The Korean Journal of Regional Science, Vol. 6(2).
December 1990, pp. 155~167

Seoul Capital Region Management: Developing Satellite New Towns

Kang-Won Lim

Graduate School of Environmental Studies, Seoul National University

Sung-Jick Eum

Korea Research Institute for Human Settlement

1. Introduction

For the last three decades, Korea has achieved a remarkable economic growth through industrialization. In the process of rapid industrialization, urbanization has undergone with unprecedented speed. Urbanization in Korea is characterized by predominance of the primate city of Seoul. The overwhelming concentration of both population and activities to Seoul has been concerned by many people.

Thus, the government has pushed various policy measures for restraint and/or decentralization of the growing metropolis of Seoul. Due to the various efforts as such, the growth rate of Seoul's population is quite slowed down entering into the 1980s, but it is still twice as high as that of national average. The result shows that the policy efforts so far have not been quite successful.

With this paper, it is attempted to investigate the magnitudes of metropolitan problems resulting from her over-paced growth; and to trace the developing process of the Seoul Capital Region management policy and to draw some lessons from the experience of Seoul.

There emerge worries that the satellite new town approach could only extend the problems. The transportation problem, among others, would strangle the future of motorized megalopolis under expansionary shaping.

The first part of this paper describes the worsening conditions of urban problems in Seoul, resulting from her over-paced growth. The second part deals with the developing process of the Seoul Capital Region management policy by the government, and also explains how the government reached the decision to construct a set of satellite new towns within the commuting distance from Seoul. The third part explains some major points of the satellite new town development plans already under construction. Finally, propects of the extended problems in the future for the Greater Seoul Capital Region are discussed.

2. Conditions of Urban Problems in the Seoul Capital Region

Unlike other metropolis in industrialized countries, urban problems in Seoul do not simply stem from the overly-concentrated population in number, but more rooted on the over-paced rapidity of growth during a quite short period.

As of December 1989, the population residing within the administrative boundary of Seoul city exceeds 10 M. in number and that of the Seoul Capital Region (SCR) does 17 M. in number. Thus the share of respective population to the national total population amounts to 24 percent for Seoul city and 40 percent for the SCR region.

The population density of Seoul city, 175 persons per hectare in gross terms, is known

Table 1. Population Trend in the Seoul Capital Region

(unit: 1000 persons)

Items	1970		1988		Annual average growth rate (%)	
	Persons	%	Persons	%	70-80	80-88
Nation	30,882	100.0	42,147	100.0	2.1	1.4
SCR	8,883	28.8	16,904	40.1	4.3	3.2
Seoul city	5,525	17.9	9,991	23.7	4.1	2.3

Table 2. Housing Price Indices in Seoul

	'79	'80	'81	'82	'83	'84	'85	'86	'87	'88	'89
H.P.I.	100.0	116.4	140.0	–	181.8	196.4	190.0	187.3	176.4	245.5	406.6
L.P.I.	100.0	111.6	120.0	126.5	150.0	169.7	181.5	194.9	223.5	256.3	342.3
U.P.I.	100.0	128.5	155.9	167.3	173.3	177.1	181.5	186.4	192.6	205.8	217.2

H.P.I.: Housing Price Index
L.P.I.: Land Price Index
R.P.I.: Retail Price Index

to be among the highest in the world cities. To make it worse, however, considering that about 36 percent of Seoul city in area is unable to develop, which comprises such as rivers and steep mountains, the net value becomes to the level of 272 persons/ha.[1]

During the last three decade period, Seoul has grown at such an incredible speed that its population has quadrupled. In the midst of such a rapid urbanization, there can be found no way to keep up with the supply of infrastructure. Most of chronic problems today are the results of the over-paced growth in speed. Housing conditions, traffic problems, air and water pollutions are continually worsening beyond the minimum tolerable standard.

The housing supply rate (the share of total houses to the applied housholds for housing supply) of Seoul now appears 54.8 percent in contrast to 69.9 percent for the national average. Table 2 shows the housing shortage has become the primal social problem in Seoul. During the last decade, the housing price has risen fourfold, while the land price and the ratail price did threefold and twofold respectively.[2]

As for the transportation problems, the rapidity of worsening tendency casts a gloom over the future. Traffic congestions are no longer limited either to the peak-time band or to the central areas, but are wide-spreading over the entire area and during the whole day in Seoul. What action should be taken regarding the prediction that the vehicle registrations in Seoul will grow to be threefold during a dozen years to come, which may amount to 3 M. vehicles by the year 2001.

