Comparative Case Study: Tokyo-Yokohama Axis Urban Development Projects and its Implications for Seoul-Incheon Axis Urban Development Projects

By

Dong Hee Kim

THESIS

Submitted to
KDI School of Public Policy and Management
in partial fulfillment of the requirements
for the degree of

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ABSTRACT

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Seoul-Inchon axis metropolitan areas and Tokyo-Yokohama axis metropolitan areas have similar historical, geographical, social, and environmental characteristics. Those similarities are worth to compare two countries' urban development processes and performances. As an advanced country, Japan has experienced urban growth earlier than Korea. As an inevitable consequence, they have accumulated more trials and errors to enhance the urban development projects. Especially, as the most important point of Japanese urban development, by encouraging participation of residents and land users, Japan has maximized efficiency of urban amenities and total social welfares. Japanese central and local governments continuously have informed the necessity of participation and holding joint liability for the results of development projects. This policy has secured higher cooperation level and fairer distribution of performances through intimately designed process for each participant such as government, company and citizens.

This study aims to examine the superiorities of Japanese urban development processes and urge introduction those advantages to Seoul-Inchon axis urban development cases. As supporting evidences, four selected cases; green zoning policy of Tokyo metropolitan area, G30 Yokohama waste management plan, Machizkuri movement, and the mixed use urban development policy are utilized. Actually, as the reason of selection, the success factors of Japanese cases are solutions for headaches of Seoul-Inchon axis urban development projects such as Greenbelt around Seoul metropolitan area, waste management system of Inchon city, Yong San Tragedy caused by government's negligence to opinions of residents, and seriously high vacancy rate of Yong Jong city by its lack of varieties.

Through various kinds of analytical tools and theories based upon back bone framework: Comparative Case Study, the study strongly support the argument that Seoul-Inchon Axis urban development processes should adopt the citizen participatory policy of Tokyo-Yokohama axis urban development processes for the efficiency and bigger total social welfares.

Dedicated to Mi Suk Hwang

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I. Introduction

1. Four cases in one thesis

This thesis uses comparative case analysis between Korean and Japanese urban development cases based on different sub-themes. Each case deals with particular comparable location which is selected by various criteria such as historical, geographical, social, and environmental characteristics. Supporting main theme of this thesis; Seoul-Inchon Axis urban development processes should adopt the citizen participatory policy of Tokyo-Yokohama Axis urban development processes for the efficiency and bigger total social welfares, the study examines several different districts sporadically to extract implications as evidences of reality and data sources. Actually, each piece of cases deserves much attention itself and requires thorough analysis from its controversial issues. However, this study focuses on useful and applicable implications from several comparable cases of Japan to enhance Korean urban development projects. Under purpose to tie with penetrating theme above, the contents which are covered from this thesis seem to be overgeneralized or biased to emphasize the argument. Also, disjoint and disorganized structure has shown in the overall structure though each case analysis follow the case's logic along with the typical flow of theses. The gathered each source of evidences (cases) has rooms for examining further study along with more focused possible methodologies. Those methodologies could be more synthesized coherently in order to support main arguments.

Table 1. Four Cases Comparison

	Items	Korean	Japanese	Remarks (comparison)
Green Zoning	District	Seoul	Tokyo	
	Format	Belt-type	Scattered Dot-type	
	Land Use	High	Low	Cross-correlate
	Marginal Utility	Low	High	Cross-correlate
	Distance to Green amenities	Far	Close	Cross-correlate
	Total social welfare	Low	High	Cross-correlate
	Amenity distribution	Low	High	Cross-correlate
Waste Management	District	Inchon	Yokohama	
	Instruction	Closed Top-Down	Goal base Disclosed Top-Down	
	Clarity of Plan	Low	High	Cross-correlate
	Awareness	Low	High	Cross-correlate
	Participation	Low	High	Cross-correlate
	Performance	Low	High	Cross-correlate
	Additional Profit	Low	High	Cross-correlate
Participatory System	District	Countrywide	Countrywide	
	Guaranteeing Participation	Low	High	Cross-correlate
	Cost for consensus	High	Low	Cross-correlate
	Responsibility	Concentrated	Diversified	
	Claims for project	High	Low	Cross-correlate
	Communal Improvement Participation after project completion	Low	High	Cross-correlate
Project Designing	District	Urban Areas	Urban Areas	
	Format	Single use	Mixed use	Cross-correlate
	CBD Dependency	High	Low	Cross-correlate
	Self-sufficiency	Low	High	Cross-correlate
	Improvement Cost after completion	High	Low	Cross-correlate
	Resident's Satisfaction	Low	High	Cross-correlate
	Investment Stability	Low	High	Cross-correlate
	Cost of land use transition	High	Low	Cross-correlate

2. Statement of Issues

2.1. History of Korean Greenbelt and limitations of Korean Green Zoning Policy

Korean Greenbelt established in July 1971. In this period, the president Park, Jung Hee[1] and his ministries asserted the Greenbelt should be established for keeping the national securities from North Korea's incursions. In his presidency, government policy had ultimate power and citizens followed the policies without uproarious protests. Lands of the Greenbelt are nationalized and some residents are forced to move to the other areas. In 1980s, the Greenbelt is remained as name of 'preventing jumbled city expansion'. Taking advantage of democratization, some residents started to request their rights, but government ignored those opinions. From 1990s to recent years, the Greenbelt is maintained through environmentalist's strong advocacy. However, their logic; 'preservation of environment for better urban amenity' seems to be outdated nowadays. According to the analysis of efficiency, total social welfares and valuation of Greenbelt, Korean Greenbelt has limitations to maintain continuously. Compare to the Tokyo-Yokohama Green Zones, Korean Greenbelt is unnecessarily large and planned without reasonable rules. Additionally, many problems such as discriminative regulations and deregulations, land compensations and political applications became troubles of administration.

Korean Greenbelt policy can be improved by analyzing effective size of green zones and expected benefits of transforming the current Greenbelt area. Reminding economic principles, the most human behaviors including the urban development follow the rules of 'maximized benefit with minimized cost'. If Korean Greenbelt was planned without consideration of this fundamental rule it should be reformed through comprehensive research

[1] The 5th president of South Korea (1961-1979); Republic of Korea Army general, the leader of Korean Economic Growth

methods such as valuation of lands in Greenbelt and analysis of expected total social welfare. In this sense, Tokyo-Yokohama's Dot-type Green Zones have met those requirements and Korean Greenbelt's excessive lands can be deregulated to achieve next policy goals.

Certainly, first of all, the deregulated lands will contribute to solve the space supply shortage of Seoul Metropolitan area and secondly, more citizens can enjoy the green amenities at the doorstep when the green zones are not concentrated in particular areas but scattered more to many areas evenly. Eventually expected total social welfares of Greenbelt deregulation by the Government can be enhanced compare to current Korean Greenbelt. In the deregulation processes, residents' participation is essential to maximize use of the spaces. And the proper compensation for acquired lands from residents should be followed based on pragmatic valuation of lands and structures.

2.2. Complacency and Lack of Awareness of Inchon Waste Management Policy

Last July of 2008, Inchon Development Institute announced new waste management plan of Inchon city. According to the revised plan, they changed the original plan by dividing two time period plans; first 2002~2006, second 2007~2011. The researcher of the paper said the plan is revised for aiming higher efficiency in waste management (Inchon Development Institute, 2008). Contrary to their introduction, however, there are critical limitations to restrain green growth of Inchon city. The policy goal was readjusted to downwards to achieve percent complete of work and description of plan was rather abstract to understand the policy and do it on executers (citizens) level.

On the other hand, Japanese G30[2] plan of Yokohama is well-known successful waste management policy, which is recognized as well functioning and eco-friendly organized policy model. The goal is clear and solid based on considerations about demographic changes. Also, description about the policy is obviously concrete and specific to easily follow the agenda of the city government about the waste management. In phase of policy introduction, however, City of Yokohama experienced difficulties due to the lack of awareness about new policy. By expanding the stepwise education of policy from elementary to high schools besides the residents continuously, the city has led participation of the citizens and as results of active participations, long term policy goal had achieved and the Yokohama City raised the goal to 35%.

Inchon city should adopt the G30 Yokohama plan's challengeable goal setting and awareness inducing process. Based on those requirements, Inchon city has to continuously promote the policy to residents and educate the policy as form of campaign along with the considerations about local population changes consistently.

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[2] Gomi (Waste) Zero

2.3. Expiration of Korean top-down urban development custom and Japanese Machizkuri

Korean urban development projects have designed by government oriented top-down approaches along with strong growth-focus development policies as name of government urban redevelopment plans[3] to reconstruct ruined infrastructure by Korean War and revitalize the economy to overcome extreme poverty after the war. And many side effects have occurred by these underdeveloped and biased collaborative idea collecting processes. Yong San tragedy is one of the well-known accidents from its lack of collaborative decision making system. Six people died and twenty three people injured by compulsory suppression of government power and the conflicts are not finished yet. If the decision making process was transparent and all interest groups (especially the residents) are included in the process Yong San could avoid dishonor of symbol of government top-down development plan's failure. In this sense, horizontal collaborative framework of Japanese Machizkuri Movement[4] is better than Korean vertical decision making process. Because every interest group such as government, company, and residents are included more equally in most process of decision making as key players to make consensus and Machizkuri specialists who are trained in reputable universities mediate and facilitate interest groups and manage each process. Those specialists have educated various kinds of tools to solve the conflicts between the interest groups and negotiation skills. Additionally central and local governments support grants and provide funding sources for peaceful solutions.

Korean government-oriented urban development custom arrive right time to adopt horizontal collaborative framework of Japanese Machizkuri movement. Though 1970s and 1980s citizens approved government's unilateral development policy to construct

[3] In Korean 도심 재개발, 도심 재정비 사업

[4] Name of Japanese Urban Redevelopment movement, details will be dealt with research hypothesis and case analysis

underdeveloped infrastructures and to achieve high growth rate, in 2010s' democratized society, compulsory suppress by the government power for any purpose cannot give a suitable reason to draw unanimity. The justification of government-oriented top-down urban development approach is losing its validity along with democratization and information technology for opinion sharing.

2.4. Mixed Use Development for Self Sufficiency and Urban Sustainability

The Author of "The Death and Life of Great American Cities" Jane Jacobs mentioned the mixed use urban development agenda is very important to attract the people from the other area, and also it is essential factor of urbanization[5]. And she described the cities are same with living organism. Therefore, the great cities developed as self sufficient modules and it guarantees the sustainability of cities. Unfortunately, new cities around the Seoul[6], has criticized due to its lack of self sufficiency. Just after completion of those cities' buildings and infrastructures, residents realized that the cities have not enough shops, recreational facilities and leisure facilities such as theaters, museums, galleries etc. but only houses (apartment), roads, transportation facilities. They had no choice but to go to Seoul to buy some necessities and enjoy the amenities and facilities for their better quality of life. Actually, though the cities have expanded and improved the facilities for self-sufficiency continuously those cities are functioning as houses of Seoul city even nowadays. The most of residents are commuting to Seoul, and the most of economic activities are occurred in Seoul city. Eventually, original goal of plan; decentralization is not achieved and Seoul became bigger and more populations are concentrated in Seoul Metropolitan Area. Newly developing cities of Inchon area such as Young Jong, Cheong Ra, Song Do, and Gan Suk expect to absorb more population inflows from other areas and those population-absorbing can create positive outcomes such as decentralization, foreign investment etc. Regretfully, however, the Inchon city has repeated the same faults of the previous new city development cases. New cities of Inchon area seems to be suffered from its lack of self-sufficiency and the results directly influence the welfare of residents. When the development projects are completed more residents outflows are

[5] Various kinds of industries relocate in one region and make a city.
[6] Bun-Dang, Il-San, Pyung-Chon, Joong-Dong etc. These cities are developed to decentralize the population of Seoul city.

expected to enjoy their life in downtown and consumptions; the most economical activities bound to be occurred in Inchon and Seoul. However, the closest city; Inchon's economical and political base and quality of facilities are not good as much as Seoul. Though the Seoul city has prevented the collapse of the new satellite cities by fulfilling their economical necessities Inchon cannot assure their capacity to prevent the shock of failure of development projects. For example, Yong Jong City developed to distribute the populations of Inchon City which is criticized its lack of infrastructures and facilities. However, nobody can assure the Inchon has enough capacities to satisfy necessities of the residents of Yong Jong City. Additionally, because of Inchon has developed more projects simultaneously, the problem can be more serious when the each project could not make the facilities for their own demands. In this sense, the mixed use urban amenity development and self sufficiency should be secured in urban development policy and building management. As Professor Paul Krugman mentioned on the concept of New Economic Geography, location and the variety of city is matter on success of urban development projects. Regardless of size of development module from the building complex to the entire city, securing the varieties are essential factors of urban sustainability and survival of cities. Tokyo-Yokohama axis urban development cases can be a good role model of mixed use development from the building complexes such as Robbongi Hills and Harbor Front complex of Minato Mirai District to entire Tokyo Metropolitan areas. Those successful cases have followed the mixed use development rules faithfully and by cooperating with residents and land users, performers discovered accurate demands of interest groups and reflected consumer's needs of varieties on development projects. Each development module has own capacity to digest users' needs and those self-sufficiency secured sustainability. And extra costs such as transportation costs to move to enjoy the amenity of other areas could be minimized through right development policy.

3. Purpose of Study

This study aims to examine the superiorities of Japanese urban development processes and urge introduction those advantages to Seoul-Inchon Axis urban development cases. Discovering the differences between the Seoul-Inchon axis urban development cases and Tokyo-Yokohama axis urban development cases, the study mainly brings the merits into relief Japanese cases and how Korean cases effectively adopt those merits in the development processes to improve the results. Briefly, this study is suggesting better ways of green zoning, waste management, development governance, and urban planning in Seoul Inchon Axis areas by doing case study of Tokyo-Yokohama Axis urban development projects such as scattered green zones, G30 Yokohama, Machizkuri, and Robbongi Hills. Repeatedly noticeable matter is that, though the Japanese cases have their own problems and limitations, for the purposes of the study, this study mainly emphasizes advantages of Japanese cases to enhance the Korean cases.

4. Research Hypothesis

Japan became the world's largest creditor during the period of 1980s and real estate came out as the largest single component of Japanese investment (Farrell, 2000). Before the economic downturn; so called 'lost decade' since 1998, Japanese construction firms, realtors, trading firms, insurance companies and investors acquired and developed various kinds of real estate properties in major cities in Japan (Fujita, 1993). Especially Tokyo and Yokohama have executed various grand scale development projects. The Robbongi-Hills project, the Ark Hills project, the Minato-Mirai 21[7] project, and the Tokyo Railroad Station Area Redevelopment project are the biggest projects of them, which started from this period. And these projects are successfully conducted and recognized as a role model of sustainable development.

Around one decade later from Japanese real estate development boom, from 1988 Seoul Olympics, Korean construction firms, realtors, and the other real estate investment bodies started grand scale real estate development plans. Kang-Nam and Song-Pa Development plans[8], Inchon International Airport Development project, and Seoul Metro Railroad Redevelopment project were suggested in this period, and under strong governmental intervention, it finished with outstanding performances (Cho, 2005). As an extension of these projects, from around 2005, Yong-San Development plans, Skyline project, and Seoul Metro Line Redevelopment projects started with various investors including foreign investment companies. Compare to the previous government-directed development plan, extended plans are evidently similar to Japanese Tokyo-Yokohama line development plans. Overall projects are classified as 'redevelopment' plans, and both projects are directly matched in details. Seoul and Tokyo are the capital city of the country. Inchon and Yokohama

[7] In English, 'The future of seaport 21'
[8] Providing Housing units as form of high-rise apartments with infrastructures

are the major seaport of the country near capital city. These couples of cities are connected by metro railroad. The location of the Yong-San is similar to Robbongi Hills and Ark Hills. (Actually, blue-print of Yong-San redevelopment plan is almost same with Robbongi-Hills). Their main motivation of development plan is to boost the economy by creating grand scale constructions (DiPasquale, 1996). Both projects followed theoretically same development process though its details are different. (Won, 2008). Dynamics of interest groups are similar to each other like the other grand scale development projects (Miles, 2003). These similarities are worth to compare two country level grand scale projects for achieving better outcomes of Seoul-Inchon axis development plans. Tokyo-Yokohama axis urban development projects, as the successful development model, suggest many implications for Seoul-Inchon axis development projects. Especially, Green zoning policy, G30 Yokohama, Machizukuri (まちづくり) movement[9] and mixed use development give important implications to overcome repeated mistakes of Korean grand scale development projects. The study organizes those precedent cases, and processes the cases for better outcomes of Seoul-Inchon axis urban development projects.

