

The Possibility of Strategic Environmental Assessment for Transport Plan in Indonesia: Lessons Learned from The United Kingdom

THESIS

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Abstract

Currently sustainable transport development planning in Indonesia has merely taken into account environmental assessment at individual project level, while transport developments with its services have contributed on cumulative and synergistic impacts and also influenced the degradation of quality of life as well as other spatial impacts. It indicates that current environmental assessment (EIA) is deemed often too late in the decision-making process. EIA mainly react to development proposals rather than anticipate them. As a result, EIA has failed to provide environmental sustainability assurance. Thus, the limitation and failure of EIA lead to the need of assessing environmental effects at strategic level (SEA). SEA can be seen as a sustainable development tool for enhancing the effectiveness of EIA at policy, plan and program level. SEA could give opportunities to achieve sustainable development through enabling more room for determining alternatives and giving opportunities to analysis cumulative and synergistic effects of development plans such as transport plans. Besides, related to decentralization, SEA can help linking horizontal and vertical authorities especially in taking into account environmental objectives and alternatives of transport development.

Since Indonesian government has no experience and lack of expertise on SEA practice, learning from an experienced country is one of the ways to the effectiveness of SEA implementation for transport plans. The effectiveness of SEA implementation is influenced by several preconditions and facilitating factors. Those are political will, integration and timing, tiering, legal provision, information provided and networking/participation. Thus, the main focus on this research is exploring those preconditions and factors of SEA implementation both in the UK and in Indonesia condition.

With considering those preconditions, SEA for transport plans in Indonesia could be realistic to be implemented. The results of this research consist of 2 findings. First, it explored the possibility of SEA for transport planning in Indonesia through creating an instrument/institution providing integrated transport appraisal; building coordinated-initiative which assembles road infrastructure planning and mobility planning; enhancing the role of EIMA at more strategic; and building good consultation mechanism by means of enhancing the role of public involvement of existing EIA to be more strategic. Second, this study built Strategic Environmental Management Plan (SEMP) to link the SEA implementation above with EIA for transport projects. SEMP as a preliminary study for defining road projects may strengthen the function of SEA and EIA through linking between them in achieving sustainable transport development. SEMP should loop back problem definition from project planning to strategic transport decision vice versa. SEMP with transport project definition could give environmental information of transport development for subsequent environmental assessment at project level (EIA). Besides, SEA and EIA with their linkage can assist environmental management in decentralized-transport development among different planning levels.

To provide necessary support for initiating and carrying out the SEA implementation above, encouraging the recognition of the need of SEA from elected decision makers, politician and public is important for Indonesia who has no SEA experience (political will). Another potential factor is amending current Environmental Management Act which has arranged environmental assessment at more strategic level as a good precondition.

Keywords: *SEA for transport plans, preconditions for the SEA implementation, Indonesia
Transport planning, the UK transport planning*

Preface

When I was studying Environmental Planning Course in RUG, I was interested with Strategic Environmental Assessment (SEA). SEA could be said as Environmental Impact Assessment (EIA) applied at policies, plans, and it has been applied internationally. SEA could be applied as a complement for EIA in achieving sustainable development goal. Since Indonesia has no SEA experience at all, this new insight has triggered me to deeply study SEA. Thus, the focus on this research is exploring the possibility of implementing SEA for transport planning, which has wide influence on environment, socio and economic aspects. So, it hopefully can contribute to improve environmental management system of transport development in Indonesia.

I realized that successfully finishing this thesis in time is impossible without support from any parties. In this opportunity, I would like to thank to Allah SWT for blessing me to give opportunity for studying in ITB-RUG and finishing my thesis. Then, I would like to thank to Prof. Dr. E.J.M.M. Arts and Ir. Widiarto, MCRP; PhD as my supervisors for giving me advice, comment, knowledge, who always encourage my motivation and also stimulate my inspirations during writing my thesis. And I would like also to thank for all lecturers both in ITB and RUG which give me valuable knowledge and insight about Environmental and Infrastructure Planning. I hope this knowledge could be useful for me and my institution. Many thank also are addressed to BAPPENAS, The Netherlands Government, UPT-Bahasa ITB and my institution BAPPEDA Lebak who give me opportunity to study in ITB-RUG.

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Finally, I would like to dedicate this thesis to my beloved wife Teti and my little daughter Shabrina. You are my inspiration indeed and you always raise me up when I am feeling down so that I am strong here.

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List of Abbreviations

DED	: Detailed Engineering Design
EIA	: Environmental Impact Assessment
EIMA	: Environmental Impact Management Agency
EIS	: Environmental Impact Study
EMP	: Environmental Management Plan
LTP	: Local Transport Plan
NATA	: New Approach for Transport Appraisal
NGO	: Non-Government Organization
ODPM	: Office of the Deputy Prime Minister
PPP	: Policy, Plan and Program
SEA	: Strategic Environmental Assessment
SEMP	: Strategic Environmental Management Plan
TAG	: Transport Analysis Guidance
TOR	: Term of Reference

Chapter 1 – Introduction

This chapter describes the basic idea of the research in searching preconditions and facilitating factors for integrating Strategic Environmental Assessment (SEA) into road transport planning in Indonesia. This study begins reviewing the background which describes the evolution of and the need of environmental assessment from individual (project) level toward more strategic level in transport infrastructure development. Then, it poses the research problem, objectives and research questions, followed by providing research methods for guidance in answering research questions and analysis. Finally this chapter will be closed by describing the structure of the research.

1.1 Background

The large scale transport infrastructure development with its services such as road infrastructure not only can give positive contributions for economic growth and social life, but also can reduce the quality, availability and capacity of resources and environment. Furthermore, “the development and operation of transport infrastructure has considerable and cumulative impact on environment as well as on the spatial quality of the area in which it takes place” (Arts, 2004: 251). Meanwhile, the needs and demands for such infrastructure services will more and more increase due to economic interests, population growth as well as urbanization phenomena. This condition has been encouraging the emergence of environmental consideration to be included into planning and decision-making process in order to make balance between socio-economic goals and the sustainability and quality of resources and environment. One of the most popular approaches is Environmental Impact Assessment (EIA), but this approach, in turn, has failures and limitations in implementation. For instance, EIA merely focuses on direct impact resulting from development project (reactive), instead of dealing with cumulative and more strategic impacts. As a result, this assessment needs to be strengthened and leads to the higher level of impact assessment, known as Strategic environmental Assessment (SEA).

“EIA, as a tool in decision making, is the process of predicting and evaluating action’s impacts on the environment”. Moreover, it aims to prevent environmental degradation by giving decision-makers better information about the consequences that development activities could have on the environment (Therivel et al, 1992: 13). This environmental assessment is very popular. In fact, more than 100 countries have implemented an EIA process (Donnelly et al, 1998). In Indonesia, EIA has been practiced in the early 1970s, although it was initially forced by the requirements from financial donor agencies that operated in Indonesia. Later on, EIA was officially implemented since 1982 which refers to Basic Provision for Environmental Management (Purnama, 2003).

However, in practice, EIA implementation has some failures and limitations. For example, as Glasson et al (1994: 403) stated, that project EIAs mainly react to development proposals rather than anticipate them, so they cannot steer development towards environmentally robust areas or away from environmentally sensitive sites, and project EIAs do not adequately consider cumulative impacts caused by several projects. Those drawbacks of EIA to be able to provide environmental sustainability assurance lead to the

increasing recognition of environmental assessment at higher level (policy, plan and program) than project level, called Strategic Environmental Assessment (SEA).

In the context of Indonesia's EIA implementation, the limitations of EIA according to the Indonesia Ministry of Environment, (i) neglecting additive effects result from continued development at the same ecosystem habitat/site, (ii) not analyzing the impact of development which will generate the emergence of other activities at that site, (iii) neglecting the change of ecosystem ability in balancing intensively damaged environment and pollution levels. As a result, Indonesia government has perceived that AMDAL can not anticipate the degradation of environmental quality and capacity.

In addition, another limitation and failure, as stated by Purnama (2003), is because government deliberately gives lower priority for environmental assessment at policy levels especially in infrastructure development. Furthermore, as Alshuwaikhat stated, EIA in developing countries including Indonesia was introduced with insufficient staffing, experience and monitoring, with evaluation inadequacies and without enough baseline data. It seems that a political decision was taken without considering the technical and infrastructural aspects required to carry out assessments smoothly (Alshuwaikhat, 2004). Moreover, in many cases, EIA implementation in developing countries is seen by proponents as an impediment to the implementation of development projects. It is regarded as a tool to justify projects rather than using it as a mean to derive the best decision" (Momtaz in Alshuwaikhat, 2004: 311).

Based on those conditions above, Indonesia government actually recognized that many environmental issues can be solved only by adopting a holistic approach and SEA is useful in the decision-making process (The World Bank, 2006). To deal with that, Ministry of Environment, in 2004, published a booklet on "Strategic Environmental Assessment". Unfortunately, this booklet just describes the definition, objectives of SEA, instead of focusing on how to deal with integrating SEA into planning and decision-making process. Another government concern to strengthening EIA, the Ministry of Environment published the book on "Cumulative Impact Analysis" (*Kajian Dampak Kumulatif*). This analysis is important for preliminary condition because it represents the presence of political will in formulating environmental assessment at higher level. However, according to The World Bank (2006), SEA implementation in Indonesia, in fact, has not been implemented yet due to the absences of SEA guidelines/procedures, technical methodology, legal mandate, and administrative framework.

The challenge is how to improve more environmentally-friendly planning and decision making process on the basis of SEA concept related to transport infrastructure planning, and also to strengthen policy, plan and program making process. Thus, this research intends to explore preconditions and facilitating factors in support of Strategic Environmental Assessment related to the planning of transport infrastructure.

To explore preconditions for SEA implementation, this research will learn and analysis The UK experience as a forefront in dealing with involving SEA into planning and decision making process, which had made formal provision for SEA of PPPs. Besides, this country has had long history and tradition in conducting sustainability appraisal (SA) at higher level before the Emergence of SEA Directive (2001/42/EC). The fact that, several types of SEA process had emerged during the 1990s including appraisals of national policies, environmental appraisal of local and regional development plan (Dalal-Clayton

and Sadler, 2005). Furthermore, the UK governments issued Statutory Instrument 2004 No. 1633 sets out regulations transposing the EU SEA Directive into legal framework in the UK and produced Transport Analysis Guidance (TAG) launching *SEA for Transport Plans and Programs* (COST350, 2004). Finally, all regional and local authorities have arranged SEA into their regional and local transport plans since 2004 until now. Thus, the UK experience is important country to be learned in this case. In order to seek the possibility of policy transfer in implementing SEA into transport planning system, this research will identify and analysis several preconditions and facilitating factors for the effectiveness of SEA implementation.

1.2 Research Problems, Objectives and Questions

1.2.1 Research Problems

As mentioned above, Indonesia government recognized the consideration of environmental impacts in strategic level – policies, plans and programs, for example by publishing a booklet on Strategic Environmental Assessment (Reference to Policy, Plan and Program) in 2004 and Cumulative Impact Analysis Book. Unfortunately, this political will has not been supported by some adequate researches and experiences so that the integration of SEA concept is hard to be implemented due to the absences of its methodologies, procedures and guidance. So far, the current researches on environmental assessment are still just improving the existences of EIA practices. For instance, Purnama (2003) studied how to formalize public involvement in all stages of EIA process. Moreover, government (Ministry of Environment) recognized the important of cumulative impact analysis. This recognition is good starting point in supporting environmental assessment in higher levels. Thus, *the first challenge* is to study *preconditions on how the future direction of SEA implementation in Indonesia can be provided*.

The definition of SEA, according to Therivel et al (1992: 19-20), is “the formalized, systematic and comprehensive process of evaluating the environmental effects of a policies, plans or programs and its alternatives, including the preparation of a written report on the findings of that evaluation, and using the findings in publicly accountable decision making”. Moreover, Dalal-Clayton and Sadler (2005: 10) stated “initial understanding of the concept of SEA was based firmly on EIA principles and process, although it was recognized that procedure and methodology would need to be adapted”. These mean that environmental assessment (EIA-based process) needs to be placed not only in *project level*, but also at the early stages of planning and decision making (strategic level).

Therefore, it must be recognized that SEA is not substitute for EIA, but complements it. They must be integrated as a comprehensive environmental assessment tools for decision making. According to OECD (2006), this notion has important implication for especially developing countries which are frequently constrained by lack of resources to carry out project EIAs. SEA can accelerate EIA procedure and streamline their scope (and costs) by ensuring that project proposals are set within a policy framework that has already been subject to environmental analysis. The comparison and coherence between SEA and EIA roles in decision making can be seen at table below.

Tabel 1.1 The comparison of SEA and EIA roles in decision making

EIA	SEA
<p>Applied to specific and relatively short-term (lifecycle) projects and their specification Take place at early stage of project planning once parameters are set Consider limited range of project alternatives usually prepared and/or funded by the project proponent Focus on obtaining project permission, and rarely with feedback to policy, plan and program consideration Well-defined, line process with clear beginning and end Emphasis on mitigating environmental and social impacts of specific project, but with identification of some project opportunities, off-set etc Limited review of cumulative impacts, often limited to phases of a specific project.</p>	<p>Applied to policies, plans and programs with a broad and long-term strategic perspective Ideally, take place at an early stage in strategic planning Consider a broad range of alternative scenario Conducted independently of any specific project proponent Focus on decision on policy, plan and program implications for future lower-level decisions Multi-stage, iterative process with feedback loops Emphasis on meeting balanced environmental, socio, economic objectives in policies, plans and programs. Includes identifying macro-level development outcomes Inherently incorporates consideration of cumulative impact</p>

Source: OECD 2006

It can be seen from the table above, both SEA and EIA should be applied together in decision making process because those environmental assessment complement each other. For example, EIA is applied to specific and relatively short-term (lifecycle) projects and their specification, whereas SEA is applied to policies, plans and programs with a broad and long-term strategic perspective. It means that all levels of decision-making process from policies, plans, programs to project are subject to environmental assessment so that it can assist to achieve sustainable development. Thus, *the second challenge* is how to enhance environmental decision-making process such as transport planning in Indonesia by means of taking into account SEA into planning process.

Furthermore, since the absence of SEA guidance and experience in Indonesia, learning from other countries is one of the ways to gain the possibility of policy transfer of SEA concept to be formulated and implemented in Indonesia's SEA practices. So, *the third challenge* is how to explore several preconditions and facilitating factors of the effectiveness for SEA implementation in the UK. By doing so, the next step is how Indonesia government then learns those preconditions which are combined by several potential factors of SEA implementation in Indonesia to see the possible SEA implementation in Indonesia. In order to gain a clear picture of SEA practice, this research will draw up a sectoral issue, that is, transportation issue which has considerable impact on the environment as well as on the spatial quality of the area, and has comprehensive and complex process of its nature (Arts, 2004).

1.2.2 Research Objectives and Questions

The research's objective is to explore preconditions and factors for the possibility of integrating SEA into Indonesia transport planning. Moreover, with analyzing the UK experience in formulating Guidance on SEA for transport policy, plan and program, this study will adopt and apply the UK's SEA concept into Indonesia transport planning. To apply the policy transfer in appropriate manner, this study will also review the legal

framework, administrative capacity, and political will etc. Besides, this research observes the opportunities of and constraints to the SEA implementation in Indonesia planning system.

Based on the objective above, this research leads to main research question: “*How can SEA be integrated into transport planning in Indonesia?*” in completing this question, the study firstly begins exploring the reasons of SEA for transport plans in Indonesia. Secondly, the study then emphasizes on *preconditions* which are important in the processes, and also focus on *facilitating factors* whose role may vary from one assessment to another. So, to achieve and support that main question, this research will serve supporting questions as follows:

1. *Why SEA is needed for transport decision-making and planning process?*
The answer of this question is to provide reasons for the need of SEA into transport planning in Indonesia. To answer this question, the study will analysis current environmental assessment and transport plan in Indonesia (chapter). This analysis will be used to conclude the need of SEA for Indonesia’s Transport planning in chapter 6.
2. *How SEA for transport plans in the UK can be effectively implemented regarding with preconditions and facilitating factors of SEA implementation?*
This research seeks to the possibility of policy transfer from UK experience into Indonesia planning system. This part analyzes preconditions and facilitating factors for the effectiveness of SEA implementation in The UK.
3. *What are the preconditions and factors for integrating SEA into Indonesia transport planning?*
After analyzing the UK experience, this part is supposedly intended to understand opportunities and constraints for the development of SEA implementation in Indonesia related to transport planning system. Those factors comprise political will, legal provision, integration and timing, tiering, information provided and networking.

1.3 Research Method

This research will be developed into several methodological steps as follows:

- 1) *Review of Theoretical and empirical bases*
This research develop the understanding of theoretical bases focusing on the rationale for the need of Strategic Environmental Assessment with its and process as well as opportunities and constraints in implementation. Besides, it also reviews the concept of SEA for transport planning systems and several preconditions and facilitating factors for the effectiveness of SEA implementation. This review focuses two significant sources, which are journal articles and selected books. Besides, this research finds and collects more information and data from other sources such as internet and other relevant publications.
- 2) *Collecting and analyzing data and information of the UK experience in implementing SEA for transport planning system*
This research first collects data about the current SEA practice in The UK related to plan and program of transport infrastructure development/issue. It confines the UK’s SEA practice in how SEA processes or principles are implemented in decision-making. And then, it review how the above processes are applicable to the whole plan and program making process in the UK transport planning system. Because of many publications either from published guidance and internet and supposedly enough

secondary data, this analysis will just focus on study literatures rather than conducting survey (interview).

3) *Description of Indonesia's transport planning system and the current environmental assessment*

This research will review current environmental assessment for transport planning system in Indonesia. This research will elaborate the current environmental assessment related to transport plan, which is still dominated by the implementation of Environmental Impact Assessment (EIA). This review is aimed at analyzing to what extent the possibility, opportunities, constraints, benefits of SEA concept can be implemented in Indonesia transport planning system. In addition, the method used for describing and analyzing transport planning system will be conducted by reviewing secondary data from Indonesia competent authorities such as Ministry of Public Work and Ministry of Environment, some related publications and internet.

4) *Analysis for the possibility of policy transfer*

The second and third step will supposedly serve input for analyzing what policy or concept can be transferred. In this analysis, it is important to determine the characteristics of planning systems in both countries by mean of analyzing constitutional law, government structure and responsibilities for spatial planning, and the legal framework.

5) *Exploring preconditions of SEA implementation for transport planning system in Indonesia*

Finally, this research will elaborate preconditions and facilitating factors on how SEA concept can be integrated into transport planning system in Indonesia, and how SEA should be involved into transport planning system in Indonesia. By analysing input from fourth step, this research will answer those questions by integrating SEA process (screening, scoping, etc) whether into policies, plans, programs or those combinations. It depends on planning cultures and context.

1.4 Research Structure

Research report is divided into six chapters. Content of each chapter can be described as follows:

Chapter 1 : Introduction

This chapter consists of background, research problems, objectives, research questions, and methodology.

Chapter 2 : Theoretical framework

This chapter provides theoretical and empirical bases comprises the concepts of Strategic Environmental Planning, infrastructure (transport) planning system and its environment, the concept of learning process from experienced country in decision-making.

Chapter 3 : SEA for Transport Planning System in the UK

This chapter describes the SEA process, review in what level (policies, plans, programs) SEA process to be implemented in the UK's transport planning systems, and in what administrative level this concept is conducted.

Chapter 4 : Indonesia's Current Environmental Assessment and Transport Planning.

This chapter focuses on describing Indonesian transport planning system with its legal framework, constitutional law and administrative level. And also focus on the current environmental assessment

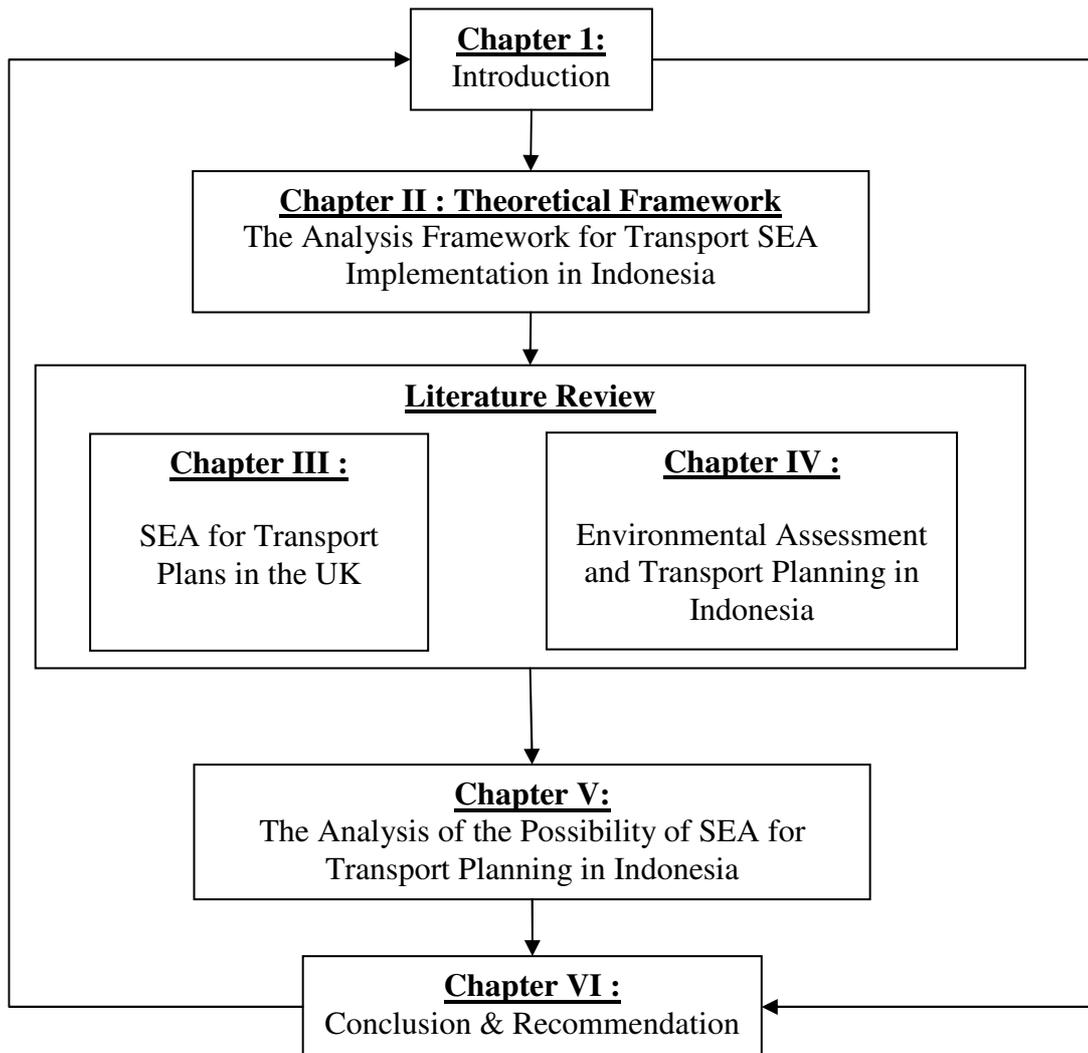
Chapter 5 : Analysis of Lesson Learn from The UK's SEA experience into Indonesia's planning system.

This chapter evaluate lesson learn from planning culture in the UK and Indonesia, and the possibility of policy transfer from the UK's SEA experience, by means of considering some preconditions and factors for the effectiveness of SEA. In addition, this also evaluates the opportunities of and constraints to SEA implementation in Indonesia's condition.

Chapter 6 : Conclusion and Recommendation

The last chapter consists of research findings and recommendations.

Figure 1.1 The structure of thesis chapter



Chapter 2 – Theoretical Framework

Since around a decade ago, the concept and the practice of environmental assessment has evolved from the concept of environmental assessment at project level (EIA) towards the concept of environmental assessment at higher level of decision making – policies, plans and programs (SEA) which is broader than the previous concept and complement for EIA. This evolution emerged in the light of disillusionment over the ability of project EIA to assist sound environmental decision-making from policy through to project because it enters the decision-making process at too late a stage to be able to influence decision-makers. Besides, it is strongly linked to the achievement of sustainability and the consideration of cumulative effects (Partidario, 1996).

