

The Characteristics of Green Belts Land-Use Regulations in Seoul Metropolitan Areas

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Abstract: Korean Green Belts, or Restricted Development Zones (RDZs), have been well established system for three decades. This system however has been rapidly deregulated since the announcement of the RDZs Policy Reform. This article examines the characteristics of land use regulation on Green Belts in Seoul Metropolitan Areas (SMA). To achieve this goal, this article investigates criteria: theoretical foundation; objects regulated; relations to market competition; and political-economic traits to distinguish economic regulations from social ones. Second, it reviews the status of RDZs in the SMA and the contents of recent rezoning. Third, it examines the characteristics of land-use regulations on Green Belts according to the above criteria. Finally, it presents three principles to preserve environmental values of Green Belts during the implementation process.

INTRODUCTION

Korea has a well-established system for defining 'Green Belts'¹⁾ around Seoul and the thirteen other cities. Within those areas, new development is strictly controlled. The principal objectives of this system are to contain the disorderly growth of those cities, prevent their coalescence, and conserve natural environments around those cities. Green Belts were first introduced to Seoul Metropolitan Areas (SMA) in 1971. There were no other areas so designated, nor were there changes in the original zones until the announcement RDZs Policy Reform on July 22, 1999. Approximately 5.4 percent (5,397.1 km²) of national land is designated as Green Belts, of which metropolitan areas comprise 27.7 percent. Metropolitan RDZs covers nineteen districts in Seoul, Incheon, twenty-one cities and counties in Gyeonggi province.

At first, the characteristics of land use regulations

on Green Belts were growth restrictions. Over time, however, the policy changed to an environmental policy, with Green Belts' ecological value rising.

Land-use regulations as environmental policy have been strengthened, as environmental problems increased. Nevertheless, land-use regulations on Green Belts have been consistently weakened. To understand why this has happened, this article examines the characteristic of Green Belts whether it is social regulations or economic regulations according to several criteria.

To attain this goal, first, this article identifies the criteria. Second, it examines Korean land-use regulations, metropolitan Green Belts, and recent changes. Third, it investigates the characteristics of land-use regulation on Green Belts based on the above standards. Finally, it examines the significance of metropolitan Green Belts changes and presents some suggestions for implementing the policy.

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1) The legal term for Korean Green Belt is 'Restricted Development Zones (RDZs)'. In this article, we use 'Green Belts' rather than 'RDZs' because of its more general use. This does not mean that we only use the term of 'Green Belts'.

THEORETICAL DISCUSSIONS

Prior Research

Prior research focused on the problems and reform

measures of formal system. Notably during the 1980s, most studies (Yun, 1980; Kim 1981; Lee 1985; Lim, 1989; Lee 1989) were about management alternatives and efficient land-use instruments of Green Belts. The studies in the early 1990s showed similar tendencies, but were concerned with the reality of residents' life within the zones, and compensation for inconveniences. In the latter half of 1990s, arguments about Green Belts increased and a number of meaningful studies were conducted. The studies of Gu (1998), Choi (1998), Choi (1998) and Kwon (1999) presented a vision for Green Belt policy from a sustainable development perspective.

However, there appears to be no study that investigates the characteristic of land use regulations on Green Belts and the implications of implementing that policy.

Criteria to Identify the Characteristics

Regulatory policies can be classified into several types according to standards.²⁾

The economic and social regulations are investigated according to four criteria: theoretical foundations, the objects of regulation, relations to market competition, and political-economic traits.

1) Theoretical foundation

Economic regulations are basically founded on the restriction of market competition. But social regulations are based on market failures. These market failures resulted from externalities and imperfect information.

2) Objects regulated

Economic regulations regulate specific persons and industries. Social regulations, however, regulate most industries and people, and are quite extensive when compared to economic ones.

3) Relations to market competition

Economic regulations always restrict market competition. On the contrary, social regulations are not related directly to market competition. Social regulations emphasize social accountability in areas such as health, quality of life, and human rights.

4) Political-economic traits

It appears occasionally that regulatory agencies are captured by the regulated in economic regulations. This phenomenon of 'regulatory capture' is that regulatory agencies respond sympathetically to a request by the regulated. However, in social regulations, regulatory agencies are not captured, and their economic spill-over effects are extensive. Therefore, the degree of social regulatory implementation tends to be dominated by the level of economic activities and inflation. Consequently, resentment of the regulated is fierce, and the possibilities for government to agree with their claims are very high.