[9] Directly translated as "making community/village", Movement against conventional development planning and construction; residents participate overall process of development projects as a member of project committee. According to the Japanese Urban Revitalization Special Act, Japanese government approve private sector's urban revitalization plan (2002) while the Korean Urban Revitalization Special Law indicates that, government establish urban revitalization plan and private implement that plan (2005).

5. Scope of Study

This study is including the four comparable cases of Seoul-Inchon axis urban development projects and Tokyo-Yokohama axis urban development projects. As previously mentioned, this study focuses on the positive aspects of Tokyo-Yokohama axis urban development projects to enhance the Seoul-Inchon axis urban development projects. Though the study criticizes the problems of Korean cases the criticisms are base of improvement to find the implications for executing better Seoul-Inchon axis urban development. The four cases are sorted from the two times of field trips to Tokyo Metropolitan area and approximately one year of research about Korean urban development process. The scope of study is rather broad depends on the cases. The first case; Reforming Greenbelt of Seoul Metropolitan Area and the fourth case; Mixed Use Development for Self Sufficiency are more detailed due to its technical analytical frameworks while the second case; G30 Yokohama and Waste Management System of Inchon city and the third case; Machizkuri Movement for solution of social conflicts are more broader than the other cases due to its campaigntic characteristics[10]. Therefore, first and fourth cases use more quantitative methods to examine the efficiency and expected total social welfares while second and third cases use more qualitative methods to examine the advantages and necessities of introduction to Korean cases.

[10] Those cases are based on the campaign of government.

II. Literature Review

1. Background of Problem

1.1. Creation and Evolution of Korean Greenbelt, and Controversial Issues

Korean Greenbelt introduced in 1970s' the president Park, Jung Hee's regime. According to the anecdote about the Greenbelt, he drew a line around the Seoul city and that line became nowadays' the Greenbelt. At that time, the president had strong power and hard to protest his policies. Though the national benefits were conflicting with private interests, the citizens had no choice but to adapt government's indications. The ministries persuaded the citizens that the Greenbelt needed to secure South Korea from North Korea's incursions. After the Korean War, that motto was reasonable to the people and they followed the government's policy without big protests. And due to its rapid and outstanding performances, the President Park's regime became represented as golden age of Korean economic development. After his regime, 1980s, Korean Greenbelt is maintained by government to prevent disordered city expansion. The society was relatively stabilized and its request for democratization is blossomed. Some residents of Greenbelt area began to request deregulations and proper compensations following deregulations. However, the government did not response to individual request. Only when the government needed to use the lands of the Greenbelt they switched the land usage for public interests. Getting into the 1990s, new towns around the Seoul City created and the Greenbelt lost the goals of 1980s'. Seoul Metropolitan area was already expanded outside of the Greenbelt and more people are concentrated into Seoul and New Cities such as Bun-Dang, Il-San, Joong-Dong, and Pyung-Chon. From this era, environmentalists started to assert the necessity of the Greenbelt for

preserving the environment and enhancing the city's amenities. However, even if we could follow their arguments the Greenbelt should not be belt-type zones. In terms of the analytical results of this study, belt-type green zoning has no economical efficiency and no better benefits for citizens of Seoul Metropolitan Area. As the times changes, and the topographical changes, government zoning policy forced to be evolved by using clear analytical frameworks.

In case of Tokyo Metropolitan area, they had also belt-type green zones in early stage. Along with the expansion of the city, however, Japanese government deregulated and reformed the green zones of Tokyo Metropolitan area. Through community base green zoning campaign such as small gardens in the house, small parks in the villages, and village recreation movement, users of green amenities and providers (governments and companies) pursued 'more small green zones for more people with the least amount of lands'. Environmental educations are executed from the household naturally and recognition about 'the nature is not separated from the human settlements' has expanded and settled on as social consensus. Therefore, though Tokyo Metropolitan area has no huge amount of green areas the city has recognized center or role model of eco-friendly operated cities. In terms of performing the environmental policy goal, agreement of citizens is the most important factor. Without basic consensus educated from the early ages in household and schools by experiencing first hand, sustainable preservation is fundamentally impossible. Korean Greenbelt Policy should keep in mind this lessons from Japanese cases and be reformed as soon as possible to maximize the total social welfare with the least costs.

1.2. Growth of Cities and Necessities of Effective Waste Management System

Urban population is increased regardless of decentralization policy of government. And accretive discharges of urban area threaten quality of urban residents' life. Without strong solution for waste emission of urban area, positive growth of city cannot be sustained and those wastes will even stimulate retrogradation of urban area. Challengeable waste reduction plan is important to prevent impoverishment of city and better quality of urban life. However, the next table shows retrogressive policy of Inchon city.

Table 2 Revised Waste Management Plan of Inchon City

	2005 (performance)	Original 2nd plan		Revised 2nd plan	
		2008	2011	2008	2011
Estimated waste		51,829	52,743	48,003	47,982
Downsize (%)		4,665 (9.0)	6,329 (12.9)	1,199 (2.5)	2,399 (5.0)
Waste after Downsize (kg/p)	48,398 (0.99)	47,164 (0.94)	46,414 (0.91)	46,804 (0.94)	45,583 (0.91)
Recycle (%)	27,243 (56.3)	23,582 (50.0)	24,597 (53.0)	26,678 (57.0)	27,350 (60.0)
Burn (%)	7,753 (16.0)	13,206 (28.0)	13,924 (30.0)	8,425 (18.0)	10,484 (23.0)
Landfill (%)	13,402 (27.7)	10,376 (22.0)	7,893 (17.0)	11,701 (25.0)	7,749 (17.0)

Source: Inchon Development Institute, July, 2008 (Unit: Ton/Day)

This table shows the revision of the policy has two wrong hypotheses. Firstly, the proposer of new policy expected less amount of waste during the 2nd period though the city expands more and more by executing new development plans in Inchon area. As this study indicated, this area has several ongoing development projects such as Song Do, Yong Jong, and Cheong Ra city etc. and those cities expect population inflows at least three million people. Inevitably, the amount of waste will increase tremendously. Certainly, the policy maker should consider the changes of population. Also, they curtailed new waste reducing goal by fixing the waste kilogram per person though the ultimate goal of the policy is progressive reduction of every household's waste. Notwithstanding they plan to recycle more and burn less, direction of waste management plan is not tuned to policy-keynotes and has critical loopholes to reduce absolute amount of waste.

As a good precedent case, G30 Plan of Yokohama is established 2001 to reduce garbage disposals by 30% by 2010 relative to 2001 levels. (Yokohama City, 2007) Achieving this goal, the Yokohama government officials who are related to this plan have practiced concrete detailed plans such as 'garbage guardians'[11] as societal enforcement, 'downcycle more than recycle'[12] and 'closed-loop system' [13]etc. (Onishi, 2005). Eventually, these efforts have made Tokyo-Yokohama development projects, which adopted G30 Plan's methodology, as the role model of greening sustainable city development. Certainly, however, these kinds of Japanese concept are different with current direction of Korean waste management policies. Besides the profundity (G30 Plan of Yokohama presents every detail extremely and precisely, Appendix 1) of the policy, approaching about the goal is immoderately artificial such as government-ordered top-down approach. Knowing the way to

[11] Volunteers who check for offending bags and leave notes or deliver trash bags to owner's doorstep
[12] Under catch phrase, 'Recycle is not enough. We have to reduce the absolute amount of cycle.'
[13] To avoid landfill, wastes are recycled (circulated) in closed cycle.

success, Inchon waste management policy makers should recover the plan with pragmatic research based on the reasonable estimation of waste amount changes during the execution period and reset the plan toward challengeable goals. Also, they should encourage to make self-regulatory supervise organization to enhance societal enforcement to prevent illegal anti-environmental activities such as refusing to proper sort trash, pack the garbage in unlabeled trash bags and throw big trash on non-permitted site etc. Additionally, by structuring the closed-loop system[14] from the phase of designing the development plan, executers should downcycle the absolute amount of waste beyond recycling.

[14] System in which some or all of its output is used as its input

1.3. Machizkuri Movement for Solution of Costs from Conflicts between Participants

According to the article of one major newspaper, “Five protesters were arrested Thursday after prosecutors sought arrest warrants for six protesters involved in a demonstration against a fire that killed six people on the roof of a commercial building at Hangangno 2-ga in Seoul’s Yongsan district before dawn on Tuesday”. Last year, six Korean people burned down by the fire of demonstration. The one was police, and the other five were citizens. Two of the five were area residents, the other three were members of the Federation Against House Demolition (Jun Chul Yun[15]). The residents and members of federation had demonstration against aggressive house demolitions without proper compensations and agreeements. The SWAT police team dispatched to arrest them by government power. Some residents tried to burn themselves against SWAT police team’s attack, fire spreaded to building, six people killed and twenty three people injured by the fire. Through this tragedy, many people regreted government’s aggressive redevelopment policies and customs. Thousands of people demonstrated again with candle light on the street in front of Seoul City Hall and Kwanghwamun area.

In costrast to Japanese redevelopment process, Korean redevelopment plans made by government’s direction. As a law, this custom is maintained during long time period. The Residents participation has extremely limited. They have no choice but to wait the demolition without any further notice or consideration. Only few representatives are allowed to participate the development process and it has caused the other transparency and trust problems. On the other hands, Tokyo-Yokohama axis development plans are based on residents agreement and participation. According to their Revitalization Special Act, residents are ensured the right to give their voice to overall plans. Naturally, residents make the

[15] In Korean, 전국철거민연합회

committee to coordinate with government, developers, and construction companies. Amount of the compensation and the entire development plan is designed by all together under collaborative frameworks (Won, 2008). The Machizukuri movement has been realized by this cooperation of the interest groups. The interest groups of Seoul-Inchon Axis development projects can make good use of the Mazhizkuri by following its collabrative framework of urban development projects. As a prerequisite, Korean Urban Revitalization Special Law must be revised and promptly realign the related laws. Based on this legal ground, citizens can be encouraged to express their own rights freely while rcognizing the responsibilities to sustain the performances of urban development projects. The vicious circle such as shouting and criticizing with demonstration by instigation, only after sitting back with arms crossed while goevrnements and companies process the designing and construction or already compeleted main components of projects can be corrected by this reorganization of collaborative framework.

1.4. Urbanization and Mixed Use Development for Urban Sustainability

Columnist of Seoul Economy Newspaper said Yong-Jong Island development plan confronts lack of demands for built apartment and infrastructures; bridges and highways. Compare to New Song-Do City, it has no merit. The area is far from the CBD[16] and there is lack of self-sufficiency (Yun, 2010). The Yong-Jong Island development plan is part of Inchon International Airport development project. Motivation of the development is that distribute the population of Inchon area after completion of the project. However, far from the expectations, after completion of the airport, New Song-Do City absorbed more people and the other small new cities also attracted Inchon area's populations. More than 50% of the new apartment couldn't fill the residents (Won, 2008). Eventually, interest groups requested to stop further constructions though mayor asserted continuation. Thoughtless development planning and lack of self-sufficiency caused these problems, and damages directed to investors and residents.

Minato Mirai District is located in near seaport, and Haneda International Airport situate in the end of the district. Nissan Tower and Harbor Front shopping center located over there with museum, university, theater, wedding garden, theme park and so on. Tons of cutural spaces support mixed purpose development units. These multipurpose buildings contain heterogeneous functions simultaneously; residential units and office units, commercial units and cultural units, producing units and consuming units etc. (Lee, 2006). This mixed purpose development aims to maximize the synergy of mixing extreme functions of spaces. Especially, synergized functions of units allow the development project to be self-sufficient. Overall Tokyo-Yokohama Axis development projects adopt this philosophy of development. Without doubt, these units are completely whole one as itself. Each structure

[16] Central Business District

forms unique cutural enclosures and give special experiences to visitors such as Robbogi Hills are one self-sufficient community with various kinds of facilities for residential, commercial and public puposes. This means, even one building complex can be a complete one to meet the most neccessities of residents and population flow. The varieties attract new people continuously, and some people can be a member of community permanently after experiencing it. Nobody can decide its normative functions easily and it guarantees continuous participation to improve overall projects along with structure renovations and function circulations. On the other hands, the Yong-Jong Island's complexes of apartments have one function; reside. People can easily imgine form of the city and there is no room for improvement. They are obliged to find the jobs and amenities from the other area such as CBD of Seoul and Inchon. On this condition, If the residents have the job or meeting in Kang Nam Area of Seoul the residents should spend more than two hours to commute or visit. As time goes by, they naturally set up their base on the other area and gredually the city's function turned as house of main cities such as sateliite cities of Seoul, eventually, the city may suffer from its lack of economical activities of residents which is fundamental sources of regional economy's health and furthermore this functional bias can cause the collapse of real estate market and industrial impoverishment. Seoul-Inchon development projects should consider mixed use development more deeply to secure sustainabilities of development units and reasonable and enough amenities for residents. That's the essential bastion for survival of the cities and balanced growth of the region.

2. Useful Theories

This study uses the Comparative Case Study Method as backbone framework. Along with the comparison of both countries' cases, Urban Economics theories, New Economic Geography, Urbanization Model, Monocentric City Model, DiPasquale-Wheaton Model, Discounted Cash Flow Model, Present Discounted Value Model, and basic economics theorems such as Coase theorem, Marshall Supply and Demand curve, etc. are used to analyze the efficiency of cases and values of policies. Additionally, Dixit-Stiglitz function is used to examine customer's preference to varieties, and Cobb-Douglas function also used to offer the base of analysis of human being's preference to varieties. Input-Output regional analysis Model (IO Model) also gave some inspirations to investigate impact of policy changes. Those analytical tools effectively supported the argument of the thesis and details are described in next chapters.

III. Methodologies and Strategies

1. Comparative Case Study as Main Analytical Framework.

The use of case studies to build and test theories is widely applied in social sciences such as business, political sciences, and policy administrations etc. nowadays. Especially, through the evolution of Internet and information technologies, comprehensive analysis of research methods using case studies and examines of the place of case studies in social science methodology is highly receiving attention from the social scholars. This study mainly uses the comparative case study to examine the thesis and also use the statistical methods, financial models and formal models to analyze the performance of policy applications. Those methods are definitely complementary to communicate with the readers of this paper and policymakers. In designing policy, case study research will produce useful outcomes to policymakers. And the outcomes will be read easily to all interest groups compare to the other advanced researches. Though some economic, financial, and mathematical analytical frameworks use more than intermediately advanced formulas and algebraic methods the study purpose to give more comprehensive argument to secure social consensus because of the subject should be shared different education level of people and stakeholders. In this sense, the comparative case study method adopted as main research methods of this study. And the study hope that the results are applied in any ongoing and future urban development projects.