Environmental qualities are another critical factor as it is rapidly degrading beyond the tolerable level. The level of air and water pollutions are increasingly endangering urban environment. Fig. 1 shows that the air pollution by sulphur dioxide in ppm in Seoul ranges between two to four times as high as the standard level of 0.05 ppm.[3]

The conditions of water pollution are even more serious. Table 4 shows the water quality by Biochemical Oxygen Demand and Dissolved Oxygen along the mainstream of the Han river is rapidly degrading beyond the standard level. Pollution level of Anyang branch which flows through the industrial areas and merges into the Han river at lower mid-point highlights the seriousness of the problem as shown in Table 5.[4]

Table 3. Major Trend of Urban Transportation in Seoul City

		1957	1964	1970	1977	1989
Average travel speed in CBD (KPH)					23.1	18.7
Person trips (1000 trips/day)		1,056	3,464	5,411	10,594	19,800
Vehicle registration (1000 vehicles)		10	15	59	121	991
Traffic Accidents (per year)	Number of accidents	1,337	2,160	15,963	28,200	63,835
	Persons killed	233	302	504	815	1,371

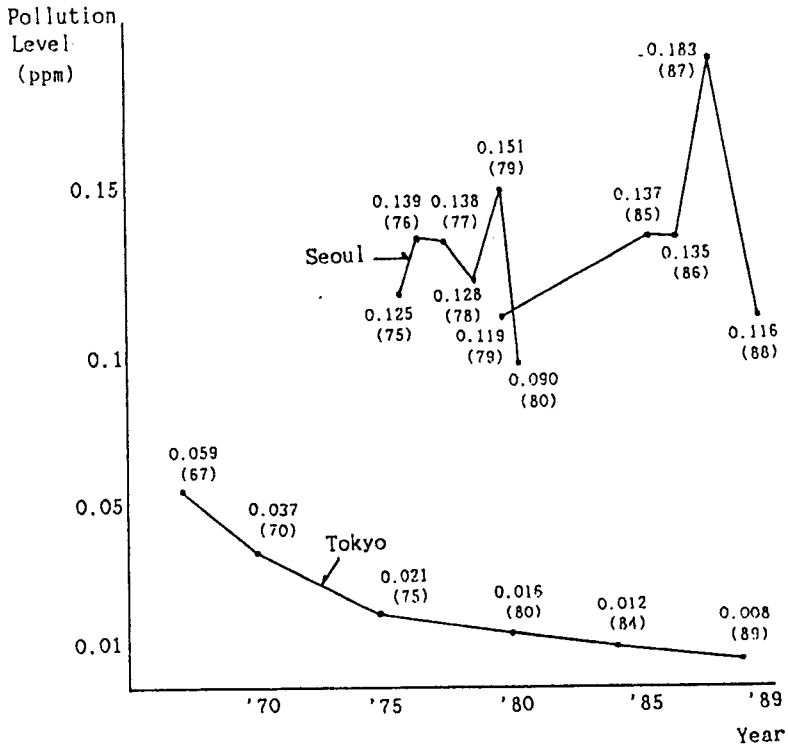

Figure 1. Trend of the Annual Average Sulphur Dioxide Concentration

3. Metropolitan Management Policy for the Seoul Capital Region

At an early stage of the 1960s in the formation of the Capital Region management policy, it is noteworthy that the national security was considered a critical factor. Under the circumstance of South-North confrontation, the government began to feel dangerous that more than a quarter of the national total population have to inhabit within 30 minutes distance by army attack from the North.[5] During the period mid-1960s through 1970s, the government continued to make public various measures either to restrain or decentralize the ever-growing population and activities of Seoul city.

The policy directions pursued by the government to restrain the over-growth of Seoul

Table 4. Water Quality Trend in the Main Stream of the Han River

(unit: ppm)

		81	82	83	84	85	86	87	88	standard
B.O.D.	Up stream	1.8	3.2	2.5	1.4	1.5	1.4	1.6	1.7	below 1.0
	Mid stream	7.0	8.6	9.4	10.4	7.0	4.7	4.4	5.1	below 3.0
	Down stream	–	6.2	8.3	16.9	8.4	6.6	8.2	10.6	below 6.0
D.O.	Up stream	10.0	9.5	9.6	9.9	10.2	10.9	10.5	10.3	above 7.5
	Mid stream	6.9	6.1	6.1	4.1	6.8	7.2	9.0	6.5	above 5.0
	Down stream	–	7.6	5.8	3.1	4.8	5.7	5.9	4.3	above 5.0

Table 5. Water Quality Trend in the Anyang Branch

(unit: ppm)

Year	82	83	84	85	86	87	88	standard
BOD	126.6	130.2	193.3	164.5	138.6	129.5	1154.2	below 3.0
DO	2.5	2.1	1.4	3.3	3.1	3.7	1.0	above 5.0

may be characterized as follows; first to develop new towns around the Seoul Capital Region in an attempt to pull out activities from Seoul; second to impose restrictive measures to restrain concentration of activities within Seoul; third, at the local government level, to suppress the target population level far lower than the highly feasible trend line and thus discourage the expectancy for development.

New town and large-scale development projects developed so far with an objective to pull out overly-concentrated population in Seoul may be classified into two types, i.e., those to attract activities from the old city of Seoul, and those to attract activities from Greater Seoul. Those developments of the former type are all located inside of the present city boundary of Seoul and mostly to the south-of-the river (so called Knagnam). As their development has started less than 20 years ago, the arrangements of street network are so contrasted to those in the old city or the north-of-the river (so called Kangbuk) area. It was in fact a drastic expansion of Seoul so as to ease the highly congested distribution in the Kangbuk area.