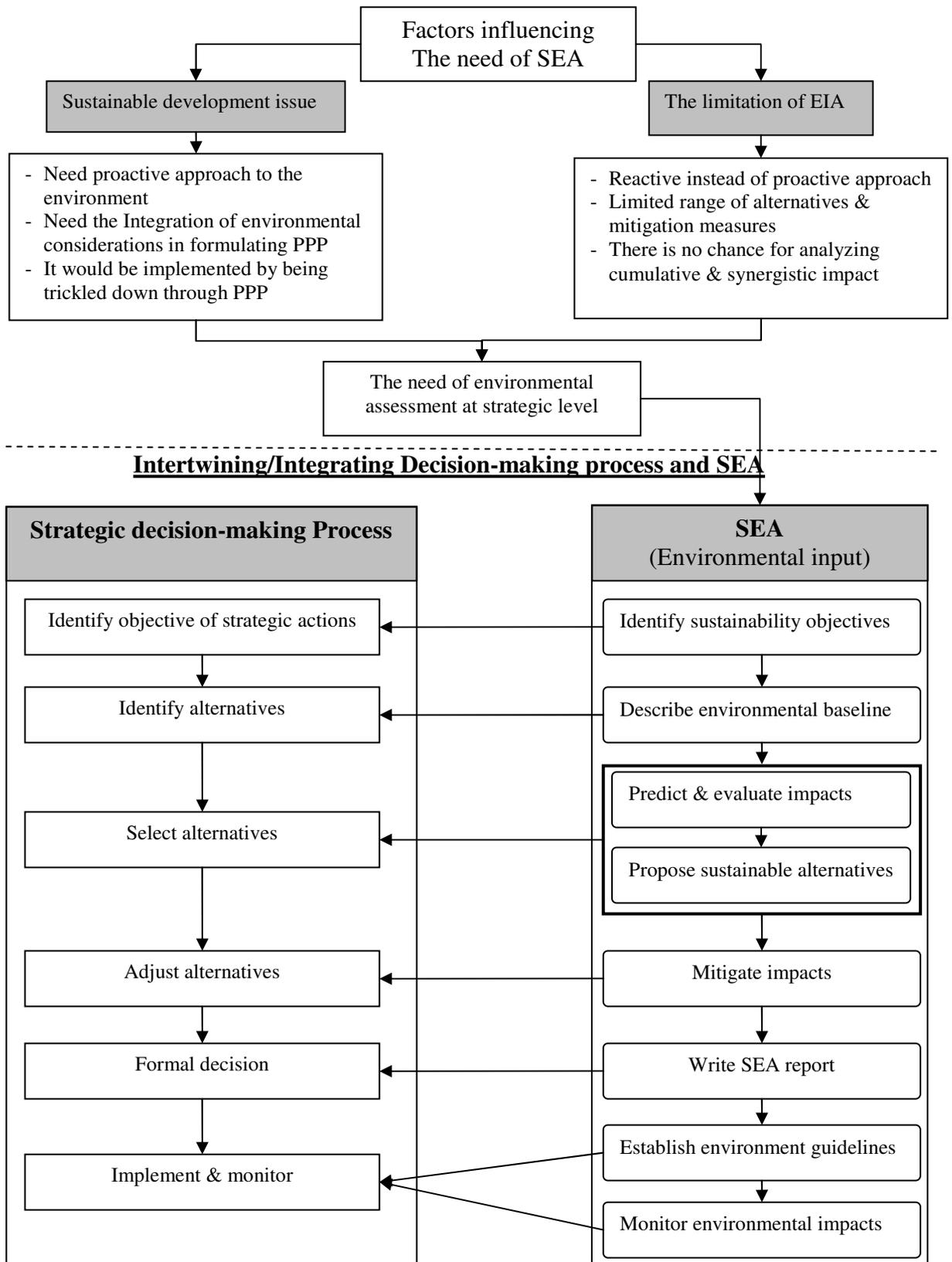
Regarding that discourse and related to main research question (in Chapter 1), this chapter attempts to provide the answers main question and its supporting research questions, which is related each other:

- 1) *Why (transport) SEA is needed into decision-making and planning process?*
- 2) *What is the role of SEA for transport planning?* (sub-chapter 2.2)
- 3) *How SEA can effectively be integrated into transport planning process?*

2.1 The Reasons for the Need SEA

There are several authors (See, Therivel et al, 1992; Dalal-Clayton and Sadler, 2005) which recognize and require the need of environmental assessment to be conducted at higher level. The emergence of SEA can be categorized into two main reasons, which are strengthening project EIA along with its awareness of cumulative impact and large scale effects, and advancing the sustainability agenda. In addition, the emergence of decentralization also influences the need for implementing environmental assessment at strategic level, especially in developing country like Indonesia. The framework of the rational and the process of SEA related to sustainable development can be shown at figure 2.1 below, followed by the explanation of that.

Figure 2.1 The framework of SEA rationale and process for sustainable development
 (Dalal-Clayton & Sadler, 2005, and http://sea.unu.edu/course/?page_id=47)



2.1.1 Strengthening Project EIA

Currently, most of the authors and practitioners have perceived that EIA, which merely evaluates environmental effects at project levels and tend to reactive instead of proactive decisions, has several limitation and failure dealing with environmental consideration in development planning. As Glasson et al (1994) listed, the main limitations and failures of EIA are:

- 1) Project EIAs react to development proposals rather than anticipate them, so they cannot steer development towards environmentally “robust” areas or away from environmentally sensitive sites.
- 2) Project EIAs do not adequately consider the cumulative impacts caused by several projects or even by one project’s subcomponent or ancillary developments. The consideration of cumulative impacts in project EIA is often limited by the lack of knowledge concerning other development proposals, and lack of control over these proposals (Montgomery, 1990 in Therivel 1992).
- 3) Some small individual activities are harmless, but the impact of those activities can be significant, which cannot be addressed by project EIA
- 4) Project EIAs cannot address the impacts of potentially damaging actions that are not regulated through the approval of specific projects
- 5) Project EIAs often have to be carried out in a very short period of time because of financial constraints and the timing of planning applications.
- 6) The amount and type of public consultation undertaken in project EIA may be similarly limited.

Those limitations lead to the recognition of the need for environmental assessment at the higher level (policies, plans and programs). Thus, strengthening project EIA at higher level of decision making will provide and support the analysis of environmental consideration and its alternatives into policies, plans and programs (Dalal-Clayton and Sadler, 2005: 21). Furthermore, environmental assessment at a more strategic level would allow for cumulative and synergistic impacts to be better addressed because of its position at an earlier stage in decision making and its consideration of a wider range of actions over a greater area (Therivel et al, 1992, p.21). In addition, in the context of developing countries, SEA may also yield significant other benefits. For example, it can rule out certain kinds of development at the policy level and reduce the need for many project-levels, which can relieve pressure where institutional and skills capacity are limited (Dalal-Clayton and Sadler, 2005).

2.1.2 Advancing the Sustainability Agenda

SEA is also seen as a way of implementing the concept of sustainability (Therivel et al, 1992, p.22). When applied systematically SEA can complement existing environmental assessment at project level in order to achieve sustainability-based planning and decision making, as called for by the Brundtland Commission (WCED, 1987) and Agenda 21 (Dalal-Clayton and Sadler, 2005, p.22).

The term of sustainable development, stated with the publication of Our Common Future by Brundtland Commission in 1987, is development that “meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED 1987 in Pope et al, 2004). This vision statement was initially created to provide a global agenda for change. The purposes of the changes, as the Commission intended, are (1) to

propose long-term environmental strategy for achieving sustainable development, and (2) to identify how relationships among people, resources, environment and development could be incorporated into national and international policies (Mitchell, 2002: 72).

Sustainable development embraces economic, social and environmental considerations as well as their relationship (Pope et al, 2004). Furthermore, the more concern is how to run and harmonize the three pillars and their relationship in decision-making so that those can be consider equally; in other word, the decision can avoid trade-off among them. Therefore, sustainability needs tools for assessing and achieving whether the initiatives are sustainable or not. As Devuyt (2001) stated, “Sustainability assessment is...a tool that can help decision-makers and policy-makers decide what actions they should take and should not take in an attempt to make society more sustainable”. Over the last decade and more recently, one of the most popular tools for assessing sustainability is SEA, which is the extension of project EIA at strategic level. Sadler (1999) stated that the sustainability assessment is often considered to be the “next generation” of environmental assessment. It is reasonable because much sustainability assessment thinking, in fact, has been substantially developed by Environmental Impact Assessment (EIA) and Strategic Environmental Assessment practitioners (Pope et al, 2003).

2.2 SEA for Road Transport Planning

Generally speaking, SEA is as a supporting tool for sustainable development, which has emerged as a structured proactive process to strengthen the role of environmental issue in decision making through the assessment of the environmental effects of policies, plans and programs (Verheem and Tonk, 2000; Therivel et al., 1992). Then, it requires institutions to consider the consequences of a range of action early on in the planning process, to choose the most appropriate action on environmental as well as socio-economic grounds, and to minimize any remaining environmental impacts (Therivel et al., 1992).

SEA could be applied for *road transport plan* which has characteristics such long-lasting planning, comprehensive and complex process. This is because transport plans will affect, and be affected by, nature and landscape, living conditions, traffic and transport, economic and social aspects, cost and spatial quality of the area (Arts et al, 2005: 76). For example to spatial quality, the construction of road may cause barrier impacts by fragmenting an existing housing, industrial or recreation area in which it, in turn, will affect social impacts on liveability (quality of life) of the area where the road development is planned.

SEA is particularly useful in assisting the environmental analysis and assessment in *inter-modal approaches* and *spatial issue*. It helps structuring and focusing the environmental analysis on the key environmental benefits and costs of each transport mode, comparing alternative planning and management options in an integrated way and providing decision-makers with the relevant information to take the most sustainable decision (ECMT, 2000). Moreover, SEA could identify and analysis possible mitigation and proactive solutions to deal with adverse development effects for spatial issue on such aspects as air pollution, noise, soil and water quality, flora and fauna, landscape and other spatial functions (Arts et al, 2005: 77). Table 2.1 below shows several cumulative impacts of road transport development.

Table 2.1 Impacts and indicators for transport SEA

Impact	Example of Indicators
Climate change	Emission of green house gases
Acidification	Emission of SO ₂ , NO _x
Use/depletion of natural resources	Resource intensity, energy consumption, land take
Loss of biodiversity	Land take and fragmentation of ecologically sensitive are, loss or damage to key species or habitat
Air quality	Emission or concentrations of pollutants, exposure of the population to pollutant concentrations
Water quality	Number of water sources affected, concentration of pollutants, distance of infrastructure from sensitive sites
Visual impacts	Scale and physical characteristics
Severance	Barriers, population numbers in affected areas
Noise and tranquility	Noise levels, affected surface, population affected
Accidents	Fatality and injury rates
Historical, archaeological, nature conservation	Loss or proximity to recognized sites and areas of importance

Source : ECMT, 2000

It can be seen from the table, there are several impacts which cannot be accommodated by environmental assessment at individual (project) level such as emission of greenhouse gases, acidification and air pollution. Moreover, those impacts usually are omitted in assessing impacts on road development due to the difficulties to quantify those impacts. In Indonesia context, most of the impacts have been major environmental issues including in transport development. These cumulative and synergistic impacts could not be anticipated by the existing environmental assessment at project level. As a result, it calls for assessing environmental impacts of transport sector at more strategic and greater area.

Therefore, when analyzing SEA for transport plans in the UK in chapter 5, this research will use these impact information to understand the extent to which the SEA in the UK consider all environmental impact information. In other words, this research will see the scope of transport SEA (the alternative options and impacts).

2.3 The Analysis Framework for the Effectiveness of Transport SEA Implementation in Indonesia

This sub-chapter tries to develop the analysis in dealing with answering main research question, which is “How the concept of SEA can be integrated into transport plan in Indonesia?” The analysis begins with learning from experienced countries in implementing Transport SEA in order to gain how certain country implement SEA into decision making process and what appropriate type of SEA in certain country related with its contextual factors. By understanding SEA implementation in certain country, it could be useful for knowing several preconditions and facilitating factors to be reflected into Indonesia’s context. Thus, this research then will analysis Indonesia’s preconditions and factors in order to know the opportunities and constraints for how to integrate SEA into (Transport) decision-making process.

2.3.1 The types of SEA and the concept of policy transfer

The implementation and definition of SEA concept into decision-making process in different countries with different circumstances varies. As Marsh and Dolowitz (1996) identified, it depends on their complexity of a program, the institutional and structural

constraints, political system, bureaucratic size and efficiency, economic resources, technological ability, etc. As a result, SEA can be applied in various ways to suit particular needs. In the context of road transport planning, Fischer, 2002 classified several types of SEAs according to:

- Procedural characteristics, distinguishing, for example, between SEAs that is integrated into the PPP formulation process and those with separately identifiable process and documentation.
- Coverage of impacts, distinguishing between SEAs that only address environmental impacts and those that address both environmental and socio-economic impacts.
- Sectoral coverage, classifying SEAs according to the sector or sector to which they apply (road transport PPPs)
- The level in planning process of their application, distinguishing those applied very early in the planning cycle, which are more project oriented
- Methodological characteristics, classifying SEAs according to the consideration of scenarios, alternatives, cumulative impacts, etc.

With a variety of type of SEA implementation and the need to select an SEA approach to suit particular decision-making context, it would be inappropriate to suggest a rigorous and universally applicable definition of SEA. Thus, the diversity of application reflects the need to adapt the concept to the need being address and the circumstances in which SEA is being applied (OECD, 2006).

Since Indonesia has no experiences and studies in implementing SEA concept, it will be useful to learn from experienced countries in implementing SEA by means of considering the concept of policy transfer. Marsh and Dolowitz (1996) defined policy transfer as a process in which knowledge about policies, administrative arrangements, institutions, etc in one time and/or place is used in the development of policies, administrative arrangements, and institutions in another time and/or place. In the context of SEA, the effectiveness of SEA implementation is depended on several *preconditions* and *facilitating factors* (Hilden et al, 2004). This preconditions and factors for the SEA effectiveness will be explained in the next sub-part.

2.3.2 Necessary preconditions and facilitating factors

Regarding with SEA for transport planning, this research will study several contextual factors influencing the effectiveness of SEA implementation into decision-making process. Those factors, according to Hilden et al (2004), can be categorized into two factors. First, *preconditions* are related to the environmental assessment methodology in transport planning. These factors encompass (1) *political will*, (2) *integration and timing*, (3) *tiering*. Second, *facilitating factors* may support the use of assessment in decision-making. These will probably vary from country to country, from culture to culture and from case to case depending on (1) *legal provision*, (2) the *type of information* and (3) the use of *networking* (see table 2.2). Related to Indonesia context, those preconditions and factors as Hilden stated should be added with public participation factor, particularly in networking factor. This is because sustainable development not only can be achieved by building network among economic, social and environmental plans and institution, but also should be involved public participation.

Table 2.2 Preconditions and factors influencing the effectiveness of SEA

A. Necessary preconditions	
Political will and use of information	<ul style="list-style-type: none"> ○ The participation of politicians and other decision makers from the very outset. ○ The politicians and administrative's willingness to use assessment results
Integration & Timing	<ul style="list-style-type: none"> ○ The integration of environmental assessments into planning. ○ The integration with respect to different kinds of assessments, e.g., integration of economic, social and ecological assessments. ○ The timing of Environmental assessments and the preparation of the plan/program in such a way that assessment data is available during the preparation of the plan, program or policy is an obvious prerequisite for SEA to have any influence on relevant decisions.
Tiering	<ul style="list-style-type: none"> ○ There are links from the strategic level to the concrete project level. ○ Tiering is recognized between assessments at different levels of a hierarchy.
B. Facilitating Factors	
Legal provision	<ul style="list-style-type: none"> ○ It may provide necessary support for initiating, carrying out and publicizing the results of an environmental assessment
The information provided	<ul style="list-style-type: none"> ○ A balance between quantified and non-quantified information in decision making ○ more environmental issues that are important such as climate changes and energy consumption should be taken into account along with social and economic consideration.
Networking/participation	<ul style="list-style-type: none"> ○ The relationship between the environmental assessment and the preparation of the plan, as well as its linkage with other plans, such as land use plans, should be made clear to all stake holders. ○ Involving public participation (public, affected community, NGO and government organization) in all process of assessing environmental impacts of plans and programs

Source: Hilden et al, 2004

To gain understanding for both necessary preconditions and facilitating factors above, it will be useful to be reviewed several main notions, namely, the *SEA principles* and *process* as well as the *tiered concept PPP for SEA*. Besides, it is also crucial to list several *opportunities* and *constrains* in integrating SEA for transport sector into decision-making process so that it leads to the effectiveness of SEA integration.

2.3.3 The SEA Principles and Process

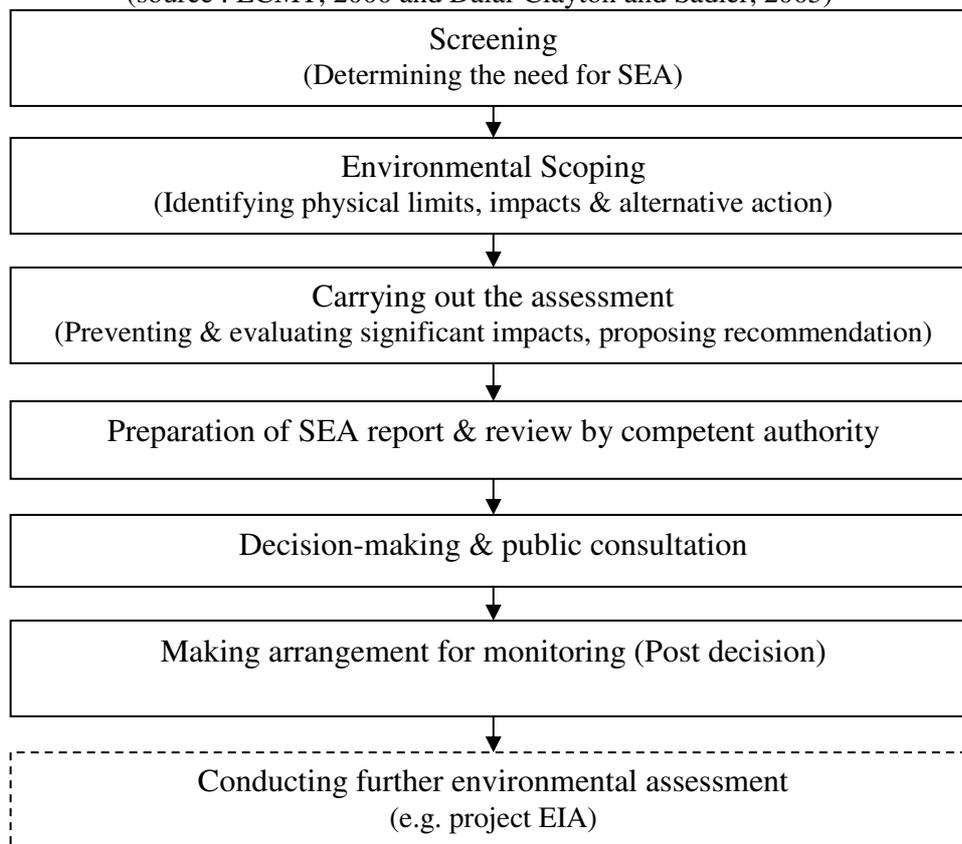
There are more sources for SEA principles with similar perspective such as from Dalal-Clayton (2005), Wood (1999), Partidario (1996), Therivel (1992) etc. One of the importance factors which can significantly increase the effective use of SEA is the presence of some principles especially for road transport infrastructure, which are (ECMT, 2000) :

- SEA should be applied, at the earliest stage, to all road transport infrastructure plans and programs that will have significant consequences.
- The authorities who proposes and develops the transport infrastructure plans should be responsible for preparation of a SEA report, with the support and co-operation of the environmental authorities.
- The SEA report should be reviewed by environmental authorities and other interested parties and by the public.
- The competent authority should take the SEA report into account in making decisions about the proposed transport infrastructure plan.
- Consultation and participation are an integral part of the SEA process should be planned at various stages.

These SEA principles can be used as guidance for determining the effectiveness of SEA process. In practices, SEA process varies from country to country depending on the level of the strategic action, the sector and the country planning procedure. However, the process of SEA related to transport planning system usually has steps as shown at Figure 2.2. Like EIA process, SEA process starts from screening the need for SEA, and ends up with monitoring the SEA. Besides, SEA for PPPs should also be tiered with subsequent environmental assessment such as project EIA. This tiering is one of the focuses on this research analysis.

Figure 2.2 SEA process related to transport planning system

(source : ECMT, 2000 and Dalal-Clayton and Sadler, 2005)



This process is related to several preconditions and factors for the effectiveness of SEA. For instance, the appropriate screening and scoping stages will be depended on how integration and timing factors either with planning process or other relevant environmental plans and programs are conducted. In addition, networking factor can create mechanism for consultation process which is needed for gaining comprehensive environmental information and for supporting Environmental Report more robust and accountable. This SEA process also can be influenced by tiering concept which can explained more at the next sub part.

2.3.4 The tiered PPP concept for SEA

The main concept of SEA, as defined above, is EIA applied at policies, plans and programs. In basic assumption, policies, plans and programs are tiered and ordered. But in practice, SEA implementation has restricted for plans and programs because those level easier to quantify information than that of policy. The concept of tiering can be defined as:

distinguishing different levels of planning – policy, plans, programs – that are prepared consecutively and influence each other (European Commission, 1999). A *policy* is generally all described as an aspiration and guidance for action, a *plan* as a set of coordinated and timed objectives for implementation of the policy, and a *program* as a set of projects in a particular area or sector (Wood, 1991 in Glasson, 1994: 402). In other words, a policy provide framework for the establishment of plans, plans provide framework for programs, programs lead to projects either sectoral such as transport or spatial such as national, regional and local level.

In relation to this, various types of tiering for SEA, according to Arts et al., 2005, can be distinguished depending on the dimension chosen (planning, administrative, geographical, sectoral):

- 1) Vertical tiering, tiering between a hierarchy of levels:
 - planning levels (mentioned before): policies, plans, programs, projects (e.g. national transport and traffic plan, national program for infrastructure and transport, national road development projects);
 - administrative, government levels: supranational, national state, provincial, municipal (e.g. national, provincial and municipal land-use plan);
 - geographical levels: global, continental, national, regional, local (e.g. national, regional and local waste management plan);
- 2) Horizontal tiering, at the same (administrative) level, e.g.:
 - tiering across sectors (e.g. housing, transport, water management, waste management, spatial planning etc.);
 - tiering of certain sector plans between different government bodies at the same administrative level (e.g. coordination of policy plans and environmental assessments of adjacent municipalities);
- 3) Diagonal tiering, a combination of vertical and horizontal tiering, e.g.:
 - e.g. a national spatial policy influencing local transport plans.

Table 2.3 below explains the systematic relationship among policies, plans, and programs relevant to SEA for transport planning system.

Table 2.3 Sequence of actions & assessments in a tiered planning and assessment system

Level of government	Land use plan (SEA)	Sectoral and multi sectoral actions			
		Policies (SEA)	Plans (SEA)	Programs (SEA)	Projects (EIA)
National	National	National transport policy	Long-term national roads plan	50-year road building program	Construction of motorway section
Regional	Regional	National economic policy	Regional strategic plan		
Sub-Regional	Sub-Regional			Sub regional investment program	
Local	Local				Local infrastructure project

Source : Wood, 1995 : 267

This tiering concept is useful for research analysis. In analysis part, the study will see what type of tiering has been applied, and how this is applied in the UK in accordance with the type of transport plan. Then, it supposedly can give some lessons for Indonesia when implementing SEA into transport plans. The tiering of SEA should link strategic planning level and project level.

2.3.5 The opportunities and the constraint of SEA Implementation

When introducing and implementing SEA concept in decision-making, especially in developing countries, it will be important to recognize opportunities. For example in developing countries, the introduction and implementation of SEA support good governance, give visibility to more strategic, proactive planning and decision making and demonstrate commitment to environmentally sustainable development (Dalal-Clayton and Sadler, 2005. p 26). And at the same time, it will also useful to consider some constraints that might be attached to adopting on SEA approach. For example in developing countries, it will require assistance with policy, legal and institutional reforms to establish basic preconditions (Dalal-Clayton and Sadler, 2005. p 26). Table 2.4 shows several opportunities and constraints in implementing SEA for developing countries.