2. Analytical Frameworks with Supporting Evidences

2.1. Reforming Greenbelt of Seoul Metropolitan Area to maximize total social welfare

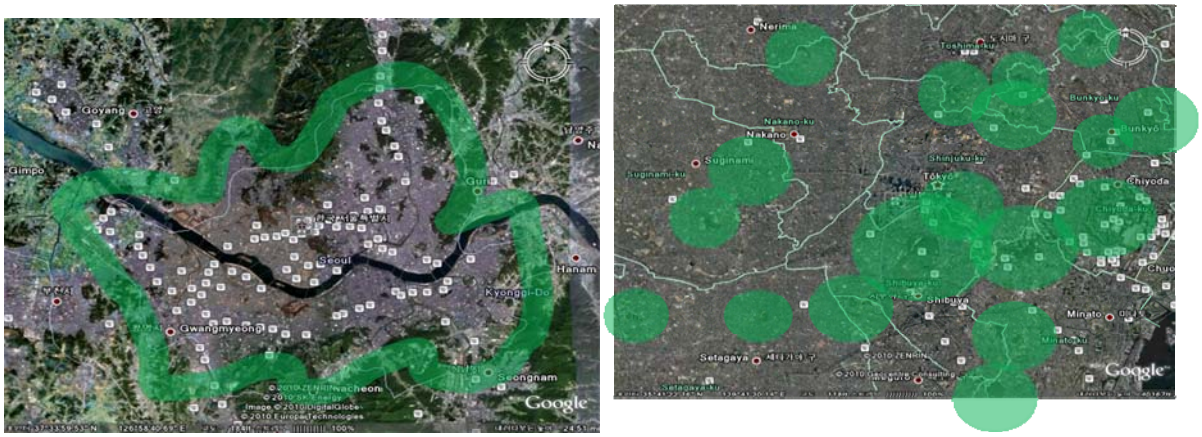
In this chapter, the contents of Urban Economics are mainly used for providing evidences and analytical frameworks. Besides the book 'Urban Economics' of O'Sullivan, 'Urban Economic and Real Estate Market' of DiPasquale widely used for completing entire structure. Paul Krugman's idea about 'New Economic Geography' also gave inspiration to further study with conviction. And series of studies about Korean Greenbelt Policy presented diverse perspectives about the Greenbelt and government green zoning policies. According to those researches, merits and demerits of the Greenbelt can be summarized in next table.

Table 2 Korean Greenbelt's expected and unexpected consequences

Merits	**Demerits**
1. Preventing city expansion 2. Expanding land availability 3. Preparation of future land usage 4. Preservation of ecosystem and buffer effect of air pollution	1. Geopolitical problems - Excessive zoning - Unplanned boundary 2. Management problems - Ineffectiveness because of focus only regulation, Deregulating the greenbelt without particular rule 3. Usage problems - Lack of available land 4. Compensation issue, Argument of Property Right

Two times of field trips to Tokyo Metropolitan Area[17] also gave essential insights to compare two countries green zoning policies. According to the field trips, Japan also adopted the belt-shape green zoning policy in initial planned agenda. However, nowadays Japanese green zones are dispersed all over the area to provide more amenities to citizens. Next figures describe different green zones between two metropolitan areas.

Figure 1 Green Zones of Seoul and Tokyo Metropolitan Area

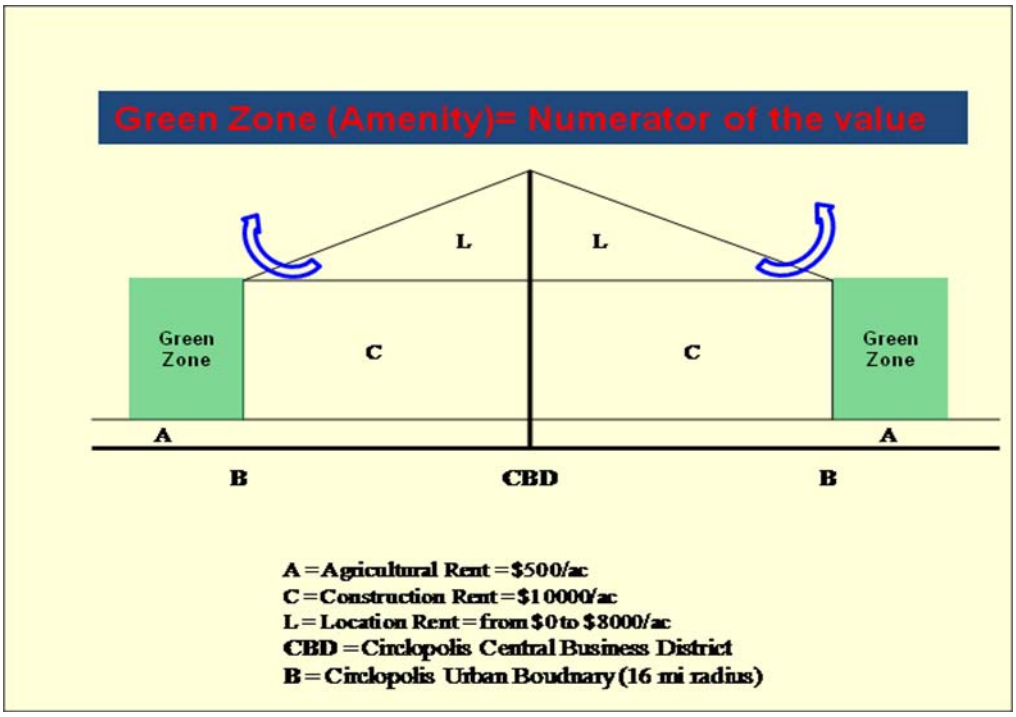


The monocentric city model of William Alonso provided fundamental theoretical base of calculating the amenities[18] (positive externalities) of belt-shape green zoning and dot-type green zoning. Based on his theory, enjoyable amenities of green zones of urban area can be described next figure.

[17] 1st : Tokyo Metropolitan Area; August, 2009
2nd : Tokyo Metropolitan Area; Tokyo, Yokohama, and Kunma area from December, 2009 to January, 2010

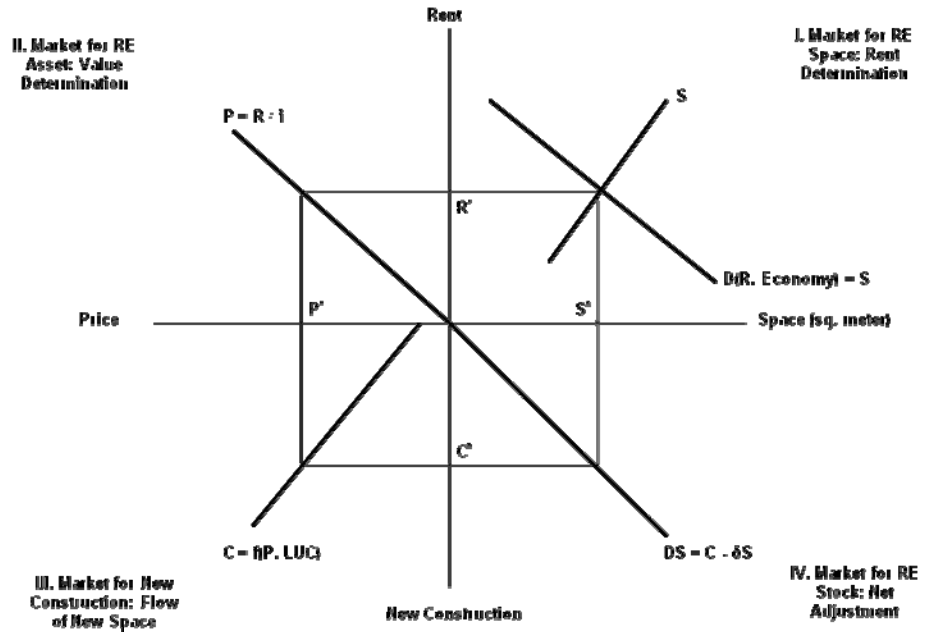
[18] Clean air, trees, greens, leisure spaces etc.

Figure 2 Green Zone as value numerator



By means of Figure 2, if the green zone is located in urban area, neighborhood areas are benefited from the green zones. Increased amenities are reflected on value of real estate and total social welfare is also increasing. In other words, more scattered green zones create more amenities and bigger positive externalities. The extension of monocentric city model; the multicentric city model (formation of satellite cities) easily explain this progress of urbanization and this theoretical model is also applicable in green zoning policy of Seoul Metropolitan area.

Figure 3 DiPasquale-Wheaton model, Dynamic Analysis of Real Estate Market



DiPasquale-Wheaton model also gave important insights to this study. The framework has many variables and those variables are closely related to each other. According to the model, by changing exogenous variables (Employment, Cap rate, and Depreciation rate), all four quadrant's endogenous variables (Space, Construction, Asset Price, and Rent) are remarkably influenced and dynamics of change add up to new equilibrium. According to this dynamics, the study can analyze the impact of changes of each variable.

These previous studies are definitely directed to the further studies to assure the combinations of theories or models of urban economics for reformation of Korean green zoning policy.

2.2. G30 Yokohama and Waste Management System of Inchon city

G30 Yokohama Plan was created 2001 from the Yokohama local government to hand over the rich natural environment to next generation. G30 of G30 Yokohama plan means, G is Gomi[19], Garbage, Genryou[20] and Good, Global Environment for future generation, 30 is 30 percent of reduction goal for the emission of garbage by 2010. G3 itself can be read as 'Gomi' because '3' is 'mi' in Japanese, therefore G30 is translated in Gomi Zero. Yokohama city thought continuation of society will be difficult if there is no action for solving various environmental problems. So that, the city government investigated the amount of garbage in the city and changes in populations, and set the goal based on challengeable figure the 30% reduce of waste in the city. Plan is ongoing and the results are exceeding their goal now. So, though the plan is not over yet Yokohama city expect the plan will be successful and can be a good role model of urban waste management policy. This success caused from their efficient role distribution to players. Citizens, businesses and the local government worked together in promoting the 3Rs[21] for reducing the waste of the city, on the purpose of realizing a "sound material-cycle society" where the consumption of resources and energy is reduced as well as reducing the environmental impact (2008, Resources and Waste Recycling Bureau, City of Yokohama). The each role players have the details. The first role player; citizens are changing their lifecycle as environmentally friendly, and sorting the garbage rigorously based on self-motivated actions. The second role player; Businesses design and produce their commodities which should reduce the emission of waste, collection and recycling of used products, also each company promote their environmental activities as the method to enhance their brand

[19] 'waste' in Japanese
[20] 'reduce' in Japanese
[21] Fundamental Law for Establishing a Sound Material-Cycle Society was established where the **3Rs (Reduce, Reuse, And Recycle)** policy was stipulated.

images and corporate social responsibilities[22]. The third role player; the local government create and promote the systems for 3Rs, and raise the awareness of people and give penalty to violating interest groups and individuals. Also, they provide the space (on-line and off-line) to exchange the pragmatic information and practical cases. Those three role players are assured the free conversations and cooperation to achieve common goals. Committee operated on each small regions and resident complexes, and they have various kinds of opinion expression meetings to determine the most democratic and reasonable decision. For example, if new comers of the village ignore the sorting policy of apartment complex or small village the committee can gather the residents and banish the violators through democratic opinion sharing. In fact, after G30 Yokohama plan was executed, some banishment cases have reported from the villages.

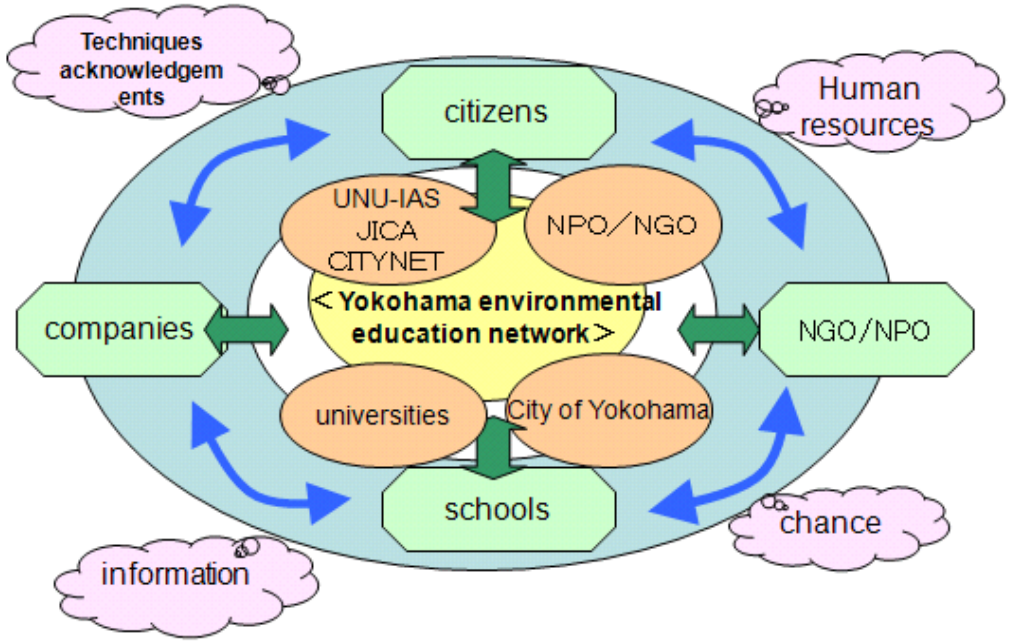
Figure 4 G30 Yokohama plan seminars at schools

[22] Contribution to the society, CSR is important part of business in modern society. Good product and cheap price are not enough to attract the customers and secure the sustainability of the companies. The customers expect the company which is necessary to maintain and accompany with the society. – Michael Porter

Figure 5 Briefing Sessions about sorting the garbage

Collaborative social consensus was major element of success and additionally Yokohama city's pure interest for positive relations between the human and environment also worked effectively. The city offered environmental education for children in school and has raised them as campaigner of the G30 Yokohama plan. Due to the plan was not a short term event but a long term plan for next generation, the local government should educate them from the fundamental concept why the people should consider environment and sustainability. For rapid spread of the plan, local companies donated part of their revenues as sponsors in United Nations World Food Program (WFP) and the donations are used for tree-planting projects to prevent global warming. Following this societal actions, children could easily understand the plan and naturally executed the plan as main character. Practically, children have conducted the energy-saving action at homes and recorded eco-life check sheets to evaluate their actions on environment. Every citizen regardless of age and gender, actions are executed under well-knowing common senses and those senses have constructed a successful policy and sustainable city.

Figure 6 Yokohama environmental education and action network



Source: Yokohama City Mayor Keynote, http://www. welcome.city.yokohama.jp/

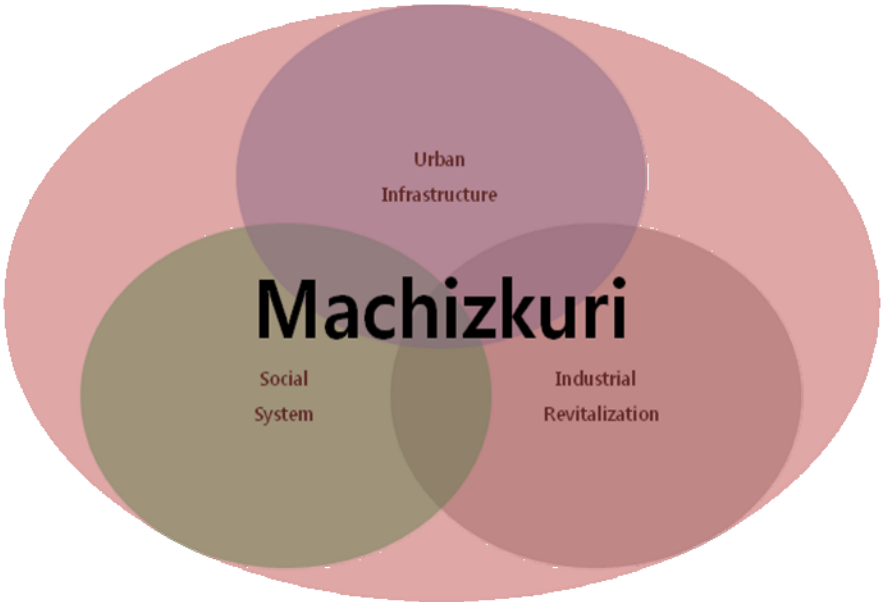
In Korea, though the President Lee, Myung Bak emphasized the green growth of Korea, the study worries about how the government-oriented top-down agenda can arouse the social consensus and how to check every detail of action plans from the government. Environmental issues should get the agreement of details from the individual level and secure the self regulatory system. In this sense, G30 Yokohama gave important implications for Seoul-Inchon axis waste management plan.

2.3. Application of Machizkuri Movement as Collaborative Framework

Machizkuri means “making facility, system, and action plan of village or city”, in Korean, ‘마을 만들기’[23].

Machizkuri contains three major components and those components are essential elements to define Machizkuri movement. First, urban infrastructure is representing the facility. Second, social system is representing the system. And third, industrial revitalization is representing the pragmatic action plan of village. When those components are organized and conducted subject call it as “Machizkuri”.