New town developments of the latter type are mostly located 20 to 30 km apart from Seoul. The following three cities deserve mentioning from viewpoints of the Capital Region management.

The Banweol new town, now called Ansan city, was originally planned with the objective to remove industrial activities together with empolyment and population from the city of Seoul.[6] The government had achieved a considerable success by having offered various incentives for those industries which decided to close their shops in Seoul and to relocate there.

In contrast to the Ansan city being an in-

New Towns	Construction period	Population (1000)	
		Target planned	Present
Sungnam city	1968-1973	350	515
Kwacheon city	1978-1985	45	70
Ansan city	1977-1986	200	170

dustrial new town, the Kwacheon new town was planned to be an administrative town and thus to decentralize much of government organizations from seoul.[7] Majorities of central government offices are now removed to Kwacheon city. But the problem is that, while their offices were removed there, most of people there are still keeping their homes in Seoul; and most people who became to live there have their jobs in Seoul. As Kwacheon city is considered a bed town and office town rather than a living town, heavy commuting traffic generates toward Seoul.

Unlike the two cases, the Sungnam city, then called the Kwangju residential site, was not planned as a new town at an initial stage. The Kwangju residential site development was initiated simply to provide the squatters with shelters who were compulsively pushed away during the period of clearing the illegally-built shacks from central Seoul.[8] With the lapse of two decade period, the Sungnam city has now grown up to be a half-a-million city.

As with the restrictive measure against over-growth of seoul, there has been made many enactments so far. One of the most powerful measures must be the Green Belt instituted in 1972 by the City Planning Act. The Green Belt which was drawn around large cities has greatly contributed to limiting the uncontrolled sprawl of Seoul metropolitan area.

However, with the physical approach only such as the Green Belt, they could not effectively tackle the problem. The following summarizes major steps taken by the government to control the over-growth of Seoul:[9]

1970 Basic Guideline for Restraint of Population Over-concentration in the Seoul Capital Region by Ministry of Construction

1971 Guidline for the Seoul Capital Region in the 1st National Comprehensive Development Plan by Ministry of Construction

1973 Population Decentralization Policy Plan in the Metropolitan Cities by Economic Planning Board

1975 Population Decentralization Plan by Seoul City

1977 Basic Plan for Construction of the Provisional Administration Capital City by the President

1977 Seoul Capital Region Population Redistribution Plan by Ministry without Portfolio

1982 Capital Region Management Planning Law Enacted

With such diverse policy plans and measures made over the decade consistently aimed at controlling the over-growth problem of Seoul, the Assembly had finally passed the law, called Capital Region Management Planning Law, which can govern all government measures related to decentralization of Seoul.

In the CRMPL law, the Seoul Capital Region is divided into five subregions so as to effectuate intra-regional decentralization within the region and also to restrain the overall growth of the Capital Region. The following shows management guidelines for the five subregions.[10]

Subregion	Management Guideline
① Restricted Development Subregion	Dispersal, Decongestion, and Deconcentration
② Controlled Development Subregion	Control of Population Growth and Urban Sprawl
③ Encouraged Development Subregion	Intensive and Extensive Development
④ Environmental Protection Subregion	Preservation, Conservation, and Protection
⑤ Special Protection Subregion	Reserved for Future Development

It is noteworthy that the Population Impact Assessment (PIA) was instituted, among others, under the CRMPL law. All of the large-scale projects under planning, whether for development or construction for expansion of buildings, must take a PIA study prior to

asking its permission. Any projects considered to arouse strong population-attraction effect may not be permissible in principle within the city of Seoul. Under the law, the level of parking space requirement to be imposed upon buildings in the Seoul Capital Region become much stricter than that of building code do.

In December 1986, the Urban Transportation Improvement Promotion Law (UTIPL) was enacted too. Under this law, all projects bigger than a certain level in scale must take the Transportation Impact Assessment (TIA) for its permission in addition to the above PLA. Based upon the TIA study results, some repressive measures may be imposed. In 1990, the Assembly amended the UTIPL law so as to levy annually tax upon large building in the form of traffic congestion inducement burden.

With respect to the decentralization policy during the mid-1970s, it is worthy of mentioning the then president's scheme to construct the Provisional Administrative Capital City in distance of about two hours ride from Seoul. By the presidential order, a special team was then organized to probe the scheme of provisional administrative capital city. Although the scheme was never realized in its form due to socio-economic-political constraints, it is important to recognize that its major spirit has long been reflected in government policy thereafter.

Fig. 2 shows the population trend of Seoul from 1960 onwards. It also shows the planned population in number at the target year in each planning horizon which was indication in the reports of Seoul City Master Plan by the city government as shown in table 6.[11]

While the newest version of Master Plan stipulates the planned population in 2001 to be 12 M. in number, the population in of December 1989 exceeds already 10 M. plus. Taking into account the population increasing rate in the recent years in Seoul, it is highly probable that the 12 M. level will be reached much earlier than the target year 2001. Readjustment of the target population might be necessary again as repeatedly practiced so far.