In the political process, economic regulations are matters concerning the regulated, consumers, and government. However, public interest organizations such as NGOs play a important role in the policy process in social regulation. Also, social regulations, such as environmental regulation and consumer protection regulation, are matters that concern the public, and mass media play prominent role because of the political saliency of social regulations. Therefore, the policy process of social regulations have very high level of political peculiarities when compared to economic regulations.

2) According to intervention stages, there are precautionary 'ex ante regulations', 'ex post regulations', and 'the last ex post regulations' (Kim, 1995: 335). In accordance with the regulatory instruments, regulation policies are divided into 'regulation by directives' and 'regulation by market incentives' (Choi, 1997: 464-502). Regulation policy can be divided into economic and social regulations, and this typology is followed here.

LAND-USE REGULATIONS ON GREEN BELTS IN SMA

Land-Use Regulation on Green Belts

Korean land-use regulation policies are based on the zoning system. This system regulates using land according to designated zoning regions whether it be economic or social regulations. Korean national lands are divided into five types of zones: urban; semi-urban; semi-agricultural and forests; agricultural and forests, and natural environmental protection region. They are regulated according to basic zone management principles as prescribed by the *National Land Use Management Act*. A Green Belt which is particularly designated to a part of green districts is a zoning applied to urban regions in order to contain urban growth and preserve open space for its recreational or landscape value. Green Belt policy is a planning tool that was imported from the UK. and then located within a planning framework which draws its inspiration from the US. model. Therefore, the conflicts over Green Belts problems³⁾ result from the paralleling different dual-system planning model.⁴⁾

Land-use within the Green Belts is strictly

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- 3) The conflicts are resulted from (a) high land value differentials; (b) confusion regarding the rights of and compensation for land owners (this issue was resolved in a recent Court Judgment); and (c) resentment amongst landowners in the Green Belts when compared to them who have unrestricted development rights in other zones (TCPA, 1999: 3).
 - 4) Many of the difficulties currently being experienced are the result of the rapid process of 'foreign' policy adoption that has occurred in Korea since the 1960s. Two specific problems can be identified. First, the broad structure of land zoning does not fit easily with the disparate pattern of private land ownership. Secondly, the RDZ concept has been borrowed from a European system based on stringent development control and 'licensing', but relocated in a US zoning system where development rights outside the RDZ are automatic when developers can demonstrate that their proposals are in line with zoning criteria (TCPA, 1999: 3).

restricted, although with the permission of municipality leaders (mayor, county governor, district governor), exceptions are allowed. Land-use regulation requires the listing of all permissibles that are prescribed by the *Special Act of RDZ Designation and Management*, and an enforcement order with detailed regulations related to the application of the law. There are also the limitation and prohibition of construction applicable to this law and the articles that are not prescribed by the law are applicable to the *Construction Act*.

To ease restrictions it is necessary to get permission from a regional elected officials. Public and large facilities are given the pre-approval of the Minister of Construction & Transportation or a prefect. Large facilities within Seoul and Busan metropolitan areas are inspected by a Cabinet council after permission has been granted locally. Management of the zone is the administered by the local government.

Green Belts within SMA

1) Population and household

As seen in the Table 1 below, 47.8 percent, of the entire population living within Green Belts, or 355,000 people reside in the SMA. This is probably the reason that the spillover effect of deregulation in Green Belts within SMA is very strong.

By comparing tenants with homeowners within the RDZs, we know that the proportion of tenants to homeowner within SMA is relatively higher than in other areas (Seoul Metropolitan Areas 78.1 percent; other metropolitan areas 68.7 percent; middle and small city areas 45.6 percent). This shows that homeowners tend to move into the inner city in order not to be inconvenienced by zoning restriction and the lack of facilities. Also in 1998, the proportion of immigrants to the RDZs was four times greater than the number of original residents.⁵⁾

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- 5) Comparing this data to survey results in 1993, in that time the number of homeowners within Green Belts was

Table 1. Population within RDZ (thousand households, thousand population, %)

	National total	Total within RDZ	Metropolitan areas	(Seoul Metropolitan)	Middle and small city areas
Households	12,958	245(100)	205(83.7)	124(50.6)	40(16.3)
Population	46,430	742(100)	611(82.3)	355(47.8)	131(17.7)
Persons per household	3.6	3.0	3.0	2.9	3.3

Note: The metropolitan areas are Seoul, Busan, Daegu, Gwangju, Daejeon, Ulsan and Masan · Jinhae; The middle and small city areas are Chuncheon, Cheongju, Jeonju, Yecheon, Ulsan, Chungmu and Cheju.