Table 2.4 Constraints and opportunities to implement SEA in developing countries

Constraints	Opportunities
<ul style="list-style-type: none"> ○ little interest by many government agencies in subjecting policy and planning proposals to assessment , reinforced by fear of losing control, power and influence by opening up such processes ○ lack of resources for perceived non essential studies at early stages in the preparation of assistance programs ○ Perception that SEA will add significant cost and increase the work load of hard-pressed agencies ○ Concern that SEA will increase the time frame for decision-making or delay development ○ Absence of clear guidance and known, tried-and-tested methods ○ Unclear lines of accountability and responsibility for undertaking SEA ○ Lack of practitioners with expertise in SEA approaches in both donor agencies and in recipient countries ○ Need to train and take on additional staff for this purpose 	<ul style="list-style-type: none"> ○ SEA is transparent, participatory process that helps to realize good governance; it promotes inter-institutional relations in order to define priorities; and it supports informed, balanced decision making, reinforces accountability and builds public trust and confidence ○ Investments up-front in an SEA can save time and the later expense of fixing the consequences of poor decisions ○ It is likely that SEA costs will decrease over time as it is institutionalized (just as EIA cost reduced as it become routine) ○ When applied appropriately and early, the SEA processes is integrated within the decision making process ○ SEA principles, methods and guidance are in use internationally and can be drawn upon ○ International legal instruments for SEA and practical experience with how to operate national systems can be built on ○ Investment in SEA awareness-raising and training can build skills and competencies ○ Training can pay major dividends by improving decision-making, eliminating wasted time spent on fixing later problems and promoting more sustainable development

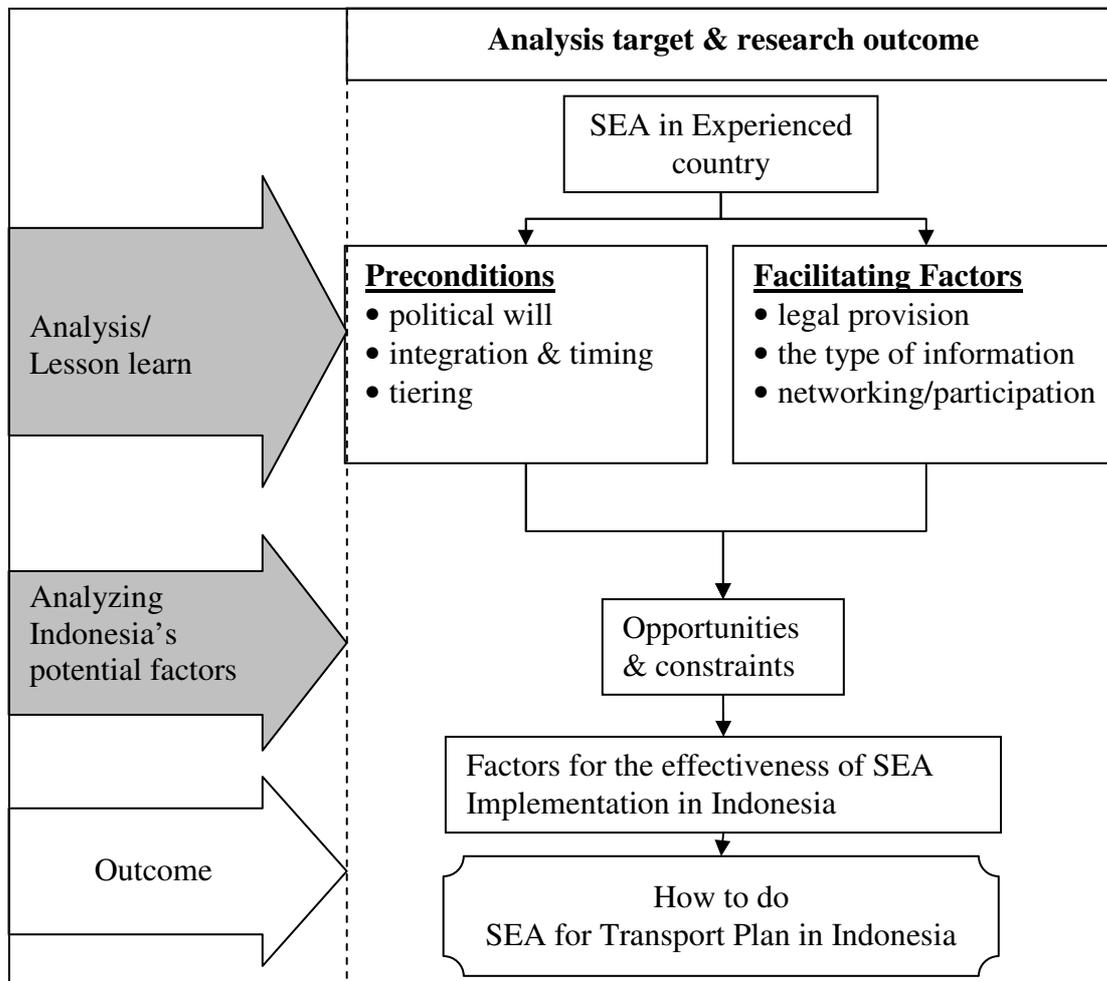
Source : Dalal-Clayton and Sadler, 2005

These constraints and opportunities can help describe the *potential factors* for implementing SEA in Indonesia. Then, these potential factors are combined with preconditions and facilitating factors for the effectiveness of SEA implementation (see table 2.2) so that it expectedly results in understanding on how to do SEA into transport planning in Indonesia.

2.4 Conclusion

This chapter has developed the theoretical framework as a base for research analysis (chapter 5). It firstly explains the two main reasons for integrating SEA into decision-making process which are (1) strengthening the limitation of and the failures of EIA to be able to provide environmental sustainability insurance and (2) the recognition of using SEA as a tool for advancing sustainable agenda. Furthermore, since this research intends to learn from experienced country in implementing SEA, this framework serve several preconditions and facilitating factors for the effectiveness of SEA implementation such as political will, legal provision, tiering, networking etc to be analyzed in chapter 4 about the UK's SEA for Transport Plans and Programs. Following precondition and factor analysis, this framework has served several opportunities and constraints which is useful to guide appropriate information to be served in chapter 3 for Indonesian current environmental assessment circumstances. Finally, by considering those various factors for SEA integration, it will analysis how to do SEA for transport plan in Indonesia in chapter 5. Figure 2.3 illustrates and summaries the theoretical framework of this study.

Figure 2.3 The Analysis framework of effective transport SEA implementation



Chapter 3 - Environmental Assessment and Transport Planning In Indonesia

Chapter 3 will describe the current condition of environmental assessment related to road transport infrastructure planning and the need of environmental assessment at strategic level. In order to make clear that condition above, this chapter firstly will review current environmental assessment in Indonesia (Sub-chapter 3.1). Secondly, this chapter briefly explains transport infrastructure Policy in Indonesia (Sub-chapter 3.2.). Thirdly, sub-chapter 3.3 describes the Indonesian planning of road transportation projects which take into account environmental consideration. Finally, this chapter ends up with concluding current Indonesia's environmental assessment for transport planning and providing the potential factors of SEA for transport planning.

3.1 Current Transport Planning and Environmental Assessment

Although road transport sector in Indonesia plays important role for improving economic and social life, this sector also hugely contributes to the reduction of the quality, availability and capacity of resources and environment. This sector, as one of the important elements for urban function, potentially could degrade the quality of life in certain areas. In Indonesia comprehensively unarranged transportation development with its services results in several impacts. Several main impacts are traffic problems such as traffic congestion, traffic accident; quality of life such as air pollution and traffic noise; treating the extinction of cultural heritages; barrier impact of other area such as housing and office place; the loss and the degradation of habitat; social impact such as dispute of land acquisition etc. As an illustration, JICA, in Jabodetabek's Main Integrated Transport Plan (2003), stated that economic lost in 2003 due to traffic congestion reached Rp. 3 trillion for vehicle operation cost and Rp. 2.5 trillion for vehicle travel time. In addition economic lost due to air pollution in Jakarta was estimated Rp. 500 billion based on health impacts

The degradation of quality of life and other impacts above are caused several factors which relate each other. The numbers of motorized vehicles are more and more increased (Indonesia Infrastructure, 2003). According to, The Directorate of Traffic - Jakarta Police Office (2003), the numbers of motor cycle in 2003 reached 2.3 million units, 1.2 million car unit and 250 thousand buses. The increasing demand and needs for private motorized vehicles are encouraged with the poor qualities and lack of public transportation system along with increasing economic interests, population growth and urbanization. On the other hand, road infrastructure improvement solutions such as improving road capacity along with non-infrastructure solutions such as traffic management system have slowly improved and could not overcome properly those problems.

Another crucial factor resulting in the transport problem is lack of coordination among authorities who responsible for dealing with transport sector and poor performance of those institutions. In fact, transport development responsibility and authorities in Indonesia, from national to local authorities, are divided into road infrastructure institution (Ministry of Public Work) and transportation or non-infrastructure development institution (Ministry of Transport). Although National, regional and local government arrange general transport policy and plan, both institutions have their own policies, plans and programs in which in

practice, it is hard to match those strategies and tend to not complement each other (ego-sectoral). For example, on one hand, Public Work Agency focuses on how to deal with providing and improving road capacity with considering environmental impacts of infrastructure development. On the other hand, Transport Agency more focuses on dealing with improving accessibility, solving traffic congestion, reducing air pollution and noise as well as traffic safety. In practice, those two institutions have been not well coordinated. Furthermore, coordination with beyond transport sector such as Landscape Agency, Health Agency has also been lack. Whereas, coordination with other agencies is important because transportation system will affect landscape, health etc. it means that transport plan is as an integral part of land use plan.

Until now, in solving traffic problems, government is seemly focusing on individual project either infrastructure or non-infrastructure development solutions. Besides, that solution tends to more road-based development rather than area-based development, whereas, naturally certain roads are connected which other roads and also influence other function such as residential, office, education center etc. As a result, the transportation system seems to be properly unmanaged either networking to inter modes or multi modes. This in turn generates negative impacts as mentioned above. For example, in 2006 Jakarta authorities intend to widen arterial road of Sudirman-Thamrin Street (Central Jakarta City, 2006 in <http://www.jakarta.go.id/jakpus/berita.asp?id=1211>). This project aimed at improving road capacity in order to cope with traffic congestion. In one side, this solution temporarily could reduce traffic congestion at that area. On the other side, it also can generated more increased environmental impacts especially air pollution and noise nuisance. It is because the wider the road capacity, the more vehicle traffic flows and the more pollutant generated. This project claimed by several environmental NGOs will increase air pollution due to the increase of road capacity and also diminishing plant along side the road.

In order to cope with such environmental impacts, actually government through Ministry of Environment has developed various instruments for environmental management, which has *pre-emptive* and *preventive* characteristic. *Pre-emptive* instruments comprise effort conducted at decision-making and planning level, especially land use plan and project EIAs. Over last twenty five years, minimizing environmental impacts has been carried out EIA, including for transport sector. As stated in Law No. 23/1997 on National Environmental Management, that every activity or project, which could result in huge and important impacts on environment, must be obliged to conduct EIA study in order to eventually gain permitting and license for their activities or projects. Meanwhile, *preventive instruments* are effort conducted at production or source level of environmental impacts through applying environmental standard, environmental management system, the test of motorized vehicle gas emission etc (Ministry of Environment, 2004).

In addition, at program level, Ministry of Environment has formulated and conducted environmental management program. One of most popular programs related to transport sector is “Langit Biru” (Blue Sky) issued by Ministry of Environment in Ministry of Environment Regulation. This program aims at improving air quality through controlling air pollutant either from moving sources such as motorized vehicle or unmoving-source such as industries. This guidance describe how to control air quality surrounding roads, how to measure air quality and serving the accurate result of air quality control useful for evaluating air pollution management.

However, although those programs had been applied, the degradation of environment and natural resources are still becoming important issues. In practice, those indicate that all programs seemed to have an incremental and technical approach. These instruments have failed and have been limited in dealing with large scale and cumulative impact because that instrument is arranged just to deal with individual or project level (reactive). Besides, this approach is too late in anticipating such cumulative and synergistic impact resulted from road transport activities. Thus, there is the need for more strategic environmental assessment regarding cumulative impact. In other words, apparently, transport policy in Indonesia has not been oriented to sustainable transport development. As Muhammad stated in Kompas-daily newspapers (2004), sustainable transport development has three main requirements, namely, improving prosperity, minimizing environmental impact and sustainable making use of potential resources. Those requirements comprise energy efficiency policy, vehicle technology and fuel, clear air policy and transportation demand management.

In order to make better understanding of current environmental assessment and transport planning in Indonesia, the rest of this chapter will review current EIA and transport planning with its environmental consideration.

3.2 Environmental Assessment in Indonesia

3.2.1 National Environmental Management

Generally, all infrastructure developments (including road transport infrastructure) and national environmental and resource managements are arranged by stated Land Use/Spatial Plan and *Environmental Management Act*. The National Land Use/Spatial Plan enacted by Act number 24 Year 1992 encompasses planning the making use of space, making use the space itself and monitoring of the use of space, aiming at:

- Making use of space in line with environmental framework
- Arranging the use of protected area and valuable area
- Achieving the use of spaces in right manner in order :
- To create harmonization in exploiting natural and artificial resources with considering human resources and activities.
- To protect the function of spaces in preventing and mitigating negative impact toward environment.

Furthermore, national infrastructure development in term of environmental framework is also arranged by Act number 23 Year 1997 on *The Environmental Management*, which aims at:

- Achieving harmonization between human being and environment
- Ensuring to meet the need for present and future generations
- Achieving the function of resource and environmental sustainability
- Ensuring environmentally and wisely resource and environmental exploitation

In order to achieve those objectives, the Act in article 9 stated that “environmental management is performed in an integrated manner by government institution in accordance with their respective fields of tasks and responsibilities, the public and other agents of development *while taking into account the integratedness of the planning and implementation of environmental management policy*”. It means that all development policies and plans, including transport development, should consider environmental dimension in line with environmental management policy. Unfortunately, this Act has

restricted to environmental assessment at project level. As stated in article 18, every activity or *project*, which could result in huge and important impacts on environment, must be obliged to conduct EIA study in order to eventually gain permitting and license for their activities or projects. As a result, the regulations for all developments, including transport development are just arranged environmental assessment implementation at individual (project) level. Thus, it is challenge to enhance existing environmental assessment at more strategic level.

Following, EIA system as well as the decentralization of EIA system, along with its regulation, will be further elaborated below.

3.2.2 Indonesia's EIA

a. EIA Legal and Institution Framework

The EIA institution in Indonesia underwent changes. Prior to 2000, the authority to implement EIA was assigned to ministries or other national government organizations, provinces and special administrative districts throughout the country. Each of these organizations has its own EIA committee to carry out preliminary screening and to review environmental impact assessment reports (World Bank, 2004).

Regulations 27/1999 on EIA changed this structure by canceling EIA committees in sectoral departments at the central government level while all tasks for national EIA review were put on a central EIA committee at EIMA, which was established in 1990. The EIMA has responsibilities to develop guidelines for implementing EIA and to monitor the progress of EIA. It plays the role of overall coordinator for EIA and has the authority to supervise the reviewing process of environmental impact assessment which extends across multiple ministries (Purnama, 2003).

According to Regulation 27/1999, EIA administrations were also established in the provincial and district government. Responsibility to implement and supervise EIA is distributed to all provinces and districts and is performed by the governmental agencies responsible for environmental impact at national, provincial or district level (Purnama, 2003). However, Indonesia has become used to a top-down administration over a long period of time, and the new concept of decentralization may cause loose control of quality and standards of EIA implementation.

b. Procedure

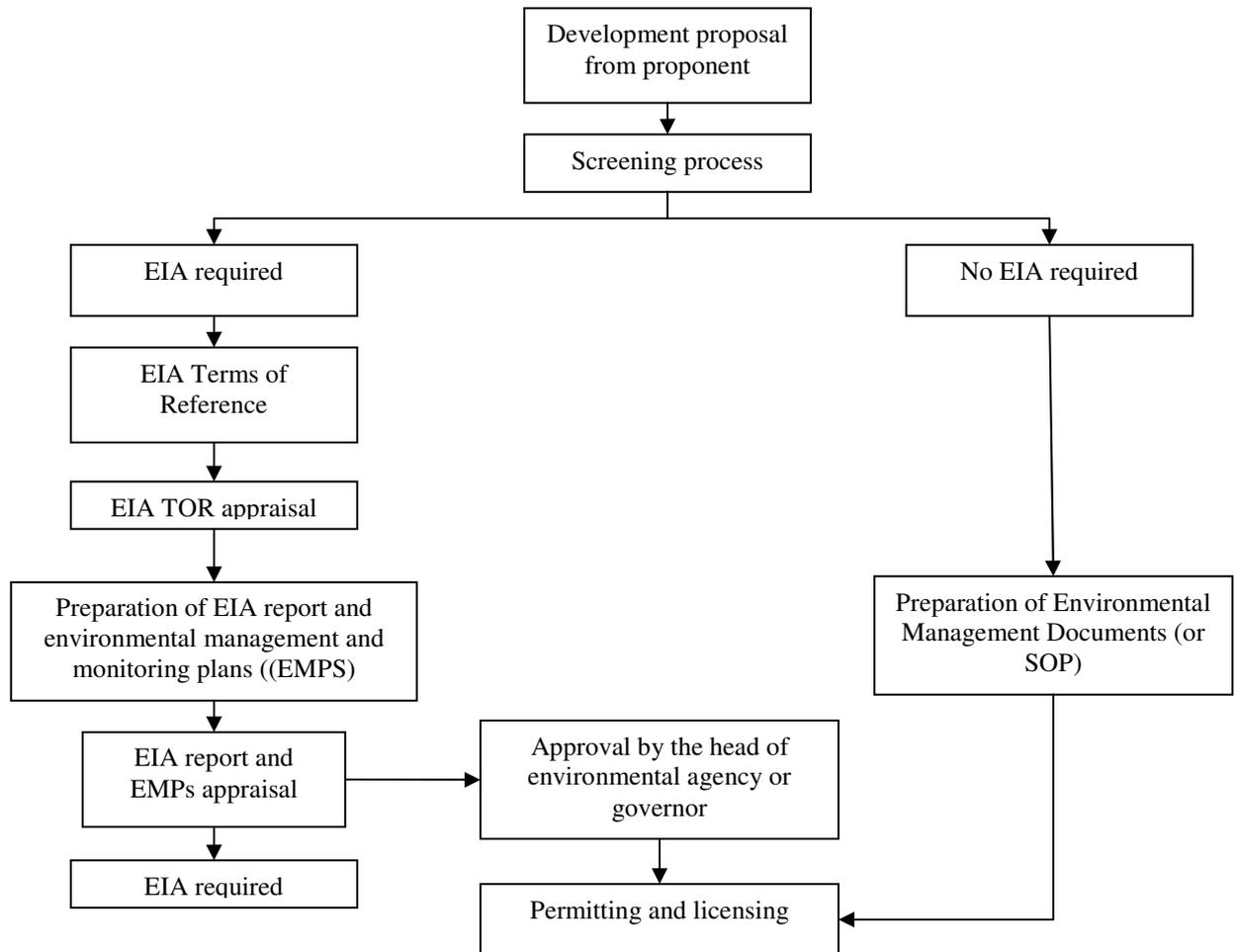
Government Regulation No. 27/1999 clearly stresses out that EIA is one of requirements in which decision makers oblige to consider the result of EIA Study before they give permitting and license to proponent's development proposals. Systematically, Indonesia's EIA procedure comprises screening process, scoping process, compiling and appraisal EIA TOR, compiling and appraisal EIA, Environmental Management Plans, permitting and licensing environment. According to Government Regulation No. 27/1999, the EIA procedure can be explained at figure 3.1.

As shown by figure 3.1, screening process as the first phase in EIA procedure determines whether development proposals from either public or private require EIA or not. The screening indicators in determining the requirement of EIA are provided by Decree of Ministry of Environment No. 17/2001. If development proposal is required EIA, a proponent must prepare EIA Terms of reference (TOR) for the EIA study which determine

the scope of problem and identify important impact supposedly resulting from development proposal (scoping process). Meanwhile, if initiatives are not required to conduct EIA study, proponents must directly prepare Environmental Management Document or Standard Operational Procedure (SOP).

Figure 3.1 The EIA Procedure in Indonesia

(Source: Government Regulation 27/1999)



After EIA TOR is reviewed by EIA commission, proponent must prepare an EIA report and Environmental Management and Monitoring Plan (EMP) in line with approved EIA TOR. Finally, EIA report and EMP reviewed by EIA commission along with related stakeholders are approved by the head of Environmental Agencies or Governor to gain permitting and licensing in running development proposals.

3.2.3 The Decentralization of the EIA System

In 1999, Government issued Act 22/1999 on Regional Governance, along with Government Regulation 25/2000 on Government Authority and Provincial Authority. This Act has served legal framework for new decentralization. It means that regional and local authorities have been given wide authorities in dealing with developing their own areas. Thus, it is useful to consider its broad outlines and how it relates to environment and natural resources management.

Act 22/1999 on Regional Governance abolishes the hierarchical relationship between provinces and districts/cities. The country's districts gain greater autonomy, with local elections of district heads no longer subject to higher-level approval, and new responsibility for a broader menu of local services, as well as oversight of village-level government. Relevant with environmental management, Act 22/1999 explicitly allocates responsibilities for environment and natural resource utilization, conservation and environment across all levels of governments. It assigns responsibilities for EIA to the national level only for activities that have broad social impacts, security implications and/or cover more than one province. Provinces are to conduct EIA for activities covering more than one district, and districts themselves should conduct EIA for activities within their administrative boundaries. However, these arrangements are inconsistent with existing AMDAL Regulations, which place national-level environmental assessment review under a Central AMDAL Commission with the authority to delegate this responsibility to the Province level only.

Decentralization has diverse effects for environmental management. On the positive side, when doing environmental assessment, it can gain better community feedback especially from development-affected communities. On the negative side, environmental management become fragmented because decentralization allow each region explore their resource and initiative for developing their own areas. This circumstance will be dangerous for environmental management because the characteristic of environmental management usually is across administrative boundary and environmental impact of development such as transport infrastructure development has wider effects overwhelming the region itself. Thus, it is needed more strategic environmental approach either for vertical or horizontal link among regions and sectors (integration precondition). Finally, the threat and opportunity of decentralization related environmental management will require to more strategic environmental assessment.

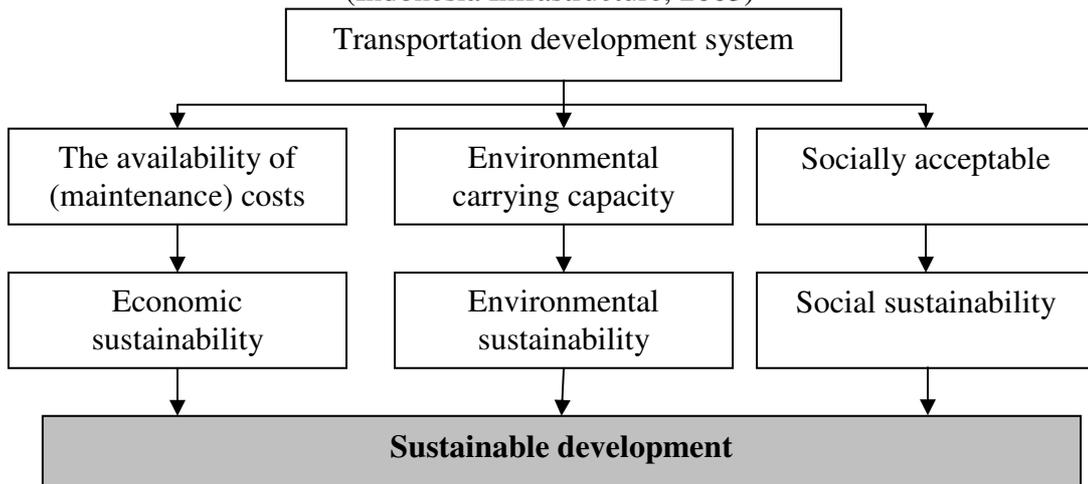
3.3 Transport Policy in Indonesia

The development of National Transportation System (Sistranas) has multi dimension of objectives which can be classified into :

- 1) To develop transportation system for supporting regional development
- 2) To develop transportation system to support efficient and equal economic system
- 3) To provide efficient, accessible and secure transportation services
- 4) To develop transportation system which is able to ensure and keep sustainable development

In order to achieve those objectives above especially the fourth objectives, transportation development policy consider three aspects of sustainability-economy, social and environment. Socio-economic sustainability emphasizes on improving prosperity and welfare, minimize poverty and unemployment marked by increasing income per capita as well as measured from the affordability for maintenance cost. Meanwhile, environmental sustainability emphasizes on protecting and enhancing resource and environmental carrying capacity toward the degree of water and air pollution, disposal, natural hazards such as forest fire, land slide as well as the scarcity of water availability. (see Figure 3.2)

Figure 3.2 a sustainable transportation development framework
(Indonesia Infrastructure, 2003)



Unfortunately, sustainable transport development framework in Indonesia has not been properly conducted because of the lack and limitation of instruments to guide sustainable transport development at strategic level. The fact that a tool in dealing with sustainable transport development, especially in environmentally oriented, has been merely relied on EIA which just focus on individual (project) level. On one side, this individual environmental assessment has failed to provide environmental sustainability insurance. On the other side, road transport infrastructure development with its services, in fact, has generated such cumulative and synergistic impacts and also contributed to the degradation of biodiversity and resource capacity as well as huge pollutions. Thus, government calls for approach to be more proactive and to deal with providing room for conducting cumulative and synergistic impact generated by various activities. Before studying such strategic approach, it is useful to review on how Indonesia's road transportation development is conducted in line with environmental framework. Sub-chapter below will describe that issue.

3.4 Road Transport Plan in Environmental Framework

As mentioned at sub-chapter 3.1, *Environmental Management Act* in Indonesia has just focused on environmental at *project level*. So, regional and sectoral agency including transport sector more focus on considering environmental assessment at their project, instead of plans and programs. As illustration, table 3.1 depicts transport plans and programs in Jakarta Province which less pay attention to taking into account environmental consideration.

Table 3.1 Transport Policy, Plans and Programs in Jakarta Province in 2002 - 2007

Policy	Program	Objectives	Authorities
Optimizing existing road nodes and bridges including pedestrian & halt, improving quality of public transport service, coordinating with neighbor regions	Developing road and bridge network	<ul style="list-style-type: none"> To improve quality of roads To provide arterial road for connecting among housing area, office and trading area To enhance pedestrian cross-walk. 	Public Work Agency
	Developing transportation infrastructure	<ul style="list-style-type: none"> To reduce traffic accident and congestion rates To improve the quality of public transport service 	Transport Agency
	Developing public transport services	<ul style="list-style-type: none"> To provide public transportation 	Transport Agency

Source: Jakarta Strategic Plan, 2002 – 2007

It can be seen at table above, there is no explicit environmental consideration taken into account at transport plans and programs. Those more focus on transport infrastructure issues and their services. So, this is challenge to enhance environmental consideration into more strategic in order to achieve sustainable development above.