Notwithstanding all such measures taken by the government over the decades to curb the over-growth of Seoul, it is evident that the Seoul city has kept and will keep growing with high momentum. Entering into the 1980s, the growth rate of Seoul's population is quite slowed down but is still twice as high as that of national average.

As population continues to conglomerate in Seoul, urban problems such as housing shortages, land price hikes, traffic congestion, air pollution etc. are rapidly worsening toward the minimum standard. In face with such conditions, the government decides to develop a set of satellite new towns in the Capital Region around Seoul.

4. New Town Development

The population problem of Seoul and the Capital Region has been one of the biggest issues in Korea since early 1970s. Various policies have been attempted to control the population increase both in Seoul and the Capital Region during the last two decades. However, it appeared very difficult to solve the population problem in Seoul and the Capital Region simultaneously. Alternatively, the option to disperse the population of Seoul city around the Capital Reigon was favorably considered. Therefore, development of new towns around Seoul was considered to be the most appropriate and effective way to solve population concentration problem as well as housing supply problem in Seoul. Development of new towns in the Capital Region may help to relieve the housing shortage, unstable housing price, and other socio-economic problems. Further, it may affect the dispersion of population by attracting Seoul population into the new town areas.

Locations and types of the new towns were analyzed under such conditions as: 1) considering balanced land development plan, 2) avoiding a contradiction with the Capital Region land development policy, and 3) including notable increase of investment for local property. With respect to such purposes, basic directions of new town development were

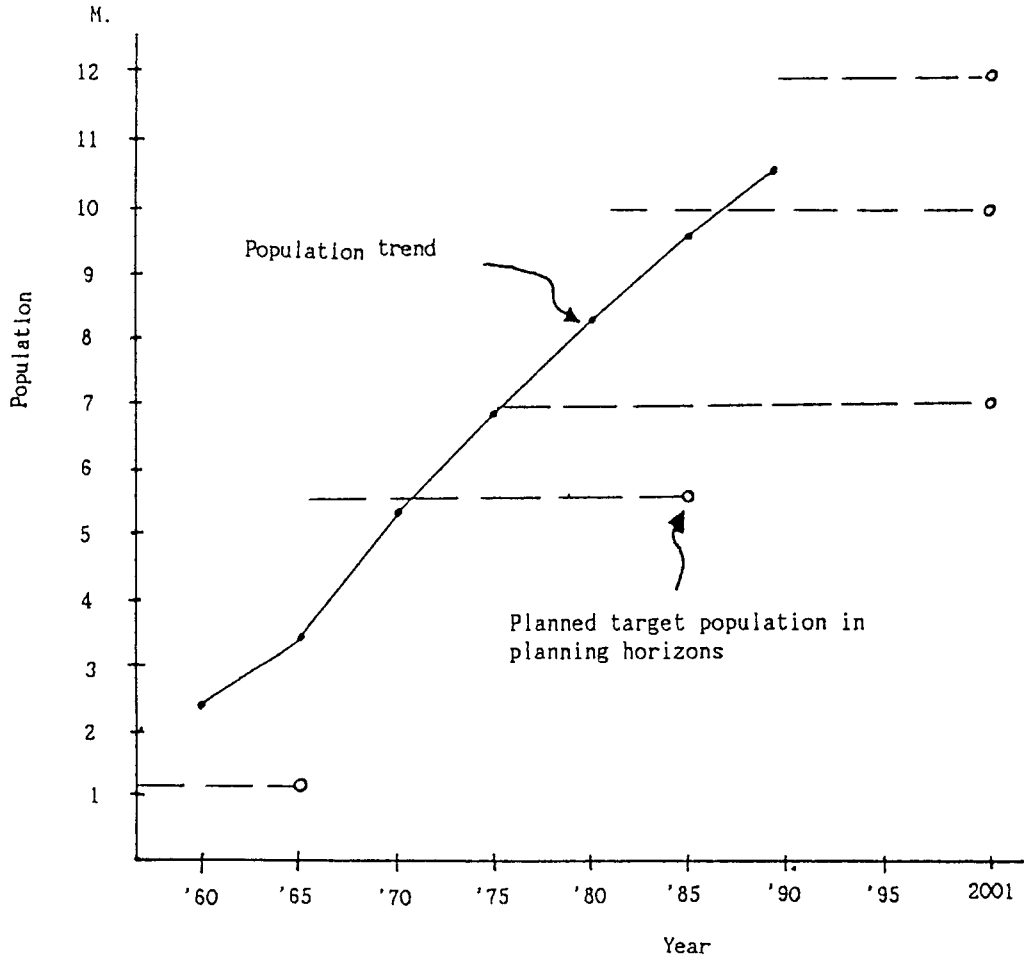

Figure 2. Population Trend Realized and Planned Target Population for Seoul City

Table 6. Planned Population in the Planning Horizons of the Master Plans for Seoul City

Seoul City Master Plans by Base Year	Base Year Population (1000)	Planned Population Target Year	(1000)
1963	2,983	1985	5,600
1970	5,536	1981	7,500
1976	7,254	2001	7,000
1982	8,916	2001	10,000
1989	10,577	2001	12,000

established as follows:

—Presentation of development model of Korean style—new town which contains a pleasant urban environment;

—Accommodation of self-sufficing urban function by providing all necessary facilities inside new town;

—Step-by-step development based on sup-

ply-demand perspectives; and

– Reflection of civil vitality through effective and efficient development.