Source: MOCT (1998: 3).

Table 2. Households within Green Belts (thousand population, %)

	Total	Metropolitan areas	(Seoul Metropolitan)	Middle and small city areas
Total	742(100)	639(100)	355(100)	103(100)
Original residents	153(20.6)	116(18.1)	29(8.1)	37(35.8)
Immigrants	589(79.4)	523(81.9)	326(91.9)	66(64.2)
Owners	256(34.5)	200(31.3)	78(21.9)	56(54.4)
Tenants	486(65.5)	439(68.7)	277(78.1)	47(45.6)

Source: MOCT (1998: 7) reconstructed.

The percentage of original residents within Metropolitan Seoul Green Belts take accounts for only 8.1 percent of the Green Belt population. The proportion of migrants to original residents is also higher in the SMA and other metropolitan areas than it is in middle and small cities.

2) Land-use

The proportion Metropolitan areas comprise 74.1 percent of the total number of Green Belts, while middle and small city areas comprise 25.9 percent. Of this, Green Belts within the SMA occupy 1,449.3 km², or 27.7 percent of the total Green Belts. The majority of the land is used for forestry and farming purposes. The proportion percentage

of land given over to forestry within SMA is 58.1 percent, and sites 2.1 percent, which is comparatively higher than other areas.

3) Change of land ownership

The change of land ownership within Green Belts in the SMA since RDZ designation accounts for 814.5 km², or that is 56.2 percent of the total of Green Belt lands. Of these areas, immigrants⁶⁾ have taken 623.3 km² that amounts to 43.4 percent of total Green Belts in SMA and 76.5 percent of ownership-changing land areas (see Table 4). Compared to survey results in 1993, the proportion of possession by absentee landlords has rapidly increased in all areas.⁷⁾

greater than the number of tenant households, which is in line with the increasing number of tenant residents. In 1993, 64 percent all households within Metropolitan Seoul Green Belts were tenants, but that percentage increased 78.1 percent in 1998. It might be speculated that low-income and homelessness residents within Metropolitan Seoul Green Belts contribute to the desolation of the zones.

6) Central government and municipalities are excluded from immigrants, but public corporations are included in (MOCT, 1998b).

7) In 1993, 53.2 percent of land within SMA Green Belts changed hands, and of which 46.3 percent was owned by absentee landlords.

Table 3. Land Use by Category (km², %)

Classification	Total	Metropolitan areas	(Seoul Metropolitan)	Middle and small city areas
Total	5,231.0(100)	3,876.0(100)	1,449.3(100)	1,355.0(100)
Forestry	3,220.3(61.6)	2,352.0(60.7)	842.2(58.1)	868.3(64.1)
Farming land	Field	426.4(8.2)	297.1(7.7)	129.3(9.5)
	Rice field	839.3(16.0)	644.5(16.6)	194.8(14.4)
	Fruit garden	43.8(0.8)	12.7(0.3)	31.1(2.3)
	Total	1,309.5(25.0)	954.3(24.6)	373.0(25.7)
Site	83.7(1.6)	66.6(1.7)	29.9(2.1)	17.1(1.3)
Hybrid land	72.5(1.4)	57.1(1.5)	31.6(2.2)	15.5(1.1)
Others	544.9(10.4)	446.0(11.5)	172.5(11.9)	99.0(7.3)

Source: MOCT (1998. 10).

Table 4. Ownership-changed Areas and Areas Owned by Absentee Landlords (thousand m², %)

Classification	Total	Metropolitan areas	(Seoul Metropolitan)	Middle and small city areas
Total areas within Green Belts(a)	5,230,979 (100.0)	3,876,013 (74.1)	1,449,262 (27.7)	1,354,966 (25.9)
Ownership Change areas (b)	3,106,615 (59.4)* (100.0)	2,315,297 (59.7)* (74.5)	814,445 (56.2)* (26.2)	791,319 (58.4)* (25.5)
Absentee landlords' owned areas(c)	2,329,966 (75.0)** (100.0)	1,741,214 (75.2)** (74.7)	623,305 (76.5)** (26.8)	588,752 (74.4)** (25.3)

Notice *: $b/a \times 100$; **: $c/b \times 100$ Source: MOCT (1998).