The table also indicates that another weakness for sustainable transport development is the fragmented authorities who responsible for transport development. Unlike the UK, transport development responsibilities and authorities in Indonesia, from national to local authorities, are divided into *road infrastructure institution* (Ministry of Public Work) and *transportation or non-infrastructure development institution* (Ministry of Transportation). This circumstance will be a constraint for implementing transport SEA because both institutions have their own policies, plans and programs in which in practice, it is hard to match those strategies and tend to not complement each other. Whereas, one of the good preconditions in SEA implementation, both infrastructure development and non-infrastructure development (traffic and transportation management) must be comprehensively arranged in one entity.

Related to preconditions and factors of Hilden et al (chapter 2), when intending to implement SEA for transport sector, this existing condition should consider political will, legal provision, network and integration factors to be enhanced and built. That enhancement will be gained through understanding current existing environmental assessment for transport at project level. In order to understand the existing environmental assessment, this study will elaborate how transport project plan are conducted by involving environmental assessment.

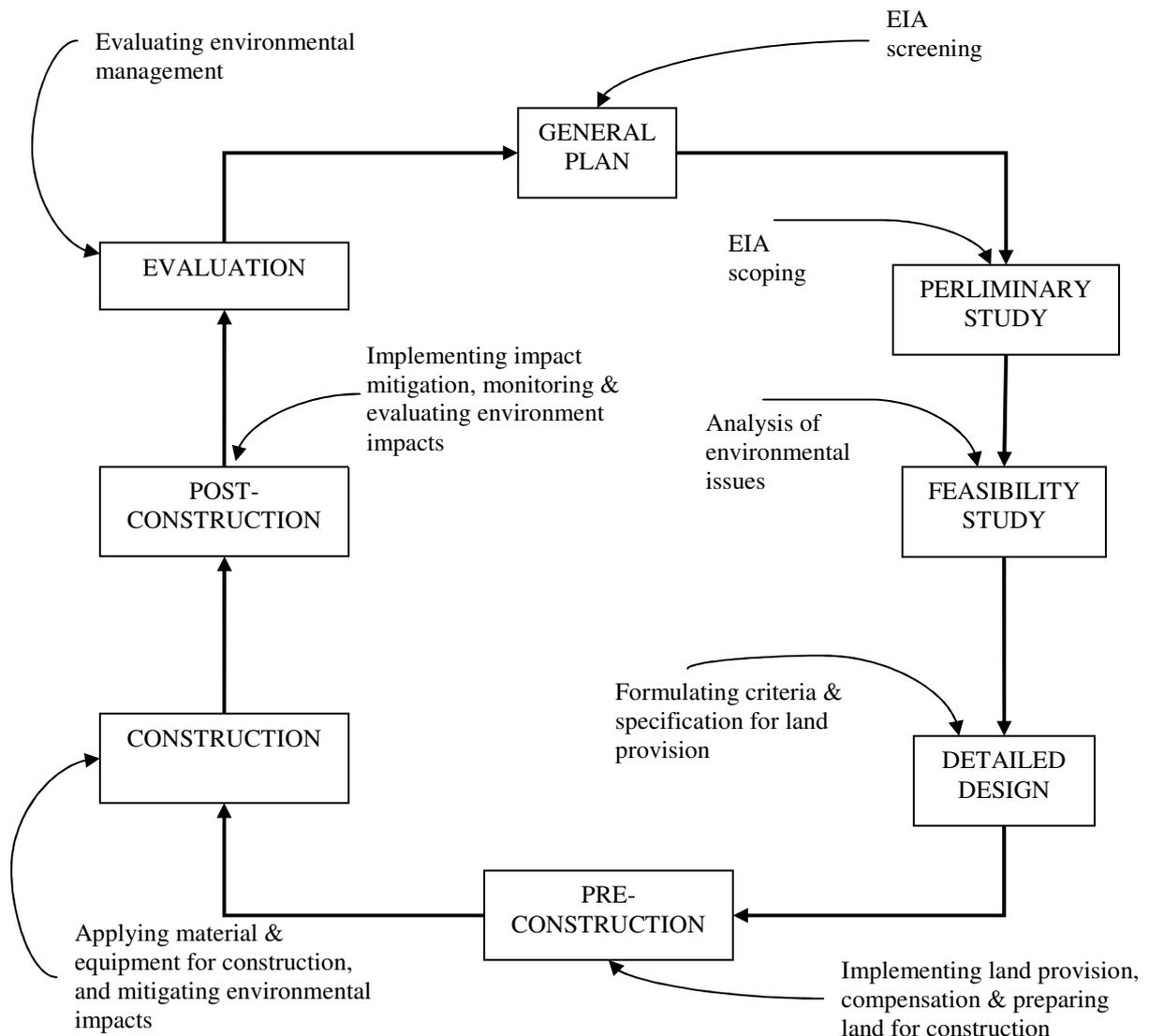
In Indonesia, road transport infrastructure planning begins with determining some alternatives for road network corridor which need to be built and/or improved. This determination must be in line with stated Spatial Plan either National, regional or local. Furthermore, in order to avoid development impacts on environment, the determination of the corridor as long as possible must not cross sensitive areas such as protected area, densely residential areas and other sensitive areas, as Environmental Management Act No. 23/1997 stated.

In more detailed, Environment-oriented road development policy was stated in The Minister of Public Work Regulation No. 49/PRT/1990 on Technical Guidance on The Public Work Project EIA (replaced by The Minister of Public Work Regulation No. 69/PRT/1995). The basic principle of that policy is integrating or implementing environmental consideration into all cyclic process of project plan, including road transportation projects.

According to Ministry of Public Work 2006, road planning process with considering environmental dimension systematically consist of 8 phases, that is The 8-phase of road planning can be described at figure 3.3 below.

Figure 3.3 Road development process with environmental consideration

(Source: Ministry of Transport, 2004)



- 1) *General Plan* : Its activity encompasses selecting route or road corridor, determining priority scale, scheduling and budgeting. In this phase, proponent should identify huge and important impacts through environmental screening for each of node to be built. Then, proposed project can be categorized into whether projects which need to be conducted EIA study. Indicators and parameter in determining the requirement for EIA study are provided by Decree of Ministry of Environment No. 17/2001.
- 2) *Preliminary Study*: This phase formulates broad design of action plan and also formulates some alternatives for road corridor, including to analysis the feasibility of each corridor alternative. In analyzing the feasibility, this phase not only considers socio and economic aspect, but also environmental feasibility through pre-environmental analysis. If some road corridors are categorized as developments which need EIA study, then these require scoping EIA Term of Reference (TOR), formulated in line with the pre-environmental analysis.
- 3) *Feasibility Study*: The main activity of this phase encompasses technical, economic, financial and environmental analysis in more detailed for each corridor alternative, supported field survey result. Environmental feasibility analysis is conducted through

studying EIA or EMP, which should be integrated with technical, economic and financial study in one entity. The result and recommendation of feasibility study is served in Environmental Management Plan (EMP) for conducting environmental management at detailed design phase and the other next phases.

- 4) Detailed Design: This phase consists of several activities as follow, definitively determining road trace, making detailed engineering design (DED) for road and its complement construction as well as determining some requirements and specifications for construction activities, calculating budget, Arranging procurement. Meanwhile, the integration of environmental dimension needed at this phase is elaborating EMP in the form of figure, design, environmental standard and technical specification of environmental management. Thus, Consultant of technical planning should understand environmental management plan document or must be accompanied by environment experts. In addition, in calculating the estimation of construction costs, it should take into account environmental management costs.
- 5) Pre-construction: Pre-construction phase encompasses land provision and relocating residential area for project-affected people. Environmental management in this phase is conducting EMP to handle expected social impacts.
- 6) Construction: Construction activity, particularly engineering activity, comprises land preparation, road construction structure and other supported constructions. Environmental dimension for this step is conducting EMP to prevent and handle all impacts or risks which could be emerged due to construction activities such as land slide, air pollution, noise nuisance and other intrusive construction activities.
- 7) Post-construction: Project activities at pos-construction phase consist of operating, making use and maintaining of road. To deal with environmental impacts resulting from those activities, it need to conduct and state EMP for post-construction phase through traffic management, preventing and mitigating air pollution and noise nuisance as well as managing the use of along-side road.
- 8) Evaluation: The aim of evaluation phase is to evaluate, to maintain and to enhance the life time of road. The implementation of environmental consideration in this phase is evaluating performance of environmental management and monitoring which has been conducted at previous phases in order to become input for road development planning.

It can be seen that environmental consideration is well organized in road infrastructure project planning. So, by understanding EIA for transport project, it supposedly will be useful for enhancing environmental assessment at more strategic (SEA). This is because both EIA and SEA have several similarities especially in integration of environmental consideration, public involvement and Environmental Report. But, the issue is how to link environmental assessment into policies, plans and programs. This issue will be answered in chapter 6 after analyzing the UK SEA for Transport Plans and Programs and Indonesia potential factors for SEA implementation.

3.5 Conclusion and Relationship with the next chapter

It can be concluded that there are several opportunities and strength and weaknesses for implementing SEA into transport plans in Indonesia. By understanding Indonesia context in this chapter and some part of chapter 1, table 3.2 below summarized several potential factors of SEA for transport plans. The potential factors influencing SEA implementation, according to World Bank (2006), comprise political will, legal provision, administrative capacity, formal SEA procedure and public involvement.

Table 3.2 Potential factors for SEA implementation in Indonesia

Dimension	Current status	Remarks
Political will	strength	Political will from administrative through publishing booklets, titled : “SEA” and “Cumulative Impact Analysis”
	weakness	The absent of political will from politician, elected-decision makers and public
Legal Provision	opportunity	Law is available for EIA, but not for SEA although planned revision to the Environmental Management Act 23/1997 may include strengthened references to SEA
	weakness	There is no regulation & guidance on SEA for transport sector
Administrative capacity	opportunity	Ministry of Environment responsible for national level EIA, provincial and district level government responsible for local level EIA need to be enhanced
	weakness	Separated policies, plans and programs of transport sector from Ministry of Public Work and Ministry of Transportation
Formal SEA procedure	weakness	There is no formal SEA procedure
	opportunity	available some introductory booklet on SEA published
Public involvement	opportunity	Clearly stipulated for project-based EIA with concrete requirements in the legal document need to be enhanced

These potential factors are not the same as Hilden’s preconditions and factors. And they then will be analyzed and combined with preconditions and facilitating factors for implementing SEA for transport plans in order to understand *how to do SEA implementation in Indonesia* in chapter 5. Prior to analysis how to do SEA implementation in Indonesia, this study, in the next chapter, will learn from the UK which has good experience in undertaking SEA for Transport Plan in order to understand those preconditions and facilitating factors for the effectiveness of SEA. The reason choosing the UK experience has been served in chapter 1.

Chapter 4 - SEA for Transport Plans in the UK

As mentioned in Chapter 2, the effectiveness of SEA for transport plans are influenced by several preconditions and facilitating factors. Thus, this chapter will see SEA implementation in the UK so that it eventually can give lessons learned for how to do SEA implementation in Indonesia. To explore those factors, this chapter will review transport appraisal in the United Kingdom (UK), especially SEA for transport plan. First, it will describe the evolving sustainable transport development in the UK (Sub-chapter 4.1). This sub-chapter is crucial for understanding the UK experience in building more desirable transport appraisal over the time, especially how strong political will forced SEA implementation. Second, it will engage a case study for integrating SEA into the UK's Transport Planning Process before fulfilling the requirement of SEA Directive (sub-chapter 4.3), followed by reviewing current Guidance on SEA for transport planning process in the UK (Sub-chapter 4.4), and also understanding the practice of the integration SEA into Local Transport Plan (LTP). Finally, conclusion will end up this chapter.

4.1 Sustainable Transport Development in the UK

Actually, the awareness of Sustainable development in transport sector in the UK has been emerged since the last twenty years ago. It was influenced by several reasons/changes. According to Tomlinson, 1999, first, government and communities, at that time, had actually perceived that transport sector has huge influence on environmental impacts. It means that transport development and activities had contributed on much global pollutant, acid rain, the huge use of non-renewable resources and included global effects of transport. Meanwhile, at that time, transport sector policy merely focused on local environment issues such as noise, severance, visual intrusion and some pollutant. In addition, transport appraisal was dependent on economic consideration in terms of monetary valuation. Second, in 1997, *the new labor government* quickly introduced the concept of integrated transport appraisal. Government declared that the trunk roads review would seek long-term solutions and give more weight to environmental considerations while promoting sustainable economic development. This government awareness is one of important political will forcing SEA implementation.

Regarding with issue above, the Department of the Environment, in 1990, published a White Paper, which presented the first comprehensive review of every aspect of the UK's environmental policy. However, the option for transport seemed to be limited in their scope as primarily related to reduction in energy consumption (Banister, 2002 transport planning second edition). In contrary, the environmental effects must be interpreted more broadly, as the environmental effects of transport influence all human live in a variety of ways.

Subsequently, with publication of series of the White Paper in January 1994, sustainable development and mobility issues were gaining position in government. These White Papers enabled the government to establish goal for transport which were not governed by the Ministry of Transport's obedience to road as the policy solution. As a result, the main goal for sustainable development in the transport sector was to meet the economic and social needs for access to facilities, with a reduced need to travel in ways which did not place unacceptable burdens on the environment (Tomlinson, 1999b). And at the same time, the

Ministry of Environment issued Planning Policy Guidance Note 13 in which it strengthened the relationship between land use and transport planning.

The Government's White paper *A New Deal for Transport: Better for Everyone* (DETR, 1998) sets in place the policy context for dealing with transport and highlights the complexity of transport problems and the interaction with other policy areas. Transport appraisal is carried out to provide input to efficient policy development and resource allocation across government. This guidance represents the department's attempt to ensure that transport appraisals are carried out effectively (DfT, 2003).

Therefore, to achieve sustainable transport development and to make it a reality, The White Paper introduced the New Approach To Appraisal (NATA), to appraise and inform the prioritization of transport investment proposals. NATA, which has evolved since its original launch in 1998, is now the basis for, appraisal of multi-modal studies; Appraisal of Highways Agency road schemes and Local Transport Plans, major road and public transport schemes. More detailed about NATA will be served by sub-chapter 4.3.

Following, the DETR has also been anticipating the requirements of the SEA Directive, at least in regard to transport planning through the production of guidance manual on SEA for Multi-Modal studies (Tomlinson, 1999). SEA of certain plans and programs, including Local Transport Plans and Regional Transport Strategies, is required under European Directive 2001/42/EC on the assessment of the effects of certain plans and programs on the environment. The benefit from anticipating and implementing SEA Directive can supplement NATA practice. While NATA process more focuses on horizontal integration in decision making among sectors, SEA practice recognizes and addresses vertical link between policies, plans and programs in environmental framework. This combination between NATA and SEA comprises both tiering and integration factors for the effectiveness of SEA for transport plans. And it is useful lesson for Indonesia conditions, especially for anticipating decentralized-environment management.

As NATA established the change in appraisal practice, so preparation of the SEA guidance for Multi-Modal Studies did not require a fundamental reshaping of appraisal activities. Instead, the development of the SEA guidance has enhanced and supplemented existing appraisal practice rather than introduced entirely new procedures. SEA is broadly consistent with NATA and should be carried out as part of the NATA process for such plans and programs. A new philosophy is emerging that requires quantified and qualitative approach to decision making. This new approach links a clear appreciation of problem with objectives, a review of alternatives and selection of the preferred approach based on an understanding of the economic, environmental and social consequences, all undertaken in a transparent and robust manner (Tomlinson, 1999).

4.2 SEA in the United Kingdom

European Directive 2001/42/EC on *the assessment of the effects of certain plans and programs on the environment*, The Strategic Environmental Assessment Directive, came issued on July 21 2004. The directive requires European Union Member States to ensure that all plan and program should include Directive requirement. In the UK, the SEA Directive is legally implemented by separate regulations in the four UK administrations: England, Wales, Scotland and Northern Ireland. All of the regulations closely follow the requirements of the SEA Directive. The requirements of SEA Directive then were

transposed in the UK through the *Environmental Assessment of Plans and Programs Regulation 2004*.

To implement that regulation, The Office of the Deputy Prime Minister (ODPM) England, the Scottish Executive, the Welsh Assembly Government and the Department of the Environment for Northern Ireland has been jointly developed and published a practical guidance to the Directive (Dalal-Clayton et al, 2005). This Practical Guide provides information and guidance on how to comply with the European Directive 2001/42/EC. The Guide is intended to apply to all plans and programs in the UK which fall within the scope of the Directive. Specific guidance has however been developed for certain types of plans and programs, particularly land use and transport planning (ODPM, 2005). Related to SEA for transport plans, the study just focuses on Guidance on *Environmental Assessment of Transport Plans and Programs*. This guidance, along with the case study below, will then be used to understand how the UK implements SEA into transport plans and program in chapter 5.

4.3 Case Study of integrating SEA into the UK's Transport Plans

This part will explore a case study on how SEA was integrated into transport Plan in the UK. Related to decentralization era in Indonesia which more focuses on plan at regional and local level, the case focuses on the UK's Local Transport Plan (LTP). It is because it seems to be similar level to regional and local transport plan in Indonesia. This study chooses The Somerset LTP because it was appointed as a pilot project for integrating SEA Directive requirements into Local Transport Plans before formally arranging into Guidance on SEA for Transport Plans and Programs in 2004. So, it is useful to understand several opportunities and constraints on how Somerset Authority deals with the possibility of integrating SEA into LTP. The aims of this pilot are to explore and evaluate the effectiveness of SEA as a tool for appraising sustainability, examine barriers to implementing SEA Directive. When exploring transport plans in the UK, there are 3 key points which must be understood before integrating SEA into transport plan in the UK, namely, LTPs, New Approach to Appraisal (NATA) which is existing appraisal approach to be integrated into LTP in the UK and Guidance on the Methodologies for Multi-Modal Studies (GOMMMS) applied at more strategic or greater area than NATA.

a. Local Transport Plans

LTPs are the documents through which local authorities bid to government for transport-related resources. LTPs provide a 5 year integrated transport strategy and include local transport objectives, analysis of problems and opportunities, integrated strategy to tackle the problems and deliver the LTP objectives, a 5-year implementation program of schemes and policy measures and targets, performance indicators and other outputs which can be used to assess whether the plan is delivering its objectives. (Therivel, 2003).

Later on, Guidance on Environmental Assessment of Plans and Programs Regulations 2004 has advised that new LTPs will be subject to the EU Directive on SEA which must be submitted in 2006. The government's guidance on LTPs states that the SEA Environmental Report must be published in parallel to a consultation draft of the new LTP, to allow the public and statutory environmental bodies an early and effective opportunity to influence final LTP. Once the LTP has been adopted, a statement must be produced to summarize how the SEA has been taken into account. (Merseyside LTP SEA and HIA Final Report, November 2005).

According to Therivel et al (2003), actually several aspects of LTP, especially in Somerset LTP, has provided informal SEA requirements, which are, agreement on objectives, use of indicator, identification of constraints, consideration of alternatives, monitoring and appraisal. So, this suggests that there is potential for completely integrating planning processes and SEA/Sustainability Appraisal. Those informal SEA requirements are emerged through using NATA as an existing transport appraisal into LTP at that time. Following, this part will briefly explain the NATA approach.

b. NATA and GOMMMS

Other key points are NATA and GOMMMS. In 1998, government's White Paper introduced the New Approach To Appraisal (NATA), to appraise and inform the prioritization of transport investment proposals. NATA, which has evolved since its original launch in 1998, has five objectives (Tomlinson, 2001):

- 1) *protect* and enhance the built and natural environment: noise, local air quality, landscape, biodiversity, heritage, water
- 2) improve *safety* for all travelers
- 3) contribute to support sustainable *economic* growth in appropriate locations: journey times and vehicle operating costs, cost, journey time reliability, regeneration
- 4) promote *accessibility* to everyday facilities for all, especially those without a car: pedestrians and others, access to public transport, community severance
- 5) promote the *integration* of all forms of transport and land use planning

The NATA approach identify problem and assess proposals and other projects against criteria of environmental impact in line 5 objectives above. This approach allows options for solving transport problems to be compared and decisions taken in the light of environmental, social and economic impacts. Then, the resulting information is summarized in an Appraisal Summary Table (AST), which aims to provide decision-makers will both quantitative and qualitative information on all aspects of the proposal (Tomlinson, 2001).

Following NATA approach, The Guidance on the Methodology for Multi Modal Studies (GOMMMS), according to Therivel, was published in 2000, and replaced previous advice on transport planning at levels more strategic than individual projects. The full LTPs of 2000 were produced in line with GOMMMS. However in practice, as stated by Somerset County Council's planners (2003), the NATA/GOMMMS approach can skew strategic-level transport analyses because it is too scheme-focused. For instance, although it is possible to quantify many impacts of projects, it is much harder to derive quantitative data for plans and programs. Arguably this makes it easier to identify benefits of infrastructure projects than of the plans and programs. In particular, Somerset's planners feel that NATA/GOMMMS does not deal well with strategic issues, cumulative impacts, and the comparison of strategic level alternatives (Therivel et al, 2003).

Based on understanding NATA/GOMMMS above, there are several issues which are useful for integrating SEA into LTP (Therivel et al, 2003):

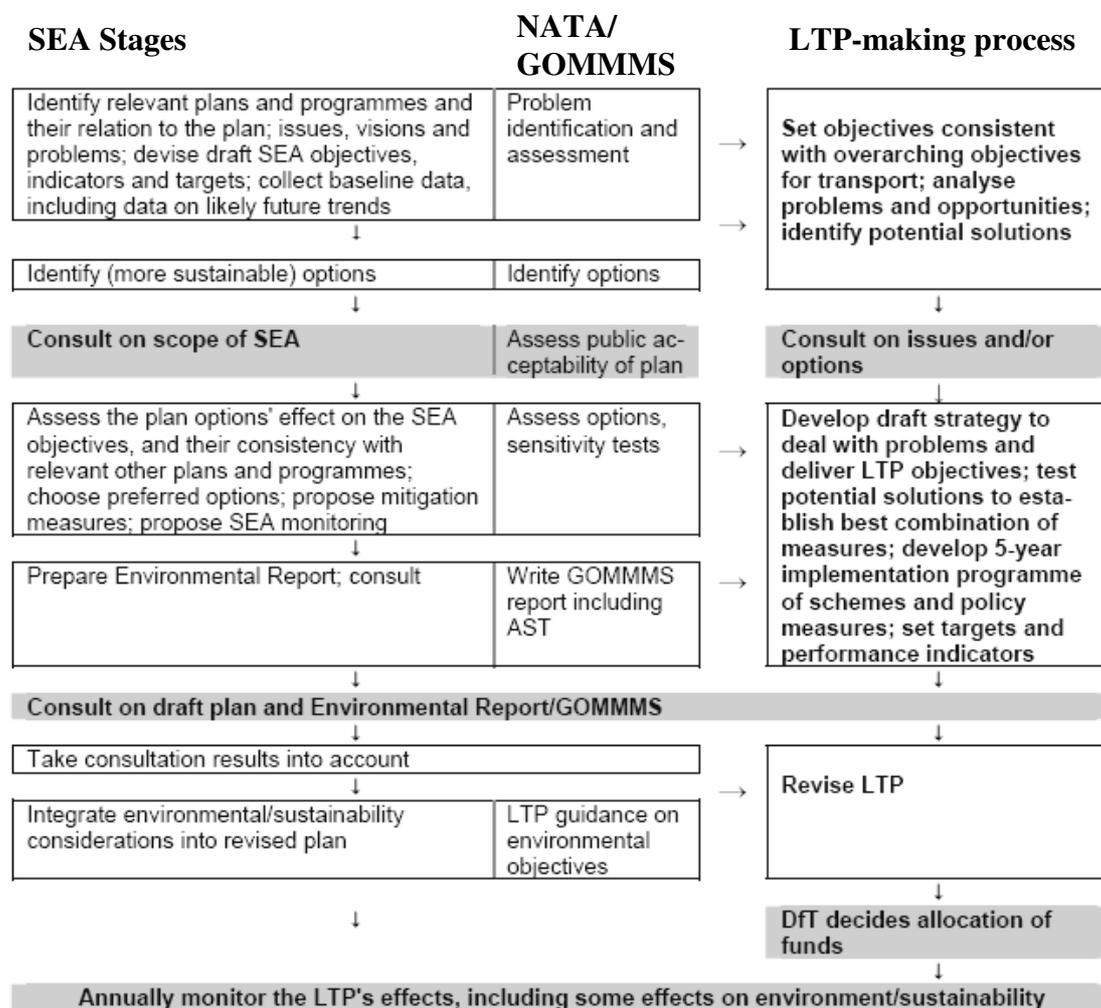
- The NATA/GOMMMS were unable to give a good feel for the difference between the LTP *with and without measures*: this is because most of the LTP's effects were not quantifiable, and because the measures would play a relatively small part of the LTP. This exemplifies the problems of quantifying impacts at the strategic level.
- NATA still has one original problem of Cost Benefit Assessment (COBA) of economic benefits being easier to quantify (and thus having more 'weight') than

environmental costs. NATA also assesses only direct economic costs, and does not take into account broader indirect economic effects.

c. Integrating Requirement of SEA Directive into NATA/GOMMMS and LTP

This part will describe on how Somerset’s Planners incorporated the likelihood of SEA stages in line with SEA Directive into LTP process with NATA/GOMMMS. As shown in figure 4.1 below, the main NATA/GOMMMS stage, comprising problem identification and assessment, identifying options, assessing options, writing NATA/GOMMMS report including AST, links to the SEA stages. It can be seen that whereas SEA stage *more focuses on strategic stage*, the NATA/GOMMMS process focuses on a pure transport assessment at *the project level*, and less emphasis on the earlier, more strategic stages of identifying links with relevant other plans and programs, identifying strategic indicators and focusing on future trends.

