of scoping at strategic levels and satisfy the European legal requirements concerning the details of information to be considered in the environmental report. The CDF set the assessment framework in the SEA, providing direction for the trend analysis, through the technical studies that need to be carried out, a framework for the assessment of strategic options in terms of opportunities and risks, and the structure for the presentation of results. The CDF are identified mainly through observation and dialogues with relevant stakeholders, considering multiple points of view and issues of concern. A synthesis effort must be done when identifying CDF in order to be holistic and focused. CDF should be named using a keyword that expresses its integrated meaning and should not be more than seven, ideally between three and five, to ensure a strategic focus.





<h2>Glossary</h2>	
Strategic Option	Strategic pathway that enable reaching a sustainability objective.
Indicator	That which indicates or provides indication; an analytical form in which the quantity measured in the real space under study is compared to a scientific or arbitrary standard.
Sustainable Development	A development that meets the needs as needed by spreading the benefits of economic progress in order to improve the quality of human life under an ecological system that can support life continuously as well as development that protects the environment, able to support and cover measures for preserving resource heritage based on the needs and/or needs of future generations at the same level that current generations have received to achieve balance and sustainability.
SWOT Analysis	A strategic management technique, adopts a logical, subjective approach that assists in the structuring of ideas. An instrument to foster understanding and decision-making in business areas and organizations. It allows the strategies, stances and orientation of a proposal or idea to be reviewed.
TOWS Matrix	A tool for creating strategic alternatives which can choose from advantageous channels and ways to reduce weakness or external threats by planning preventive strategies as well as bring all the analyzed data to practice to find deviations and analyze the effects of both positive and negative and bring information to improve every time when the situation has changed.
Prioritization Quadrant	A technique that can give different sectors easily by bringing the knowledge and experience of the analysts to participate in the assessment and can lead to the effective and efficient prioritization of the strategy.
Strategic Thinking	A thoughtful step that is flexible and adjusted according to the situation or environment including considering covering the economic, social and environmental dimensions in order to find the most suitable method or choice under the circumstances to achieve the desired goal.
Strategic Issue	Fundamental policy choices, or critical challenges associated to the object of assessment, that must be addressed to achieve a long-term vision. SI contributes to the definition of the CDF.



## Glossary

Assessment Framework	The framework established by the critical decision factors (CDF), and respective assessment criteria and indicators, which will structure the assessment of strategic options in a given SEA, when using a strategic-based approach.
Governance Framework	Based on principles of public sector governance including accountability (being answerable for decisions and having meaningful mechanisms in place), transparency/openness (having clear roles and responsibilities and clear procedures for making decisions and exercising power), integrity (acting impartially, ethically and not misusing information), stewardship (using every opportunity to enhance the value of the public assets and institutions), efficiency (ensuring the best use of resources to further intended aims, with a commitment to evidence-based strategies for improvement) and leadership (achieving a commitment to good governance through leadership from the top)
Strategic ...Reference Framework: SRF	The strategic macro-policy framework for the SEA. It is a key component in setting the context for SEA. Creates an assessment benchmark based upon relevant policy orientations and targets established as formal sectoral, sustainability and environmental policy macro-objectives at international, European and national levels. It may also include requirements from other plans and programmes that set relevant policy orientations.
Follow-up	The process of tracking the planning and programming cycle, ensuring the on-going contribution of the SEA as a facilitator of the integration of environmental and sustainability issues in the decision-making process. It works on the multiple dimensions of uncertainty that typify any strategic decision process. SEA follow-up is heavily based on performance assessment and monitoring, frequently and swiftly adjusting to the decision cycle, which means that the SEA must follow the strategy's drive.



# Strategic Environmental Assessment for Land Use Planning

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This Executive Summary Report has been made to understand the following points: Background, Purpose and Objectives, Procedures, Results and Summary, Utilization Guide for Phra Nakhon Si Ayutthaya Province and Implementation. Details are as follows:

## **1. Background**

The Department of Natural Resources and Environmental hurried up to generate a Strategic Environmental Assessment guideline according to command of the Prime Minister (General Prayut Chan-o-Cha). In order to determine national land use policy which is congruity and consistency with all dimensions of national development, so the Office of Natural Resources and Environmental Policy and Planning who is Secretary of National Land Policy Committee conducted the guide of Strategic Environmental Assessment (SEA) for land use planning. In order to be tool which has been integrated cooperation for all sectors involved to impose policies, plans and programs that have been integrated environmental, economic and social dimension in balanced. According to sustainable development goal based on potential and condition of land development in long-term. Including all parties get benefit of development together. The main objectives of this project are Prototype of Strategic Environmental Assessment (SEA) for land use planning in area level and Guide of Strategic Environmental Assessment (SEA) for land use planning that government organizations involved in land management can use it as a framework.