Rezoning of Green Belts in SMA

1) Contents of the RDZ Reform Proposals

The Committee on RDZ is composed of twenty-three members: 11 professionals, 3 public officials, 9 representatives from relevant social interests groups and was established to reform RDZ policy. The Ministry of Construction and Transportation (MOCT) announced the Reform Report of RDZ, which includes the strategies for complete removal of 7 middle-small cities and partial adjustment of 7 metropolitan areas among 14 areas on July 4, 1999. The report attempted to accommodate the rights of property of owners and residents on the one hand, and preserve the environmental value of Green Belts on the other.

Land Purchase Claims are given to land owners

who cannot use land as they wish because of its Green Belts designation. Where the land was developed by public development, priority for land sale in lots is given to land owners who have owned the land since the RDZ designation. In addition, various measures are taken to ensure residents' quality of life, consequently. Small settlements in Green Belts are designated 'housing district.'⁸⁾

The RDZ report attempted to establish a pro-

8) The proportion percentage of building areas in deregulated construction areas increased from 20 percent to 40 percent. Residents who live outside the housing district are permitted to move into the district and are supported by establishing facilities such as entry roads, sewage systems and village halls. In addition, long-term, low interest mortgages are offered (8 percent per annum, 20 million won per house, 19 year amortization. MOCT, 1999b: 16).

Table 5. First Removal Areas within Green Belts in SMA (2002. 3. 25.)

Classification	Region	Number of locations	Areas (km ²)	Date
large settlements (Gyeonggi Province : 28 locations)	Seongnam	1	0.20	2001. 4. 19.
	Gwangmyong	4	0.53	2001. 4. 19.(2001.10.)
	Bucheon	4	0.04	2001. 4. 19.
	Kimpo	3	0.03	2001. 4. 19
	Kwachon	2	0.26	2001. 10. 22
	Siheung	1	0.21	2001. 10. 22
	Guri	3	0.59	2001. 10. 22
	Uigeongbu (Yanju)	4	0.32	2001. 10. 22
	Anyang	6	0.47	2002. 1. 4
Industrial Complexes	Shiwha industrial complex	2	9.33	2000. 1. 11
Total		30	11.98	

Source: reconstruction of the inner data of the MOCT (2002. 3).

environmental plan ahead of any development to preserve the environmental value of Green Belts within complete removal areas. RDZ Management Planning must guarantee to conserve and utilize the RDZ areas. It tries to retain the environmental value of Green Belts by recouping betterment and charging development fees, Green Belt Encroachment Fines and other surcharges. Areas of the first and second rated environmental assessment, which includes about almost 60 percent of all Green Belt areas, will be maintained in principle with partial relaxation of restrictions in metropolitan regions. Areas of the fourth and fifth (almost 15 percent) will be removed from the RDZ. Almost 25 percent of areas with the third rating will be designated RDZ or urban planning areas in accordance with the Metropolitan Urban Planning. Therefore, the destiny of Green Belts within metropolitan areas is determined by the usage of the zones with 3rd rating.

The proportion of SMA Green Belts not to be removed is 58.1 percent. The other areas are to be removed from the RDZ or have the restrictions relaxed.

2) Deregulation in Green Belts within the SMA

The proportion of Green Belts within SMA was 27.7 percent (1449.3 km²) of the national total, and 47.8 percent (350,000 people) of the total number of residents living Green Belts. After the Reform announcement, Shiwha industrial complex (9.33 km²), 12 large settlements in the Gyeonggi Province and settlements across the boundary were removed first. The proportion of the areas to be removed first is 0.8% of total Green Belts in the SMA.