With the establishment of basic direction of new town development, five housing development sites were selected inside the Capital Region to be developed as new towns. These include Pundang, Ilsan, Pyungchon, Sanborn, and Jungdong. All areas are located around Seoul, and their locations are shown in Figure 3. Also, house supply plans of these towns and their sizes are summarized in Table 7.[12]

Provided houses as indicated in Table 7, the new town development project is of the renovative house supply program. These house numbers correspond to 21.8% of 1.36

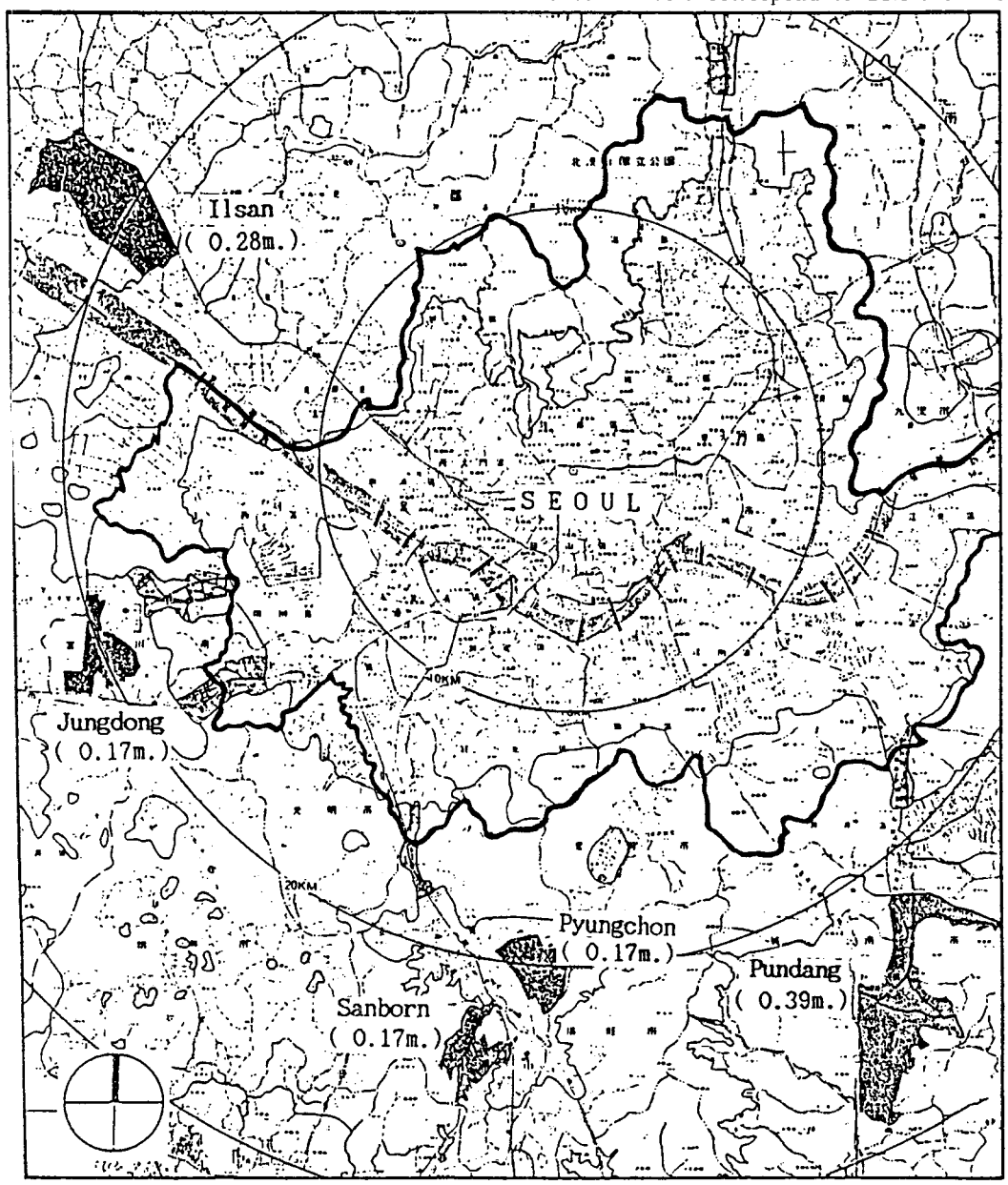

Figure 3. Selected New Towns: Selected Sites

Table 7. House Supply Plan of New Towns and Their Sizes

Sites	Size (m^2)	Number of Houses			Accommodated Population (1000)
		Single House	Apartment	Total	
Pundang	20,090,431	3,000	94,500	97,500	390
Ilsan	15,727,000	6,461	62,539	69,000	276
Pyungchon	4,946,216	4,000	41,500	42,500	170
Sanborn	4,258,000	1,000	41,500	42,500	170
Jungdong	5,439,028	1,080	41,250	42,500	170
Total	50,460,675	15,541	281,459	297,000	1,176