## **2. Purpose**

1. To analyze and generate a prototype of Strategic Environmental Assessment (SEA) in area-based approach based on the potential and suitability of land use
2. To obtain a guide of Strategic Environmental Assessment (SEA) for land use planning that government agencies involved in land management can use it as a framework or tool that has been integrated the operation of policy, plan and program systematically.

## **3. Procedures**

### **3.1 Study Area Selection**

In this project, the study area that has been applied a guide of Strategic Environmental Assessment in order to be an example for others had been selected from fifteen areas which design as target areas will develop towards becoming eco-industrial towns under the Twelfth National Economic and Social Development Plan (BE. 2550 - 2564). The fifteen areas consist of Prachinburi Province, Ratchaburi Province, Phra Nakhon Si Ayutthaya Province, Nakhon Ratchasima Province, Saraburi Province, Khon Kaen Province, Surat Thani Province, Songkhla Province, Chachoengsao Province, Rayong Province, Chonburi Province, Samut Prakan Province, Samut Sakhon Province, Nakhon Pathom Province and Pathum Thani Province.

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Study area selection criteria consist of variety of land uses, trends of land use development as an industrial production base, industrial investment trends, spatial dynamic trends, irrigation development, optimum land use and land carrying capacity. After applying the study area selection criteria to fifteen areas, it concludes that Phra Nakhon Si Ayutthaya Province was selected as the study area.

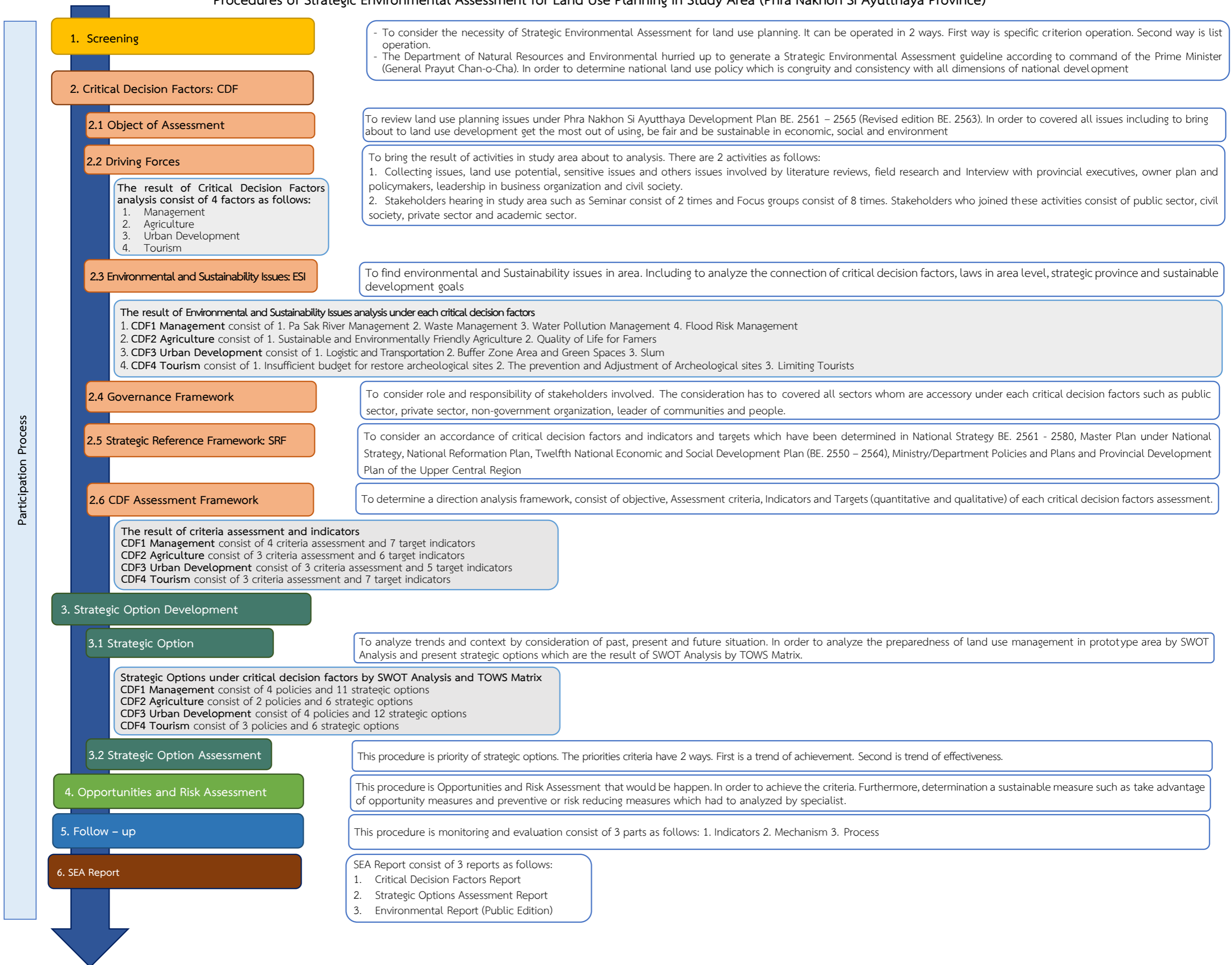
### **3.2 Strategic Environmental Assessment for Land Use Planning in Study Area (Phra Nakhon Si Ayutthaya Province)**