Figure 7 Definition of Machizkuri



Defining the Machizkuri more clearly, comparison between the conventional urban planning and Machizkuri is suitable and next sentences and tables describe the details. In the perspective of contents, conventional urban planning mainly focus on physical facilities

[23] Huri focus, Japanese revitalization case and its implications (2004)

whereas Machizkuri more focus on the collaboration of physical facilities, social system, and industrial revitalization. Also, conventional urban planning deals with mechanical district and project area whereas Machizkuri more consider about the living spaces of residents. In different with the urban planning conducted by the central government, Machizkuri are led more by residents, NPO (not for profit organization or NGO), and local government. Naturally, traditional urban planning's decision making methods become top-down form whereas Machizkuri is bottom-up setting. Participation aspects are also very different. In case of conventional urban planning, participants are executed their role perfunctorily whereas Machizkuri participants cooperate each other actively to find out the constructive and better outcomes. Against the outcomes, in case of conventional urban planning, protestors issue petition and resistant movement whereas Machizkuri, due to all participants have responsibilities they research and suggest from themselves more to figure out better conclusion and profitability. Government led urban planning is usually hiring urban planners and architects as expertise partner whereas Machizkuri is organizing interest parties with community coordinators and Machizkuri specialists. Following those characteristics, conventional urban planning has compulsory, authoritative, faceless image whereas Machizkuri has harmony, flexible, dynamic, and humanistic image. There are keywords for conventional urban planning is that, centralized, analytic, uniform, modernism, efficiency whereas keywords of Machizkuri is that, decentralized, partnership, workshop, network, coordination, and self-sufficient.

Table 3 Conventional Urban Planning and Machizkuri movement

❑ **Comparison to conventional urban planning**

	Urban Planning	Machizkuri
Contents	Mainly physical facilities	Physical facility + Social system + Revitalization
Object module	District, Project Area	Living space of residents
Main party	Government (central, local)	Residents, NPO, Local Government
Decision making	Top-Down	Bottom-Up
Participation	Perfunctory participation	Pragmatic cooperation between residents, Enterprises and local government
Movement	Petition, protest movement	Research and suggest, civil movement
Expertise partner	Urban planner, architect	Community coordinator, Machizkuri specialist, facilitator
Image	Compulsory, authoritative, faceless	Harmony, flexible, dynamic, humanity
Keyword	Centralized, analytic, uniform, modernism, efficiency	Decentralized, partnership, workshop, network, coordination, self-sufficient

Japanese government and legislative institutions have devoted themselves to secure the efficiency of Machizkuri. They have revised their urban revitalization act to realize concept of Machizkuri movement and better urban development outcomes. Recognizing seriousness of increased social conflicts and aging society, in 2001, Japanese government established the urban revitalization headquarter in central government complex. And in 2002, they announced urgent act for urban revitalization from Wakanai to Ishikaki[24]. In 2003, Japanese government set up the five themes by recruiting the request from the citizens. Five themes are Machizkuri for historical landscape city, Machizkuri for disaster prevention city with corporations, Machizkuri for safety of the seniors, Machizkuri for city tourism, Machizkuri for environmental symbiotic city. In 2004, by revising urban revitalization act again, Japanese government set the modern type of Machizkuri.

[24] Those cities are seriously experienced aging, crimes and social conflicts.

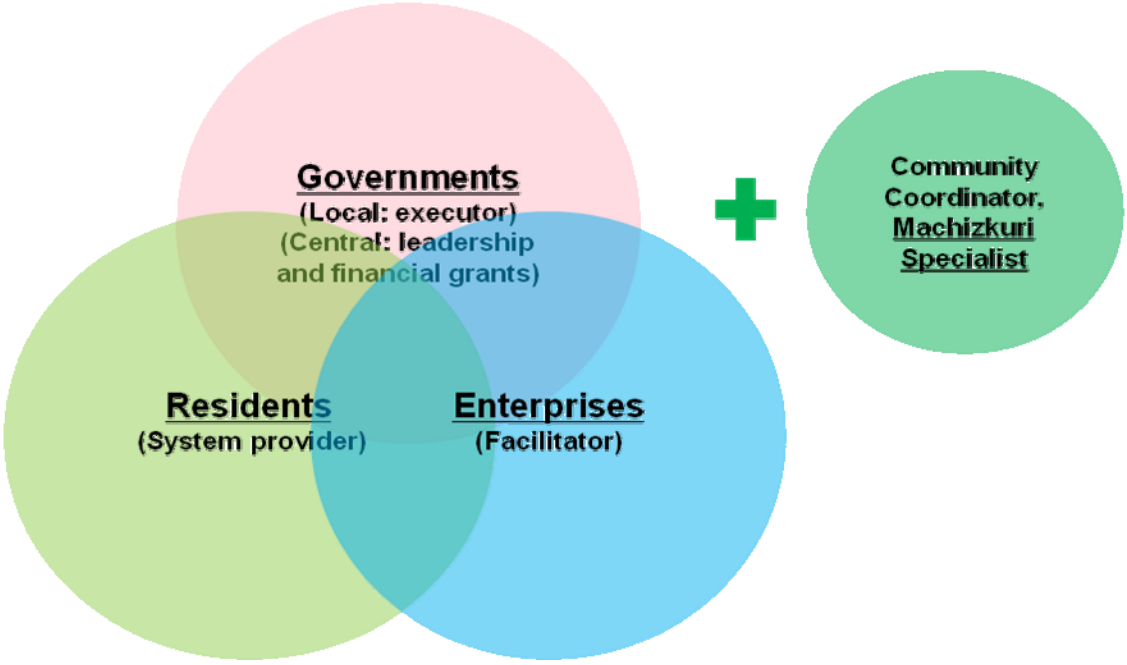
Table 4 History of Japanese Machizkuri and Legal Ground

❑ **Logical(Legal) Ground**

2001	Urban Revitalization Headquarter
2002.4	Urgent Act for Urban Revitalization from Wakanai to Ishikaki
2003.1	Set-up "Five theme" 1) Machizkuri for Historical landscape city 2) Machizkuri for Disaster prevention city with corporations 3) Machizkuri for safety of the seniors 4) Machizkuri for city tourism 5) Machizkuri for environmental symbiotic city
2004.4	Urban Revitalization Act Revision

Also, through securing the financial grants for Machizkuri, Japanese government strengthened their will for revitalization of cities. In 2005, total financial grants for Machizkuri were ¥244.8 billion. These grants were issued by central government to encourage Machizkuri executors. Method was that, central government issues budget shortage of local government and they check performances after completion of project. And if the performance is not met with given goal the grants are reduced as penalty. In this basic condition, local government and residents organized Machizkuri community and become a principal of execution and responsible to profitability. The communities have functioned as main character on whole process of Machizkuri. The central government has offered leadership and financial grants. The local governments have role of executors. The enterprises have stimulated those social movements as facilitator. Finally, the community coordinators as name of Machizkuri specialists have mediated the process of each urban development projects.

Figure 8 Machizkuri as an expanded Platform for Collaborative Design and Decision Making



Though the beginning of the Machizkuri movement spends more time to make agreed decisions there are minimized victims or excluded interest groups/individuals like Yong San case. Furthermore, Machizkuri is becoming more common in Japan nowadays. It's not too much to say that almost Japanese urban development cases are based on Machizkuri nowadays. And their know-hows to deal with conflicts between the interest groups are developing further and costs of projects are declining as time goes by.

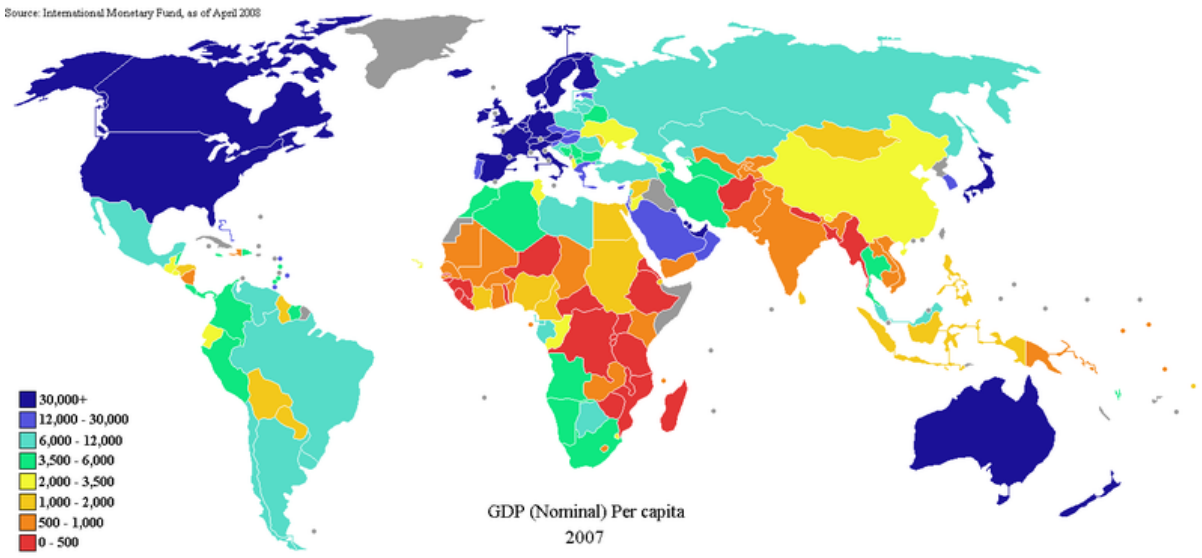
Whereas the Machizkuri of Japan, Korean collaborative framework for urban development is formed as, governments suggest newly planned development projects and the companies bid the project to achieve the construction business. In this stage, almost plan is determined by those two major players and a few representatives of residents are invited briefing session to be persuaded their logic of urban development. Certainly, there is no room for residents to give their voice to the projects and this development custom cause malfunction for the residents, transparency (especially distribution of profits), and trust problems. Though the Korean style urban development process is good to make decision

within short time period and guarantee the rapid construction completion, missed essential component of development projects such as social consensus and agreement cause the costs more than benefits of the shortened time period in the long term perspectives. More serious consequence is that the problem is more fundamental and hard to solve completely. In case of Yong San, though the conflicts are partly finished by government power fundamental issues are remained as flame of the other problems. After selecting the businesses by Korean Railroad, the probability of conflicts between the residents and governments is indisputable such as carrying flamed bomb. Seoul-Inchon urban development projects can be the process of improvement not the process of problem-solving. Because of the problem-solving process is costly and request sacrifice more than improvement.

2.4. Mixed Use Development by Recognizing Importance of Varieties of Cities

Great cities such as New York, London and Tokyo are represented as repository of varieties. Without doubt, it is been a long time that coexistence of differences is became a symbol of urban growth. And the study asserts that embrace diversity is one of the engines of urban growth. Next figures of IMF and World Bank clearly show relationship between location and urban growth.

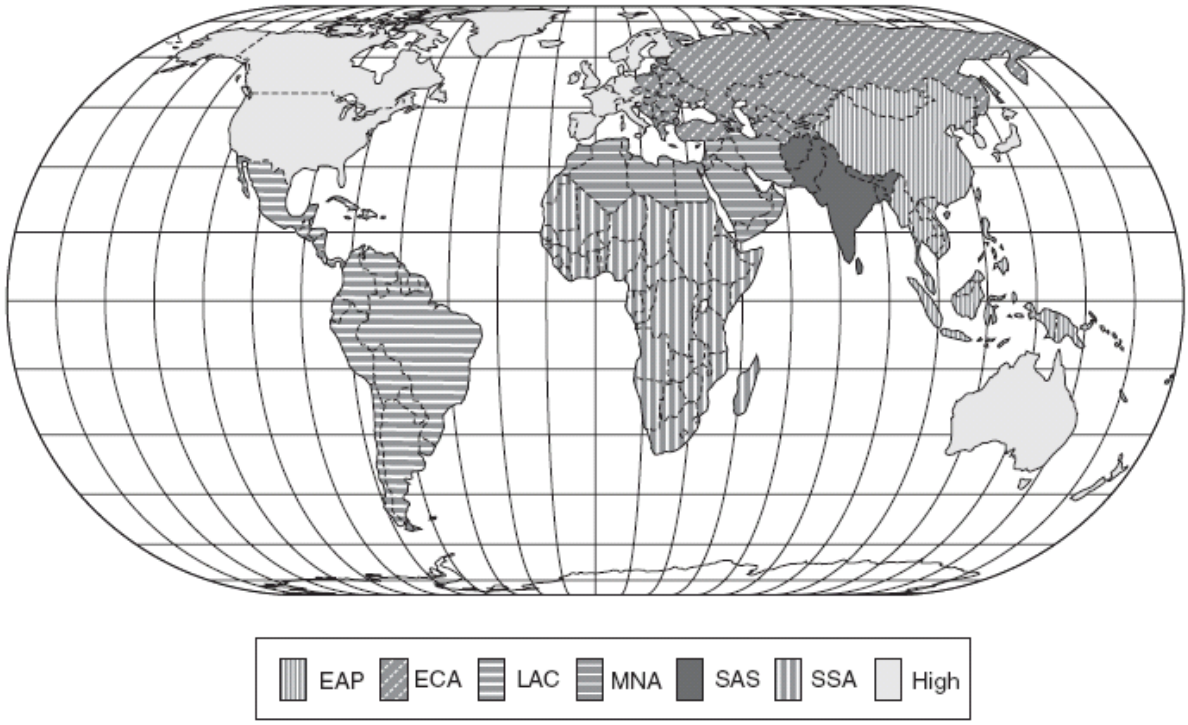
Figure 9 Regional Classification by GDP Per capita 2007



Source: IMF 2008

Traditional economics never considered about the location. However, the above figure arouses the question why specific locations have higher income compare to the other locations. Next figure from the World Bank shows more clearly why the locations are matter to classify the regions by economical consequences.

Figure 10 World Bank Regional Classification[25] 2005

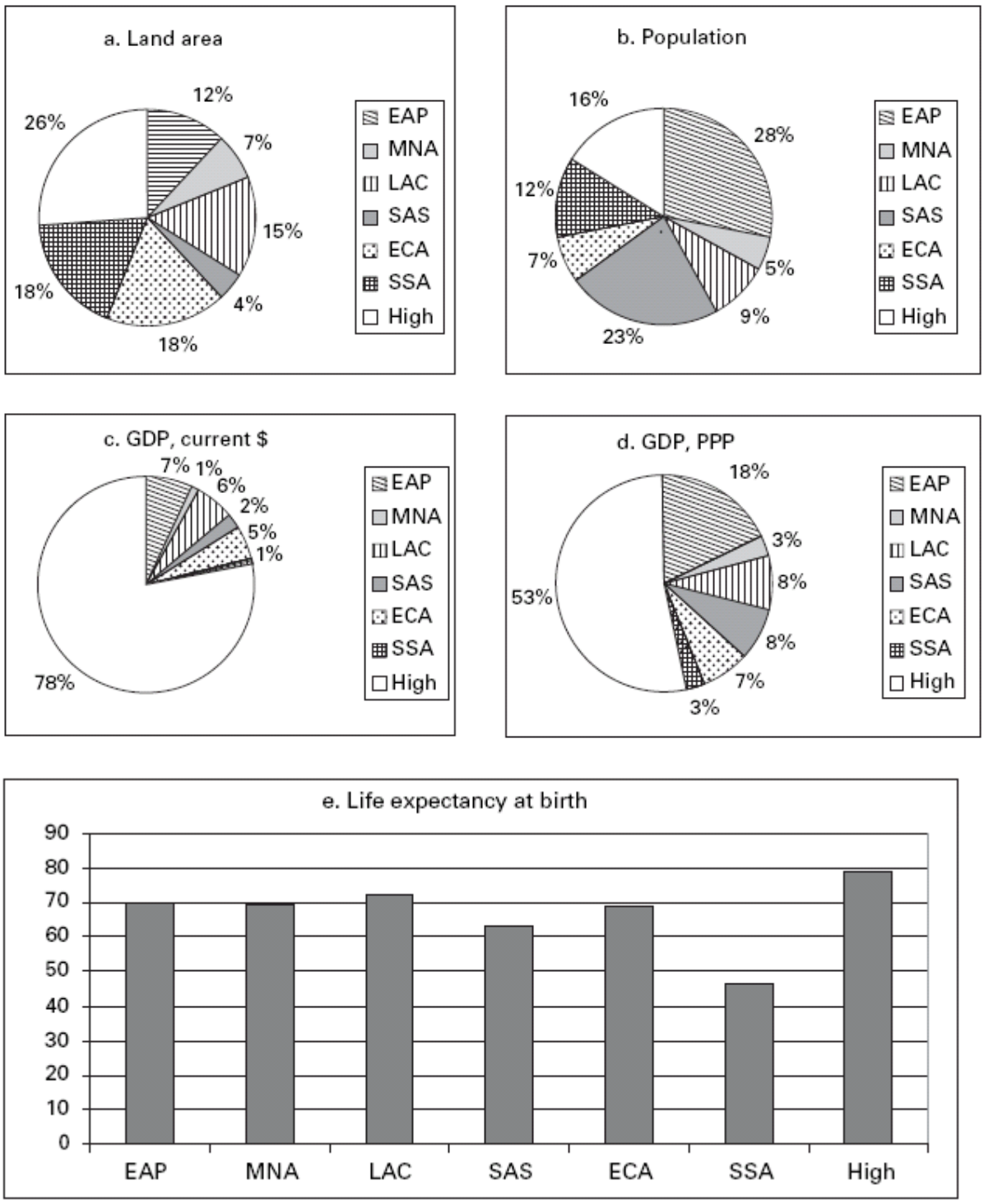


Source: Cambridge University Press

As the study shows from the figure, regional classification of the World Bank by geographical location is according with the classification by income level. Therefore, the World Bank used the regional classification (EAP, ECA, LAC, MNA, SAS, SSA) along with HIGH (High income countries).