Table 8. Long-term Population Redistribution Effects in the Capital Region

(unit: 1000 persons)

	Pundang	Ilsan	Pyungchon	Sanborn	Jungdong	Total
Seoul	−283.0	−192.4	−113.1	−113.1	−99.3	−800.9
Inchon	−15.8	−22.0	−14.2	−14.2	−16.9	−83.1
Cities in Kyunggido	−61.0	−48.4	−22.5	−22.5	−19.8	−174.2
Towns in Kyunggido	−38.7	−29.6	−3.9	−3.9	−15.3	−91.4

Table 9. Effects of Population Inflow inside the Capital Region by Long-term Employment Creation

(unit: 1000 persons)

Pundang	Ilsan	Pyungchon	Sanborn	Jungdong	Total
21.9	16.7	7.1	7.1	8.4	61.2

million houses which is the total number of single house in Seoul and 67.0% of 0.42 million houses which is the total number of apartment households in Seoul.

If 300,000 houses are built inside five new housing sites, housing stock would be significantly increased. Since these houses are about to be accommodated mostly by Seoulites, population movement would continue until all vacant houses are accommodated. The results of population redistribution in the Capital Region in long-term were summarized in Table 8.[13]

As indicated in Table 8, 800,000 persons in Seoul and 170,000 persons inside the Capital Region would move into the five housing complexes. Of course, these results were caused by pure spreading effect by the development of new towns; however, it did not consider annual inflow population inside the Capital Region from outside.

If the five new towns are built inside the Capital Region, employment opportunity will be created, too. This creation would cause population inflow into these house complexes. As shown in Table 9, in long term, it was estimated that over 60,000 persons would flow into the Capital Region from outside due to the new employment opportunity.[11]

5. Prospect for the Effects of the New Town Development

The development of new housing site would help to relieve the housing shortage and various problems followed by unbalanced hous-

ing demand and supply. However, it also would cause other problems in the Capital Region. The effects of this development can be categorized into such aspects as: 1) stability of housing price and its prospects, 2) overview of population movement, 3) transportation demand increase into Seoul, 4) relations with satellite cities around Seoul, 5) water supply and sewage system, and 60 other miscellaneous aspects.

1) Stability of Housing Price and Its Prospects

One of the main reasons to develop the new towns was to stabilize ever-increasing housing price and to mitigate social problems followed by the increasing housing price. The five new town development was found to be an effective arrangement with respect to such purposes since the housing price was shrinked back and somewhat even declined after the announcement of this development. In 1992, which is about to complete to supply 2 million units of houses nationwidely including the five new town development, it was estimated that the housing supply-rate would be increased to 71.54 percent in nationwide and to 59.3 percent in Seoul.

Korean Economic Planning Board predicts that the population in the Seoul Capital Region will be approximately 21.8 million in the year of 2000, including 12.6 million in Seoul.[15] The housing needs by the population increase (3.5 million) inside the Seoul Capital Region would be three times as much as the target population of 5-new town development project (1.2 million). Therefore, unless additional housing facilities are supplied, the housing supply-rate in Seoul will be decreased to 46.6 percent by 2000, from 59.3 percent in 1992.

2) Overview for Population Movement

The five new town development would provide 300,000 units of houses which can accommodate approximately 1.2 million people. Among these people, it is expected that 0.8 million people from Seoul and 0.4 million people from vicinity cities in the Capital Region would flow into the new towns. Thus, this development would cause to relieve the population concentration of Seoul and to give positive influence on population dispersal in the Capital Region. However, it would create a sizeable employment opportunity through generation of various services and marketing businesses as well as facility establishments for administration, education, and culture, which are necessary for city maintenance. This creation would cause people to flow into the new cities from inside and outside of the Capital Region. In summary, in short term, it is expected that the new town development would be very effective to disperse population and function of Seoul and vicinity cities in the Capital Region. However, in long term, it would cause an enlargement of the Capital Region and unbalanced land development.

3) Transportation Demand Increase into Seoul

By the supply of housing through construction of five new cities, population of the Capital Area would be repositioned. Also if cars will be increased as national income goes up, certainly traffic demand will be increased. At present, any road connecting to Seoul and the Capital Area is suffering from heavy traffic congesting and buses, subway/metro as means of mass transit are beyond their capacity. Particularly, four areas of five new towns except for Ilsan have 400,000-500,000 people-size city around their sites, respectively. Of these, people commuting to Seoul from their respective resident area amount to 20-70 percent of total commuting population so that roads connecting to Seoul are extremely congestive than any other roads (see Table 10 and Figure 4).[16] For the purpose of solving increased transit demand in the wake of five new towns and for ease of traffic congestion between Seoul and existing cities, the construction of ring road expressway initiated by the government is underway, and approximately 9 trillion won for linking Seoul and new towns, new towns and existing cities, will be invested. However, considering the importance of Seoul as the nation's focal point and