In the research of Strategic Environmental Assessment for land use planning has been considered to apply a European Guide of Strategic Environmental Assessment by Prof. Maria Rosário Partidário as a framework, because it has a strategic principle (Strategic-Based SEA) which has been harmonized with the principle and framework of this project in the formulation of policy making. The European Guide of Strategic Environmental Assessment has a clear process framework. From Objective of Assessment to Main Issues Analysis which have procedures clearly and comprehensive all dimensions such as economic, social and environment. The main objective is creating sustainable development for land use

The Procedures of Strategic Environmental Assessment for Land Use Planning in Study Area (Phra Nakhon Si Ayutthaya Province) can be summarized and shown at **Figure 3.2-1**.



### Procedures of Strategic Environmental Assessment for Land Use Planning in Study Area (Phra Nakhon Si Ayutthaya Province)





## 4. Results and Summary

### 4.1 The Prototype of Strategic Environmental Assessment (SEA) for Land Use Planning in Study Area (Phra Nakhon Si Ayutthaya Province)

The research of Strategic Environmental Assessment (SEA) for land use planning in study area (Phra Nakhon Si Ayutthaya Province) has been brought about to strategic options under critical decision factors which have been prioritized. In order to policies recommendation for provincial executives and policy makers will decided to impose land use strategy under provincial Development plan. The critical decision factors consist of 4 factors as follows:

**4.1.1 CDF1 (Management)** consists of 4 policies and 11 strategic options as follows:

**4.1.1.1 Pa Sak River Management Policy** consists of 3 strategic options as follows:

1) To collaborate with government agencies involved on Pa Sak River management such as Marine Department and Provincial Office of Natural Resources and Environment to solve the impact of navigation issue on Pa Sak river.

2) To develop an integrated Pa Sak River management mechanism.

3) To improve the executive power and follow – up mechanism on Pa Sak river management.

**4.1.1.2 Waste Management Policy** consists of 3 strategic options as follows:

1) To propel Phra Nakhon Si Ayutthaya Province are developed to become Zero Waste city.

2) To promote reducing municipal waste at sources.

3) To enhance capacity of waste management systems.

**4.1.1.3 Water Pollution Management Policy** consists of 3 strategic options as follows:

1) To promote values and create positive motivation with financial and non-financial measures.

2) To impose on measure for collecting the wastewater treatment fees from households and factories with Polluter Pays Principle.

3) To impose and increase supervising efficiencies to be more stringent.





**4.1.1.4 Flood Risk Management Policy** consists of 2 strategic options as follows:

- 1) To remodel agriculture according to flood and drought situation.
- 2) To integrate Flood control with mega infrastructure development.

**4.1.2 CDF2 (Agriculture)** consists of 2 policies and 6 strategic options as follows:

**4.1.2.1 Sustainable and Environmentally Friendly Agriculture Policy** consists of 3 strategic options as follows:

- 1) To design Phra Nakhon Si Ayutthaya Province as a 100% organic product city.
- 2) To enhance agriculture of Phra Nakhon Si Ayutthaya Province has become Precision Agriculture.
- 3) To Develop online platform which can provide education and relief for farmers.