Figure 4.1 Incorporating SEA Stages into LTP and NATA process



Source: Therivel, 2003

In order to meet SEA requirements, Therivel suggested that Somerset’s NATA/GOMMMS need to be improved becoming wider approach and strategic coverage, which includes:

- o Better, or more explicit, consideration of *strategic level issues, options/ alternatives and mitigation measures*. The current NATA guidance is very specific on how NATA should be carried out for projects, and very vague on plans and programs. For

instance, although it mentions that authorities should take "a very wide view" of options, it gives no examples of what these options could be.

- *A clear requirement for performance indicators*, monitoring etc. to include significant environmental effects.
- *An explanation of how to assess impacts* on: population, human health (other than indirectly, i.e. air quality, accidents etc.), flora and fauna as distinct from biodiversity (if applicable), soil, climatic factors (more detail) and material assets. Some of these are covered implicitly in the existing guidance, but the guidance could explain how they could be dealt with more explicitly and documented so as to more obviously show compliance with the Directive. More generally, social issues other than access are poorly covered by the NATA/GOMMMS guidance.
- An explanation of how secondary, cumulative, indirect and other effects should be considered.

Thus, Somerset's planners argue that NATA and GOMMMS should be rationalized and wider sustainable development implications should be taken into account.

d. Tiering problems of current transport plans related to SEA

At that time (2003), links among different levels of transport plans, especially Somerset's LTP has been inconsistent. This pilot study also found that National-level infrastructure projects generally provide national- and regional level benefits but burden local-level costs. For instance, motorways and airports facilitate long-distance travel but increase noise, air pollution and other impacts locally (Therivel, 2003). All LTPs need to deal with decisions and schemes that have been 'inherited' from a higher level. Many of these will have been subject to some forms of environmental/sustainability appraisal but these appraisals will vary in terms of the options considered, amount of consultation undertaken and depth to which environmental issues were analyzed.

Furthermore, until 2003, environmental/sustainability appraisal systems appear to be fragmented, with some plans subject to sustainability appraisals, others to GOMMMS, others to voluntary appraisal, and many to no appraisal at all. Thus, it was suggested that Lower-level plans have to be in accordance with higher-level ones (for instance LTPs have to implement decisions regarding multi-modal schemes): they must take account of higher tier planning and policy decisions, and their objectives are expected to be achievable within those constraints (Therivel et al, 2003). It shows that *in practice* tiering among different transport planning level was little and tends to be properly uncoordinated.

The Result of pilot study

Finally, the results of a pilot project conclude that NATA/GOMMMS for Somerset's LTP actually fulfils many of the requirements of the SEA Directive, but needs to be adapted quite radically to take on the wider and more strategic requirements of the Directive for LTPs. NATA needs:

- More focus on *strategic issues*: options, effects and mitigation measures, including options on demand reduction and non-transport alternatives such as improved land use planning
- More focus on *how to appraise cumulative/secondary/indirect impacts*, possibly including requirements for causal chain diagrams
- Consideration of *whole range of issues* covered by the Directive plus (arguably) better consideration of social issues, and possibly an explicit requirement to include non-transport options

- Requirements for *consultation of the public and environmental bodies* in line with the Directive.
- Requirements *to inform* the public and environmental bodies *about the decision* in line with the Directive

The pilot study showed that local authorities would integrate SEA into local transport plans through NATA as an existing transport appraisal in the UK. It can be seen that The present of NATA in the UK is good preconditions for implementing SEA into transport plans and programs because NATA process actually accommodate most of SEA concept. However, NATA more emphasizes on project level than that of strategic level. So, the challenge for the UK government is how to enhance NATA process at more strategic levels. According to case study there are several enhancement of the NATA to fulfill the requirements of SEA Directive, namely, considering strategic issues, appraising cumulative and synergistic impacts, and consultation with environmental agency. Related to preconditions and factors in theoretical framework, that enhancement is the good factor for integration. Unfortunately, the study showed that tiering concept of policy, plans and programs was not discussed, whereas this concept is one of the important SEA factors. To enhance the NATA, ODPM thus issued Guidance on SEA for Transport Plans and Programs (TAG) in 2004. Following that recognition, the rest of this chapter will briefly describe the current SEA approach for Transport Plans and Programs, followed by the Integration of SEA into LTP in the UK.

4.4 SEA for Transport Plans and Program in the United Kingdom

This part presents how to carry out SEA for transport plans and programs in the UK in line with the requirements of SEA Directive. This SEA guidance was developed by Department for Transport in 2004 through Transport Analysis Guidance (TAG). This guidance integrates the SEA Directive’s requirement with New Approach to Appraisal (NATA).

Before conducting the NATA/SEA process, the responsible authority must consider whether SEA is required under the Directive or not (Screening process) (see Appendix 1). In the UK, generally the responsible authorities must consult the consultation bodies, make a screening determination and publicize the reasons for the decision (Ministry of Transport, 2004). Following the screening process, Table 4.1 shows the integration NATA and SEA process for transport plans and programs in line with Guidance on SEA for Transport Plans and Program in the UK

Table 4.1 The explanation of NATA/SEA Process

SEA Stages	Description
Stage A Setting the context, identifying objectives and problems and establishing the baseline	<ul style="list-style-type: none"> • Look at the environmental protection objectives, relevant to the plan, established at International, National, regional and Local level. • The objectives should include relevant NATA objectives related to transport infrastructure to be addressed within SEA (see appendix 3) • Review other plans, programs and strategies relevant to the LTP. This helps integrating LTP and assists with arranging baseline information and setting objectives • Collect relevant information on both the environmental baseline as it is now, and how it is expected to develop “without the Planning”. This is at a level relevant to a plan rather than a project. • Outline the environmental characteristics of areas likely to be significantly affected by LTP

	<ul style="list-style-type: none"> • Outline any existing environmental constraints, problems and opportunities in the area affected by the LTP. This particularly in relation to any areas of environmental importance e.g. designated areas. • Evidence-led expert judgment will be the primary mechanism for identifying current and foreseeable future problems and opportunities, e.g. environmental bodies, planners, stakeholders • Establish some SEA objectives, and think about indicators and targets for these objectives
<p>Stage B Deciding the scope of the SEA and developing alternatives</p>	<ul style="list-style-type: none"> • Develop a range of alternative methods/strategies for achieving the LTP objectives • From all the possible environmental impacts of the LTP, reduce the scope to focus on only those are likely to be significant. Refer to the SEA topics including human health and material assets. • Consult with environmental authorities when deciding which effects are likely to be significant and level of information that needs to be included in the Environmental Report.
<p>Stage C Assessing the effects of the plan</p>	<ul style="list-style-type: none"> • Predict/forecast the significant effects of the various alternative strategies and measures. • Outline reasons for collecting alternatives • Propose measures to prevent reduce or offset any significant adverse environmental effects predicted from implementing LTP. These measures should be costed and deliverable • Describe measures that could be put in place to monitor the effects of the LTP.
<p>Stage D Consultation on the draft plan and the environment</p>	<ul style="list-style-type: none"> • Prepare an Environmental; Report explaining the likely significant effects of the LTP on the environment, the alternatives considered, and mitigation measures proposed. • Provide the public and environmental authorities with the draft LTP and the environmental Report for consultation. Consultation needs to be early, in order to be effective. • Take the results of consultation into account when finalizing the plan • Upon adoption of the LTP produce a statement summarizing : <ul style="list-style-type: none"> • how environmental considerations have been integrated into LTP • how consultation with both environmental authorities and the public have been taken into account • the reasons for choosing the \LTP measures and strategies as adopted rather than other alternatives considered • proposals for monitoring
<p>Stage E Monitor the significant effects of implementing the plan on the environment</p>	<ul style="list-style-type: none"> • Decide what needs to be monitored • Identify the information required, and whether it is available or if there are gaps • Confirm when remedial action would be required and what this may entail • Consider who is responsible for monitoring activities, timing and result presentation

Source : London Borough's Local Implementation Plan (LIP), 2004

The timing of SEA process above must be parallel with transport planning process e.g Local Transport Plan (LTP) in order to enable the fit between SEA requirements and the objectives as well as the level of detail of the plan. Thus, the timing of the SEA stages depends on the LTP process and schedule. Furthermore, the SEA guidance do not specifically state that all local authorities must strictly conduct and develop such SEA stages above, but it allows all local authorities develop the stages in line with their local transport planning process. So, in practice the SEA stages will vary among Local Transport Plans because local transport decision-making itself are different among local authorities. However, when integrating SEA stages into their local transport plan, all local authorities should take into account and consider:

- Environmental consideration or objectives at early stage
- Environmental Report
- Consultation with its responses

- Reason for choosing the strategy
- Measure that are to be undertaken to monitor the significant environmental effects of implementing the plan

Furthermore, this guidance has been used by all regional and local transport authorities when they formulate regional and local transport plan. The new LTP must integrate SEA into all decision-making process. This SEA for transport plans have been implemented by all local authorities when preparing their local transport plan and those LTPs have been submitted, along with Environmental Report and SEA statement to national government since 2006. Unfortunately, these plans have not been applied in practice because the ODPM required all local authorities submit the new LTP which has used SEA concept in 2006. So, until now SEA for transport plans has not been implemented in practice. The next sub-chapter will describe how local authorities use SEA for making local transport plan (LTP).

4.5 Integrating SEA into the UK's Transport Planning Process

After reviewing the case study on integrating SEA into transport plans above, this part then will see and understand how SEA, as requirements of SEA Directive, will be formally integrated to throughout the UK's Local Transport Plans (LTPs). In order to see how SEA can match with LTP, this study chooses one of LTP documents which have applied SEA, namely, The Royal Borough of Windsor and Maidenhead Local Transport Plan (LTP) 2006 – 2011.

Figure 4.2 The integration of SEA with Development of Local Transport Plan
(Source: The Royal Borough of Windsor & Maidenhead LTP, 2006)

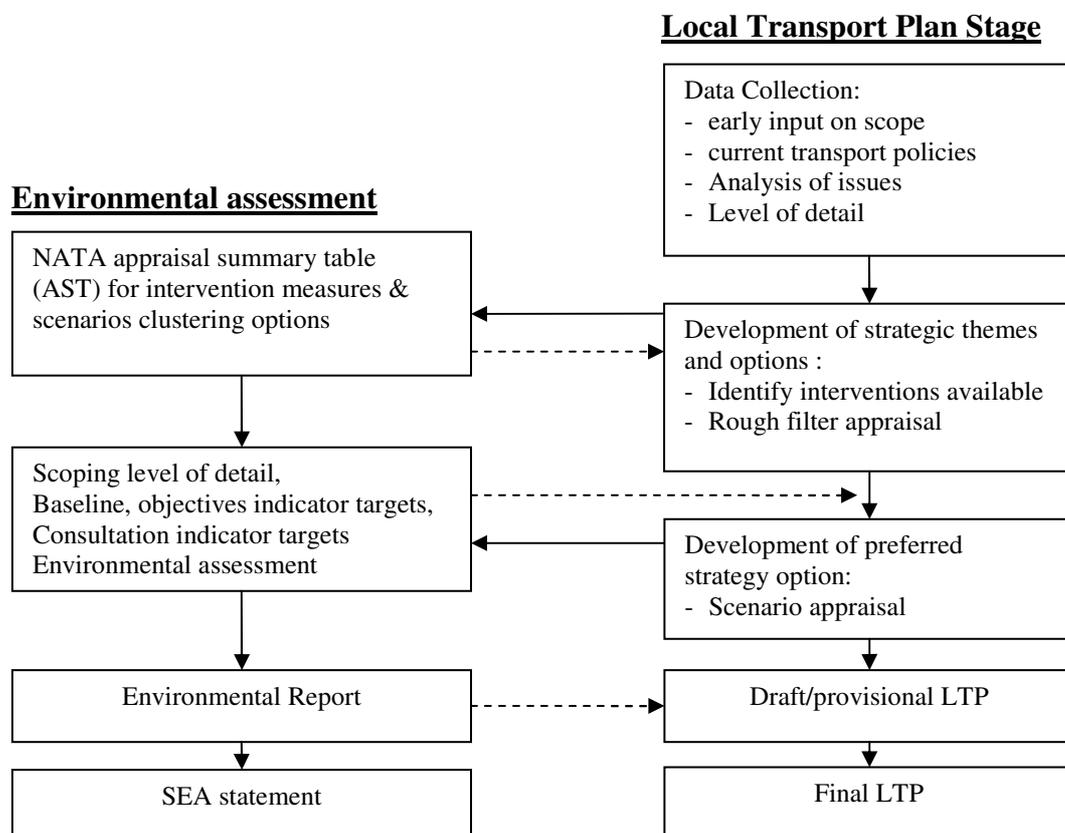


Figure 4.2 above shows how SEA is integrated into LTP. The figure demonstrates that environmental assessment is integrated in all LTP processes. The authority begins with determining all objectives and information of transport plans through using NATA Appraisal Summary Table (AST). This information is important for determining indicator and criteria in selecting options or themes of the LTP. The result of AST also use for scoping level of details, objective indicators for environmental assessment. Subsequently, those environmental assessments are used to influence development of strategy options of LTP. Briefly, after determining indicators and strategic option, environmental assessment makes Environmental Report as an input and support for draft LTP. Finally, this process ends up with proposed LTP accompanied by SEA statement.

Based on the guidance and the result of pilot study, The Royal Borough of Windsor and Maidenhead authority has considered several integration elements of SEA into LTP:

1) *Influence of the SEA Process during Plan Preparation*

The Council used the NATA process to appraise a range of alternative strategies and had a preferred option in place as the SEA process began. As a consequence the SEA was limited in its scope for assessment of alternatives and the main focus of the exercise was the identification of environmental effects, minimizing environmental effects (mitigation) and monitoring proposals.

Key environmental issues in relation to transport planning in Windsor and Maidenhead and nationally are: air and noise pollution, greenhouse gas emissions, congestion and land take for road building, park & rides etc. The following issues were also raised during the plan making process as being of local importance, such as car use for school travel, the LTP needs to address congestion associated with maintenance works, a significant tourism's contribution to traffic levels, significant congestion in and around urban centers, increasing negative effects on biodiversity.

2) *Influence of the Environmental Report*

The influence of the environmental report is to some degree restricted. The Council employed the NATA method prior to the SEA and this served to inform the Council of the effects of various options on the environment, safety, economy, accessibility and integration. The Council formulated the preferred option in response to this appraisal. The SEA appraised the preferred option and also reported the findings of the Council's earlier appraisal of alternatives using NATA.

The Environmental Report confirmed the Council's findings in relation to the environment, accessibility and integration in particular. The main contribution of the Environmental Report to the plan-making process have been to :

- Raise awareness of the type of effects associated with different management measures
- To reinforce appraisal work already undertaken by the council;
- To recommend mitigation
- To propose a monitoring framework that considers both adverse and beneficial effects and its clearly linked to the SEA process.

3) *Consultations*

In the SEA for LTP, there are 2 consultation stages that is :

○ Consultation for Scoping

The Council conducts consultation with Environmental authorities on Scope and level of detail of Environmental Report. The following authorities are identified in the Regulations which are, The Countryside Agency, The Historic Buildings and Monuments Commission for England (English Heritage), English Nature, The Environment Agency.

- Consultation for Provisional LTP and Environmental Report

In accordance with statutory requirements the Environmental Report was made available for inspection by statutory consultees, as well as Council Members and Parish Councils. It was also made available for public consultation, as required by the SEA Regulations. Table below provides a summary of the comments from the statutory consultees.

4) SEA Statement

The SEA Statement is required to provide reasons for adopting the Local Transport Plan in light of the reasonable alternatives considered. The Environmental Report has set out the alternatives considered and reasons for selection of the adopted plan.

The range of alternative interventions considered originated from:

- Consultation with stakeholders
- An appraisal of the effectiveness of measures delivered through the Borough's first LTP
- Output from various analysis tools such as GIS
- With reference to examples of best practice, both within the UK and abroad

4.6 Conclusion

Prior to the implementation of the EU SEA directive on 21 July 2004, the UK had no statutory provisions for SEA. Nevertheless, several types of SEA process had emerged including appraisals of national policies, environmental appraisals of local and regional plans (Dalal-Clayton et al, 2005). Related to transport planning process, the latest transport appraisal before considering the requirements of SEA Directive was NATA. The role of NATA is to appraise and inform the prioritization of transport investment proposal. The NATA approach identifies problem and assesses schemes, proposals and other projects against criteria of environmental impact, safety, economy, accessibility and integration with other plans and sectors.

NATA instrument above was perceived that it practically makes easier analysis to identify benefits of infrastructure projects than of plans and programs. So, when fulfilling the requirements of SEA Directive or applying appraisal at strategic level, the appraisal instrument is needed enhancement. There are some issues which is absent from NATA/GOMMMS. The issues to be added which is related to integration factors, are collecting baseline environmental information and identifying environmental problems, predicting significant environmental effects of plan, identifying mitigation, identifying alternative and their effects, consulting to the public and authorities, reporting the results of the SEA and monitoring the actual environmental effects of the plan during its implementation.

Regarding with carrying out SEA for transport plans and programs, the Department for Transport in 2004 produced a *Guidance on SEA for Transport Plans and Programs*. This guidance integrates the SEA Directive's requirement with New Approach to Appraisal (NATA). And Government requires all regional and local authorities should take into account SEA into their regional and local transport plan starting in 2006.

Related to the next chapter, this UK experience, especially on how the UK make an effort to implement SEA Directive and what is SEA for Transport plans and programs, is useful to see *several preconditions and facilitating factors* for the effectiveness of SEA implementation. Those preconditions and factors will be analyzed in the next chapter (chapter 5). By doing so, it is expected to gain some lessons learn for Indonesia context.

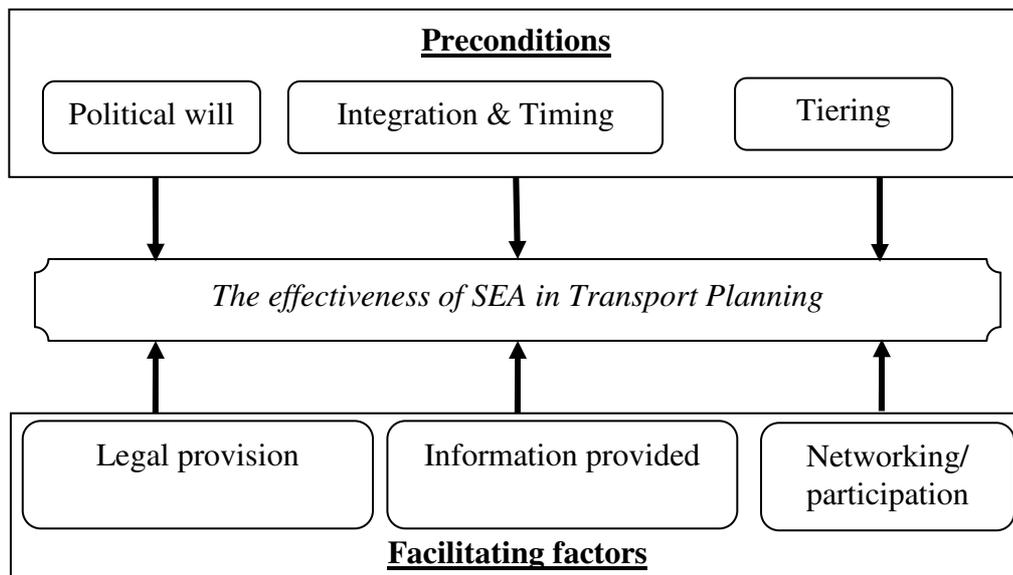
Chapter 5 - Analysis of the possibility of SEA for transport planning in Indonesia

This chapter analyzes the possibility of SEA for transport planning in Indonesia regarding with preconditions and facilitating factors of SEA implementation. Since Indonesia has no SEA experience and expertise for transport plans, it is useful to learn from experienced country (the UK) through identifying several preconditions and facilitating factors for the effectiveness of its SEA implementation. This learning process then will be combined with several opportunities and constraints for SEA implementation in Indonesia (served in chapter 3). The way and process of this analysis is in line with theoretical framework developed as served in chapter 2.

5.1 Learning Analysis of the UK's SEA for Indonesia Context

Based on the theoretical framework in chapter 2, the effectiveness of SEA depends on its preconditions and facilitating factors. These *preconditions* encompass which are crucial for environmental assessment to have an effect on the planning. Meanwhile, *facilitating factors* that contribute to the effectiveness of SEA include the underlying *legal provisions*, *the type of information provided* and *the use of networking* (see figure 5.1). Therefore, this part more focuses on identifying those preconditions and factors related to SEA for transport plans and programs in the UK. Then, those will be compared with current environmental assessment for transport plans in Indonesia so that it supposedly can give lessons for enhancing environmental assessment at more strategic.

Figure 5.1 the Preconditions and Factors influencing the effectiveness of SEA in Transport Planning



5.2 Necessary preconditions

a. Political will

As Hilden et al (2004) stated, the participation of politicians and other decision-makers from the very beginning is as important as the participation of the public. In other words, the political will to carry out an environmental assessment is important for starting point.

Moreover, political pressure such as from public may be sufficient to initiate an assessment if the politicians and responsible authorities are unwilling to carry out an environmental assessment.

In the context of the UK transport appraisal, as shown by the evolution of transport appraisal in the UK in chapter 4, political will to use transport assessment has been hugely emerging not only from government awareness, but also from elected decision-makers and strong public pressure. Marked by the new Labor Government in 1997, the new government, along with public force, quickly introduced the concept of integrated transport which declared that the trunk road review would seek long-term solutions and give more weight to environmental consideration while promoting sustainable economic development. This policy has been evolving until now, by introducing and using of New Approach to Appraisal (NATA)-integrated transport appraisal.

Subsequently, the UK government through Department for Transport, in 2004, produced “Guidance on SEA for transport plans and programs”. This SEA guidance was produced as respond to transpose SEA Directive’s requirements into the UK’s prevailing transport appraisal (NATA). This guidance assigned that all regional and local authorities must involve SEA process based on SEA Directive requirements into either Regional Transport Strategies or Local Transport Plans and must be submitted in 2006.

Based on the UK’s experience above, it can be seen that the emerging political will to use environmental assessment for transport planning, in the UK, come from elected-decision makers, administrative and public. Moreover, it can be understood that political will has important role in triggering arrangement or change of the desired policies or approaches. As Hilden et al (2004) stated, without this involvement, the effects of SEA for transport sector on decision-making may be negligible. It means that political will must be presented or triggered, otherwise the assessment procedure and the link of the environmental assessment into decision-making process, which have been successfully arranged in appropriate manner along with huge and transparent participation of all stakeholders, does not make sense.

In Indonesia, political will to use environmental assessment at strategic level has just emerged from administrative (Ministry of Environment), while political will from elected-decision makers, politician and public is limited on environmental assessment at project level. The political will from administrative was marked by publishing booklet titled “Strategic Environmental Assessment” in 2004 which described the need of and the procedure of SEA. At the same time, Ministry of Environment also published booklet titled “Cumulative Impact Analysis” which concern on the limitations and failures of project EIAs dealing with analyzing cumulative and synergistic impact of project developments. This precondition is useful for starting point. Unfortunately, those initiatives and recognition for SEA implementation has not been arranged into statutory framework and not binding for relevant authorities. Besides, that initiative was too broad, not specifically address for sectoral approach such as transport plans. These are caused by lack of awareness and weak support from other parties such as elected-decision makers, politician and public force. So, Ministry of Environment should make efforts to *gain the same attention and perspective* from those actors through:

- Encouraging the awareness of politicians, elected-decision makers and public
- Giving information and education on strategic environmental issues for authorities and decision making as well as public

- Involving relevant international organization to enforce SEA implementation

b. Integration and Timing

According to Hilden et al (2004), integration, which establishes clear links between environmental assessment and the planning process, ensures that environmental considerations are taken into account. The integration of SEA into transport planning process could be:

- The integration of environmental assessments into planning process.
- The integration with respect to different kinds of assessments, e.g., integration of economic, social and ecological assessments.
- Integration can also be used to express links between different levels of planning.

Furthermore, the timing of the integration between environmental assessment and planning process are temporally linked. It means environmental assessment data is available during the preparation of policy, plan and program.

As shown in the UK's case study, prior to issuing Guidance on SEA for Transport Plans and Programs, the UK government faced some challenges on how to fulfill the requirements of SEA into current transport plan. Those were because the existing transport appraisal, NATA/GOMMMS, more focuses on deriving quantitative data of infrastructure project rather than quantitative and qualitative for plans and programs, although the scope of the assessment has embraced all sustainable development objectives through analyzing five's NATA objectives.