Table 10. Selected Road Sections with Traffic Congestion in the Seoul Capital Area (1989)

Road Section	Daily Traffic Volume (vehicle)	V/C
(A) Seoul-Euijongbu	40,949	1.02
(B) Seoul-Kyomunri	42,849	1.07
(C) Seoul-Toikyewon	17,920	2.24
(D) Seoul-Donong	46,965	5.87
(E) Seoul-Sungnam	60,294	7.54
(F) Seoul-Kwachon	87,584	1.46
(G) Seoul-Suwon	59,115	1.48
(H) Seoul-Inchon	75,917	1.27
(I) Seoul-Inchon	34,925	4.37
(J) Seoul-Kimpo	27,870	3.48
(K) Seoul-Byegje	24,878	3.11

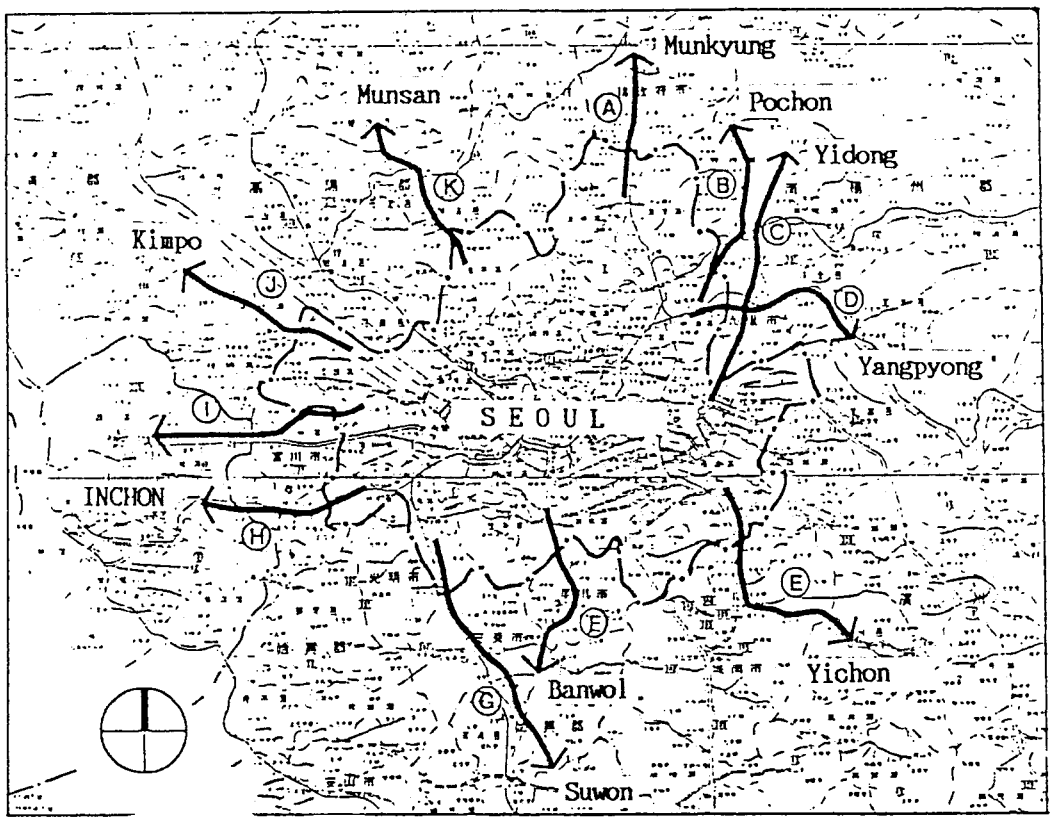

Figure 4. Diagram Indicating Traffic Congestion in the Seoul Capital Area

transportation systems between Seoul and existing satellite cities, etc., this supply of road subway can not meet ever-increasing transportation demand so that we are worried about making transportaion problem of the Capital Area more broadened.

4) Relations with Satellite Cities around Seoul in the Capital Area

As of now, there are twenty cities including the city of Seoul in the Capital Area.[17] Out of these cities, ten cities were elevated to a

city-level town after 1986.[18] So, primary infrastructure and other living environment are so poor that it requires huge investment for this improvement. Particularly, unlike new towns, these cities that urban development is being regulated by various rules need any corresponding systematic support and actions. Additionally, considering potential growth of these cities, the option to rearrange existing cities is believed to be more economic than development of new town from nothing so that it is necessary to activate existing cities as well as new towns. As a result, such policy will lead population and industrial facilities of Seoul to new towns and satellite cities, which will result in contributing to some possible solution of overpopulation and over-industry of Seoul, traffic congestion, etc. in order that it might be possible to develop economic and balanced Capital Area.

5) Water Supply and Sewage System

We cannot overlook the water supply and sewage disposal in the wake of dense population in designated area by development of new town. Our living environment was severely contaminated beyond its limits in the course of the nation's rapid industrialization. From the beginning of 1970s, as five rivers including the Han river and small/medium-size rivers were being severely contaminated, we have made every effort to protect water resource, raising our interest in water supply protection and sewage disposal. However, continuous water contamination will not only result in being difficult to secure water resource for good-quality water, but also difficult to make disposal of living sewage generated from many housing complexes.

