

Constructing Urban Open Space System by Ecological Landscape Planning - The Case Study of Eunpyung New Town in Seoul -

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ABSTRACT

After UNECD(United Nations Conference of Environment and Development) in 1992, ESSD (Environmental Sound and Sustainable Development) is an important concept of urban planning in Korea. The introducing environmental assessment system of urban planning and the district unit planning system were representative cases. In this process, Landchaftplanung(ecological landscape planning) was introduced from Germany.

This study was executed for applying ecological landscape planning to Eunpyung New Town in Seoul city, and analyzing the problem to apply this system. The process of ecological landscape planning was followed to ① the site survey, ② the analysis and assessment of survey data, ③ the establishing ecological landscape planning. Three master architects participated in all investigations. The major fields of them were landscape architecture, architecture, and urban planning. Master Architects helped many aspects.

In conclusion, ecological landscape planning was feasible to be applied to develop other New Town in Korea. However the mediation system is very weak, if different situations are confronted with ecological landscape plan and land use plan in the operative legal framework of Korea. Thus, the legislation of mediation system is necessary for an establishment of ecological landscape planning.

Key Words : District Unit Planning, Master Architect, Mediation System

I. INTRODUCTION

After UNCED (United Nations Conference of Environment and Development) at Rio de Janeiro in 1992, ESSD (Environmental Sound and Sustainable Development) is a general concept of urban planning in Korea. However the realization of ESSD is very difficult to field level, because the methods of ESSD are still insufficient.

The environmental assessment system of urban planning and the district unit planning system were

introduced to Korea in 2000. The assessment system was developed to forecast environmental pollutions, changes of climate · ecosystem · life environment and to prepare the alternative plans (Seoul, 2003b). The district unit planning system was developed to unify the urban design and the detailed urban planning system. These systems have been used for environmental sound and sustainable urban planning in Korea (Seoul, 2003a).

In this process, Landchaftplanung was introduced from Germany. The system is to unify space planning and environment planning. Landschaftplnung is

"landscape planning" in English, and is translated to "ecological landscape planning" in Korea. The objectives of the system are to protect nature · landscape · bio-species · biotope, and to maintain leisure and recreation area (KMC&T, 2002). Since 2000, this system has been applied, because the district unit planning system was introduced as the realization method for environmental sound and sustainable urban planning. Many planning were executed to apply this planning method in real space planning. The representative cases are Jookjun New Town plan of Yongin city and Pangyo New Town plan of Sungnam city(KRIHS, 2002).

This study was executed for applying ecological landscape planning to Eunpyung New Town in Seoul city, and analyzing the problem to apply this system.

II. THE SITE AND RESEARCH METHODS

1. The Site

The site of this study is Eunpyung New Town of Seoul. That is located in north-west region of Seoul. The site has been managed as a Green Belt Zone from 1972. The area is 3,593,000m² (Seoul, 2003a).

2. The Survey and Assessment

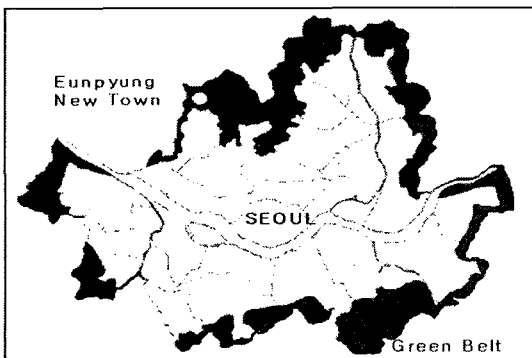


Figure 1. The location map of Eunpyung New Town

The survey was executed in spring, 2003. The contents of survey were the conditions of land use, actual vegetation, soil cover ratio, etc. The comprehensive biotope mapping method was applied to use in the biotope mapping. The data was arranged by GIS and 1:5000 topographical map. The biotope type was evaluated by habitat functions, land form characteristics, value of biotope type, area and rarity, and was divided 5 grades. Each grade is represented as follows (Seoul, 2000; Sukopp, 1988):

- grade 1 : biotope type to conserve all area
- grade 2 : biotope type to conserve all area preferentially
- grade 3 : biotope type to conserve a partial area, and to limit land use
- grade 4 : biotope type to secure green area, and to limit up zoning of land use
- grade 5 : biotope type to secure green area, and to restore the urban ecosystem

3. The Planning Process

The process of ecological landscape planning was followed to ① the site survey, ② the analysis and assessment of survey data, ③ the establishing ecological landscape planning. Three master architects