To deal with the challenges above, government through Department for Transport in 2004 produced guidance on *SEA for Transport Plans and Programs*. With exploring guidance and case study in chapter 4, there are several aspects to be integrated into NATA or local transport planning process in fulfilling the requirement of SEA Directive. These aspects (the content of integration), which are important for Indonesia case, comprise:

1) *Environmental considerations or objectives at early stage*

Environmental considerations must be included at early stage of planning process. In the UK, the SEA work begins following development of the provisional LTP after the Local Authority uses the NATA to appraise a range of alternatives strategies and had a preferred option (see figure 4.3). As a result, the SEA is limited in its scope for assessment of alternatives and the main focus is the identification of environmental effects, minimizing environmental effects (mitigation) and monitoring proposals. In order to gain whole environmental considerations, at scoping stage regional or local authorities must consult the plan to *designated environmental authorities* and other non-environmental agency in relation to level of detail to be included in the environmental report.

2) *Environmental Report*

This report contains the outcomes of the SEA process (figure 2.2 served SEA process). Moreover, the purpose of this report is to document the assessment of policies and strategies that has been taken during the development of the new LTP. This report will form the basis for informing all interested stakeholders of the assessment process associated with the new LTP. In addition, in accordance with statutory requirements the Environmental Report is made available for inspection by statutory conslutees and public. Environmental Report consultation is conducted both vertically among different relevant planning levels and horizontally among other environmental plans.

3) *SEA statement*

The SEA statement is required to provide reasons for adopting the LTP in light of the reasonable alternatives considered. The Environmental Report has set out the alternatives considered and reasons for selection of the adopted plan. To be more robust reasons, the report should involve consulting with stakeholders, output from various analysis tools and reference to examples of best practice.

4) *Measures for monitoring the likely significant environmental effects of the plan*

The final stage of the process is the development and implementation of monitoring process. Monitoring aims at mainly suggesting possible actions to reduce the effects of unpredicted events, if they occur. Systematically, monitoring process runs identifying aspects of the environment, using indicators developed at SEA scoping, deciding how frequently these are monitored and who will carry it out, and using results to determine any unpredicted effects.

It can be concluded that SEA complements the NATA process. While, NATA process emphasizes on relationship among sustainable development objectives through NATA's five objectives (see chapter 4: 33 and table 5.2), SEA practice emphasizes and addresses environmental objectives from policies, plans and programs with projects. It means that the integration between SEA and Transport Planning in the UK not only has clear link between environmental assessment and transport planning process, but also emphasis on a wider context of appraisal with other sustainable development objectives (socio and economic objectives) through the five objectives of NATA.

Lessons learned for Indonesia context are that the integration should consider the *timing* and the *content* of the integration. The timing for integrating environmental assessment is started when local authorities make preparation of plan, in particular when developing preferred strategic options (see figure 4.2). Meanwhile, *the content* or the main elements for integrating SEA into decision-making process are *environmental considerations taken into account at early stage* (see SEA Stage A and B in table 4.1), *Environmental Report, consultation, reason for choose the strategy or plan* and *measures for monitoring* the likely significant environmental effects of the plan. Besides that, those elements especially environmental considerations and Environmental Report must be integrated with other sustainable transport development such as economic and social aspects. Furthermore, thus environmental considerations and Environmental Report should be consulted to either official consultant bodies or others in order to make robust and transparent the report.

Due to the absence of SEA experience in Indonesia, the potential factors for integrating SEA in Indonesia will be compared with the UK's integration concept. Currently, Indonesia's environmental assessment has been the same as the UK condition before implementing SEA concept. Environmental assessment for transport sector development in Indonesia has still been applying for individual (project) level – EIA. This could be good starting points for implementing SEA because SEA itself naturally is EIA which is applied at policies, plans and programs. The existing Indonesian EIA system serves several important preconditions for enhancing to strategic level such as involving official bodies and public interest in evaluating development impacts of the project, making Environmental Impact Study (EIS) which is quite similar to making Environmental Report in SEA.

However, SEA integration into transport plans is not as simple as merely enhancing the role of EIA at more strategic level. This also requires transport PPP which have comprehensive and integrated appraisal among economic, social and environmental

objectives. Unfortunately, unlike the UK with the NATA process, Indonesia government does not have comprehensive transport appraisal like NATA. Besides, transport development PPPs are shared between Ministry of Public Work focusing on infrastructure development such as widening road capacity with Ministry of Transportation emphasizing on traffic and transportation management such as accessibility, solving traffic congestion, reducing air pollution and noise etc. Moreover, in practice, both institutions are not well-coordinated and tend to go on their ways to achieve their own objectives. Meanwhile, like SEA in the UK, one of the good preconditions in SEA implementation are the presence of comprehensive transport plans or programs for both road infrastructure development and traffic and transportation management.

Therefore, before going further into SEA integration, government should reform those two institutions whether they are assembled into one institution dealing with transport PPPs or it is coordinated by higher level institution like National Planning Agency. Thus, comprehensively integrated transport appraisal could be effectively arranged and interconnected both infrastructure and non-infrastructure development impacts.

c. Tiering

According to Hilden et al (2004), one of factors for the effectiveness of SEA implementation is considering tiering concept. It is crucial to consider how environmental assessment of the policy, plan, program and projects is linked. The aim of tiering concept is to ensure that there are links from the strategic level to the concrete project level and vice versa. Thus, the vital approach is how to understand the particular organizational structures. In the case of transport planning in the UK, the type of tiering concept is based on planning and administrative level which systematically comprise:

- 1) National transport policy
- 2) Regional Transport Strategies with its Multi-Modal Studies
- 3) Local Transport Plan and mode-specific plans
- 4) Individual transport projects, some of which are accompanied by EIA under the provisions of EIA Directive

In more detailed, table below systematically illustrates the different levels of the transport appraisal system in the UK

Table 5.1 Level of transport appraisal in the UK

Level	Transport appraisals
1	Regional Transport Strategy
2	Multi-Modal Studies and integrated appraisal
3	Prepare Regional Transport Strategy
4	Evaluation location, design and implementation alternatives of selected transport measures
5	Select preferred transport measure design/implementation programs
6	Undertake scheme design and prepare EIS for consent processes
7	Public Inquiry and announcement
8	Design of the Transport measure and construction tender/implementation process
9	Construction/implementation
10	Ex-post evaluation

Source: Tomlinson, 1999

At each tier above there may be a range of component/feeder activities and interim steps. For example, Multi-Modal Studies and their accompanying appraisals may feed into some Regional Transport Strategies. In that case, some parts of the SEA process may need to be initiated for Multi – Modal Study and then carried forward into Regional Transport Strategy/Regional Spatial Strategy SEA is finally brought together, possibly a considerable

later. Similarly, there may be a range of local studies initiated to support Local Transport Plans. This requires careful consideration on a case by case basis (DfT, 2004).

Unfortunately, Guidance on SEA for Transport Plans and Programs in the UK has not explicitly and profoundly explained how to do environmental assessment tiered from policies, plans and programs and their relationship. The guidance just shows how SEA is integrated into transport plans or programs either for Regional Transport Strategy or Local transport Plans without clearly explaining their connection. Thus, in practice tiering PPP for SEA in the UK cannot answer several issues of tiering concept as some authors' concerns (see Arts et al, 2004) which are:

- How to accommodate new stakeholders and potentially changing opinion during the transition from policy and plan through to project delivery?
- Whether stakeholders will accept the outcomes of strategic appraisal when projects are assessed perhaps for 5 years or more? Whether the effects identified in strategic appraisal are seen to be correct or appropriate when project level assessments are delivered?

Those questions, so far, has not been answered yet because local authorities have just accomplished their New Local Transport Plans which was included SEA since 2006.

For more detailed tiering concept, some parts of tiering are mainly conducted at SEA Stage A and stage B (see table 4.1). But tiering is restricted for determining environmental objectives etc, not for transport plans. In stage A, tiering is conducted by all activities at that stage comprising setting the context, identifying objectives, problems and opportunities and establishing baseline. Besides, tiering is also conducted both vertically and horizontally. For example, when formulating SEA objectives, it should take into account:

- National Transport Policy and Regional Transport Strategies
- National protection objectives from legislation such as the Birds Directive
- Environmental objectives from other relevant plans and programs
- Regional sustainable development framework
- Consultation with designated environmental bodies and other stakeholders

Furthermore, in SEA stage B (scoping), tiering are conducted with other relevant authorities. It is because a plan will be affected by, and will affect, a wide range of other relevant plans and environmental objectives within and outside an authority's jurisdiction.

Based on the theoretical framework in chapter 2, when applying tiering concept in transport development, it should understand the type of transport planning. Both the UK and Indonesia transport planning are categorized *diagonal tiering*¹ in which transport PPP is carried out by National Transport System, Regional Transport Systems and Local Transport System in accordance with the framework of land use plan. Thus, that similarity, especially related to different planning levels, is good point for modifying tiering PPP of SEA concept in the UK into Indonesia context. Nevertheless, when modifying tiering PPP of SEA in the UK, Indonesia government should consider the weaknesses of the UK tiering concept. For example, Government should accommodate new stakeholders and anticipate potentially changing opinion during the transition from policy and plan through to project delivery.

¹ A combination of vertical and horizontal tiering, e.g.: a national spatial policy influencing local transport plans (Arts et al, 2004)

In decentralization era in Indonesia, tiering PPP of SEA will be able to assist the consistency of environmental objectives from national, regional to local. So, fragmented-link among administrative or planning levels due to decentralization can be reduced. In other words, environmental objectives from higher to lower levels of decision-making will be consistently considered and environmental effects of transport sector are taken into account when developing road infrastructure at project or local levels. Besides, tiering SEA also can horizontally link with other environmental plans and programs as well as between different government bodies so that environmental considerations at early stage in transport development are taken into account, although those environmental considerations across trans administrative boundary among regions.

5.3 Facilitating factors

a. Legal provision

Legal and other provisions related to environmental assessment may be necessary to ensure the effectiveness, but in practice, it indicates that there are examples of successful influence on transport decision-making even when the environmental assessment of the plan/program has not been required by law or supported by other governmental provisions (Hilden et al, 2004). Those conditions above reflect the UK experience in dealing with environmental assessment at strategic and wider context into transport decision-making process. Prior to the emergence of SEA Directive in 2001, initially the UK government had no statutory provision for SEA. Nevertheless, several elements of SEA process had emerged during the 1990s including appraisals of national policies, environmental appraisals of local and regional plans carried out in specific sector (transport and water) (Dalal-Clayton et al, 2005).

However, the present of legal framework for SEA is required for the effectiveness. Thus, after the emergence of SEA Directive in 2001, the UK government issued Statutory Instruments, No. 1633 in 2004 on the Environmental Assessment of Plans and Programs Regulation 2004, followed by producing Guidance on *SEA for Transport Plans and Programs* and other sector guidance. This regulation with its guidance aims at not only transposing the requirements of SEA Directive, but also enhancing and complementing the effectiveness of existing transport appraisal in the UK. This guidance enhances the existing transport appraisal (NATA) through considering the requirements of SEA Directive. The SEA for transport sector is just implemented at plan and program level. It can be assumed that SEA at plan and program levels is easier to be described and quantified than that of policy level.

In this guidance, all regional and local authorities have obligation to consider environmental issues by integrating all SEA process into regional or local transport plan. This framework not only can improve transport planning, but also can become a document for gaining and securing fund from government. This guidance does not require all local authorities to strictly implement the guidance, but it should be adopted by matching with their LTPs because LTPs vary among regions. Nevertheless, there are several main elements which must be added into LTP when implementing SEA. Those elements are collecting baseline environmental information and identifying environmental problems, predicting the significant environmental effects of the plan, consulting the public and authorities with environmental responsibilities, reporting and monitoring how the results of the SEA and consultation responses have been taken into account.

In the context of Indonesia, actually, Act No. 4 of 1982 (amended by Act No. 23 of 1997) on *Environmental Management* had arranged environmental assessment at more strategic level. Article 3 at the Act stated that environmental management aims to create environmentally sustainable development in the *framework of the holistic development*. Related to *political will*, this Act is good for starting point to encourage the awareness of SEA implementation from politicians, elected-decision makers and public. The Act could convince the implementation of environmental consideration at more strategic level.

However in practice, subsequent regulation has just been addressing to environmental assessment at individual (project) level – EIA, including for environmental transport appraisal in dealing with sustainability since 1982 until now. So, when intending to implement SEA, it is recommended to amend the Act through explicitly arranging environmental assessment at strategic level especially for plans and programs which have likely cumulative and synergistic environmental effects.

As stated in theoretical framework, legal provisions for SEA implementation provide necessary support for initiating, carrying out and publishing the results of environmental assessment. Furthermore, legal provisions of SEA for transport plans in Indonesia are important to keep the consistency of environmental objectives from national to local level. Related to decentralization era, provisions also can assign and require all administrative levels especially local authorities to always take into account whole environmental consideration both vertically and horizontally when developing their own areas, including transport development. So, it can encompass environmental consideration across administrative boundary.

Arranging SEA regulation with its guidance needs several preconditions. The most important preconditions is the present of political will from all parties, namely, administrative, elected-decision makers, politician and public force. Meanwhile other preconditions such as the concept of SEA integration, tiering etc will also support the effectiveness of SEA implementation.

b. *The information provided*

Based on the theoretical framework in chapter 2, a suitable balance between *systematically generated information* and *unplanned information* which is used and produced ad hoc by other parties enhances effectiveness for SEA implementation. In the planning and decision-making process, unplanned information usually is neglected due to the difficulties to quantify and other external impacts such as socio-economic and political interests. The important environmental issues which are often not included in the assessment are: Climate change (CO₂), Energy consumption, Modal split, Biodiversity, Traffic demand, Health effects, Transboundary effects.

In the UK, SEA guidance and practices accommodate the balance between systematically generated information and unplanned information which is in both stage A (setting SEA objectives) and Stage B (scoping), (see table 4.1). With considering international and national environmental objectives, objectives from other relevant plans and program as well as Regional Transport Strategies, Stage A develops and arranges all environmental issues together with other issues into NATA objectives (see table 5.2 below). This table of NATA objectives is quite similar to the table 2.1 about the impacts for transport SEA in chapter 2.

Table 5.2 NATA objectives and SEA topic to be addressed within SEA

NATA Objectives	NATA Sub-objectives	SEA Directive (Annex II)
Environment	Noise	Human health, population, interrelationship
	Local air quality	Air, human health, population
	Greenhouse gases	Climate factors
	Landscape	Landscape
	Townscape	Landscape
	Heritage	Cultural heritage including architectural & archeological heritage
	Biodiversity	Biodiversity, flora, fauna and soil
Safety	Water environment	Water
	Accident	Human health and population
	Security	
Accessibility	Community severance	Population
	Access to the transport system	
Economy	Public accounts	Material assets
	Business users & providers	
	Consumer users	

Source : DfT, 2004

From the table above, The NATA objectives comprise environmental, safety, accessibility, integration and economy objectives. Environmental objectives and its sub-objectives, which are perceived as unplanned information, are broken down into sub-objectives consisting of local air quality, greenhouse gases, landscape, townscape, heritage, and biodiversity and water management (shadowed in the table). Subsequently, with those objectives, it can assembly environmental baseline data and developing a future baseline, and also as materials for identifying environmental problems and opportunities together with other objectives. Related to the *integration* into planning process, SEA scoping stage ensures that the key issues for SEA are fully integrated within planning process and wider context.

It can be seen that SEA for transport plan in the UK is good and effective for identifying comprehensive problems and impacts, and determining alternative options. This is because The SEA process take into account not only environmental consideration, but also other sustainable development dimensions into one tabular data-Appraisal Summary Table (see appendix 3). As a result, the UK's SEA is able to equally weight both systematic information and unplanned information.

In conclusion, to make a balance between systematic information and unplanned information, all unplanned information, especially environmental issues, must be considered at early stage together with other issues by means of, for example, NATA appraisal summary table (AST). Furthermore, when decision-making process is developing its objectives and alternatives which are likely to have significant effects on environment, all considered environmental issues must be integrated into the planning process and ensures that all environmental issues taken into account. In order to more robust and balance, it is important to officially arrange designated-environmental consultation bodies when determining objectives and alternatives. For example, designated environmental authorities in this case are the Countryside Agency, English heritage, English Nature and The Environment Agency.

Related with Indonesia's potential factors for SEA transport plans, there is constraint in making a balance between systematic and unplanned information. Unlike SEA in the UK with its integrated transport appraisal (NATA), there are no comprehensive and integrated transport plans and objectives in Indonesia. This is mainly because transport development institution is separated into *Ministry of Public Work* dealing with road infrastructure development and *Ministry of Transportation* more focusing on traffic and transport management such as improving accessibility, solving traffic congestion etc. Both institutions usually have their own policies, plans and programs. And in practice it is hard to match those strategies and tend to not complement each other. Moreover, those two institutions have been not well coordinated. Meanwhile, making a balance between systematic and unplanned information of transport impacts and problems requires integrated transport appraisal. Thus, assembling those institutions will effectively determine and consider all comprehensive transport plans and objectives such as economy, environmental, safety, accessibility and integration. Other factors which support environmental assessment of transport plans are the present of adequate technology, instruments and human resource especially dealing with assessing unplanned information such as climate changes, traffic demand etc.

In addition, government should enhance the role of existing EIA system into strategic decision-making process. Related to the factor of information provided, it should more focus on enhancing consultation procedure and public involvement at strategic levels so that balance between systematic and unplanned information could be achieved in more robust and accountable ways.

c. *Networking/Participation*

As described in theoretical framework, cooperation between planners and assessment specialist is important in linking the assessment and predatory process. Moreover, the relationship between the environmental assessment and the preparation of the plan, as well as its linkage with other plans, such as land use plans, should be made clear to all stakeholders. It means that network must be built among relevant environmental bodies and other bodies at a whole planning and assessment process (*Consultation*). Besides, relationship should also involve *public participation* including public or affected community, NGO, and other government organizations.

In the UK, SEA for transport plans and programs create aspects of networking by means of *consultation process*. Consultation process is conducted in both SEA scoping stage and Environmental Report publication. In scoping stage, regional or local authorities, who arrange regional or local transport plans, must consult the plan to *designated environmental authorities* in relation to the scope and level of detail to be included in the environmental report. According to the SEA Regulations, the following statutory authorities are the *Countryside Agency*, *English heritage*, *English Nature* and *The Environment Agency*. Besides horizontal networking, consultation process also makes vertical relationship with relevant authorities such as Regional and National levels in dealing with ensuring their objectives to be considered.

In addition, networking is also built when the draft of Environmental Report has been prepared. The Environmental Report should be made available to the public and environmental authorities along with the draft of transport plan. Environmental authorities and public should be given an early and effective opportunity in adequate time to enable stakeholders to give their opinion on the draft plan and Environmental Report. So, *public*

participation in the UK also is taken into account especially for consulting the results of Environmental Report.

In conclusion, networking factor – consultation/participation is useful for the effectiveness of SEA for transport plan because it can support the systematic and unplanned information taken into account in decision-making process. Networking in the UK's SEA are officially arranged into consultation procedure in which all relevant environmental authorities or public have opportunities to give input and assess their own objectives and interests. In addition, networking should be arranged over the whole of environmental assessment and planning process. So, clear and representative objectives/alternatives focusing on environmental assessment can consistently be monitored. Another positive side, transport plan is become more improved, transparent and accountable.

In the Indonesian context, networking for SEA can be built by enhancing the role of EIA system because the system has currently arranged public involvement over all the process of environmental assessment at project level (Purnama, 2003). So, networking can be enhanced into environmental assessment at strategic level. Besides, when issuing SEA regulation, government should officially regulate to appoint relevant environmental authorities who will be affected, and will effect transport development such as forestry agency, urban or local planning agency, environmental agency and health agency. Then, those relevant environmental bodies will be useful for giving their information, expertise and objectives related to transport plans by mean of creating consultation procedure and process. As previously explained, this is important because the nature of gaining environmental assessment in SEA more relies on qualitative and secondary data rather than primary data.

Networking factor in SEA also could give benefits for connecting fragmented-administrative link among regions due to decentralization. Thus, in the context of Indonesia SEA, developing networking should accommodates not only among environmental authorities, but also among regions (horizontal) as well as among different level of transport planning levels. With legally developing those networks into regulation or guidance, it supposedly could enhance the robustness and effectiveness of SEA for transport plans and programs.

Finally, those preconditions and facilitating factors above can be summarized into table 5.3. This table describes the UK SEA experience relevant with those preconditions and factors for SEA effectiveness. In order to gain some lessons learned from the UK, the table then compares the UK SEA experience and Indonesia conditions for the possibility of transport SEA implementation.

Table 5.3 Experience and lessons learned from the UK’s Transport SEA

Necessary preconditions	The UK experiences	Indonesian conditions
Political will	<ul style="list-style-type: none"> • strong political will from politician, elected decision-makers and public force • important for starting point to enforce SEA implementation • Good starting precondition for making regulations and guidance 	<ul style="list-style-type: none"> • Strong political will from administrative, • Lack of the awareness from politician, elected-decision-makers and public force • Gaining the same attention and perspective from those actor can be achieved through: <ul style="list-style-type: none"> ○ Encouraging the awareness of politician and public, ○ Giving information and education on environmental issues, ○ Involving relevant international organization to enforce SEA implementation
Integration and Timing	<ul style="list-style-type: none"> • Enhancing existing transport appraisal (NATA) from individual (project) environmental assessments towards strategic assessments by taking into account: <ul style="list-style-type: none"> - Environmental consideration at early stage - Environmental Report with its consultation - measures for monitoring likely effects of planning - Consultation procedure • Clear links between the environmental assessment and the planning both horizontal and vertical links • Integrating different types of assessment increases the robustness of assessment • The timing of integration should match with transport planning process 	<ul style="list-style-type: none"> • Integration of environmental assessment into PPP has not been available (challenge) • integration can be achieved by enhancing existing EIA into more strategic • No have integrated transport appraisal like the UK (constraint) • It is hard to gain comprehensive and integrated transport information due to shared-transport authorities between Ministry of Public Work and Ministry of Transport (constraint)
Tiering	<ul style="list-style-type: none"> • It is crucial to consider how the environmental assessment of the policy, plan or program is linked to the project level. • It relies on the type of transport planning process • The UK’s type of tiering is diagonal tiering, starting from National Transport Policy, Regional Transport Strategy, and Local Transport Appraisal to individual project. • The UK guidance does not profoundly explain tiering PPP of SEA (<i>weakness</i>) • Tiering conducted at problem definitions and objectives determination of SEA process 	<ul style="list-style-type: none"> • Not available. It need to be arranged by understanding Indonesia’s transport planning (challenge) • Due to the same as the type of transport planning in the UK, it is useful to copying or modifying the concept of tiering PPP of SEA for transport plan. • To assist the consistency of environmental objectives either from national to local level on decentralization era or among regions. (<i>opportunity</i>)

Facilitating factors	The UK experiences	Indonesian conditions
Legal provision	<ul style="list-style-type: none"> • Guidance on SEA for transport plans • Requires regional & local authorities to implement SEA into their plans • It is used as criteria for assessing and granting fund by National government • Provide necessary support for initiating, carrying out and publishing the results of an environmental assessment • SEA applied into transport plans and programs, not applied into policy 	<ul style="list-style-type: none"> • There is no regulation of SEA for transport sector (weakness) • Actually Environmental Management Act accommodate environmental assessment at strategic level, but in practice the supporting regulations more focus on project EIA (opportunity) • The Act is good for starting point to reinforce SEA implementation for other parties (political will)
The information provided	<ul style="list-style-type: none"> • SEA in the UK make a better balance between systematic and unplanned information in environmental assessment • Involving designated environmental bodies and public when determining objectives & alternative 	<ul style="list-style-type: none"> • Enhance legal public involvement in current EIA to more strategic (SEA) • Shared-authority between Ministry of Public Work and Ministry of Transport is constraint for gaining balance information. • Challenges for setting out systematic and unplanned information into one integrated transport appraisal by assembling two transport institutions.
Networking/participation	<ul style="list-style-type: none"> • cooperation between planners and assessment specialist is important in linking the assessment and preparation of the plans • Creating network/public participation in SEA is focused on SEA scoping stage and prior to Environmental Report Publication • Network can support gathering systematic and unplanned information in decision making process • It should be arranged at very beginning of environmental assessment & planning process • Network/participation can improve transport plans more transparent and accountable 	<ul style="list-style-type: none"> • Network/participation is restricted at EIA. So, it needs to enhance at policies, plans and programs • Challenge for triggering the awareness of the need for SEA to public • Network/participation could give benefits for connecting fragmented-administrative link among regions due to decentralization

From the table above, it can be concluded that there are several preconditions and factors which are potential for implementing SEA into transport plan in Indonesia. Those factors can be divided into two categories related to Indonesia current transport appraisal. First, factors *need to be enhanced* such as political will and legal provision, formal procedure, administrative capacity and public involvement. Second, factors which *must be modified or copied* from the UK's experience, which are, integration and timing of SEA into decision-making process, tiering concept, the provision of quantified and non-quantified information as well as networking. Based on table 5.3, it could describe preconditions and facilitating factors for implementing SEA for transport plan in Indonesia as shown by table 5.4 below.

