Analysis of Impact of Land Use Regulations against Urban Spatial Structure - Centering around Shiheung City

Chang-il Kang, Yoon-Hong Park, Tae-Hyun Kim, and Yu Wann

Abstract—In this paper, we analyzed the pattern of urban spatial structure of Siheung City that had been divided into two parts and presented alternative plans in order to get rid of these phenomena. Concerning patterns of urban spatial structure, we examined it through means of analyzing status of land use, population density and distribution of residence, status of distribution of main facilities, medical facilities, status of distribution of cultural facilities, distribution of land prices and traffic volume trends. The results of study revealed that status of facilities distribution and distribution of land prices, etc. were bisected by the surrounding area of former municipal office and the district of Sihwa, which were both regarded as one apex of the city divide, forming a duo-centric city. In order to get rid of this problem concerned with urban spatial structure that has been bisected, it is required that measures in order to expand facilities in Siheung City should be taken.

Keywords—Urban Spatial Structure, Duo-centric City, Siheung City.

I. INTRODUCTION

SINCE the introduction of the local government system each municipality to maximize the capabilities of their holdings, and is trying to improve the quality of life for residents.

The role of local has been great governments in urban management sector. [1] Land use planning is working that posted reasonable land use plan on flat-space above the various activities.

It should be placed in order to secure the city of Self-sufficiency within the city residential, commercial, business, industrial, public facilities, shopping, leisure space, cultural space, including qualitative and quantitative distribution and efficiently. Land-use planning purposes specify the layout and facilities are basic structure of the urban space.

Business facilities are placed center of the city in concentrically single city, and then in the commercial and residential areas, and industrial facilities in the following concentric placement. There are varying the spatial structure of cities that actually exist. It can be mononuclear city, Duo-centric city, Multi nuclei city which is the most efficient

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for the assessment is made, depending on the variety of the history and culture of the city, the population distribution, population growth, and the type of industry. Interpreted as a means to solve most of the activities within the same city, the city of Self-sufficiency, uses and facilities of the city proper to be placed within the land use plan should be established.

Siheung of the Old City Hall behind the regional banks and the Corporation between the city social domains in the development of the restricted area is designated development sites within the city do not connect. It is dependenced about Seoul, Incheon, Bucheon by mother town like any other metropolitan area of New Town. Siheung which can connect the city to the formulation of the land use plan is urgently needed for Siheung of Self-sufficiency.

The purpose of this study is to reveal the structural problems of space; Siheung of the land use plan is to present an alternative to overcome this.

So we analyze distribution of various facilities and usage of Siheung for identifies the structural problems of the space.

II. RESEARCH DESIGN AND METHOD

A. Urban Spatial Structure Theory

[2]When one system to determine the spatial structure, non-spatial elements of the social, economic, and political factors cause change in physical, spatial, urban spatial structure.

[3]The elements that make up the urban spatial structure, land, facilities divided into three populations, there is a way. [4] And civic activities, separated by land and facilities.

In general, urban spatial structure by the presence of urban activity propensity of discrimination can be explained by the distribution of land-use behavior generated. In other words, the best of determining the structure of land are the basic elements of production, the city that exists as a foundation material.

[5] Eventually land use in determining the spatial structure of the naturally, humanities, and that can reflect the social situation. Study on the spatial structure of the urban, as well as a wider field of ambassador to the results of many complex phenomena must access from a comprehensive standpoint. [6] However, until recently, the unifying concepts and theories on urban morphology and spatial structure was not formed. And adjacent disciplines and researchers disciplines and depending on your point of view tend to be variously interpreted. [7] Urban spatial structure formed by any one of the factors that are composed by complex factors.

B. Study Mononuclear City

Theory on mononuclear urban is divided into concentric theory and linear theory.

The theory, proposed by E. W. Burgess (1926), that urban land use may be classified as a series of concentric zones.

