

연구논문

## A Nexus Study on the SEA and the Meta-urban Planning (MUP)

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### 광역도시계획과 전략환경평가 연계방안

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### Abstract

광역도시계획은 전략계획, 정책계획, 지침계획의 성격을 지니는 공간계획으로 청사진 계획으로 운용되어 온 기존의 광역개발계획 및 도시기본계획과 구분된다. 광역도시계획이 정하는 사항은 도시기본계획 및 관련 하위계획에서 기본적 취지를 검토하여 집행됨으로써 이들 계획에 대하여 지침(guideline)적 성격을 가지나, 직접적으로 개별 개발행위나 토지이용행위를 구속하지는 않는다.

행정중심복합도시 광역도시계획에 대한 전략환경평가는 국토해양부 시행지침에서 제시한 절차를 준용하되, 계획수립 여건을 고려하여 평가계획 수립, 항목과 범위 설정(scoping), 환경성평가, 보고서 작성, 보고서 검토, 모니터링 및 사후평가의 6단계로 진행하였다.

전략환경평가 시 구체적인 항목과 범위, 평가방법 등은 계획의 범위와 성격, 내용 등에 대해 대안의 비교·검토가 가능하도록 4가지 사항을 중점적으로 고려하였다. 즉, 정책목표 달성방법의 환경적 적정성, 대안의 설정, 자원과 에너지 이용의 효율성, 계획이 지구환경에 미치는 영향 등이다. 계획의 환경성 제고를 위해 설정한 항목은 인구, 토지이용계획, 교통계획, 녹지관리 등 4가지이며, 평가과정에서 반복 및 환류를 통하여 계획과 평가간의 연계성을 도모하였다. 이 과정에서 공간구조 변화는 행정중심복합도시를 정점으로 하고 주변 연결거점을 3개로 늘려 조정하였다.

주요어 : Strategic Environmental Assessment (SEA), Meta-urban Planning (MUP), Regional Urban Planning (RUP), Multi-functional Administrative (MFA) City

## I. Introduction

According to the planned economic structure, scarce resources invested into particular regions and industries such as heavy and petrochemical industries. Under this situation, unbalanced development generated many adverse social ones, such as social disintegrated and disparity, and weak local autonomy. Growing regional divide becomes a factor to prevent the futuristic balanced development from sustainable growth of Korea. In the context of the leading policy for balanced regional development plan, the former government promoted construction of the Multi-functional Administrative (MFA) City (Figure 1) with a population of 500,000 until 2030 as a core administrative and self-sufficient function as well (MOCT, 2006).

By the legislation of the Special Act for the Construction of Multi-functional Administrative City, the Minister of Land Transport & Maritime Affairs designated the planned area and its vicinity as a planning boundary and then made a

MUP framework by taking into deliberation. In this stage, the process for green city including land purchase in the selected areas, design and implementation planning is a main task to be addressed (Lee, Yong-Woo and Lim Sang-Yeon, 2006).

The MUP of the MFA city is superior to the Regional Urban Planning (RUP) of Daejeon and Cheongju and other urban basic ones. In accordance with this higher meta-urban plan, these basic and regional plans are changed for the maintenance of consistency. The MUP of the MFA city has the characteristics of strategic, policy oriented and guidance, so it is different from the former conventional regional and basic urban plan in the review of blueprint methodology.

It is mainly focused on the implementation plan for the enforcement of objectives as set by strategic goal for the solution of main policy subject themes rather than the proposition of long-term futuristic images in the perspective of strategic plan side. And it carries out the role of systematic presentation of execution and measure

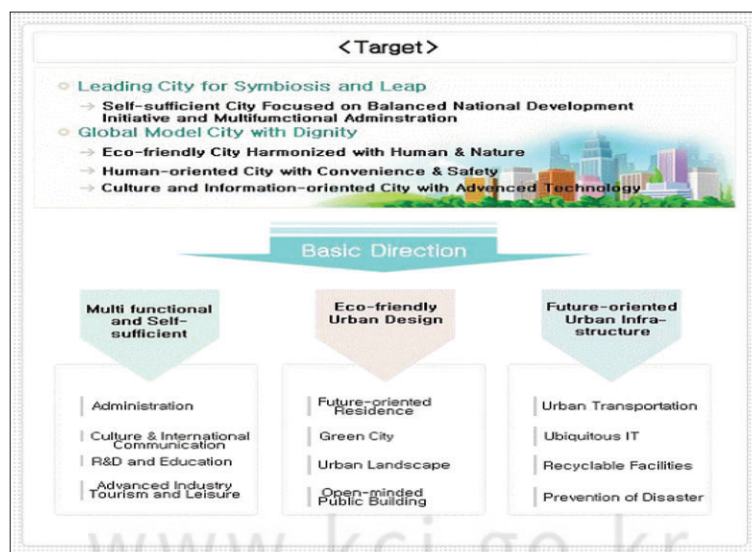


Figure 1. Basic policy plan for the development of the MFA City

programs to be promoted by the policy subjects for the achievement of strategic goal as a policy side.