**4.1.2.2 Improving Quality of Life for Famers Policy** consists of 3 strategic options as follows:

- 1) To develop long-term quality of life for poor farmers continuously.
- 2) To propel farmers, have their own land or land security.
- 3) To develop and promote online market platforms.

**4.1.3 CDF3 (Urban Development)** consists of 3 policies and 12 strategic options as follows:

**4.1.3.1 User and Environmentally Friendly Public Transportation Policy** consists of 2 strategic options as follows:

- 1) To develop new public transportation system by consuming clean energy.
- 2) To enhance quality and network of old public transportation system.

**4.1.3.2 Industrial-Residential Buffer Zone Area Policy** consists of 2 strategic options as follows:

- 1) To Push forward color symbolism definition of land use in buffer zone area under provincial comprehensive plan peculiarly.
- 2) To determine the buffer zone area.



**4.1.3.3 Green Spaces Policy** consists of 3 strategic options as follows:

- 1) To increase green spaces by collaboration between provincial organizations and private sectors.
- 2) To increase green spaces by promoting private sectors
- 3) To increase green spaces by promoting public sectors such as government organizations, provincial organizations and local administration.

**4.1.3.4 Slum Upgrading Policy** consists of 5 strategic options as follows:

- 1) To renovate slum
- 2) To adjust land plan (Reblocking)
- 3) To harmonize land use / land sharing
- 4) To reconstruct communities in the same area.
- 5) To relocate communities in the new area.

**4.1.4 CDF4 (Tourism)** consists of 3 policies and 6 strategic options as follows:

**4.1.4.1 Restoration potential of Archeological sites and Antiques Policy** consists of 2 strategic options as follows:

- 1) To allow private sectors and civil societies as a main role to collaborate with public sectors for restore and maintain cultural property of Phra Nakhon Si Ayutthaya Province.
- 2) To urge the Government, pay attention and allocate sufficient budget for restore archeological sites and antiques of Phra Nakhon Si Ayutthaya.

**4.1.4.2 Management of Archeological sites invasion Policy** consists of 2 strategic options as follows:

- 1) To prepare a ten-year plan and preventive measure for vulnerable archeological sites.
- 2) To enforce strictly the law.

**4.1.4.3 Limiting Tourists Policy** consists of 2 strategic options as follows:

- 1) To collect visitor fees at a high rate.
- 2) To determine the tourists carrying capacity.



#### 4.1.5 Utilization Guide for Phra Nakhon Si Ayutthaya Province

##### 1) Utilization

1.1) The province administration may not adjust the province's vision because the strategic alternative proposal in according with all issues under the Phra Nakhon Si Ayutthaya Development Plan (B.E. 2561 – 2564).

1.2) The strategic alternative proposal can be used to formulate efficiency, comprehensive and balanced project planning. In addition to supporting vision achievement.

1.3) Some strategic alternative proposal are long-term plans that can be used to formulate project for next phase province's development plan.

##### 2) Implementation Mechanism

2.1) The provincial governor could establish a committee who propel and follow up the results of suggestive strategies development in the SEA Report.

2.2) Follow-Up consist of two parts. First, To follow-up the development results according to suggestion in the SEA report. Second, to follow-up the project development results. Monitoring and evaluation should be carried out continuously and regularly (such as every three month). In addition to allowing all sectors participation in order to advantage handling with variation.

2.3) The suggestive Strategies in the SEA Report can be changed based on situation and circumstance during the project planning phase. It can be modified by taking advantage form assessment continuously.

#### 4.2 The Guide of Strategic Environmental Assessment (SEA) for Land Use Planning

The Lesson Learn from the project of Strategic Environmental Assessment (SEA) for Land Use Planning in study area (Phra Nakhon Si Ayutthaya) had been brought to the Guide of Strategic Environmental Assessment (SEA) for Land Use Planning. It is a tool that has been supported the government agencies involved can manage and develop land use have a high-potential, sustainable and all dimension are economic, social and environmental in balanced.

The Main step of this Guide can be summarized and shown at **Figures 4.2-1**. It comprises Screening, Critical Decision Factors: CDF Development, Strategic Option Development, Opportunities and Risk Assessment, Follow-up and SEA Report.