Table 5.4 Preconditions and factors for implementing SEA in Indonesia

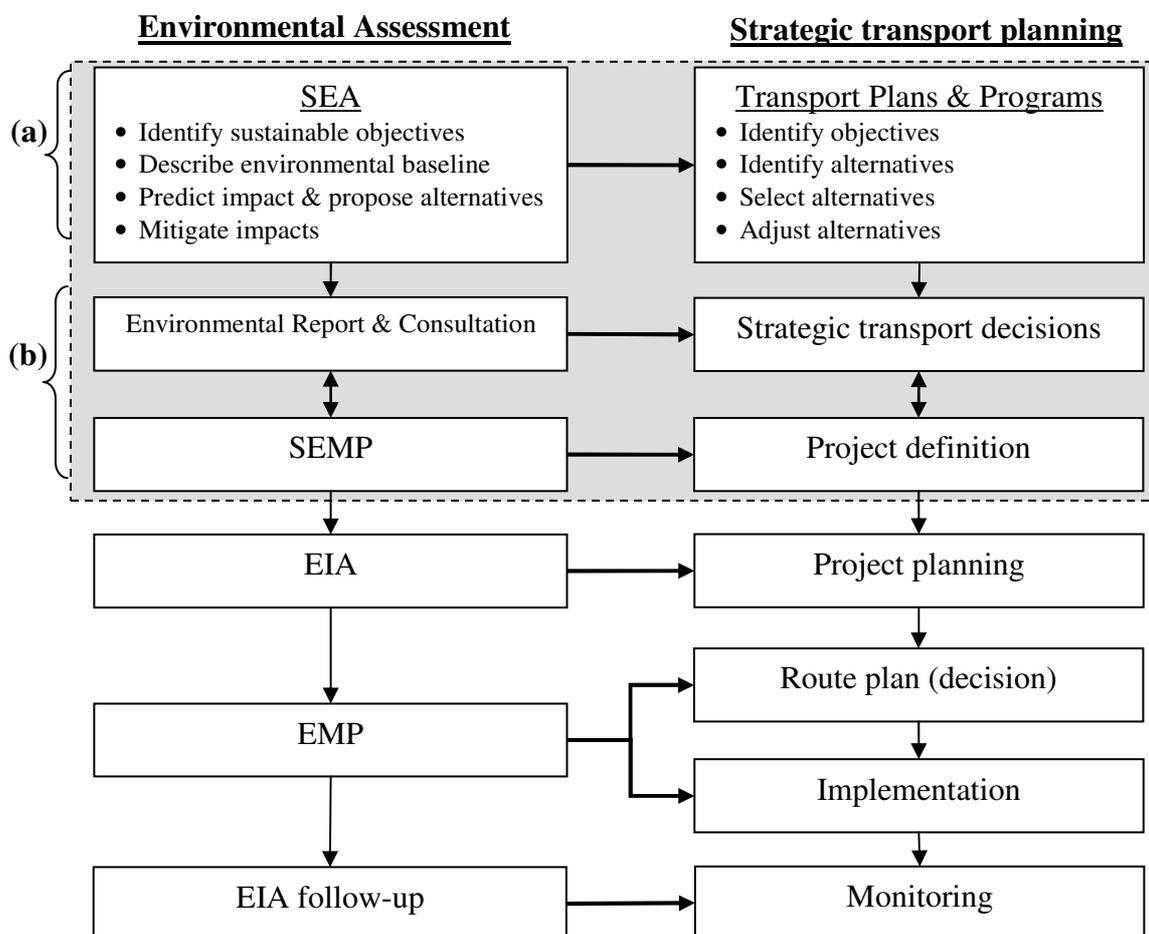
Preconditions & factors	Indonesia conditions	Status
Political will	<ul style="list-style-type: none"> • The recognition of SEA from administrative • Lack of awareness from politician, elected decision makers & public 	<ul style="list-style-type: none"> • Strength • weakness
Integration & timing	<ul style="list-style-type: none"> • Integration of environmental assessment into PPP has no available • Enhancing existing EIA into more strategic • No have integrated transport appraisal • Shared transport authorities between Ministry of Public Work and Ministry of Transport 	<ul style="list-style-type: none"> • Weakness • Opportunity • Constraint • Constraint
Tiering	<ul style="list-style-type: none"> • there is no tiering of environmental assessment from policy, plan, programs to projects • tiering helps the consistency of environmental objectives either from national to local level on decentralization era or among regions 	<ul style="list-style-type: none"> • Constraint • Opportunity
Legal provision	<ul style="list-style-type: none"> • There are no explicit regulations of SEA for transport plans • Although in practice subsequent regulation more focus on EIA, Environmental Management Act accommodates environmental assessment at strategic level. • The Act is good for starting point to reinforce SEA implementation for other parties (political will) 	<ul style="list-style-type: none"> • Constraint • Opportunity • Opportunity
The information provided	<ul style="list-style-type: none"> • Shared transport authorities between Ministry of Public Work and Ministry of Transport • Enhance legal public involvement in current EIA to more strategic 	<ul style="list-style-type: none"> • Constraint • Opportunity
Networking/ participation	<ul style="list-style-type: none"> • Enhancing the role of Environmental Impact Management Agency (EIMA) at more strategic • building good consultation mechanism through enhancing the role of EIA system to be more strategic • could give benefits for connecting fragmented-administrative link among regions due to decentralization 	<ul style="list-style-type: none"> • Opportunity • Opportunity • Opportunity

Those preconditions and factors for the effectiveness SEA implementation eventually can support how to implement SEA for SEA transport plans in Indonesia which will be analyzed in the next part.

5.4 The possibility of SEA for transport planning in Indonesia

This part describes the possibility of SEA for transport planning in Indonesia related to preconditions and facilitating factors for SEA implementation. As mentioned previously, SEA complements EIA in achieving sustainable development because EIA has limitations and failures for providing environmental sustainability assurance and giving opportunities for more room and alternatives in decision-making. Besides, SEA for PPPs *should be tiered* with EIA for projects so that it can safeguard the consistency of environmental objectives and alternatives from policy, plan, and program to project levels. Regarding with those issues, the rationale of SEA for transport plans in Indonesia can be described with Figure 5.2 below.

Figure 5.2 The possibility of SEA and EIA for transport plans in Indonesia



Note : SEMP = Strategic Environmental Management Plan

From figure above, the main focus (shaded-area) in this research is that implementing SEA for transport planning in Indonesia should set out:

- How to *implement SEA for transport plans* related to preconditions and facilitating factors.
- How to *build an instrument* which *links* Strategic planning with SEA to project planning with EIA (*tiering* among policies, plans, programs and project in environmental assessment).

In order to make those clear, those two issues will be separately elaborated below, and then at the end those will be summarized together.

a. The possibility of SEA for transport plans in Indonesia

As lessons learned from the UK, the main elements of SEA for transport plans are reflected by the process of SEA systematically consisting of :

- 1) Identifying objectives, problems and opportunities in decision making
- 2) Developing alternatives and deciding the scope of SEA
- 3) Assessing and mitigating the effects of the plans
- 4) Consultations on the draft and Environmental Report

In order to deal with those SEA elements, Indonesia government could create and provide *an instrument for integrating transport appraisal at strategic level*, like NATA in the UK. This is because strategic transport planning in Indonesia has not experienced for environmental assessment at strategic level (see table 3.1). This instrument should deal with agreeing a set of objectives, analyzing present and future problems, exploring potential solutions for solving the problems and meeting the objectives, appraising the options, selecting and phasing the preferred solutions (*more explained in recommendation part*).

The instrument can be gained or created in Indonesia by enhancing the function of Environmental Management Plan (EMP) of EIA to more strategic. This is because The EMP currently has taken into account not only environmental considerations, but also economic and social consideration when assessing impacts of road infrastructure development in relation to particular phase (pre-construction, construction and post-construction), as shown in figure 3.3. Moreover, the integrated-transport appraisal above can be effectively used if there are comprehensively strategic transport plans and programs for both *road infrastructure development* and *mobility plans*. Thus, current separated-transport authorities should be assembled into an institution dealing with for both responsibilities. If it cannot be possible to be united, government should build coordinated-initiative which assembles road infrastructure development planning and mobility planning in order to gather comprehensively integrated transport information for determining problems, objectives and alternatives.

Like EIA system, SEA for transport plans not only focus on integrating environmental, economic and social assessment into transport planning process, but also take into account relevant stakeholders (*networking/participation factor*) in decision making. This stakeholder involvement is also in line with Environmental Management Act, Article 5 which arrange community rights, obligations and role in environmental management. SEA should effectively build network among relevant environmental bodies both vertically and horizontally and also give opportunity for public, NGO and other government organization in shaping decision-making. Consultation and public participation are required during identifying objectives and problems and publishing draft plans and Environmental Report. Networking/participation is useful to make a balance between *systematic* and *unplanned information*. As a result, Environmental Report for transport planning could be more robust, transparent and accountable.

In Indonesia, making a balance information and building network/participation for SEA can be achieved by means of enhancing the role of Environmental Impact Management Agency (EIMA) at more strategic, building good consultation mechanism through

enhancing the role of public involvement of existing EIA to be more strategic and creating institution which deal with both transport infrastructure development plans and mobility plans (*explained more detailed in recommendation part, chapter 6*).

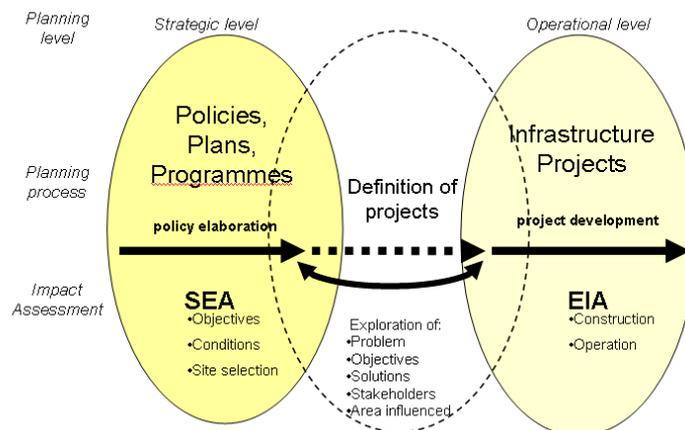
However, SEA for transport plans still cannot achieve sustainable transport development because it still cannot apply in “real world”. It needs link to EIA at project level. Thus, the next part will see the possibility of an instrument linking SEA for transport PPPs and EIA for projects.

b. An instrument linking SEA for PPPs with EIA for projects (tiering)

The possibility of SEA for transport planning in Indonesia above is not enough to overcome the limitation of EIA in achieving sustainable development. This is because SEA for transport planning just focuses on strategic level (policies, plans or programs), while at the same time SEA for PPPs do not clear link to project EIA. As a result, there is still a gap between SEA in strategic transport plan and EIA for specific transport projects. Besides, in Indonesia, most of the infrastructure projects, including transport sector, are developed without referring to strategic planning which have been arranged. So, it calls for an instrument to *link* between strategic transport planning and specific transport project for the consistency of environmental considerations.

According to Arts et al (2005), the key element for such an integrated approach lays in the early stages of the planning process, in which *the scope of project is defined*. This project definition could link between strategic planning and project through zooming in from national to a regional setting and translating abstract policy goals to a real world situation. Furthermore, when defining project, it should take into account defining problems, outlining objectives and solutions, involving stakeholders and focusing on *an area-oriented approach* (see Figure 5.3 below)

Figure 5.3 Project definition as the link between strategic level (plans and SEA) with operational level (infra project and EIA); (source: Arts, 2005)



Therefore, the main focus in order to link SEA for PPPs and EIA for projects is to find an instrument which could convert *strategic transport decision with SEA Report* to *transport project decision with EIA* (see Figure 5.2). In attempt to find this instrument in Indonesia, it can be reflected by the function of Environmental Management Plans (EMPs) in current EIA system. EMPs of EIA system in infrastructure projects has clear link not only with Route Plan/Decisions, but also with project implementation (see figure 3.3. and its

explanation). It means that there is tiering between road project plans and implementation in accordance with EIA and EMP in Indonesia. Thus, all road projects planning process in Indonesia is related with EMP from pre-construction, construction to post-construction phases.

Related back to the linkage between strategic planning (and SEA) with project planning (and EIA), the function of EMP could possibly be used to link between those. But the challenges are how to enhance the EMP into more Strategic Environmental Management Plan (SEMP)? Where stage “SEMP” along with *road project definition* should be placed in strategic road planning process?

Developing road transport infrastructure in accordance with environmental management in Indonesia undergoes several phases: *Strategic planning, preliminary studies, project studies, implementation* and *monitoring* (Indonesian Road Development Guidance, 2004). Regarding with the linkage between SEA of PPP and project EIA, *preliminary studies* play important role as a bridging phase between *strategic road planning* and *project planning* (see Figure 5.2). This is because preliminary studies deal with following up the results of strategic transport planning. The main activity in this phase is formulating or analyzing road network alternatives. However, currently, this analysis has been restricted with technical and economic aspects.

Regarding with SEA implementation, the scope of the analysis should be enhanced. The analysis should emphasize on an area-oriented approach (Arts, 2005). The analysis should consider not only technical and economic analysis, but also environmental and social (quality of life) aspects. In other word, the preliminary studies analyze both road infrastructure development plans and the likely effects towards its surrounding project areas (land use plan). Thus, because of broader scope of analysis, it should also involve relevant stakeholders (departments, public and NGO) in defining problems, determining objectives and alternatives of road development in order to make robust and accountable of the project development planning. Several environmental and spatial aspects which should be taken into account in analysis comprise: the likely conflict of interests in land acquisition, biodiversity, quality and quantity of water table, quality of life (noise, air pollution etc), spatial impacts (barrier among housing, office, industries etc).

The results of preliminary studies give early information about likely significant environmental effects of each of road development alternative. This information should be considered in selecting desired-route plan. Besides, these results could give input for subsequent environmental assessment (EIA) in more detailed. As a result, SEMP together with project definitions can bridge and convert strategic transport decisions (and SEA) into specific transport projects (and EIA).

Summary

With considering Figure 5.2 above, environmental assessment for transport planning in Indonesia can be tiered from strategic planning into implementation. The possibility of SEA for transport plans in Indonesia can be linked with EIA for transport project through conducting SEMP as preliminary study for strategic transport decision. This SEMP functioning as project definition can loop back problem definition from project planning to strategic transport decision *vice versa*. The SEMP should base on an area-oriented approach in defining project problems and solutions, instead of specific road approach. Since relying on an area-oriented approach, it should take into account stakeholder

involvement for shaping all transport objectives and alternatives. SEMP with transport project definition could give environmental information of transport development for subsequent environmental assessment at project level (EIA). Thus, SEMP may strengthen the function of SEA and EIA through linking between them in achieving sustainable transport development. Besides, SEA and EIA with their linkage can assist environmental management in decentralized-transport development through make clear link of environmental objectives among different planning levels and among region.

Chapter 6 – Conclusion and Recommendations

This chapter, as a final part, concludes the result of this study through answering main research question and its supporting research questions in chapter 1. Conclusion of this research is based on theoretical framework developed in chapter 2. This chapter firstly will conclude the answers for main research question and several supporting research questions through exploring several preconditions of implementing SEA for transport plan both in the UK and the possibility of SEA implementation in Indonesia. Then, this chapter will be closed by giving several recommendations in accordance with the conclusion results.

6.1 Conclusion

Why SEA is needed for transport decision-making and planning process?

In the world including Indonesia, *environmental management strategy* has currently been moving towards decision-making at strategic level and early stage due to the *awareness of sustainable development*. It means that coordination and cooperation among various development actors will be effective if efforts to achieve sustainability focus not only on project level but also on policies, plans and programs, known as SEA. Generally, the benefits from SEA are giving huge opportunities to achieve sustainable development, enhancing the effectiveness of EIA and enabling more room for determining alternatives and giving opportunities to analysis long-term, global, cumulative and synergistic effects of development plans. Besides, in Indonesia condition, SEA can also deal well with ensuring the consistency of environmental objectives from national to local level related to decentralization.

The SEA approach could give benefits for enhancing more environmentally sound transport plan in Indonesia. Currently transport plans in Indonesia have just taken into account environmental assessment at individual project level (EIA), while transport development with its services have contributed on cumulative and synergistic impacts and also influenced the degradation of quality of life as well as other spatial impacts. It indicates that current environmental assessment (EIA) is deemed often too late in the decision-making process. Environmental assessment at individual or project level (EIA) has failed and been limited to deal with providing proactive solutions and tackling cumulative impacts resulted from the traffic growth and activities. Thus, those drawbacks of EIA lead to the need of assessing environmental effects at strategic level.

Another reason for the SEA implementation in Indonesia is related to decentralization era. Decentralization causes fragmented-environmental management among various authority levels. This is because decentralization arranges sharing responsibilities and authorities to regional and local authorities in developing their own areas, including environmental management. And, in practice, local authorities tend to formulate and run their plans and projects by using their own capabilities and assets without coordinating with other surrounding regions and vertical administrative. Related to environmental assessment for transport plans, transport development has characteristics cross-wide geographic areas and is interconnected either to inter-modes or multi-modes, while the current EIA is clearly seemed to be failed to analysis environmental impacts of cross administrative-boundary. This is because EIA is just applied at individual (project) level. So, in order to make

environmental management more effective, it calls for another environmental assessment tool, namely SEA. SEA can provide wider room for making proactive alternatives and anticipating environmental impacts and operates at early stage of decision-making process and at greater area. SEA can help tiering with horizontal and vertical authority especially in taking into account environmental objectives and alternatives at early stages of decision-making.

How can SEA for transport plans in the UK be effectively implemented regarding with preconditions and facilitating factors of SEA implementation?

This question will be answered by referring to preconditions and factors of the effectiveness of SEA for transport plans in the UK in accordance with the results of analysis in chapter 5. Generally SEA for transport plans in the UK has been *effective* for assessing environmental information at strategic transport level. It can be approved by which most of the preconditions and facilitating factors for the Effectiveness SEA are good accommodated in the UK except several part of tiering PPP of SEA.

Regarding with *political will* and *legal provisions*, formal regulation and guidance on SEA for transport plans is *effective* for starting point and for providing necessary support for initiating, carrying out and publishing the results of an environmental consideration. Generally the UK has had formal or statutory *Guidance on SEA for transport plans* since 2004. The basis of SEA for transport plans is Statutory Instrument No. 1633 – *Environmental Assessment of Plans and Programs Regulations 2004*. It integrates SEA Directive’s requirement with existing transport appraisal process – *The NATA*. SEA guidance is applied for plan and program level, not for policy level because it is assumed that environmental assessment at plans and programs levels can be more described and quantified than that at policy level. The guidance assigns all regional and local authorities to implement SEA into transport planning process. The SEA for transport plan is used as criteria for assessing and granting fund by national government.

Related to the classification of SEA types in theoretical framework, SEA for transport plans in the UK has *procedural characteristic*. SEA document (Environmental Report) is separated with transport plan document. It means that environmental assessment and transport planning process are conducted parallel but are interconnected over all the process. Moreover, related to *coverage of impacts*, SEA for transport plans in the UK addresses not only environmental impacts, but also both environmental and socio-economic impacts through using integrated transport appraisal (NATA).

When intending to implement SEA, it is also useful to consider other preconditions and facilitating factors, namely, the *integration and timing, tiering, information provided and networking*. Those preconditions and factors are the *content* of the legal SEA guidance. In the UK, The SEA guidance is not strictly applied by all authorities because LTP processes vary among regions. Nevertheless, all local authorities should engage several main *integration elements* of SEA into their LTPs (see chapter 4).

Furthermore, the UK’s SEA integration makes a better balance between *systematic information* (e.g. economic objectives) and *unplanned information* (e.g. greenhouse gases) by using NATA-Appraisal Summary Table ²(AST). Those all objectives can be gathered and equally weighted if the relationship between environmental assessment and the

² AST assembles all environmental objectives of transport plans: economic, safety, accessibility, integration and environment into one table.

preparation of the plans, as well as its linkage with other plans such as land use plans, is made clear to all stakeholders. In order to achieve clear *networking/participation* among relevant stakeholders, the UK's SEA guidance arrange *consultation process* among stakeholders at overall environmental assessment and transport planning process. The guidance appointed legally *designated-environmental bodies* for consultations. Besides, networking also builds vertical relationship (tiering) with relevant authorities such as regional and national levels both among transport planning levels and among environmental objective level in dealing with ensuring their objectives to be considered. Good networking/participation will increase more robust and accountable SEA integration into transport planning process.

However, there are several weaknesses of SEA in the UK. Although in the level of SEA and planning process this guidance had been implemented by all regional and local authorities, in practice SEA for transport plans have not been approved because this concept has just been implemented in 2006. Thus, the UK has not gained feedback whether this concept are appropriate in the UK transport plans. Another drawback is that SEA guidance did not explicitly and profoundly explain the concept of tiering between SEA for transport PPPs and EIA for projects. The guidance and practice just show how SEA is integrated into transport plans or programs either Regional Transport Startegy or Local Transport Plans without clearly explaining their connection. The guidance did not explain the relation among policies, plans and programs as well as project level.

What are the preconditions and factors for integrating SEA into Indonesia transport planning?

This question is answered by previously learning the UK experience. The most important precondition for implementing SEA into transport plans in Indonesia is *political will* from all parties. This is because important for starting point to enforce SEA implementation for country such Indonesia which has no SEA experience at all. Political will in Indonesia just emerged from *administrative* especially from Department of Environment, but it is less paid attention from *elected decision-makers, politician and public force*. So, involving those parties is important because those also have significant influence for creating SEA regulations.

The presence of political will is useful for arranging or creating *statutory* SEA procedure and process. Currently environmental regulation on environmental assessment in Indonesia has been arranged in Act no. 23/1997 on *Environmental Management*, but this Act has been restricted at individual (project) level. Nevertheless, although environmental management has been restricted at project level, this also has shown good precondition. This is because environmental assessment has been arranged at *Act level* which has more much influence and bargaining to be implemented than at the lower level of regulation. Besides, regulation at Act level has wide and interconnected links with the same level of other relevant environmental regulations (Act) such as transport regulation and subsequent lower regulations such as Government Regulation on EIA (tiering). So, the Act can accommodate environmental consideration into vertical link among different planning level and horizontal link with other relevant planning.

While political will and legal provisions in Indonesia are good points for SEA implementation, the rest of preconditions and facilitating factors are still weak and even constraints for SEA implementation. Nevertheless, some have opportunities to be enhanced. The rest of this part will briefly explain those preconditions and factors.

First, *integration and timing* of environmental assessment into PPP has no available. Another *constraint*, unlike NATA in the UK, is Indonesia has no integrated transport appraisal which is important for integrating environmental assessment into transport planning. This is because transport responsible and authorities are separated into transport infrastructure development and mobility development plan which is uncoordinated. Nevertheless, like in the UK, enhancing the existing EIA system is *good option* because naturally SEA is EIA applied at PPP. Besides, the *challenge* is establishing one institution dealing with both transport infrastructure development and mobility development plans.

Second, there is no *tiering* of environmental assessment from transport PPP to project levels. Whereas, related to decentralization, tiering PPP of environmental assessment is important for assisting the consistency of environmental objectives from national, regional and local levels. Besides, tiering also can horizontally link with other environmental plans and programs as well as between different government bodies. Lesson from the UK, when applying tiering concept in transport development, it should understand the type of transport planning.

Third, *the information provided and networking/participation* should be considered when implementing SEA for transport plans. SEA should make a balance between systematic and unplanned information in decision making. In Indonesia, making balance information and building network/participation for SEA can be achieved by means of enhancing the role of Environmental Impact Management Agency (EIMA) at more strategic, building good consultation mechanism through enhancing the role of public involvement of existing EIA to be more strategic and creating institution which deal with both transport infrastructure development plans and mobility plans.

How can SEA be integrated into transport planning in Indonesia?

Both strong and weak preconditions and factors above provide information for answering the main research question on *how can SEA be integrated into transport planning in Indonesia?* Implementing SEA for transport planning in Indonesia should deal with several aspects. First, at strategic level, government should create an instrument and institution dealing with identifying transport problems and objectives such as environment, economic, safety, accessibility and integration. Second, in order to support the instrument, it should build coordinated-initiative which assembles road infrastructure development planning and mobility planning in order to achieve a balance between systematic and unplanned information. Third, it should enhance the role of Environmental Impact Management Agency (EIMA) at more strategic and building good consultation mechanism through enhancing the role of public involvement of existing EIA to be more strategic.

In order to achieve sustainable development, the possibility of SEA for transport planning above should be linked with EIA for transport projects. So, environmental consideration at strategic transport planning can be converted into EIA for project level. An instrument linking between SEA for transport plans with EIA for transport project is SEMP as preliminary study for defining project. This SEMP can loop back problem definition from project planning to strategic transport decision *vice versa*. The SEMP should base on an area-oriented approach in defining project problems and solutions, instead of specific road approach. Since relying on an area-oriented approach, it should take into account stakeholder involvement for shaping all transport objectives and alternatives. SEMP with transport project definition could give environmental information of transport development

for subsequent environmental assessment at project level (EIA). Thus, SEMP may strengthen the function of SEA and EIA through linking between them in achieving sustainable transport development. Besides, SEA and EIA with their linkage can assist environmental management in decentralized-transport development through make clear link of environmental objectives among different planning levels and among regions.