[25] EAP=East Asia and Pacific, ECA=Europe and Central Asia, LAC=Latin America and Caribbean, MNA=Middle East and North Africa, SAS=South Asia (including India), SSA=Sub-Saharan Africa, High=High-income countries

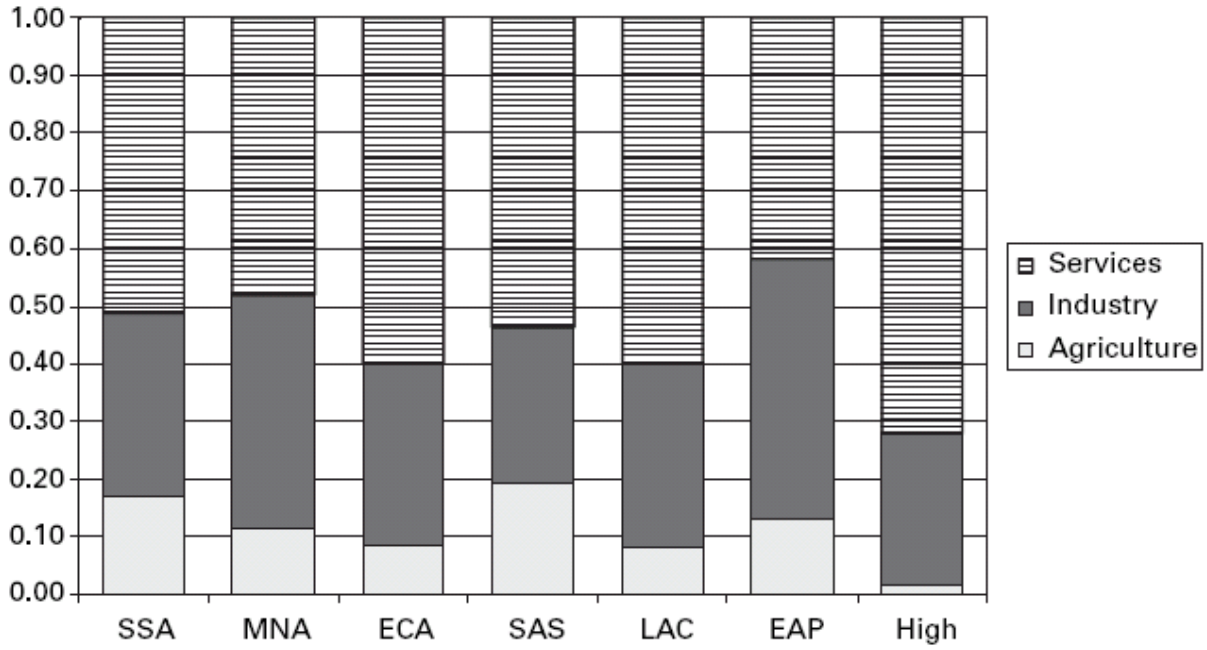
Figure 11 Distribution of Welfare of Classification



Sources: Cambridge University Press

And through the classification, economic institutions easily show inequality and biasness of welfares.

Figure 12 Industrial Structure of Classification



Source: Cambridge University Press

Additionally, they show the biasness is partially caused from industrial structures on the locations.

Most important argument of this theorem is that the location factor creates increasing returns and cumulative causations, and the selected locations are growing by self-reinforcing effects. Therefore, location can be recognized as an endogenized spatial economic structure. Every location has heterogeneous characteristics. Seoul-Inchon Axis area and Tokyo-Yokohama Axis area also has their own unique characteristics. However, the study assures that these two locations have similarities in formation and those similarities give important implications for better urban development plans. The perspectives of international economic institutes see two areas as same category. Through embrace diversity and encourage variety which is commonly applied two cities Seoul-Inchon Axis urban development projects can

take a step further for better development outcomes. In this sense, as precedent case, Tokyo-Yokohama Axis urban development projects' successes and failures can be benchmarked by Seoul-Inchon Axis urban development projects.

Consumer's preference for varieties

In economic perspective, consumers are rational and they are seeking maximized utility (U) always. Basically, assuming they need food (F) and manufacture (M),

Cobb-Douglas preference is described,

Maximized U = $F^{1-\delta} * M^{\delta}$ ($0<\delta<1$)

Consumer's income = budget constraint function

$$Y = P_f + I * M$$

Setting the Food as numeraire,

Consumers want to maximize utility,

Maximized U = $F^{1-\delta} * M^{\delta}$ (applying price: $P_f = 1$) Therefore, F + I*M = Y

Constrained maximization problem, Lagrangian Function

$$\Gamma = F^{1-\delta} M^{\delta} + \lambda(Y - F - IM)$$

Choose the levels of F and M that maximize utility

Respect F (differential equation) ➔ Partial F ➔ $(1-\delta)F^{-\delta} * M^{\delta} = \lambda$

Respect M (differential equation) ➔ Partial M ➔ $\delta * F^{1-\delta} * M^{\delta-1} = \lambda * I$

Lagrangian Multiplier ➔ $\frac{\partial M}{\delta F} = Y - F - I * M$

Comparing the Marginal Utility and Price ratio,

$$\frac{MUofF}{MUofM} = \frac{P_f = 1}{P_m = I} \Rightarrow \frac{(1-\delta)M^{1-\delta} * M^{\delta}}{\delta F^{1-\delta} * F^{\delta}} = \frac{1}{I} \Rightarrow I * M = \frac{\delta}{1-\delta} * F$$

Eventually, $F = (1-\delta) * Y$ ➔ If δ=0.9 consumers always spend 10% (1-δ) of their income (Y) on food.

Also, by using Dixit-Stiglitz function, the study can prove the consumers' preference for variety.

$$M = \left(\sum_{i=1}^{N} c_i^{\rho} \right)^{1/\rho}$$

Assuming the ρ>1 consumers prefer more amount but less varieties, and ρ=1 consumers have perfect substitutes (In this case, varieties are not important) Therefore, 0 < ρ < 1 implies consumers' love for varieties.

By using real numbers,

When ρ=0.5, $M = \left(\sum_{i=1}^{N} c_i^{\rho} \right)^{1/\rho}$ with N=100, c=1 is bigger than with N=1, c=100.

However, When ρ=2, $M = \left(\sum_{i=1}^{N} c_i^{\rho} \right)^{1/\rho}$ with N=100, c=1 ($(100 * 1)^{\frac{1}{2}}$=10) is smaller than with N=1, c=100 ($(1 * 100^2)^{\frac{1}{2}}$=100)

Usually, the consumers spend their budget within their income level. Assuming the budget constraint as 1, consumers will choose the manufacture within a range of 0< ρ<1. Therefore, the consumers have preference to enjoy more varieties within their budget constraint.

City is one form of agglomeration economies. And there are two types of agglomeration economies; localization and urbanization. The localization means one particular industry developed in specific location. For example, Detroit and Ulsan[26] is specialized in Automobile industry and those cities are type of localization. Whereas the urbanization means many kinds of industries located in same location, and variety create synergy between the industries. Besides specialized cities such as localization cities, almost cities are type of urbanization. Jane Jacobs said variety of city can secure survival of city.

[26] Factory of Hyundai Automobile's location

And urban development projects should consider the variety for sustainability and utility maximization.

Robbongi Hills of Tokyo Metropolitan area seem to faithfully follow those rules of economy. As appendix 2 show the varieties of one complex unit as, the entire Tokyo-Yokohama axis urban development projects contain various kinds of different functions of regions to make synergy of city overall. Each region has designed to be self-sufficient and sustainable in details. Seoul-Inchon axis urban development projects, especially, Yong San and newly developing cities in Inchon area such as Song Do, Young Jong, and Cheng Ra can be improved by benchmarking those varieties of details from the smallest units such as buildings to the biggest units such as cities itself.

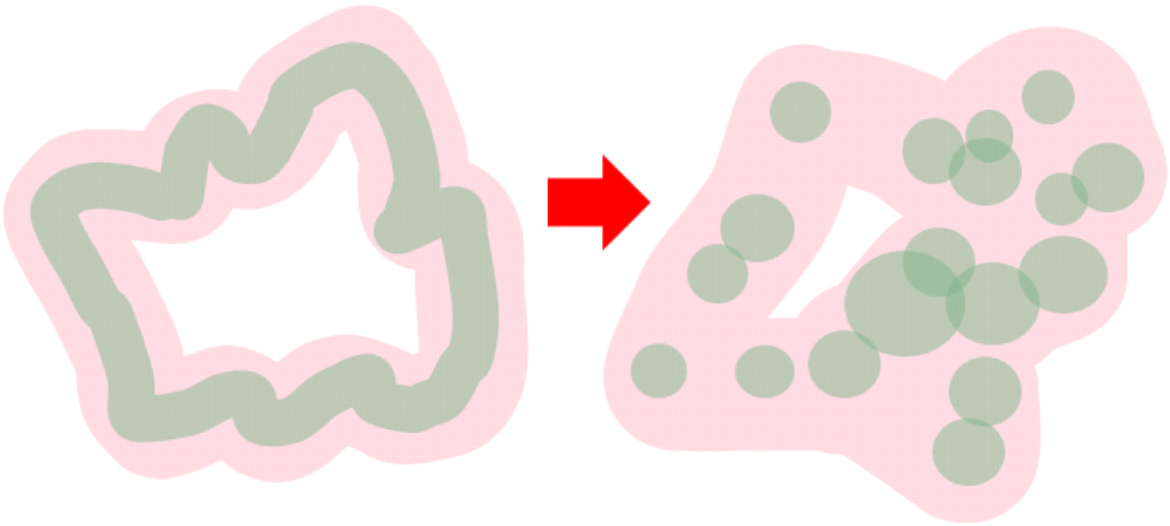
IV. Case Analysis and Results

1. The Advantages of Dot-Type green zoning as alternative of Korean Greenbelt

Monocentric city model and analysis of externalities

Base on the simplified analysis of externalities, the study assumed the citizens who are living in neighborhood of green zones could enjoy the amenities such as fresh air, trees, water, and sceneries of nature. Applying this assumption in two different types of green zoning with same geographic ratio (proportion), total social welfare can be described next figure,

Figure 13 Total social welfares of Korean Greenbelt and Japanese green zones



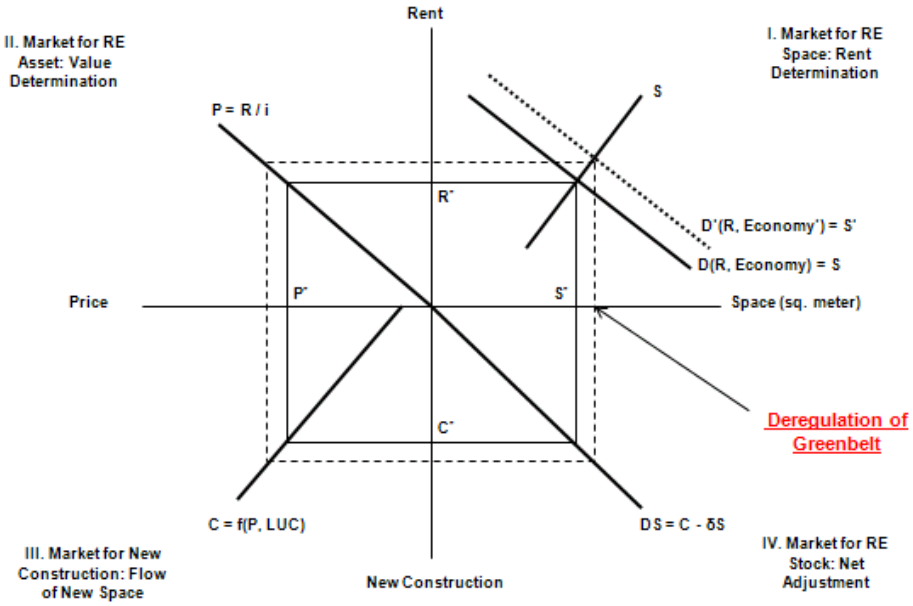
As the figure shows, based on the previous assumption, citizens who are living approximately within a 5-miles radius can enjoy the greens, the dot-type green zoning policy generate bigger total social welfare than the belt-type green zoning. Roughly calculating the benefited areas, Korean Greenbelt has 363,313.2 sq km and Japanese green zoning has

522,417.6 sq km nonetheless the Korean Greenbelt has more green areas (Approx. 153.52 sq km, 25.36% of total land scale of Seoul, **4.77 sq km per person**) compare to Japanese green zones (**4.46 sq km per person**)[27]. As the study shown by analysis, Japanese green zones have bigger total social welfares with the less costs (lands) and more people can enjoy the green amenities in their doorsteps distances.

DiPasquale-Wheaton Model and deregulation of the Greenbelt

By using the DiPasquale-Wheaton Model, the study also could figure out the impacts of deregulations of the Greenbelt.

Figure 14 Ceteris Paribus, endogenous variable; Space



As Figure 14 shows, deregulation of the Greenbelt creates more transactable spaces.

[27] 2005 statistics, Korean green zones per person are even increased by building more parks.

And those endogenous variable changes influence on the other three variables. Those dynamics are positively interconnected each other, and if the real estate market functioned well, deregulation of the Greenbelt is highly recommended to boost the market and real economy.

DiPasquale-Wheaton model provides series of equations. By using those equations, the study can explain the necessity of deregulations of the Greenbelt. The equations are,

1. Demand for Space: D = E*[400 - 10R] = S in equilibrium

R = 40 - (S/10*E)

2. Demand for RE Asset: P = R/i

P = R/i

3. Construction Cost & Asset Value: F(C) = 200+5C = P in equilibrium

C = (P - 200)/5

4. Stock-Flow Adjustment: Change in S = C - d*S = 0 in equilibrium

S = C/d

4 Equations w/ 4 Unknowns; Solving for S (d = 0.01),

S = E[(800 - 4000*i) / (iE +2)]

Also, the 'i' can be calculated by using real market data,

Mortgage rate	0.06	KHFC Index (15yr)
Income tax rate	0.24	Corp Tax 22%, Civil Tax 10%
Property tax rate	0.03	Taxable income over 0.3 bil KRW
Maintenance & dep	0.035	M=2.5%, D=1%
Expected capital gain	0.05	Market Avg.
	0.0606	

Based on those equations and market data, exogenous and endogenous variables are estimated as next sheet,

Exogenous Variables

Employment (millions)	E	10
Cap Rate	i	0.0606
Depreciation Rate	d	0.02

Endogenous Variables

Space (million Pyong)	S*	7061
Construction (same as above)	C*	141
Asset Price (1,000 KRW/pyong)	P*	906
Rent (1,000 KRW/pyong)	R*	55

And by changing the exogenous variable; employment, *ceteris paribus*, the study clearly show the changes of each variable as next sheet,

Exogenous Variables

Employment (millions)	E	11
Cap Rate	i	0.0606
Depreciation Rate	d	0.02

Endogenous Variables

Space (million Pyong)	S*	7591
Construction (same as above)	C*	152
Asset Price (1,000 KRW/pyong)	P*	959
Rent (1,000 KRW/pyong)	R*	58

The result shows that **the deregulation (Space increase) has same effect with increasing the employment** through the interconnection between those variables. And dynamics activate the other endogenous variables.