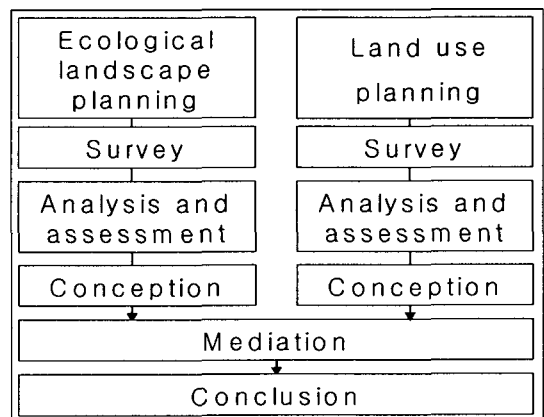


Figure 2. The process of ecological landscape planning

participated in all investigations. The major fields of them were landscape architecture, architecture, and urban planning.

III. RESULTS AND REVIEW

1. The Urban Ecosystem Analysis

1) Biotope

Table 1 shows the result of biotope type assessment. The sum of grade 1 and 2 is 27% of total area. These grades need to conserve nature. The grade 3 is 27.9%. This grade needs to conserve a partial area, and to limit land use. The grade 4 and 5 are 45.1%. That is possible to develop.

2) Degree of Green Naturality (DGN)

Degree of green natulality(DGN) is a standard of assessment for ecosystem conservation value in Korea. That is divided 11 Grades. The grade means 1~3: developing area; 4~7: semi-natural area; 8~10: natural area. Table 2 shows the DGN grade of Eunpyung New Town. In this result, the grade 8 is 2%, the grade 4~7 is 19%, the grade 1 is 79.7% of total area.

3) Inclination

The standard of inclination analysis is 25%. The

Table 1. The result of biotope type assessment

Grade	Area (㎡)	Ratio (%)
1	370,079	10.3
2	600,031	16.7
3	1,002,447	27.9
4	362,893	10.1
5	1,257,550	35.0
Total	3,593,000	100.0

Table 2. The result of Degree of Green Natulality

Grade	Area (㎡)	Ratio (%)
1	2,863,621	79.7
4	3,593	0.1
6	294,626	8.2
7	359,300	10.0
8	71,860	2.0
Total	3,593,000	100.0

Table 3. Analysis result of conservation area

Class	Area (㎡)	Ratio (%)
Available area	970,100	27.0
Conservation area	2,622,900	73.0
Total	3,593,000	100.0

area below 25% inclination is 94.8% of total area. This area is possible to develop. The area over 25% inclination is 5.2%. This result means that the inclination is influenced very small amount to analyze available area.

2. Analysis of Conservation Area

In the result of conservation area analysis, biotope type grade 1~2, DGN grade 7~8 and more than 25% inclination of total area is classified conservation area. In addition, the DGN grade 7~8 is concluded in biotope type grade 1~2, and inclination 25% over area is concluded in it. The table 3 shows the result of analysis for conservation area.

3. Green Network

In Eunpyung New Town, the cores of green space are included Jingwan and Kalhyun neighborhood parks, Mt. Pookhan National Park, Surohung Urban Nature Park and Changnung river. These green space

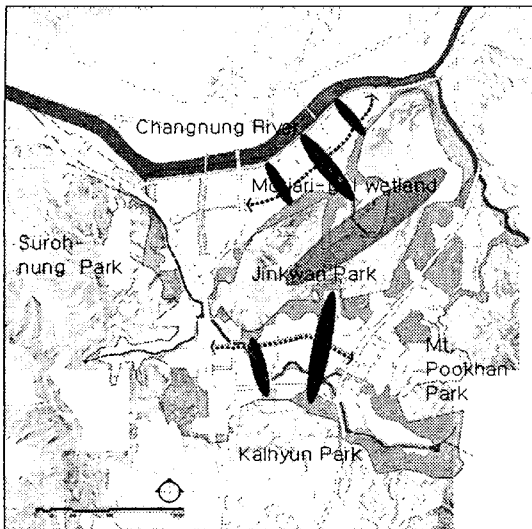


Figure 3. Green network of Eunpyung New Town

are main patches of landscape ecology in this area, and contained many small patches. Motjarigol is representative small patch, that possessed an wet land ecosystem.

The corridor of ecosystem is necessary to connect each patch: Kalhyun - Jinkwan neighborhood park, Jinkwan neighborhood park - Motjarigol wet land - Changnung river. The green network is appeared in Figure 3.