It has a function of presentation in the process of basic urban planning in detail as a guideline, and conditions for considering the approval along the individual development projects as a guidance side (MOE, 2008). Regulation items of the MUP are served as guidelines for the implementation of the basic plans by reviewing the purport of lower level, but they are not directly subject to restriction of individual development and land use planning (Han, Sang-Wook *et al.*, 2006).

## II. Implementing Method of SEA

Boundary of the MUP of the MFA city (Figure 2) has designated and noticed by the Minister of MLTM through the deliberation of committee for the promotion with the whole 3,598km<sup>2</sup> in the planned area and its outskirts(Chungnam Provincial Government, 2008).

Range of time is set by 2005 as a standard, and 2030 as a target for the completion of construction of the MFA city. Range of contents is composed of objective, strategy and spatial structure as a basic initiative (Lee, Byung-Joon, 2007), and includes the meta-level land use planning, green tract and environmental conservation, transport and physical distribution, facilities, landscape, culture, leisure and prevention of disaster, and management programs for the enhancement of effectiveness of the plan as well.

SEA on the MUP was processed on the basis of the "Directive on the SEA Working Stipulation (2006. 12 revised)" of the Ministry of Land, Transport & Maritime Affairs (MLTM) due to it is pertinent to the long-term basic plan to be applied for, and by applying the directive criteria have been provided, we analyzed and evaluated the environmental impact of these planning contents (Figure 3). To draw out a rational quantitative evaluation results, matrix and checklist techniques can be used, but the latter would be rather reasonable to apply for the comparison

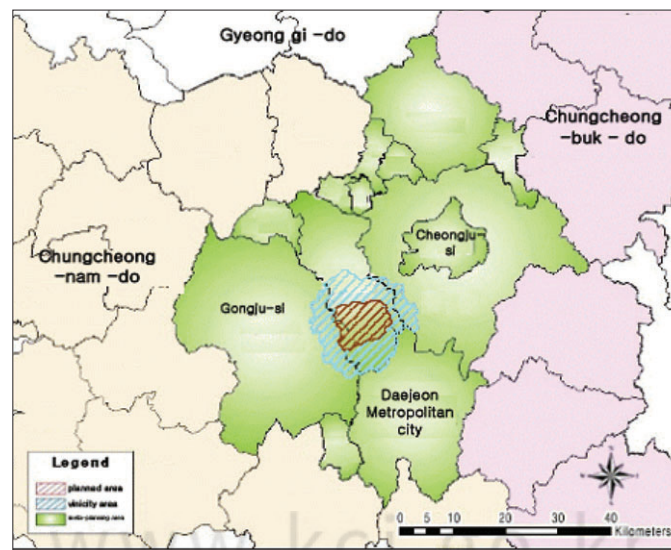


Figure 2. Boundary of the MUP in the MFA city

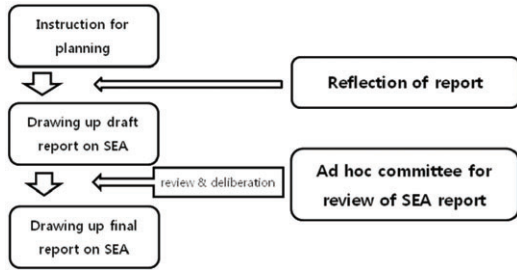


Figure 3. Outline of drawing up SEA report

scale (Therivel, R. and Wood, G., 2004).

In compliance with the procedure of SEA and taking into account the implementation of plan, it was processed by 6 stages as introductory planning of evaluation, scoping as set-up of evaluation items, evaluation of programs in detail (feedback of adjustment of program after evaluation as a follow-up process), report on evaluation results, review of report and consultation, ex post

management of evaluation (Figure 4).

SEA integrated in planning has affirmative points not only as in viewed to be most efficient in affecting plan and cost-effective planning and assessment process, but also it will affect negative impact on the transparency of the plan-making process and possibilities for public involvement and the visibility of its effects which can be compromised (Figure 5, Saddler, Barry, 2005).