The Procedures of Strategic Environmental Assessment (SEA) for Land Use Planning consist of 6 steps as follows:

Procedures	Purpose	Tools/technique	Result	Participant
1. Screening	To consider the necessity of Strategic Environmental Assessment for land use planning. It can be operated in 2 ways. First way is standard criteria operation. Second way is list operation.	Meeting / Consulting	Need / No Need	1. Executive Agencies 2. Policy Makers
2. Critical Decision Factors: CDF				1. Executive Agencies 2. Policy Makers 3. SEA Team 4. Government agencies involved in land use and soil management 5. Stakeholders
2.1 Object of Assessment	To accord the land use objective or vision which has been gotten the most out of using, balance and sustainable development in economic, social and environment.	Meeting / Consulting	Accordance of land use aim or vision which has been gotten the most out of using, balance and sustainable development	
2.2 Driving Forces	This procedure is a process of problem framework analysis. To find root cause which has been considered by main issue, sensitive issue and land potential. In order to develop preliminary critical decision factors.	1. Literature Review 2. Seminar, Hearing and Interview 3. Problem Analysis techniques such as PESTEL Analysis 4. Root Cause analysis Tools such as Problem Tree Analysis	The Result of Root cause analysis in target area. In order to specify preliminary critical decision factors	
2.3 Environmental and Sustainability Issues: ESI	To find environmental and Sustainability issues in area. Including to analyze the connection of preliminary critical decision factors, sustainable development goals, laws and land use and soil development issues under policy, plan and program which has been accessed by Strategic Environmental Assessment.	1. Literature Review 2. Meeting / Consulting 3. Correlation Analysis	Preliminary critical decision factors which had been correlated with various issues as follows: 1. Environmental and Sustainability Issues 2. Role and Responsibility of Stakeholders involved under each critical decision factors such as central, provincial and local public sectors, educational institution, private sectors, civil society and people. 3. Goal and indicators of macro-land use policy.	
2.4 Governance Framework	To consider role and responsibility of stakeholders involved. The consideration has to covered all sectors whom are accessory under each preliminary critical decision factors	1. Meeting / Consulting 2. Stakeholder Analysis and Mapping: SAM		
2.5 Strategic Reference Framework: SRF	To consider an accordance of land use development issues under preliminary critical decision factors and national policies, plans and programs according to land uses and others issues.	1. Literature Review 2. Meeting / Consultation 3. Interview and Hearing		
2.6 CDF Assessment Framework	1. To assure critical decision factors are important strategic factors which has been accorded with National Policies, Area Development Plans and Sustainable Development Goals 2. To identify an objective, Assessment criteria, Indicators and Targets (quantitative and qualitative) of each critical decision factors assessment.	1. Literature Review 2. Meeting, Interview and Hearing	Critical Decision Factors consist of objective, assessment criteria, indicators and targets.	
3. Strategic Option Development				1. Policy Makers 2. SEA Team 3. Stakeholders
3.1 Strategic Option	To develop Strategic Options by trends and context analysis about past, present and future conditions of potential and fragility under each critical decision factors.	3. Context and Trends analysis 4. SWOT Analysis and TOWS Matrix 5. Policy Analysis Model 6. Meeting / Consulting	Strategic Options under Critical Decision Factors	
3.2 Strategic Option Assessment	To determine assessment criteria and prioritize Strategic Options under Critical Decision Factors	1. Meeting / Consulting 2. To Prioritize by technique such as Prioritization Quadrant	Priority of Strategic Options under Critical Decision Factors	
4. Opportunities & Risk Assessment	To identify promoting sustainability measures which have been taken advantage of opportunities and Preventive or Risk Reducing Measures which would be expected happening by development suggestions.	Meeting / Consulting	1. Take Advantage of Opportunity Measures 2. Preventive or Risk Reducing Measures	1. Policy Makers 2. SEA Team 3. Stakeholders
5. Follow - Up	To determine guide of monitoring and evaluation such as indicators mechanisms and process.	Meeting / Consulting	1. Indicators 2. Mechanisms 3. Process	1. Policy Makers 2. SEA Team
6. SEA Report	To make SEA Report for superior stakeholders in order to engage in determine.	Meeting / Consulting	1. Critical Decision Factors Report 2. Strategic Options Assessment Report 3. Environmental Report (Public Edition)	1. Policy Makers 2. SEA Team



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