Analysis of PDV and DCF Model

As the policy maker, based on the assumption, the local government (Seoul City Government) tries to deregulate whole the Greenbelt area. And the project aims to rent for 3 years and liquidate in 4th year. By using real data, gross size of total greenbelt is 153.52 sq meter (46,440 py, 1py =3.3 sq meter). Sales profit is per py (3.3 sq m) 14 million KRW (average price of Seoul City). And the government would like to provide residential units for the citizen at regular market prices. The 'i' is same with previous analysis and parameters are,

Table 5 Parameters to use in PDV, DCF model analysis

Size	**46,440**	py (3.3 sq meter)	Sales Profit: 1000000 mil KRW
Rent (EO this year)	**0.85**	1 mil KRW/py & yr	SP/py(net housing site)=14, **R=P*I**
Vacancy, expected	**5%**	/yr	
Operating Exp	**0.2**	1 mil KRW/py & yr	30py annual (6 mil KRW)
CapEx	**10%**	of NOI	
Going in cap	**6%**		
Going out cap	**8%**		
Rental growth	**2%**	/yr	
Corp income tax rate	**24%**		
Capital gains tax rate	**24%**		Range: 50 mil KRW~90 mil KRW
Depreciation rate	**2%**	of Book Value	
Initial book value	**340,000**	1 mil KRW	
Loan amount	-	1 mil KRW	
Interest rate (IO)	**7%**		

And calculate the cash flows,

Table 6 Cash Flow; total deregulation of the Korean Greenbelt

NOI Computation:

	Year 1	Year 2	Year 3	Year 4
PGI	40,263	41,069	41,890	42,728
VA	2,013	2,053	2,095	2,136
EGI	38,250	39,015	39,796	40,592
OE	9,288	9,288	9,288	9,288
NOI	28,962	29,727	30,508	31,304

EATCF, Operation:

	Year 1	Year 2	Year 3	Year 4
NOI	28,962	29,727	30,508	31,304
CapEx	2,896	2,973	3,051	3,130
PBTCF	26,066	26,755	27,457	28,173
Debt service	-	-	-	-
Income tax	5,319	5,503	5,690	5,881
EATCF, Op	20,747	21,252	21,767	22,292

EATCF, Reversion:

	Year 3
Sale price	521,726
Book value	328,520
Book gain	193,206
AT capital gain	146,836
Outstanding loan	-
EATCF, Reversion	475,356

Table 7 Income Tax computation of government owned enterprise

(eg. Korea Land & Housing Corporation)

Income Tax Computation:

	Year 1	Year 2	Year 3	Year 4
NOI	28,962	29,727	30,508	31,304
Interest pay	-	-	-	-
Depreciation	6,800	6,800	6,800	6,800
Taxable Income	22,162	22,927	23,708	24,504
Income tax	5,319	5,503	5,690	5,881
After-tax income	16,843	17,425	18,018	18,623

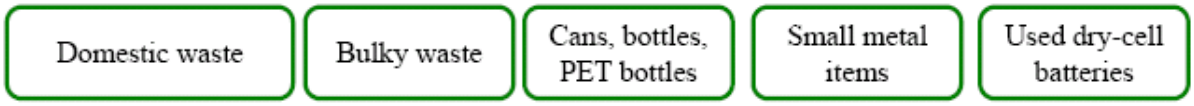
Eventually, NPV and IRR are computed as,

Combined CF:	Year 0	Year 1	Year 2	Year 3(oper)	year 3
EATCF	- 340,000	20,747	21,252	21,767	475,356
NPV (GI cap rate)		**94,116**			
	- 340,000	20,747	21,252	497,123	
IRR		**17%**			

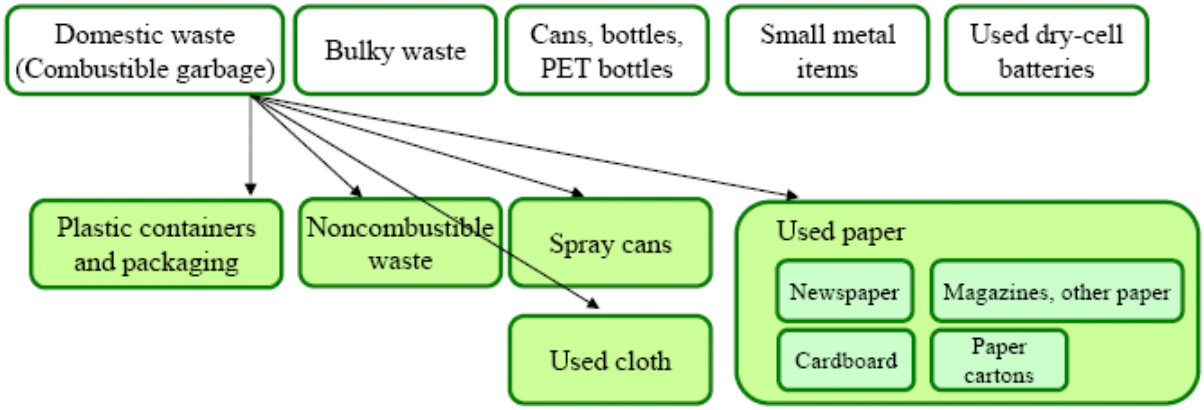
According to the results of PDV, DCF model analysis, NPV shows positive present value as 94,116 million KRW (U.S. $ 94 million) and the project requires 17% of internal rate of return. Those numbers confirm the project is feasible and policy makers and developers cannot reject the project. Add on the previous chapter's expected increased total social welfare of deregulation of Greenbelt, without doubt, expected value is bigger than this calculation.

2. The Performances of G30 Yokohama Waste Management System and Necessity of Introduction to Inchon city

Yokohama City Government has diverse kinds efforts to achieve their goal; 30% of waste reduction. In the beginning of the G30 Yokohama Plan, they are inevitably confronted indifferences of citizens due to its low awareness. The policymakers recognized this lack of recognition and changed the details of plan more concretely.



[Before the G30 Yokohama Plan]



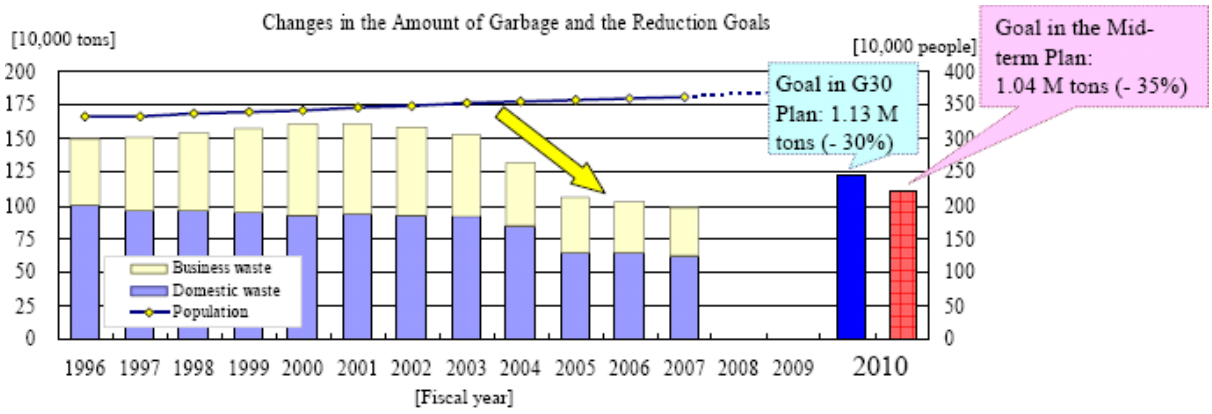
[After the G30 Yokohama Plan]

Above figures show the G30 Yokohama Plan gave efforts to sort the garbage more effectively. The city government revised the items for collection to recycle easily along with the environmental education on schools and regional group meetings. Those updated plans aroused the citizens to recognize the fact that the collaborative actions are started at this point and individual level of recognition secured the pragmatic execution of plan.

Consideration about Population Change

Next two charts show how the city of Yokohama achieves their goal under challengeable goal setting and variables changes; population.

Figure 15 Changes in the Amount of Garbage and the Reduction Goals



Source: Resources and Recycling Bureau, City of Yokohama

Table 8 Changes in amount of waste compare to the beginning

(Unit) [Amount of waste: 1,000 tons, population: 1,000 people]

Fiscal year	2001	2005		2006		2007		2010 (Goals)			
								G30 Plan		Mid-term plan	
			Compared to 2001		Compared to 2001		Compared to 2001		Compared to 2001		Compared to 2001
Amount of garbage	1,609	1,063	- 34 %	1,032	- 36 %	987	- 39 %	1,130	- 30 %	1,039	- 35 %
Domestic waste	935	651	- 30 %	652	- 30 %	628	- 33 %				
Business waste	674	412	- 39 %	380	- 44 %	359	- 47 %				
Population	3,462	3,579	3 %	3,602	4 %	3,627	5 %	3,707	7 %	3,707	7 %

Source: Resources and Recycling Bureau, City of Yokohama

Based on the social consensus for better environment, the policy makers have considered right direction of waste management. They investigated the most important factor of policy making; changes of the population of the city. And the goal setting was effectual.

Thanks to these consequences, the city of Yokohama achieved their policy goal more than they expected. Also, by setting their goal at 35% reduces, the city of Yokohama advanced their plan also. The city promised the success of the plan and bright future of waste management in the area.

During implement period of G30 Yokohama, two incineration plants were closed down. The city can use the space for the other useful functions. Renovation and maintenance expenditures saved by operation stopping. Also, sorted items of waste create the income of city and this income used in various kinds of education programs and environmental campaigns. Next table shows the expected amount of capital savings.

Table 9 G30 Yokohama plan's financial impact

	Savings by G30 Yokohama Plan
Renovation for incineration plants	110 billion Yen
Operating costs of incineration plants	3 billion Yen per year
Maintenance costs of incineration plants	2.4 billion Yen per year
Sorted recyclable disposals	about 600 million Yen sub-total

Additionally, the G30 Yokohama plan reduced the carbon emissions from the garbage. When the study calculate the emissions of 1 ton of garbage as 120kg[28], compare to 2001, the amount of garbage of 2010 reduced as 4,790,000 ton, hence the amount of carbon emissions reduced as 574,800 ton.

As previously shown in the statement of issues, Inchon has no specific and concrete

[28] The source from http://greenstart.kr

plan about waste management and many citizens do not have the consensus about the importance of reduction of garbage. Based on pragmatic research and survey, Inchon can set challengeable goal, and through the totally integrated environmental education and systematic support Inchon is possible to make city as greening sustainable city.

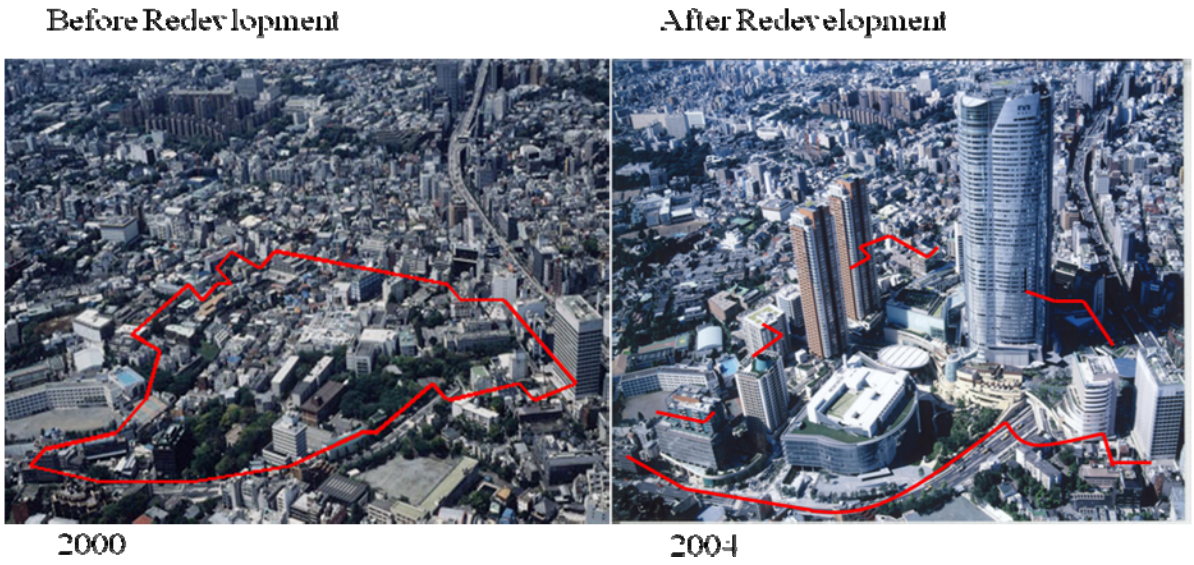
3. Effectiveness of Robbongi Hills based on Machizkuri Philosophy and Future Direction of Korean Development Governance

Robbongi Hills located in the center of Tokyo area and three subway lines penetrate the Mori building[29]. Before construction, the location was occupied by U.S. Army barracks. After recovering the lands, Tokyo city government issued a notice of tender and Mori Buildings Corporation won the bid and started the Robbongi Hills project as name of Robbongi revitalization project. The initial plan was made in 1987 by city government and around 80 percent of residents are agreed the plan. From 1990 to 1993, the city government planned outline of the project and until 1995, environmental assessment was processed for designing the project. After project designing, 93 percent of the residents are agreed the plan along with the recession of real estate market. In 1998, Robbongi district redevelopment community established and in 1999, right conversion program was executed. From 2000 to 2003, building constructions are processed and project spent more than 17 years to complete whole project. The project proposer; the Tokyo government and facilitator; Mori Building Corporation waited until the completion of full agreement and they started constructions of buildings after almost residents' opinions are reflected on the project. Though the upper stories of buildings[30] are designed by the customers' flavor lower stories, gardens, shopping malls and broad casting system buildings which are closely related to residents' amenities are constructed based on the opinion of the residents. Eventually, The Mori Building is called as 'City within a City'. It means enough amenities are organized in one structure to satisfy request of residents. Currently, a settled population of Robbongi Hills is 15,000 in the office, 2000~3000 in the broad casting center, 2000 in the residential units, totally around 20,000 people are living in the area. The floating population is estimated 50,000 in weekdays and

[29] The main building of Robbongi Hills
[30] Residential Units

100,000 in weekends.

Figure 16 Before and After the Robbongi Hills Redevelopment Project



The project is evaluated as successful urban development case and many countries benchmarked the case for their projects. Whereas, similar development case, the Yong San Redevelopment project has confronted many problems since the plan was initiated from the government, and even nullification of project is posed nowadays. Unfortunately, even under current critical situations, there is no news about the residents' community for democratized decision making. Only conflicts between the government, residents and companies are reported to public.