### III. Application of SEA to the MUP

SEA is a supporting tool for systematic decision making processes aimed at sustainable development, integrating consideration of the economic and social impacts, together with the environmental aspects in the process of upper-level administrative planning, carried out prior to

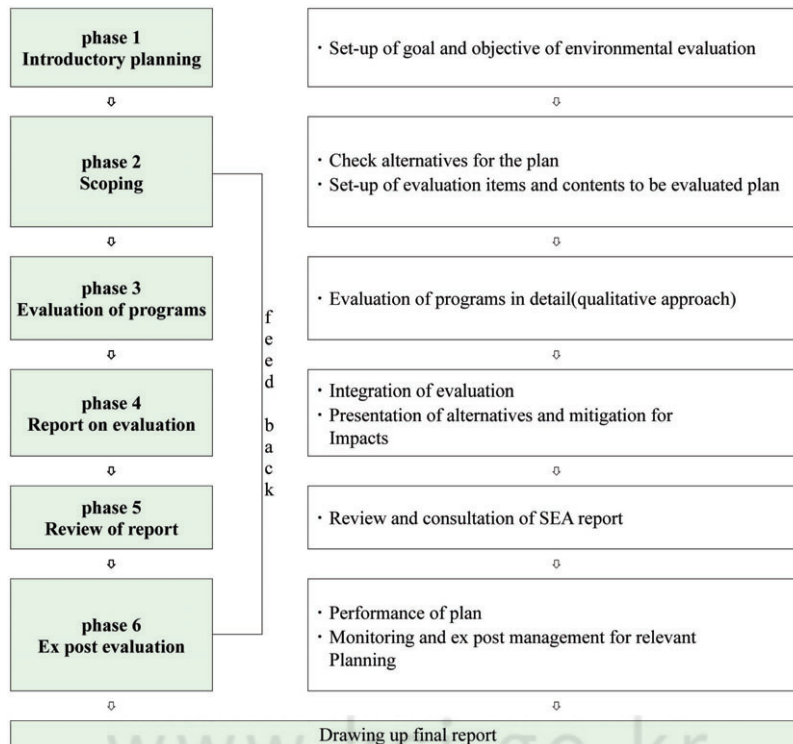


Figure 4. Flowchart of the SEA process

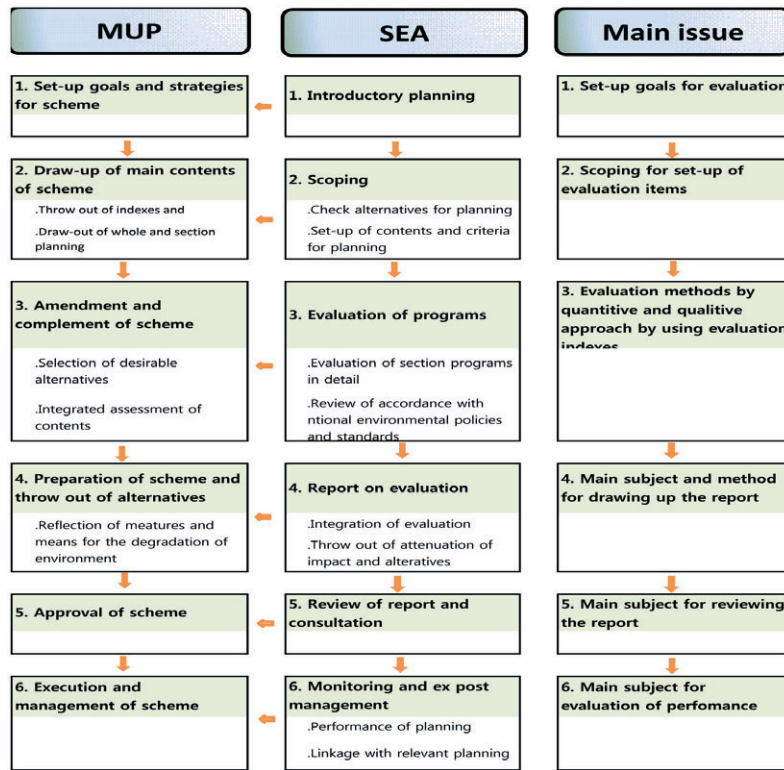


Figure 5. Concurrent Feedback of the MUP and the SEA Process

beginning a development project (Saddler, Barry, 2005). The application method of analysis for the MUP is implemented by the macro scale and qualitative to policy goal, promotion strategy and direction and even to contents for further quantitative, if necessary. The MUP should be allowed to collect the contents on the consideration of environmental aspects in accordance with the implementation of SEA. Particularly in the course of SEA the definite items, range and evaluation methods are set up by the MUP of the MFA considering the contents and characteristics of plan, and it should be possible to compare and review the alternatives as follows: Firstly, policy goal, strategy direction, and environmental suitability for the promotion of scheme are the critical path. Secondly, set-up alternatives, and then consider resources and energy efficiency in parallel with

global impacts of the plan.