4. Blue Network

Blue network is a connecting system of water resources: rivers, wet lands, and streams, etc. Eunpyung New Town has very poor water resources in the site. But Changnung river is in north outer site. Jinkwan stream is in east outer site. Only a small stream is in the site, that is covered by concrete and used as a road. Blue network is organized by these 3 streams. Changnung river and Jinkwan stream are used as the present. However the covered stream is to be restored as a natural stream. In result of survey, Motjarigol is analyzed an wet land. Thus, this area is

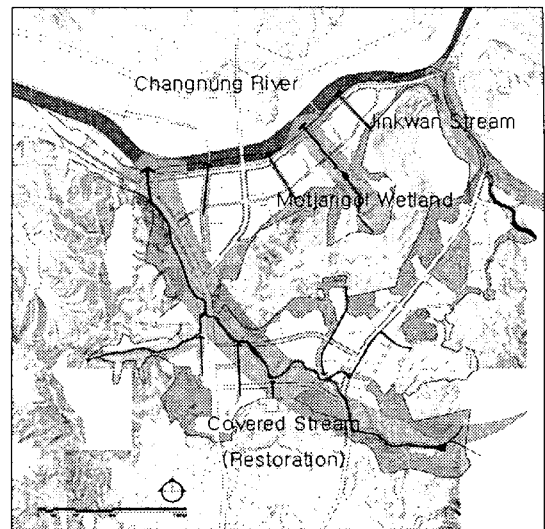


Figure 4. Blue network of Eunpyung New Town

planned to be used an wet land ecological park. Therefore this park will be used as a habitat of water wild life. The blue network is appeared in Figure 4.

5. Urban Park System

The ecological landscape plan is investigated with land use planning to preserve urban ecosystem and to maintain recreation area. The conservation standard of preserving urban ecosystem is as follows :

- biotope type grade 1~2
- degree of green natulality (DGN) 7~8
- edge area of forest
- the covered stream (restoration)
- wet land

This conservation standard is reflected in urban park system. The biotope type grade 1~2 and DGN 7~8 area is decided on urban parks. Motjarigol area is decided to be an ecological park. Mt. Pookhan National Park, Kalhyun neighborhood park, Jinkwan neighborhood park and Surohung Urban Nature Park are connected by eco-corridors. The urban park system is represented in Figure 5.

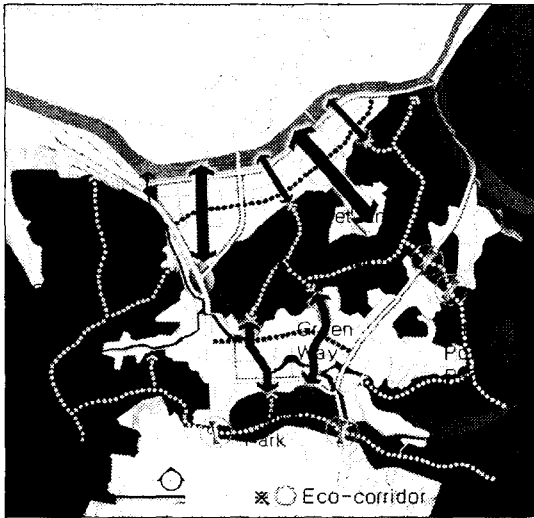


Figure 5. Urban park system of Eunpyung New Town

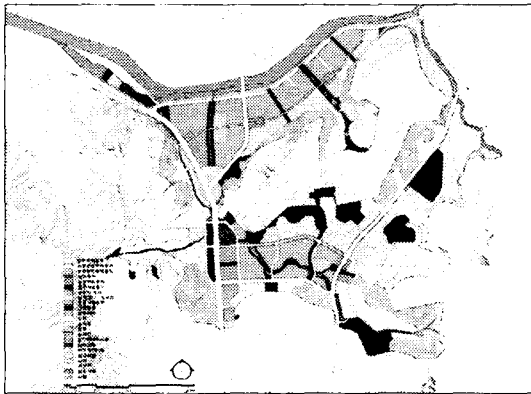


Figure 6. Land use plan of Eunpyung New Town

6. Land Use Plan

Land use plan was decided by mediation with ecological landscape planning. Three master architects regulated other situations. The main regulated items were maintaining available areas, protecting of nature

and landscape, and traffic condition. The last land use planning is represented in Figure 6. The plan was decided by Seoul Urban Planning Committee in August, 2003.

IV. CONCLUSIONS

The ecological landscape plan of Eunpyung New Town was progressed very rapidly. Therefore Master Architects helped many aspects. They discussed and solved many legal and systematic problems.

In conclusion, ecological landscape planning was feasible to be applied to develop other New Town in Korea. However the mediation system is very weak, if different situations are confronted with ecological landscape plan and land use plan in the operative legal framework of Korea. Thus, the legislation of mediation system is necessary for an establishment of ecological landscape planning.

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