According to *Seoul Metropolitan Urban Planning Draft (SMUPD)*⁹⁾ made by MOCT, 123.9 km², 8.6 percent of Green Belts in SMA will be removed in addition. The total amount of land to be removed from the Green Belts are as follows: settlement areas, 38.2 km² (665 locations); newly developed adjustment areas, 65.4 km² (130 locations); national project areas, 10.2 km² (12 locations); and regional project areas, 10.1 km² (26 locations). According to

9) SMUPD will be finally determined on March in 2002 by a review of the Central Committee on Urban Planning which will have considered the collected views of residents and professionals (Chosun Ilbo, 2002. 1. 21).

the *Reform Report*, areas of the third rating and designated for urban planning usage are predicted to comprise almost 25 percent of total Green Belts in the SMA; however the proportion is determined to be 8.6 percent of Green Belts in the SMA.

The MOCT plans to control jointly with related agencies to prevent speculative behavior resulted from the Green Belts removal from the RDZ.

Table 5 above shows the removal areas within Green Belts in SMA. Table 6 shows the group settlements to be removed first, adjustment areas to be gradually removed, and council housing complex areas among national projects.

After all, the total of already removed areas and areas to be removed constitutes 9.4 percent of the Green Belts in the SMA. That comprises one quarter of the entire number of first estimating areas to be removed. That indicates there is at least a willingness to consider and conserve the environmental value of Green Belts. At the same time, it implies that there will be conflicts about equity between landowners and residents with property rights in the places where RDZ is maintained and those within removed areas.

Table 6. Parts of Removal Areas included in Seoul Metropolitan Urban Planning

Regions	Group settlements			Adjustment areas		Council housing areas	
	Locations	Household	Area (km ²)	Locations	Area (km ²)	Dong name	Area (km ²)
Seoul	28	9,973	2.6	—	—	—	—
Incheon	37	1,485	1.5	17	6.8	—	—
Goyang	65	7,934	7.9	5	4.8	Hongdo	0.7
Gwacheon	14	1,204	0.9	1	1.6	—	—
Gwangmyeong	23	1,621	1.7	4	1.1	Soha	1.0
Gwangju	41	1,489	1.5	—	—	—	—
Guri	15	1,776	1.5	2	0.4	—	—
Gunpo	12	711	0.7	5	1.6	Bugok	0.4
Gimpo	3	55	0.1	5	1.9	—	—
Namyangju	95	5,142	5.1	3	5.8	Jigum	0.7
Bucheon	15	1,096	0.8	4	1.1	Yuwol	0.6
Seongnam	18	1,510	1.5	3	1.0	Dochon	0.9
Suwon	5	305	0.3	1	2.7	—	—
Siheung	52	2,228	2.2	14	10.1	Jungwang	2.2
Ahnsan	18	709	0.7	11	3.4	Singil	0.8
Anyang	8	522	0.5	6	1.6	—	—
Yangju-gun	26	1,168	1.0	5	4.3	—	—
Yangpyeong-gun	8	288	0.3	—	—	—	—
Yongin	—	—	—	—	—	—	—
Uiwang	22	792	0.8	10	4.1	Poil	0.4
Uigeongbu	31	1,589	1.0	3	4.9	Gaun	0.3
Hanam	61	3,545	3.5	1	1.3	Pungsan	1.0
Hwaseong	57	2,114	2.1	30	6.9	—	—
Total	654	47,256	38.2	130	65.4		8.9

Notice: Group settlements are densely populated area. Adjustment areas are will be removed to develop even if residents are not live.

Source: MOCT(2002); reconsructed news from Chosun Ilbo(2002. 1. 21.).

THE CHARACTERISTICS OF LAND-USE REGULATION ON GREEN BELTS

We will now examine the characteristics of land-use regulation on Green Belts in the SMA on the basis of theoretical foundation, regulated objects, relations to market competition, and political-economic traits.

Theoretical Foundation

Theoretical foundation is based on the externalities, imperfect information about the Total Economic Value (TEV), and subsequent market failure, which is resulted from the nature of public goods of Green Belts.