5) Other Miscellaneous Aspects

Due to the new town development, the population of the Capital Area would be repositioned and the Capital Area size would be enlarged than now. If so, any foreseeable dispute among neighboring cities on living waste disposal and the operation of traffic passage, etc. can occur. Also, inefficient investment should not possible be made under such circumstances. Therefore, for better operation of the broadened Capital Area, it is essential to establish a broad administrative unit accommodating consolidated plan for the broadened entire Capital Area by adjusting mutual understanding by field. However, if the Capital Area keeps getting big, it will accelerate the population amassing phenomenon, which will not only result in disrupting a balanced development of the nation, but it also defy some solution of the Capital Area problem forever, and even it will make the problem worse. So, we must initiate the consolidated policy regulating continued growth of the Capital Area on a continuous basis and attractive power of the Capital Area must be diminished. As a result, the Capital Area must be developed at the line solving challenges we face and we must not cross it over.

6. Conclusion

In Korea, the rapid urbanization through the remarkable economic growth brought unexpected ill effects to the Seoul Capital Region. It induced the population concentration and city portiliness, which in turn resulted in a serious socio-economic problems such as housing shortages, land price hikes, traffic congestion, air and water pollutions, etc.

The various Capital Region management policies for restraint and/or decentralization of growing Capital Region were found ineffective during the last decade. Another attempt which is to construct a set of satellite new towns within commuting distance from Seoul is expected to be somewhat effective in solving population concentration and housing problems. However, this attempt would also cause negative effects on other problems, such as transportation and environmental problems. Among these, traffic congestion is currently in a very serious condition in the Seoul Capital Region. The growth rate of Seoul's population is quite slowed down entering into the 1980's but that of vehicle number in Seoul has been rapidly increasing during the last few years. If continuous investment and technology development for transportation system

enhancement are unprovided, it certainly would strangle the future of motorized magalopolis under expansionary shaping. Thus, the current and future development of new towns is required to in detail analyze the positive and negative effects based on this development and to establish a disposal program against the negative effects.

In conclusion, since such various problems are generated by the overcrowding of population in a limited area, it is required to establish a fundamental Capital Region management program to disperse the population in Seoul Capital Region and to arrange a systematized apparatus in purpose of examining its efficiency and effectiveness through retrial and monitoring.

Notes

1. Special City of Seoul (1990). *Seoul City Master Plan for the 2000*, Seoul: Special city of Seoul, pp. 196-197.
2. *ibid*, pp. 75.
3. Kim, J. W. (1990). "Environmental Pollution Seen by Indicators in Korea." *Sin Dong-A Monthly*, February 1990, pp. 498-513.
4. Environmental Administration, Republic of Korea (1989). *Environmental Yearbook*, Vol. II. Seoul, pp. 251-256.
5. Kim, E. W. (1982). *A Study on the History of Korea National Land Development*, Seoul: Daehak Press Ltd., p. 846.
6. Ministry of Construction, R.O.K. (1977). *Master Plan for Banwoel Industrial New Town Development*, Seoul, pp. 13-14.
7. Korea Housing Corporation, R.O.K. (1984). *History of Kwacheon New Town Development*, Seoul pp. 15-17.
8. Rho, Y. H. (1972). *A study on Modeling the New Town Development—with reference to Legal Aspects of Population Problem in Large Cities in Korea*, Ph.D. Dissertation, Seoul National University.
9. Korea Research Institute for Human Settlement, R.O.K. (1983). Proceedings of the Public Forum on the Capital Region Management Plan, Seoul: KRIHS, p. 13.
10. Kwon, W. Y. (1987). "Population Decentralization from Seoul and Regional Development Policy" in H. W. Richardson and M. C. Hwang (eds). *Urban and Regional Policy in Korea and International Experiences*, Seoul: KRISH, pp. 59-85.
11. Lim, K. W. (1987). "A Study on Urban Growth of Seoul and Transformation of Her Transportation System," in S. C. Choi (eds) *National Development and Public Administration*, Seoul: Bakyoungsa, pp. 23-325.
12. Korea Land Development Coperation, R.O.K. (1990). *A Study on Population and Traffic Impact Assessment on Seoul Capital Region by the Pundang and Ilsan New Residential Land Development*, Seoul, pp. 53-72.
13. *ibid*, p. 73.
14. *ibid*, p. 74.
15. Economic Planning Board, R.O.K. (1988). *Future Population Forcast by City and Do to the Year of 2000*. Seoul, pp. 16-17.
16. Korea Transportation Institute, R.O.K. (1988). *Report of the Traffic Survey Results in Seoul and Capital Region*. Seoul, pp. 89-91.
17. Ministry of Home Affairs, R.O.K. (1989). *Municipal Yearbook of Korea*. Seoul, pp. 64-69.
18. Korea Planners Associations, R.O.K. (1989). *Urban Information Service*. Seoul, p. 2.