In order to provide necessary support for initiating and carrying out the SEA implementation above, it needs wider political will from influencing-parties and legal SEA provision. As deeply described earlier, government should make efforts to encourage the recognition of the need of SEA from elected decision makers, politician and public in complementing existing EIA for achieving sustainable development. On one side, the strong political will which is important for starting point can reinforce (re)arranging SEA regulations. On the other side, current *Environmental Management Act* had arranged environmental assessment at more strategic level. So, this Act is good for starting point to encourage the awareness of SEA implementation from politicians, elected-decision makers and public. It can be seen that, political will and legal provision influence each other. Thus The Act and significant political will could convince the implementation of environmental consideration at more strategic level. However in practice, subsequent regulation has just been addressing to environmental assessment at individual (project) level – EIA, including for environmental transport appraisal in dealing with sustainability since 1982 until now. So, when intending to implement SEA, it is recommended to amend the Act through explicitly arranging environmental assessment at strategic level especially for plans and programs which have likely cumulative and synergistic environmental effects. Moreover, this regulations or guidance should consider decentralization of government.

6.2 Recommendations

This part provides several recommendations on *how SEA can be integrated into transport plans Indonesia*. These recommendations comprise:

- 1) changing perceptions of transport development authorities
- 2) amending or arranging existing regulation and institution for SEA
- 3) training and education on SEA and environmental issues for all relevant stakeholders

These recommendations should be perceived systematically and interconnected each other. It also should note that the focus on study is how to do SEA for transport plans regarding with preconditions and factors for the effectiveness of SEA for transport plans in Indonesia.

6.2.1 Changing perceptions of transport development authorities

For Indonesia which has no SEA experience, the important task in creating preconditions is *changing perception* of authorities and elected-decision-makers as well as public toward the wider view of transport development. Transport development in Indonesia has currently oriented to individual road development. This perception should be changed. Transport development should be recognized to affect all aspect of life because transport infrastructure development with its services results in socio, economic, spatial, transport and environmental impacts at national, regional and local level. As a result, new environmental assessment becomes complicated. Thus, it requires enhancement of legal environmental framework for transport planning to improve and also complement existing assessment procedure, called SEA. SEA concept provides further opportunities to solve limitation and failures the previous environmental assessment.

Several authors (see the UK's SEA Guidance, Tomlinson, 2004) stated that SEA for transport plans should consider and take into account problem definitions, objective identification, alternative determination, impact analysis with its mitigation, decision making and stakeholder involvement at early stage of decision-making. Those actually refer to Figure 2.2, *SEA process related to transport planning*. Thus, when Indonesia government intends to implement SEA, it should change culture and perceptions of those elements above into more strategic and wider scale. So, the rest of this part will serve how to change those considerations above:

Changing current problem definition

Currently *problem definition* of environmental assessment in Indonesia has been determined by technical and economic analysis. When implementing SEA, the assessment must be modified and added by involving public and elected decision maker views and interests at more strategic. With involving public in assessing development plans, it can lead to sustainable development objectives which consider not only technical and economic information, but also social and environment aspects. Furthermore, representative problem definition could enhance more robust, transparent, accountable and acceptable to the public and elected decision makers. Besides, problems should be defined not only for current conditions, but also for anticipating future condition.

Objective determination

Next to problem definition is *determining objectives* of transport plans. Similar to problem definition, determining objectives could involve wider environmental, spatial, social and economic needs and interest of public, rather than individual road development oriented. This can be done by integrating all transport development objectives with other relevant environmental objectives. The UK with NATA is good example in objective integration into accessibility, economic, safety, environment and integration objectives. Unfortunately, Indonesia government has no approach like NATA. So, it will be better to create certain transport development institution dealing with assembling both road infrastructure development objectives (from Public Work Institution) and non-infrastructure development objectives (from Transport Institution). In addition, related to tiering concept and anticipating decentralization, formulation objectives should involve all objectives at all different planning level (national, regional and local). In order to make clear that objective formulation, it will be better to build criteria or indicators which assess the extent to which transport plans achieve the objectives.

Developing Alternatives

Quite similar to problem definition and objective determination, identifying alternatives should assist to ensure that the likely significant effects of plans are addressed during the preparation of plans. So, involving relevant stakeholders is an important key to determine preferred alternatives in line with stated problem definition and objectives. Like EIA system in Indonesia, determining alternatives should involve *without plan scenario* which is based on current transport policy. In addition, determining alternatives should look broader alternatives. For example, infrastructure and non-infrastructure measures, road development area with spatial functions.

Impact analysis

Impact analysis comprises determining the type and the extent to which likely effects of transport plans. The scale of effects of transport plans is wider and more cumulative than

impact of project level because transport plans influence wider area and environmental components. One of the aims of SEA is analyzing cumulative, long-term and synergistic effects of plans. Unfortunately, those impacts are not easy to evaluate with using impact analysis at level project because they have different scale and area. In addition, predicting effects of plan usually in qualitative information, while EIA more relies on quantitative information. Therefore, when implementing SEA, relevant institutions have changed their perception in analyzing environmental impacts. Actually, government through Ministry of Environment published the book titled “*Cumulative Impact Analysis*”. This recognition is starting point and useful to inform that environmental assessment at project level has failed to deal with long-term, cumulative and synergistic impacts of transport development.

Enhancing stakeholder involvement

Enhancing stakeholder involvement is related to the analysis of information provided and networking factors of SEA integration. Actually, stakeholder involvement in environmental assessment in Indonesia has been legally arranged, although it has been restricted for individual or project levels. The spirit and motivation to make transparent, accountable and acceptable development is important precondition for enhancing the role of public involvement at more strategic level of environmental assessment. Stakeholder involvement is required when implementing SEA for transport plans. Since SEA relies on secondary, quantitative and qualitative data for its assessment, it should build consultation mechanism with all relevant environmental bodies and also outside those bodies. All stakeholder should be involved at all process of assessment and decision-making process from identifying problems, determining objectives, select appropriate options considered and assessed, publishing and monitoring results. Good stakeholder involvement can ensure the effectiveness of environmental assessment in order to:

- 1) be more robust, transparent, accountable environmental assessment of transport plans
- 2) make a better balance between social, economic, financial and environmental objectives and information for determining problems, objectives and alternatives for determining transport plans
- 3) Support decentralization approach in arranging and improving administrative link among regions, among different planning levels and among relevant environmental bodies.

Building networking and stakeholder involvement in SEA should be stated into regulation or guidance. This is to ensure that all parties have equal right and more room and adequate time for gaining opportunities in shaping all relevant environmental problems, objectives, alternatives and monitoring of transport development plans. Like in the UK, regulation or guidance appoints *designated environmental agencies* for consultation in decision making. Related to local transport plans in Indonesia, possible authorities comprise Regional Planning Agency, Public Work Agency, Environment Agency, Landscape Agency, Transport Agency and Health Agency. Besides official bodies, it also involves environmental organization and community, in particular affected by the road transport development. Furthermore, consultation procedure should also arrange links among neighboring regions in dealing well with decentralization.

Widening the role and field of decision making

The changing perception above should be followed by widening the role and field of authorities and elected decision-makers. Increased recognition of environmental effects of transport developments is followed by changing the existing transport appraisal to more strategic and wider area. All authorities especially in Transport and Public Work Authorities should pay attention at least to:

- 1) Understand that technical and economic appraisal based on time, cost, benefits and risk are seen to be narrow. It should be expanded into a wider domain, namely, environmental and social aspect for measurement and valuation of particular transport infrastructure development.
- 2) Focus of transport planning should be changed from *individual* transport development to *area-based transport development*. In other words, it should be oriented to integration of modes rather than project assessment. This widening role and area is important in decentralization era so that transport development among regions horizontally and vertically can link each other.

To be more clear, those all changing perceptions and widening role of all stakeholders will be explained in the rest of two sub-chapters.

6.2.2 Amending or arranging existing regulation and institution for SEA

As Purnama (2003) analyzed, EIA regulations in Indonesia have been improved in several times. That improvement usually depends on current condition and trend of environmental management both in Indonesia and in the world. For example, the latest improvement of EIA in Indonesia is legally arranging public involvement. This improvement is in line with democratization in Indonesia. So, continuous improvement of environmental regulations is important for including environmental assessment at strategic level (SEA) when the new improvement of environmental assessment will be proposed again. Besides, currently environmental management in Indonesia has been arranged in *Act level*. This precondition is good for enhancing environmental assessment to more strategic. Amending the Act is good option to require implementing SEA for all development plans, including transport plans, which are likely to have cumulative and synergistic impact, instead of making the new Act. This regulation should be followed up by guidance on SEA procedure and process along with implementing sanction.

The regulation and guidance should bind all national regional and local authorities with different level of detail among levels. For example, at national level guidance more focuses on transport policy and financial schemes, while at regional and local levels more focuses on analyzing the likely significant environmental effects of transport development with their remedial measures. So, regulation and guidance could arrange SEA as a tool for determining and assessing whether transport (development) plans are proper to be supported by national, regional or local funds. This determination can be assessed with criteria generated from environmental objectives of transport plans in order to know whether the initiatives are sustainable or not. In addition, SEA regulation should clearly determine the deadline of SEA implementation so that it can not only give pressure and motivation for implementation, but also give opportunities for preparing qualified human resource, providing institutions and infrastructures such as for assessing air pollution impacts, especially for regional and local authorities.

Like EIA system, the regulation and guidance also should arrange institutions responsible for conducting SEA into transport plans. Related to decentralization, implementing SEA for transport plans should be better arranged and managed by independent institution, like Environmental Impact Management Agency (EIMA³) in EIA system. Furthermore, EIMA could be enhanced both for SEA and EIA. It means that EIMA has responsibilities and authorities to manage and facilitate environmental assessment for development initiatives

³ An institution responsible for regulating, facilitating and monitoring Environmental Impact Assessment (EIA) in Indonesia

at all policies, plans, programs and projects. By doing so, the advantage is that EIMA can control and ensure environmental consideration taken into account at all planning levels so that tiering PPPs with project of SEA can be achieved. Thus, Environmental Agency hold important role in regulating, facilitating and managing SEA for transport plans in certain regions. Finally, all these factors, namely regulation, guidance and institution can be effectively implemented if it is supported by qualified staff of all relevant institutions and clear SEA procedure and process. Following, the recommendation will explore effective training and education.

6.2.3 Training and Education

Good legal provision, guidance, procedure and process of SEA should be followed by formulating and conducting effective and continuous training of SEA for transport plans for decision makers and administrative staffs as well as public. As a result, it could effectively apply in practice. In other words, *training* is important to delivery using SEA guidance properly. However the main constraint is lack of practitioners with expertise in SEA approaches. So, it is challenge when implementing SEA for transport plans. Fortunately, SEA principles, methods and guidance, even practice are in use internationally and can be drawn up for Indonesia context. Training for transport plan SEA, especially in decentralization era, should more focus on regional and local planning staffs. It is because the basis of decentralization as well as transport development is more laid in regional and local territories. Proper and continuous training for SEA implementation is very important to improve capability, competencies and the way of thinking of regional and local staff in decision making.

While *training* concerns on improving competencies, *education* more focuses on changing culture and perceptions of stakeholders on environmental assessment. As explained in theoretical framework, there are several constraints for implementing SEA in developing countries including in Indonesia. The main constraints are limited appreciation of the potential utility of strategic assessment, generally projects designed first and assessed after, institutional process sought to protect the narrowness of its policy thinking by avoiding public scrutiny, and little interest by many government agencies in subjecting policy and planning proposal to assessment.

Therefore, giving education and information on environmental issue is important precondition to change culture and perceptions above. Government especially Ministry of Environment hold important role to trigger and motivate the awareness as well as changing perceptions. Government should convince the advantages of SEA implementation for transport plans. For example, SEA is transparent, participatory process that helps to realize good governance. It promotes inter-institutional relations in order to define priorities, reinforce accountability and builds public trust and confidence (see more SEA advantages in table 2.4). Convincing SEA implementation could be done through for example publishing book and poster such as publishing booklet titled on *Strategic Environmental Assessment*, electronic media etc.

Most of all, it should be recognized that promoting the new approach of SEA in Indonesia will take time because it is related with several factors. Since Indonesia has no SEA experience, the main important factors which are not easy to gain are building preconditions, changing perception towards SEA and enhancing role of authorities and their institutions as well as legal provisions. It requires great efforts from government who has recognized the need SEA for development plans. In order to gain the same perspective

on managing environmentally sound transport development through SEA, it will be better, for the first time, to arrange a pilot study for implementing SEA into decision making process. This study could be intended not only to seek proper SEA procedure and process, but also to demonstrate that SEA implementation is needed as a tool to achieve sustainable transport development.

If the changing internally does not work, involving international agency such as financial donor agencies can be used to reinforce changing perception of authorities on environmental assessment. This international reinforcement had actually been done for implementing coercive EIA in Indonesia in 1982, as required by The World Bank. Another experience, European Commission requires all member state including the UK to implement SEA into transport planning framework.

Finally, it can be suggested that SEA for transport plans in Indonesia could be realistic to be implemented. The possibility of SEA implementation can be gained by several potential preconditions and facilitating factors. Implementing SEA for transport planning in Indonesia should deal with several aspects: creating an instrument and institution dealing with providing information in identifying transport problems and objectives like NATA, building coordinated-initiative which assembles road infrastructure development planning and mobility planning in order to achieve a balance between systematic and unplanned information, enhancing the role of EIMA at more strategic and building good consultation mechanism through enhancing the role of public involvement of existing EIA to be more strategic.

The implementation of SEA for transport planning above should be linked with EIA for transport projects. SEMP as a preliminary study for defining road projects may strengthen the function of SEA and EIA through linking between them in achieving sustainable transport development. SEMP should loop back problem definition from project planning to strategic transport decision *vice versa*. SEMP with transport project definition could give environmental information of transport development for subsequent environmental assessment at project level (EIA). Besides, SEA and EIA with their linkage can assist environmental management in decentralized-transport development among different planning levels.

To provide necessary support for initiating and carrying out the SEA implementation above, encouraging the recognition of the need of SEA from elected decision makers, politician and public is important for Indonesia who has no SEA experience. Another potential factor is amending current *Environmental Management Act* which has arranged environmental assessment at more strategic level.

The last, it is realized that this study has several limitations especially in collecting and analyzing data on Indonesia transport development conditions and environmental assessment. This is because collecting data more relies on browsing internet to relevant Indonesia department website. Nevertheless, in order to minimize the limitations, the study conducted limited-necessary interview with staff of Ministry of Environment and Ministry of Public Work and gained some literatures from those. Finally, this research has served several potential preconditions and factors as well as the possibility of SEA for transport plan in Indonesia. So, it hopefully can help government or one who concern with SEA implementation especially for making the procedure and process of SEA for transport plans in Indonesia.

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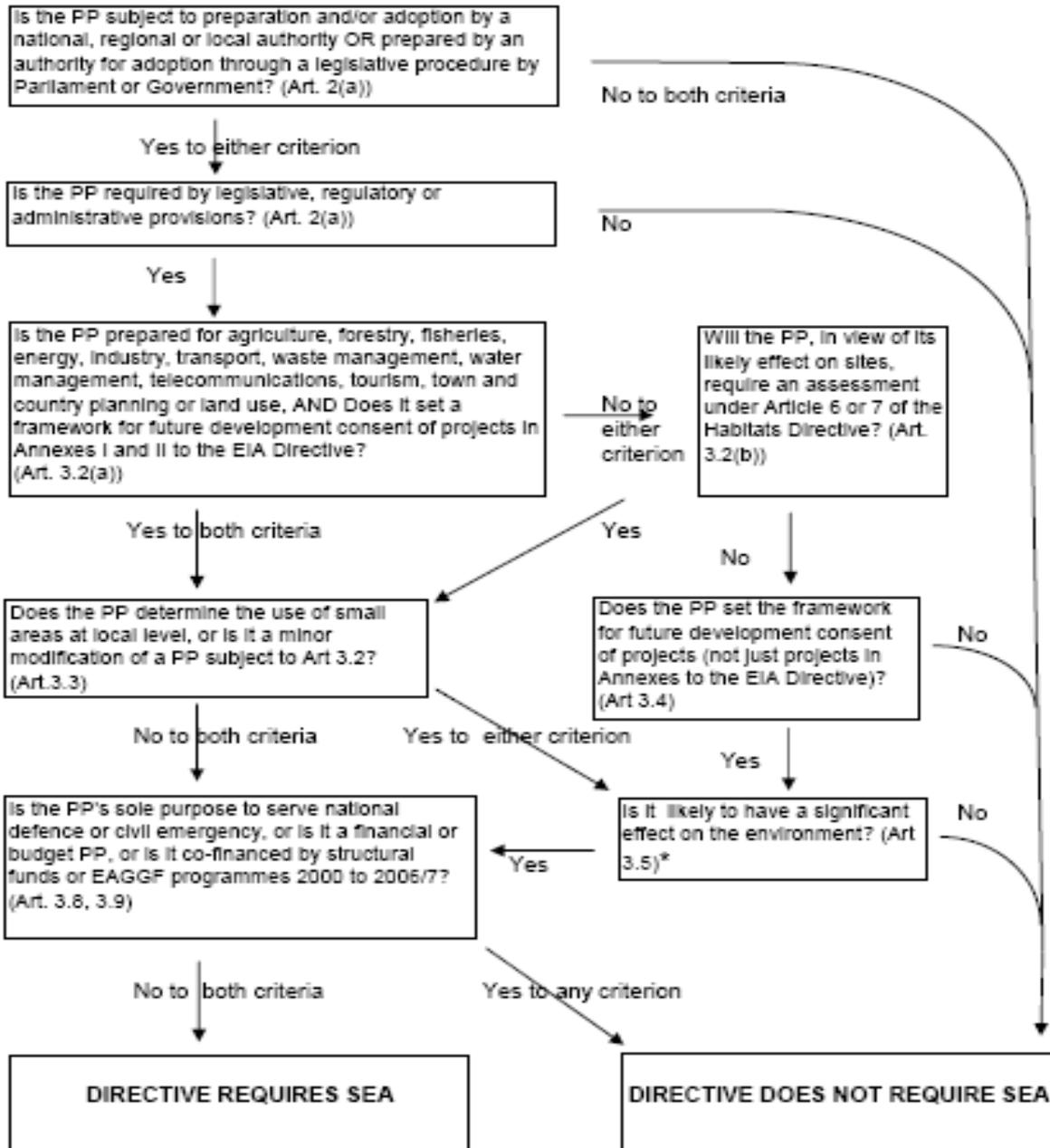
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APPENDICE 1

Criteria for Application of the SEA Directive to Plans and Program

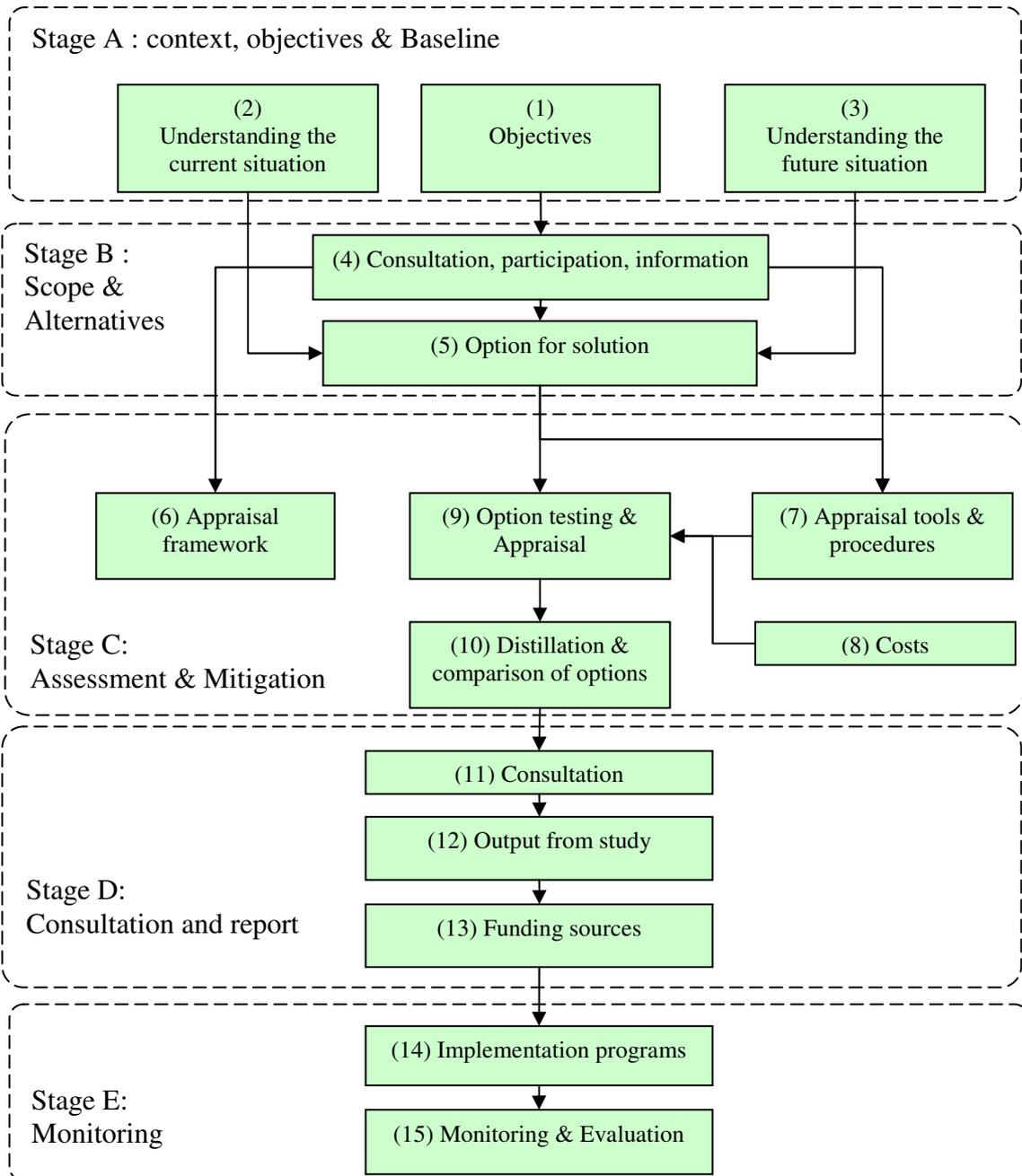
This diagram is intended as a guide to the criteria for application of the Directive to plans and programmes (PPs). It has no legal status.



*The Directive requires Member States to determine whether plans or programmes in this category are likely to have significant environmental effects. These determinations may be made on a case by case basis and/or by specifying types of plan or programme.

PP = Plan or Programme; EIA = Environmental Impact Assessment; EAGGF = European Agricultural Guidance and Guarantee Fund.

APPENDICE 2
SEA and NATA Stages (DfT, 2004)



APENDICE 3
NATA Appraisal Summary Table for Somerset's LTP

Description Somerset County Council five year LPT programme, with major scheme. Detailed description in section 1.1 of this report, and in Annex 6: 'North West (NW) Taunton Package – NATA Assessment. This appraisal does not include Bridgwater Northern Distributor Road		Problems Refer to Chapters 5, 6 & 7 of main LTP document 'Delivering Integration' and Annex 6: 'NW Taunton Package'	1) Total cost of the proposal 2) Cost to Government appraisal Assuming approx £5m contribution Taunton Package met by developer
SUB-OBJECTIVE	QUALITATIVE IMPACTS		QUANTITATIVE MEASURE
Noise	No significant change in noise levels		N/A
Local Air Quality	Strategy will reduce growth of traffic in main urban areas, particularly town centres of Taunton and Bridgwater which are the main areas of air quality concern within the plan. Details of the specific impacts on Silk Mills Road can be found in the NW Taunton Package Appraisal		N/A
Greenhouse Gases	Proposal likely to have small impact on emissions. Achievement of national targets for reductions of greenhouse gas emissions will depend heavily with respect to transport on success of measures to improve fuel efficiency.*		LTP policies targeted to reduce overall traffic growth in Somerset from forecast 37% to 31% between 1990 and 2010
Landscape	Our approach to developing a set of measures appropriate for implementation in rural areas, as well as our review of signing and lining standards will ensure that adverse impact of schemes on the landscape is minimised. Particular measures for Exmoor National park and the AONBs will be developed. NW Taunton Package Appraisal shows little impact on the landscape.		N/A
Townscape	Strategy for traffic reduction in tourist and heritage centres will reduce impact on our townscapes. We will develop a design guide for measures in settlements with distinctive townscapes		N/A
Heritage of Historic Resources	Strategy for traffic reduction in tourist and heritage centres will reduce impact		N/A
Biodiversity	No significant effects		N/A
Water Environment	No significant effects		N/A
Physical Fitness	Our strategies to promote cycling and walking will improve the physical fitness of those who choose to travel by those means**		N/A
Journey Ambiance	Our strategy for improving interchange facilities in urban and rural areas, improving facilities at rail stations, working with bus operators to improve vehicle quality and improving the pedestrian environment in town centres will all contribute to improved journey ambiance.		N/A

* This is an example where a lower level strategy identifies shortcomings in national level policies. Arguably the appraisal should be more direct, and likely to not reverse, and only slightly slowing, a major unsustainable trend in traffic growth.

** For SEA, one would need to clarify what the *absolute* effects are, i.e. will more people cycle and walk as a result of the LTP, or will it just reduce the