Selection of an optimum alternative to conserve the environment by evaluation of multiple options proposed in compliance with the items in SEA according to the sectorized contents and planning indicators. On the particular procedure and enforcement of SEA, we can review the contents of planning which are identical to the environmental policy and criteria according to the additional guideline promulgated by the Minister of MLTM separately.

For the purpose of drawing out core findings which are main issues to consider in environmental aspects for difference in each planning step, we should present eco-friendly contents and process of planning through the review of advanced cases and comparison of alternatives. For self evaluation items in the context of sus-

tainability in the MUP, the applied framework is the matrix methodology, because it is more relevant than checklist one, a list of recommended methods for solving specific environmental problems. However, a compendium of methods, with numerous footnotes and explanations of caution, is likely to be in the process of an iterative manner for the integration of the SEA process into the various stages of the plan-making process. The contents of planning process of the MUP are conceptual in the focus of a strategy and policy as well as guideline, so it does not include the development plan in detail. Conventionally, we can apply the environmental indicators to overcome the objectiveness as a limiting factor of qualitative assessment; however it is not easy to adapt for its inherent attribute of abstraction.

#### IV. Evaluation Result and Improvement

To draw-out core factors in the SEA process, in the initial self assessment as a result of screen-

ing process which has done by the ad hoc committee, four major factors are main concerns: population (Figure 6), land use planning, landscape management and meta-transport planning. Within this context, scoping requires more public consultation to know their concerns and opinions. Moreover, it provides the stakeholders an opportunity to voice their concerns at the early stage of assessment. In this case, usage of expert opinion is possibly the best choice to draw out four major factors, and can include the environmental factors as well.

In the aspect of eco-friendly land use planning, we can consider the weight of index to the distance as 2:1 in the aspect of scale of project applied (Table 1). According to the principle of smart growth with minimizing the urban sprawling and linking the existed central area effectively, making gradation considering the scale of project and distance from the CBD is necessary requisite condition. In the context of landscape ecology, green tract system has composed of matrix,

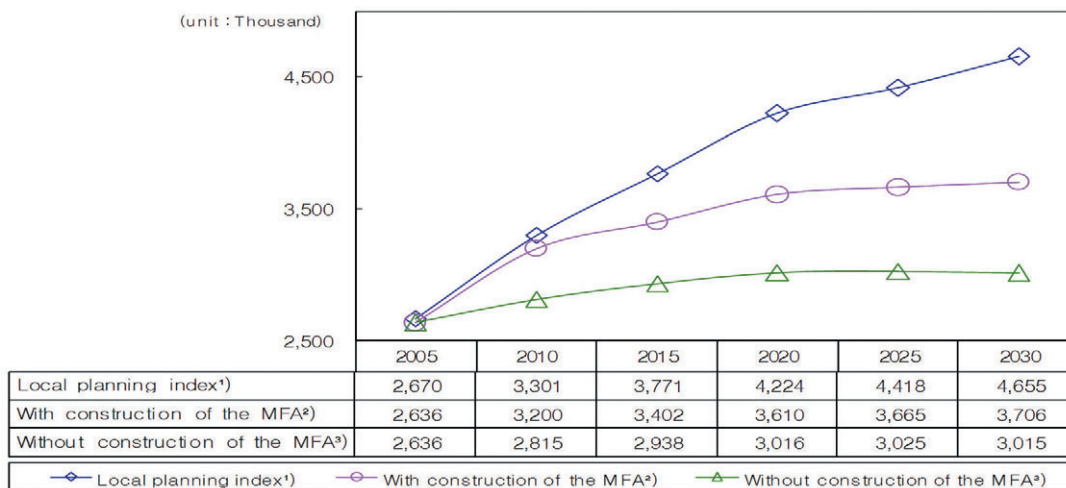


Figure 6. Comparison of planning in the MFA City

- Note: 1) Local planning index includes the existed planning with the MFA population prediction  
 2) With construction of the MFA includes the population prediction in accordance with the consideration of the impact along the construction  
 3) Without construction of the MFA includes the population prediction in the Meta-urban area without construction