1) Externalities and Imperfect Information

It is difficult to measure the TEV¹⁰⁾ including environmental values of Green Belts due to externalities and incomplete information about future value. Green Belt policy was introduced to

10) It is called that 'TEV' is social benefits provided by land as *in situ* resources. 'Economic' is not to be confused with 'financial' or 'commercial'. Anything contributing to human welfare is deemed to be an economic function, and the flow of services may or may not have a cash flow associated with it (Pearce, 1991: 242). In the case of tropical forests, most functions do not have evident cash flows. TEV comprises *use* and *non-use values*. Use value is classified into direct, indirect and option value, and non-use value means existence value. Direct-use values are fairly straightforward in concept but are not necessarily easy to measure in economic terms. Indirect values correspond to the ecologist's concept of 'ecological functions'. Option values relate to the amount that individuals would be willing to pay to conserve a tropical forest for future use. Existence value relates to valuations of the environmental asset unrelated either to current or optional use. Therefore TEV can be expressed as:

$$\text{TEV} = \text{Direct-use value} + \text{Indirect-use value} + \text{Option value} + \text{Existence value (} \textit{ibid.}: 244).$$

manage urban growth. As time has passed, Green Belt areas have contributed to the formulation of green zones, the preservation of landscape, conservation and cleanup water resources, air purification, preservation of open space and the protection of agricultural land and so on (Kwon, 1999: 56; Lee, 1999: 683-684). After all, Green Belts have become an 'ecologically preservable area' which has the nature of *in situ* resources as public goods.

The direct use value of Green Belts is for sustainable timber, non-timber products, recreation, medicine, plant genetics, education and human habitat. The indirect use value is for nutrient cycling, watershed protection, air-pollution reduction, and regional microclimatic functions. Option values relate to the amount that individuals would be willing to pay to conserve Green Belts for future use. That is, no use is made of it now but use may be made of it in the future. Option value is thus like an insurance premium to ensure the supply of something the availability of which would otherwise be uncertain. The intuitive basis of existence value is easy to understand because a great many people reveal their willingness to pay for the existence of environmental assets through wildlife and other environmental charities but without taking part in the direct use of the wildlife through recreation (Pearce, 1991: 244).

2) The Possibility of Market Failure

Market failure may be accelerated by the supply and demand of commodities and *in situ* resources in addition to the externalities and imperfect information examined above. That is, as environmental pollution became worse on the one hand, the level of income and education become higher on the other hand, demand for *in situ* land will increase more rapidly than that for commodity land. Therefore, the social value of land as *in situ* resources tends to be more valuable than that of land as commodities. The factors causing this tendency exist on both the supply and demand sides of land

as *in situ* resources.

Considering that land may be classified in terms of commodities and *in situ* resources, supply of the former may be increasing through replacement goods and technical progress, while the latter is limited by natural condition and has limited substitution goods. The difference between both resources is the factor that makes commodity land comparatively more abundant than *in situ* land after all.

On one side the demand for an *in situ* resource fluctuates with income and increases with technical progress both directly and indirectly. This makes *in situ* resources scarcer than commodities.

Nevertheless, the social value of commodity resources can be cashed and is evident in market, while *in situ* resources cannot and are not. The social value of the latter is underestimated and the former over-supplied. Because of the nature of public goods, most of environmental value is underestimated. Therefore, land use regulation is another alternative to ensure *in situ* resources which have environmental value.

The Objects Regulated

The Green Belt is a regulatory policy to restrict the actions of landowners and residents within an RDZ to exercise use right and benefit-raising one of property, and to engage in land speculation. Green Belts are applied to limited objects in the same manner as economic regulation. In this aspect Green Belt regulation is similar to economic one.

Relations to market competition

The function of urban growth containment of Green Belts in the SMA is to prevent uncontrolled development. However, the secondary function of preserving the environment is gradually overtaking the growth containment function in importance, and as such, is significantly contributing to raising the

quality of life.

Environmental conservation of Green Belts as *in situ* resources corresponds to this (Yang, 1997: 145-148). First, the Green Belts carry out the function of environmental conservation. Green zones within the city are designated as green districts, RDZs and urban parks according to urban plan, and RDZs are overlapped zones designated as green zones, such as parks. Green zones, other than RDZs or parks have been developed as residential or industrial districts. Therefore, green zones may be reserved for urban developments. Because there has been no change to the boundary within Green Belt for thirty years, and the number of green zones has continuously decreased, we know that Green Belts have contributed to preserving green zones.

Second, Green Belts preserve the natural ecology. The existence of wildlife depends on the location of food, water, and shelter. Urban green zones provide all things necessary for wildlife, but the habitats have been disappearing because of the reduction of urban green zones. Large mammals have been separated from their habitat by urban development. The natural ecology is destroyed and biodiversity reduced because animals are cut off from the remoter parts of green zones. Under this situation, RDZs are the only large green space for animals and consequently play an important role as habitat for wildlife.