For the benefits of the public and every related interest group, central government and the Seoul city government need to revise the related laws. Based on more democratized legal ground, reasonable urban development customs will be settled down. Along with the

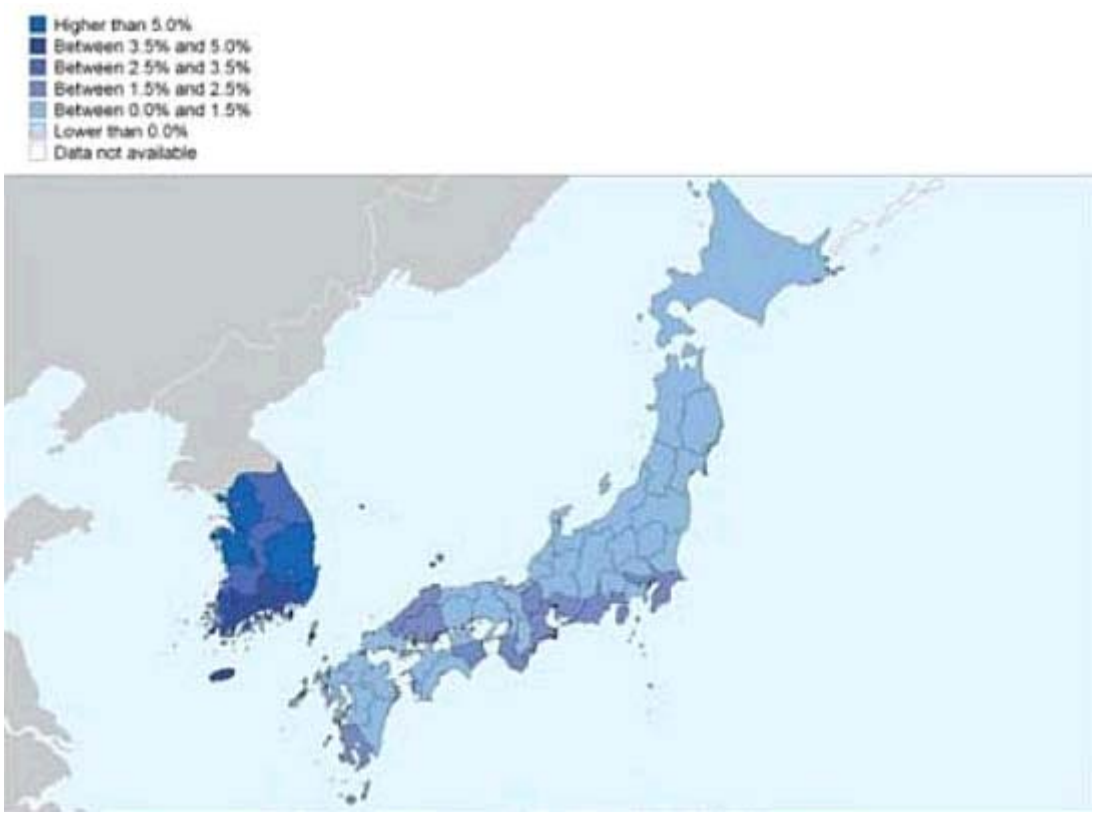
regulatory groundwork, the city government, State Owned Enterprise[31], Construction companies[32] should include the community of residents as equal decision maker. The government should guarantee the establishment of consultative body of residents and listen carefully their opinions and suggestions. Each player should keep in mind that the residents know the regions well more than any other players, and without their participation, successful outcomes cannot be expected in current society. The process should be systematized and in the system, the condition which is the residents' group as action-cell of entire urban development project should be secured to make pragmatic and useful development project for end users. During the execution, the coordinators such as Machizkuri specialists certainly join the entire process. By their supervising, each player cannot abuse government authority or misuse financial initiatives. For offering the fine community coordinator, the government should educate them as specialists in reputable educational institutions. Based on these serial systematic processes of urban development project, the each player will be guaranteed to response to the outcomes and profitability of the projects and everyway of performances.

[31] Korea Railroad Corporation (KORAIL)
[32] Samsung construction etc.,

4. Mixed Use Development for Self Sufficiency and Urban Sustainability

According to the OECD Regions at a Glance 2009[33], regional contribution to growth in national GDP of Seoul-Inchon axis area is higher than 5%. Tokyo-Yokohama axis area is between 1.5 to 2.5%. Those statistical data show how much both regions have portions of GDP growth. And the results are representing importance of two metropolitan areas.

Figure 17 Regional Contributions to Growth in National GDP



Source: OECD, 2009

Seoul-Inchon axis and Tokyo-Yokohama axis seems to have the best geographical advantages in Asia. Especially, Seoul-Inchon axis areas have great potentiality to be a center of the Asia. The government, the developers, companies and residents should have sense of duty to make Seoul and Inchon to be hub of Asia and the most developed city in the world.

[33] Annual Report by OECD

Every players of Seoul-Inchon axis urban development should appreciate these geographical advantages and collaborate and concentrate on how to create the best output with less cost.

Mixed use development for variety of Seoul-Inchon metropolitan area

The policymakers and the developers should encourage the varieties of urban development process to secure the sustainability and liveliness of the city. As the study solved above, customers prefer to enjoy various kinds of amenities in the city and their behaviors are economically rational to maximize their utility.

In term of the reality, the most cases, Dixit-Stiglitz utility function $M = \left(\sum_{i=1}^{N} c_i^{\rho} \right)^{1/\rho}$ is maximized in the condition of $0< \rho<1$ by the budget constraint. On the issue of urban development, therefore, the varieties are crucial factor to maximize total utility of cities. In this sense, the policymakers should consider how to secure the varieties of cities and apply mixed use development in the city and even in the building units. These strategic methods of urban development strengthen the self-sufficiency of the city and sustainability.

As the study examined the previous chapters, Tokyo-Yokohama Axis urban development projects consciously have followed city-amenity consumers' preference to varieties. From the building units to the entire cities, development participants such as governments, enterprises, citizens, and Machizkuri specialists have devoted themselves to construct synergy of urban development units and user-centered urban amenities and facilities. Through collaborative framework, they built trust between them first and respected individual needs as much as possible. The balanced policies for public sector and private sector could be

realized by this governments' consideration about the citizens and voluntary participation of interest groups.

Along with the consideration of participatory urban development, the study wants to examine probable industrial changes of Seoul-Inchon axis area. Big cities have various industries within a city. Though the main force of industry is decided, some cities changed their main industry to the other industry. For example, Silicon Valley's main industry was electronics. After World War II, many IT companies and Stanford Research Institute relocated in the area. IT industry's growth was exceeded the electronics, nowadays, the Silicon Valley is called as cradle of IT industry of U.S. and the world, and IT industry became city's main force of industry. Ota city of Kunma prefecture[34] has Subaru motor company's factory. Naturally, their main industry is car related and 70% of exports rely on the automobile industry. Along with the crisis of Japanese car industry, the area has experienced extreme local recession nowadays. The city has no new construction and closed shops are lined on the street.

Recent Seoul's main industry is service and finance etc. and Inchon has factory complexes and some transportation industry. Along with the experience of global financial crisis, the Seoul-Inchon axis urban development projects should pay attention to those foreign cases and include attraction plans to relocate knowledge-base industries. Though one of projects, Ma Gok area redevelopment plan[35] seems to ride on the right train, rest of the projects seems to even do not recognize the importance of urbanization and mixed use urban development agenda. Each development plans are not distinguishable and the contents seems to come out from same developer. Definitely, every project should attract one unique industry and harmonize individual projects to secure the urban sustainability by building industrial

[34] East part of Tokyo Metropolitan Area
[35] Focus on GT; green technology and BT; bio technology through MOU with Clinton Foundation of United States

varieties and substitutability.

V. Discussions

Though the study divided the cases by four subjects for convenience of analysis the entire study dealt with the most important issues in recent urban development projects. And especially, those four issues are the most frequently discussed in Seoul-Inchon axis urban development projects. Therefore, each case fit partly into one subject and partly into the other subjects. Unfortunately, however, there were no sufficiently scientific researches about those issues, and interest groups' responses were always emotional. The study demands that more researchers introduce scientific analysis for better urban development projects of Seoul-Inchon axis area. Based on clear agreement through obvious results of studies, social and the other costs can be remarkably reduced.

Regardless of the subject, the study commonly asserted next arguments on urban development projects. Firstly, residents' participation should be guaranteed for end-users or real consumers. Secondly, profitability should be considered to secure sustainability. Thirdly, the location is significantly influencing in each project. Fourthly, the projects should flexibly handle the changes of development conditions. And finally, variety should be guaranteed in urban development projects to continue the urban growth and fit in the industrial changes.

This study strived for making those issues clear. And comparative case study method used as main frame of analysis. Further researches will be followed and more discussions are needed to make those issues much clear. For the collaborative framework for better urban development process, the study suggest establishment of institution for 'positive urban growth'. Through long period of research about the issues, the study had confidence that the institution will play an important role in Seoul-Inchon axis development projects and future Korean urban development projects.

VI. Conclusions

Korean Green Zoning policy have maintained by various reasons; protecting from North Korea's incursion in 1970s, preventing jumbled city expansion in 1980s, and preserving the environment for better amenities in 1990s to present. However, recent environmentalists' arguments seem to be reconsidered. According to the analysis of this study, present belt-shape Greenbelt has lower total social welfare than dot-type dispersed green zone, and nevertheless Korean Greenbelt even occupy more land than Tokyo Metropolitan area's green zones. Therefore, Korean Greenbelt which located around Seoul Metropolitan area should be deregulated based on pragmatic analysis as soon as possible. In terms of DiPasquale-Wheaton Model analysis of this study, the results of deregulation of Greenbelt have same impact with increasing employment. And deregulated lands of Greenbelt have tremendous market values. Through the analysis of financial models, the study examined urban development projects on deregulated lands of Greenbelt is feasible and expected better positive externalities for citizens of Seoul Metropolitan area.

Japanese G30 Plan of Yokohama means 30% of waste reduction of the city. By using various kinds of campaigns and education, the city government of Yokohama has achieved the goal more than they expected. Though the lack of awareness about the plan was biggest obstacle of process the city government changed the details and updated it to make effective sorting system. They also have taught the plan in schools, and educated students became campaigners of G30 Yokohama plan. Their goal setting was based on demographic changes of the city and the numerical expectation of research was working effectively entire process. Securing the citizens' participations, the city government offered the space for opinion sharing. And if the violators have no sense about collaboration they decided to be banished

from the communities. Inchon's waste management plan has gone in the opposite direction with Japanese G30 Yokohama plan. Inchon city government should benchmark G30 Yokohama to offer better environment and amenities for citizens and next generation.

Korean urban development projects have processed under strong government leadership and this development customs are remained even recent urban development projects. Japanese Machizkuri movement initiated from late 1990s along with the request of local government for better urban development by securing residents and end users participations. Japan felt the participation of citizens are crucial success factor of urban development projects and introduced new urban development Acts and legal grounds. Their expectation hit the mark. Many countries followed their urban development cases and Korea also should adopt their methodologies. For effective process execution, however, Korean government firstly should revise the related laws to offer the convenient legal ground for Seoul-Inchon axis urban development projects. Also, education of the community coordinators such as the Machizkuri specialists is in urgent need of introduction. By considering those assignments Yong San Tragedy will not be repeated again and know-how to deal with development conflicts evolved time goes by.

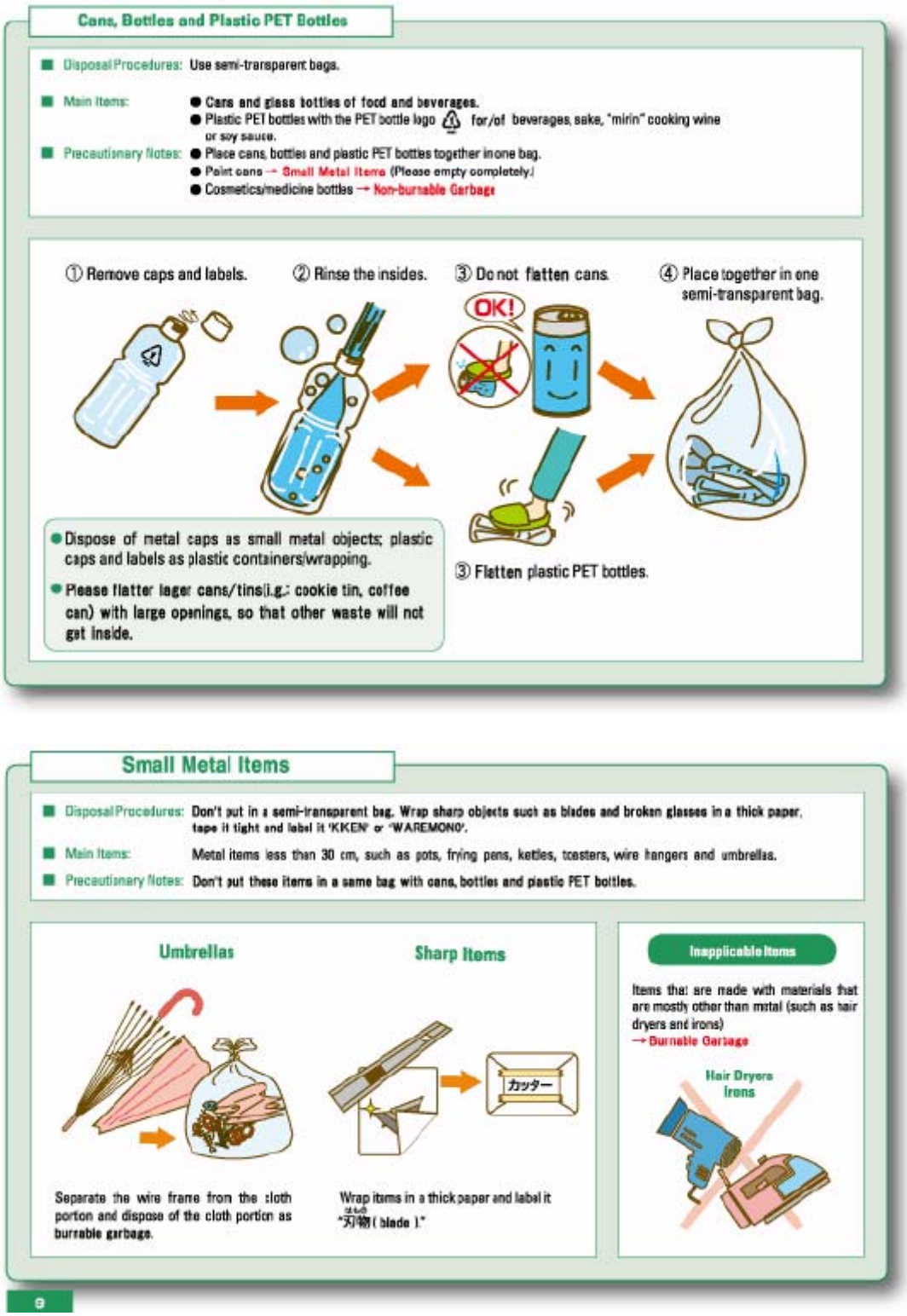
The location is one of the crucial factors of the urbanization and agglomeration economies. And Seoul and Tokyo Metropolitan area have the advantageous locations compare to the other Asian countries. According to this study shown, the Seoul-Inchon axis areas have great potential to be center of the Asia. Korean government and developers, and companies should keep in mind this merits and devote to realize it. For the successful sustainable urban development, the policymakers and players of Seoul-Inchon axis urban development projects should consider mixed use development methodologies. As the study

examined, rational people prefer to enjoy more varieties. For that matter of development process, synergy of different functions should be secured. The urban planners and developers can attract more industries in the city, and building complexes also can have multipurpose amenities and facilities such as coexistence of heterogeneous usages. Based on these micro level concerns, the Seoul-Inchon axis urban development projects can survive and maintain the sustainable growth.

Those implications can be applied in current Seoul-Inchon Axis urban development projects in merit-base approach from Tokyo-Yokohama Axis urban development projects. As this study mentioned on discussion part, by revising necessary legal ground and collaborative frameworks, Seoul-Inchon Axis urban development projects can be improved along with accumulated experience.

Appendices

[Appendix 1 Details of G30 Yokohama Plan, Sources: City of Yokohama]



Recycle paper

* Give priority to recyclable resource collection programs conducted by *Jichika*(neighborhood association), *Chonaikai*(neighborhood association), *Kodomokai*(children's clubs).
* **Recycle paper can be disposed of on rainy days as well.**

Newspapers

Fold into four and bundle with a paper string in a criss-cross fashion.

Note!

Please bundle newspaper inserts together with newspapers.

Cardboard

Fold and bundle with a paper string in a criss-cross fashion.

Note!