Table 1. Priority simulation for the local development project

distance\area		scale of development			
		1. below 0.35km <sup>2</sup> (0)	2. 0.35~1.0km <sup>2</sup> (2)	3. 1.0~3.0km <sup>2</sup> (4)	4. above 3.0km <sup>2</sup> (6)
D	1. below 5km(3)	3	5	7	9
	2. 5~10km(2)	2	4	6	8
	3. 10~15km(1)	1	3	5	7
	4. above 15km(0)	0	2	4	6

rank 1 : points 6~9 rank 2 : points 3~5 rank 3 : points 0~2

Table 2. Categories of conservation tract

absolute conservation tract	- tract : above 100ha, grade above 6.9, vegetation grade above 3 - allow the vicinity area development within the limit of the degradation of important patches and severe fractures
relative conservation tract	- meaningful patches for the linkage among the green tract network
buffer tract	- tract : below 10ha, grade below 2.5, vegetation grade below 3 - possible for development and will be influenced area by development

corridor and patch, so it can be analyzed by huge passage or patch (Table 2). And patch has the meaning of functional linkage among the ecological factors; it accordingly can be set up as three categories. Spatial structure of the MUP has changed from two adjacent subordinate urban clusters to three ones for the prevention of sprawling and for the enhancement of development effect in the MFA City and its outskirts

(Figure 7, Figure 8).

### V. Conclusion

On the planning process in parallel with meta-urban planning council, public hearing and advisory committee, four major review items have been brought up including population index, land use planning, transportation and tract man-

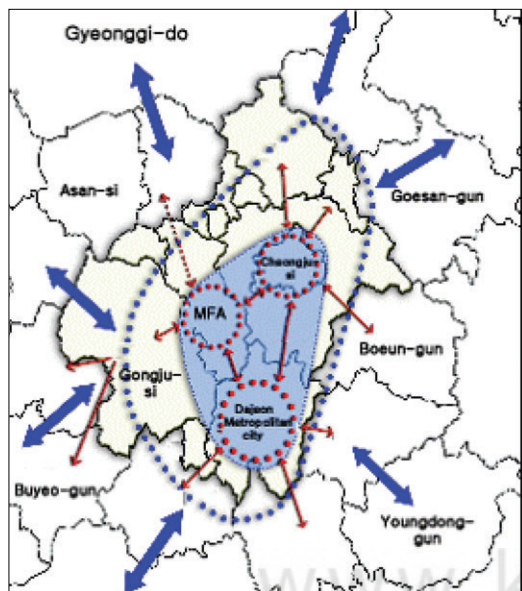


Figure 7. Initial spatial structure of the MUP for the MFA City

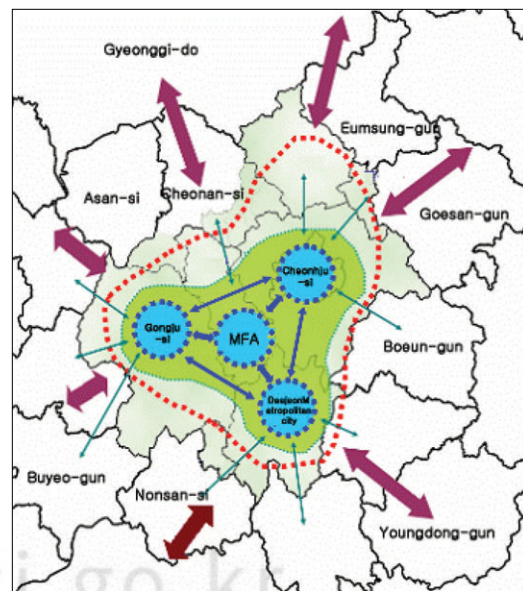


Figure 8. Revised Basic spatial structure of the MUP for the MFA City

agement. We have drawn out the core schemes for the reduction of environmental loading since the second stage when the SEA had been added in the guideline of meta-urban planning (May 9, 2006) and the principal results are as follows:

Firstly, proposition of management through the Job-Population Ratio (Ratio of employment to population) as an index of strategic objective. Secondly, proposition of scheme for priority of local development in accordance with the distance and scale from the standpoint of the smart growth as an eco-friendly land use planning. Thirdly, public transportation scheme by introduction of the BRT system. And finally proposition of scheme for no trade-off between local development program and tract conservation through the analysis of patch as an aspect of strategic management plan.

Attribute of the MUP has strategic, guidance-oriented and policy making until to 2030 as an objective year, the deficient in-depth reviews and in accordance with the limitation of the existed guideline in the aspect of environmental side should be supplemented in the consecutive planning processes. With relation to climate change the importance of regional energy plan had been brought up in the deliberation process, but it had been reflected in early stage as a partial plan due to the limit of guideline and the existed background, therefore it will be necessary to consider the energy plan as a lower level one in details.

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