Third, Green Belts provide extensive open space for recreation and leisure, and contribute to the preserving land for future generations. Most Green Belts have been used as a place for rest, relaxation and recreation before the RDZ designation. In the SMA, all national and provincial parks are located in Green Belts. Seventy percent of urban natural parks and thirty-five percent of neighboring parks are located within Green Belts¹¹⁾.

11) The area of park space per person in Seoul is 5.8 m² (cf. London, 23.6 m²; New York, 23.2 m²; Munich, 21.4 m²; Paris, 12.7 m²; Tokyo 5.1 m²), which is comparatively very low.

Fourth, Green Belts preserve a large track of urban green zone on the outskirts of cities, which functions as a purifier of contaminated air as well as a lung of oxygen supply. Additionally, forests should be given 'carbon credits' for their role in containing the greenhouse effect. For existing forests the credit would relate to avoided damage by not developing, i. e. the benefit of conservation (Pearce, 1991: 259).

Fifth, Green Belts protect watersheds by water retention. It is perfectly possible for Green Belts to have watershed effects by allowing soil to secure a cover of grasses and shrubs.

Political-economic Traits

From politico-economic perspective, the high level of deregulation in Green Belt areas is a result of the socioeconomic crisis known as the "IMF management system" and subsequent land-use deregulations.

The Green Belt policy was introduced as an urban planning measure by top-down style under authoritarian regime to contain urban expansion. However, there are now a number of complex relationships among the central government, landowners, local governments, and NGOs - in short, everyone has an interest in Green Belts. Inevitably, these various interests have led to conflicts. These conflicts have received attention in the media, so Green Belt policy has become quite political.

In short, Green Belt regulations are social ones in terms of their theoretical foundation, relations to market competition, and political-economic trait, as examined above. Green Belt policy has particularly strengthened its social regulations because of its environmental nature.

CONCLUSIONS

Korean environmental policy focuses on controlling and treating pollutants. This type of environmental policy is a makeshift, and it is insufficient to resolve the environmental problems and economic

inefficiencies. In developed countries, one way of environmental policies to prevent environmental contaminations is accomplished by land use regulations. In fact, the zoning system is the same as regulating the total national land-use. In addition, Green Belt policy is a reinforced form of land use regulation.

The high level of deregulation on Green Belts that appears as the cornerstone of the RDZ Policy Reform and the Urban Planning in SMA Draft has been made under an incomplete understanding of the TEV of Green Belts, by only considering the direct use values and neglecting many of the environmental values. On the other hand, over time Green Belt regulations have become more social than economic ones. Thus, the ramifications of Green Belt deregulations should be given serious reconsideration.

It could be argued that market forces - even ones that seriously neglected external costs - will in the end be self-correcting and produce an efficient outcome. This is related to the idea that forces are systemic and respond to positive and negative feedbacks. Most markets, however, are not so theoretical. Some of the feedback processes take an exceedingly long time, and in the meantime, resources, locations, and human lives are damaged for long periods and often irreversibly. Because of the impracticality of creating markets for everything, it is possible to devise processes that substitute for it, for a period, in certain realms of life, and in selected locations. This idea of the management of territory as a supplement to the market is widely held (TCPA, 1999: 11-12).

Therefore, adjustment and management of Green Belts could be better achieved by following certain principles.

First, the principle of 'environmentally sound and sustainable development' should be kept to make cities sustainable, pro-environmental, and sound. The land use within Green Belts should be considered in a view of 'sustainable and pro-environ-

mental use of national lands.'

Second, considering the nature of environmental conservation, Green Belts need to be re-conceptualized as not 'restricted development zones' but 'ecological conservation zones.' Therefore, the destroyed areas which are worth linking ecologically should be restored.

Third, the principle of equitable management should be kept. Original residents currently residing within Green Belts who have not yet exercised their property rights should be provided with proper benefits. It is not necessary for absentee landowners and immigrants who moved in after Green Belts designation to be compensated. However, the original residents excluded from removal and those who reside in doubly or triply-regulated areas should be compensated by providing 'land purchase claims' or environmental taxation relief.

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