Remove any adhesive tape.
→ Burnable Garbage

Items processed with aluminum or wax coating.
→ Burnable Garbage

Milk Cartons

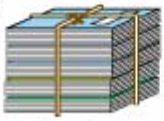
- Rinse with water, cut open and dry.
- Bundle items of the same size with a paper string in a criss-cross fashion.

Note!

Items where the interior is processed with aluminum or wax coating.
→Burnable Garbage

Magazines

Please bundle books, catalogs, magazines and other bound reading materials together with a paper string in a criss-cross fashion.



Note!

Remove materials other than paper (such as CDs attached in magazines, leather/cloth covers or vinyl). → Burnable Garbage

Other Paper

Please other paper products such as wrapping paper, bags, plain paper, paper boxes together with books/magazines or put them in a paper bag and bind with a paper string.

Unacceptable Items

Soiled paper, aluminum foil, aluminum-coated cartons, carbon-coated paper, seal-transfer sheet (transfer sheets used for iron-on prints), heat-sensitive paper (paper that rises with heat used for Braille, etc.) → Burnable Garbage

Used Cloth

- Disposal Procedures: Use semi-transparent bags.
- Main Items: Clothes such as shirts and trousers; cloth such as bed sheets, blankets and curtains
- Precautionary Notes:
  - Carpets, mattresses and futons →Oversized Garbage
  - Please do not include soiled or torn items. → Burnable Garbage
  - Since items cannot be recycled if they are wet, please do not dispose of items on rainy days.

Items that are clean and dry.

Oversized Garbage

Oversized garbage includes items made of metal that are 30 cm or longer and items made of other material (such as plastic or wood) that are 50 cm or longer. For these items, you should make reservation to be collected.

① To Apply

Please apply by telephone or via the Internet.

- Since it takes one or two weeks from the time of application to the day of collection, please make reservations as early as possible.
- When calling, please tell the clerk the type of material and the size of the item.
- You will be informed of the collection date, location and handling fees for each item.
- Your name should be on the collection sticker for each item. Your initials may be used, but only after notifying the Reception Center that you will be doing so.

Oversized Garbage Reception Center

☎→P.14

- Reception Hours: Mon. – Sat. (You can make reservations on national holidays as well except during the year-end/New Year holidays.)
  8:30 a.m. to 5:00 p.m. Please apply in Japanese.

Via the Internet

http://www.sodai.city.yokohama.jp

*Reservations can be made by fax for those with hearing or speaking disabilities.
Fax: 662-1225 (Special line for those with hearing or speaking disabilities)

② Pay a Handling Fee

Pay a handling fee at any financial institution, post office or convenience store in the city, and obtain a collection sticker.

- Once a handling fee is paid, it cannot be refunded.
  Please note that collection stickers cannot be reissued if lost or damaged.

③ Dispose of Your Oversized Garbage

Attach the collection sticker to each item and put out the item(s) to the specific location by 8:00 a.m. on the collection day.

- Be sure to remove any fuel, batteries or kerosene before disposal.
- In some cases, the time of collection may vary, depending on the type of oversized garbage.

Resident Delivery System

You can also bring your oversized garbage directly to the center yourself.

- Please call the Oversized Garbage Reception Center in advance and make a reservation.
  You will be told where to take your oversized garbage.
- You will be required to pay the same amount in handling fees.

Handling Fee Exemptions

Exemptions are available for: households receiving public financial assistance for everyday living; households with disabled persons; single-parent households; households with elderly persons requiring a high level of nursing care (Level 4 or 5) under the Nursing Care Insurance scheme; elderly persons 70 years of age or older who live alone.

- Please apply for an exemption when making your reservation.

Special Oversized Garbage Collection Service

Items will be picked up from inside the home for those such as the elderly or disabled who live alone and are unable to take their oversized garbage to the designated location.

- To apply or for more information: Call your local Resources & Waste Recycling Bureau office

Collection Service for Animal Carcasses

- If the owner of the pet is unknown, then there is no fee.
- If the pet is your own, there is a fee of ¥6,500.
  (The ashes are not returned.)
  →Call your local Resources & Waste Recycling Bureau office to apply for collection.
- If you would like to take home the ashes or have a separate cremation
  →Make arrangements in Japanese with Totsuka Ceremonial Hall (☎ 864-7001 FAX 881-0894)

② Items That are Not Collected by Yokohama City

Items That are Difficult to Handle

Please consult with the place where you purchased the item or your local Resources & Waste Recycling Bureau office concerning motorcycles, tires, car batteries, fire extinguishers, safes, pianos, gas cylinders, kerosene, gasoline, paint or medical items.

Single-Disposal Large-Amount Garbage

For bulk garbage (lots of furniture, tree limbs etc.), you should bring them to disposal plant by yourself or ask a company authorized by Yokohama City.

Construction Waste

Please ask the company that provided construction services to handle any garbage produced as a result of professional installations such as tatami mats, gas equipment, bathtubs, cement blocks and fences.

Business-Related Garbage

Please take care of processing the garbage either by taking it to the handling facility yourself, or by asking an authorized company to handle the collection.

- If you would like to take your garbage to the handling facility yourself, apply with your local Resources & Waste Recycling Bureau office in advance.
- For details about Yokohama City General Waste Authorized Cooperative Union, see the website of 'Resources & Waste Recycling Bureau' http://www.city.yokohama.jp/me/pcpb/

Air Conditioners, TVs, Electric Refrigerators, Electric Freezers and Laundry Machines

The five applicable electric appliance items are collected by appliance stores and recycled by appliance manufacturers.
(They are not collected as oversized garbage.)

- Ask for collection of your used appliance, using either of the following methods:

(1) Ask the appliance store where you are buying a new appliance or the store of original purchase to collect your used appliance.
(2) If you are unable to contact the original store of purchase, make arrangements in Japanese with the Yokohama City Appliance Recycling Promotion Council Reception Center; or consult with any store that has the identifying sticker (see right).

Yokohama Appliance Recycling Promotion Council Reception Center (Toll Free Call)		
A	☎ 0120-632-515	* Monday to Saturday 9 a.m. - 5 p.m. (Closed on Sundays and national holidays)
B	☎ 0120-014-353	
C	☎ 0120-045-669	* Monday to Friday 9 a.m. - 5 p.m. (Closed on Saturdays, Sundays and national holidays)

* Possible Range of Telephone Calls from Outside Yokohama: Tokyo, Kanagawa Prefecture, Chiba Prefecture and Saitama Prefecture

※ You must pay a collection/transportation fee and a recycling fee. Upon collection, please obtain an Appliance Recycling Coupon (Disposer's Copy) and keep it as proof of receipt.

Reservations can be made by fax for those with hearing or speaking disabilities.
FAX : 0120-661-520

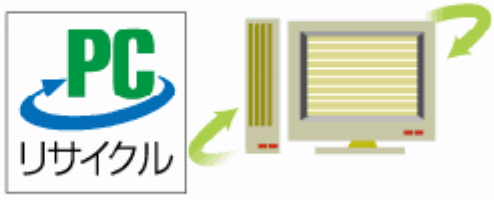
Personal Computers

Since used household personal computers that are no longer needed are generally collected by manufacturers, the city does not handle their collection.

You must pay recycling fees at the time of collection for personal computers that were purchased on or before September 30, 2003.

- Inquiries:
- Personal Computer 3-R Promotion Center
Tel: 03-5282-7685
Web site: http://www.pc3r.jp
- The specific manufacturing company

Computer peripherals, such as printers and scanners, are collected as oversized garbage or as household garbage, depending on the size.



"PC Recycling" logo

Local Offices of the Resources & Waste Recycling Bureau
Oficinas de la Secretaría del Reciclado de Recursos y Basura
Escritório da Secretaria do Reciclagem de Recursos e Lixo
(Shigen Junkankyoku Jimusho)

If you do not speak Japanese, please have a Japanese-speaking person call on your behalf.
Solicite que telefonee una persona que hable japonés, si Vd. no sabe el idioma.
Pedimos que o contato telefônico seja feito por uma pessoa que fale bem o japonês.

Ward Distrito Distrito	Telephone Teléfono Telefone	Oversized Garbage Reception Center Centro de Recepción de Basura de Gran Tamaño Centro de Recepção de Lixo de Grande Porte	
		Fixed Telephone/Mobile Phone Teléfono/teléfono celular/Telefone fijo Telefone Residencial/Celular	IP telephone/PHS Teléfono IP/PHS Telefone IP/PHS
Tsurumi-ku	502-5383	0570-045-100	330-5128
Kanagawa-ku	441-0871	0570-045-110	330-5129
Nishi-ku	241-9773	0570-045-120	330-5145
Naka-ku	621-6952	0570-045-130	330-5146
Minami-ku	741-3077	0570-045-140	330-5147
Konan-ku	832-0135	0570-045-150	330-5111
Hodogaya-ku	742-3715	0570-045-160	330-5167
Asahi-ku	953-4811	0570-045-170	330-5168
Isogo-ku	761-5331	0570-045-180	330-5108
Kanazawa-ku	781-3375	0570-045-190	330-5109
Kohoku-ku	401-3139	0570-045-200	330-5130
Midori-ku	983-7611	0570-045-210	330-5157
Aoba-ku	975-0025	0570-045-220	330-5158
Tsuzuki-ku	941-7914	0570-045-230	330-5159
Totsuka-ku	824-2580	0570-045-240	330-5107
Sakae-ku	891-9200	0570-045-250	330-5112
Izumi-ku	803-5191	0570-045-260	330-5169
Seya ku	364-0561	0570-045-270	330-5170

Contact: Business Operation Division, Resources & Waste Recycling Bureau, Tel: 671-2551
Para mayor información: División de Administración de la Secretaría del Reciclado de Recursos y Basura de la Ciudad de Yokohama, Tel. 671-2551
Para maiores informações: Seção de Serviço da Secretaria do Reciclagem de Recursos e Lixo da Cidade de Yokohama, Tel: 671-2551

If you don't speak Japanese, please contact the phone number below.
Las personas que no entiendan japonés llámenos por teléfono, por favor.
As pessoas que não entendem o japonês podem ligar para o número descrito abaixo.

Yokohama Association for International Communications and Exchanges (YOKE) Information Corner
Yokohamashi Kokusai Kouryu Kyokai Information Corner TEL : 045-222-1209

Monday through Saturday 10:00 - 17:00 / Sunday and national holiday 13:00 - 16:00
(except the 1st Sunday of every month, year-end & New Year's holidays)
Lunes a sábado 10:00 - 17:00 / Domingo y día festivo 13:00 - 16:00
(Excepto el primer domingo, fin del año y principio del año nuevo)
Segunda-feira a sábado 10:00 - 17:00 / Domingos e feriados 13:00 - 16:00
(exceto o domingo 1 de cada mês, ano-fim & Novo Ano feriados)

Yokohama City collects garbage and recyclables, separating according to the categories.

燃やすごみ
Burnable Garbage

乾電池
Dry-cell Batteries

スプレー缶
Spray Cans

燃えないごみ
Non-burnable Garbage

プラスチック製容器包装
Plastic containers/Packaging

缶・びん・ペットボトル
Cans,Bottles and Plastic PET Bottles

小さな金属類
Samll Metal Items

古紙(新聞、ダンボール、雑誌、紙パック、その他の紙)
Recycle paper (Newspapers, Cradboard, Magazines,Milk Cartons, Other Paper)

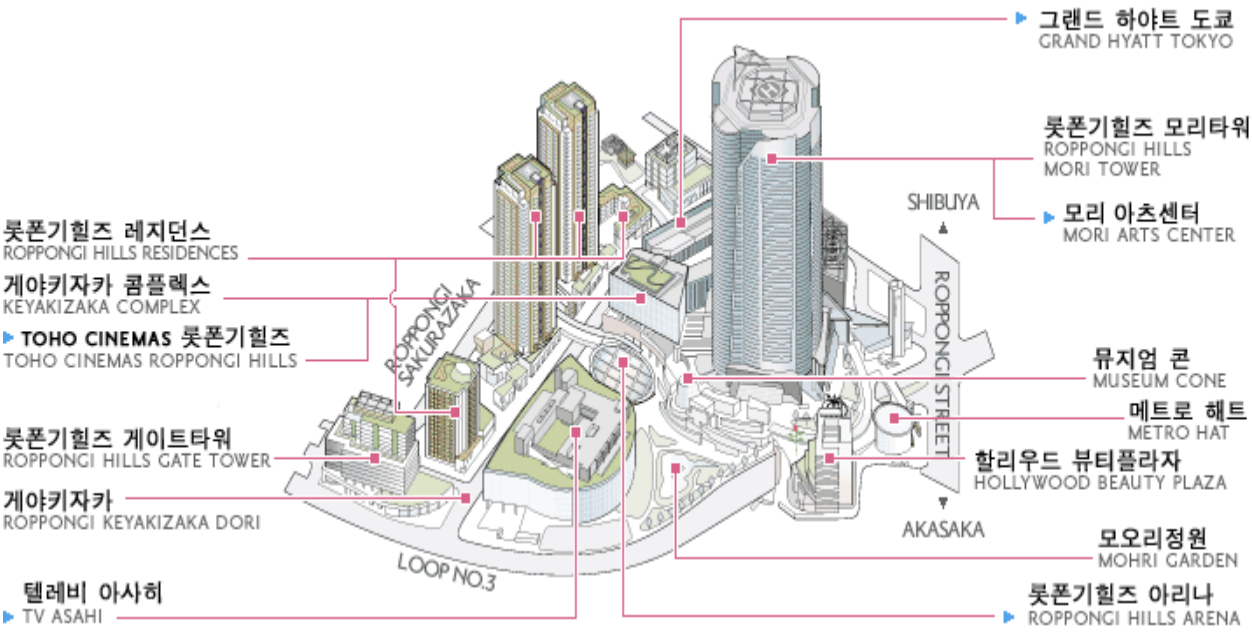
古布
Uesd Cloth

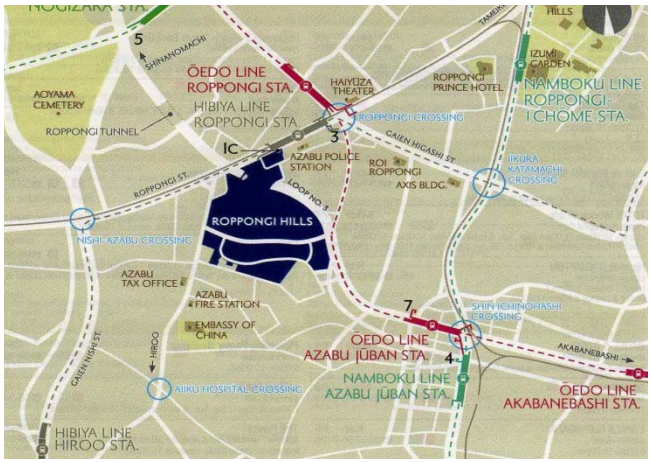
粗大ごみ
Oversized Garbage

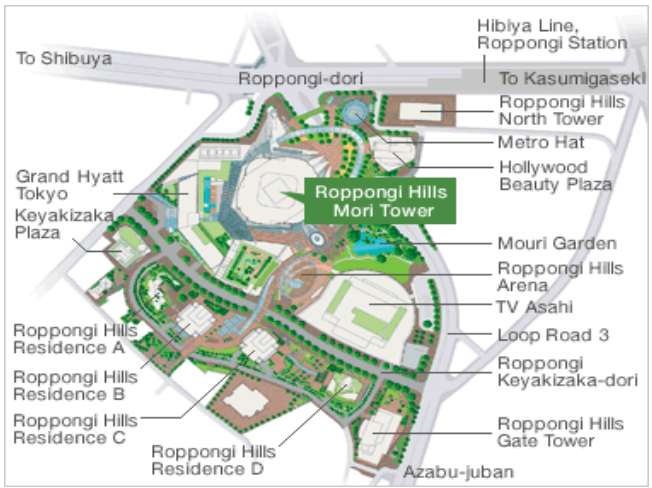
To maintain a safe and healthy environment for future generations

Thank you for your corporation to separate garbage by categories.

[Appendix 2 Robbongi Hills, An aggregate know-how of Japanese Urban Development, Sources: www.robbongihills.com]







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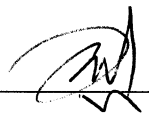
Dong Hee Kim 

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