Zone I, the CBD, lies at the centre of the city. Zone II is in transition. It is the crowded, multi-occupied zone of the city first invaded by migrants. Within this Zone are the ghetto areas (these are not necessarily slums). In Zone III are the working men's houses, the area of second generation immigrants, one step up from Zone II. Zones IV and V are residential; Zone IV for the better-off and Zone V for the commuters. All these zones are held to have evolved separately and without planning. They result from the competition of different socio-economic groups for land. This competition results in variations in the cost of land and, therefore, causes segregation within a city. The model assumes uniformly flat, and available, land, and ignores the importance of transport routes, but relies on the theory that city growth results from distinct waves of in-migrants, that is to invasion and succession. In this last respect it is therefore more applicable to cities in the USA than to European cities.

Bone-shaped CBD centered on debt, while linear theory is formed along the axis of the urban space development sprawl is a theory going.

C. The Spatial Structure of the Balance of a Single Downtown City

According to the model of a single city center, the tallest building in the city center, near the outskirts of concentrated and lower the height of the building, depending on the exit. Write a small building materials away from the city center, the more the price of land is relatively low because the land write a lot le building is a combination of land and building materials because of the height of the building is lowered. Relative to the downtown high rise buildings in order to take advantage of the expensive land-intensive.

D. The Model Evaluation of Single City Center

Single city model based on the long-run equilibrium theory, so whenever these changes occur vary the values of variables such as population, income, commuting costs or impact on the size of the city's housing price curve or construction or destroy the city again, all adjustments enough at the end of a period of time and then can be realized. It is consider the fact that makes lots of cost of rebuilt the long lifetime of the House again to destroy.

Single-city model is to assume that there is a straight road leading into the city center from any point within the city, this assumption is unrealistic. Everyone from the city center, the assumption that the underlying problem is that in reality does not fit in, but to eliminate this assumption is the fact that the balance only been determined.

III. Analysis Results

A. Sihwa Area

Based in the city and living facilities to visit the region of 115 valid questionnaires, a total of 314 valid questionnaires Sihwa part of the pattern is as follows.

Sihwa local residents using the facilities within each of the six regions, cities, culture, shopping based life starting frequency of visits is shown in Table I, the proportion of the value of the frequency of visits in Table II.

TABLE I
BASED IN THE CITY AND LIVING FACILITIES VISITING DISTRIBUTION IN SIHWA AREA

Division	Area (D i)	frequency of visit (F i)						
		1	2	3	4	5	6	0
Cultural Facilities Utilization	Sihwa area (D1)	73	15	11	1	2	2	11
	Old City Hall (D2)	2	2	3	16	12	11	69
	Siheung Town(D3)	6	14	23	12	10	2	48
	Around city (D4)	22	46	21	3	5	6	12
	Seoul (D5)	12	17	18	19	9	8	32
	Etc. (D6)	0	0	1	5	3	18	88
Shopping	Sihwa area (D1)	77	17	7	0	1	2	11
	Old City Hall (D2)	0	3	3	10	14	5	80
	Siheung Town(D3)	1	9	19	16	6	3	61
	Around city (D4)	19	43	22	0	4	6	21
	Seoul (D5)	4	19	26	13	7	8	38
	Etc. (D6)	0	0	1	3	4	12	95
Education	Sihwa area (D1)	87	9	6	2	1	2	8
	Old City Hall (D2)	0	3	6	9	8	5	84
	Siheung Town(D3)	1	21	12	11	1	2	67
	Around city (D4)	7	31	11	3	4	4	55
	Seoul (D5)	5	7	8	8	11	7	69
	Etc. (D6)	0	0	2	0	2	14	97
Public Office Utilization	Sihwa area (D1)	86	9	6	4	2	2	6
	Old City Hall (D2)	2	16	6	9	4	3	75
	Siheung Town(D3)	5	27	12	5	1	1	64
	Around city (D4)	9	13	15	12	4	4	58
	Seoul (D5)	2	5	4	4	13	6	81
	Etc. (D6)	0	1	1	0	2	12	99
physical plant Utilization	Sihwa area (D1)	86	10	3	3	0	1	12
	Old City Hall (D2)	1	8	4	14	5	5	78
	Siheung Town(D3)	0	18	19	4	2	2	70
	Around city (D4)	6	20	11	6	3	5	64
	Seoul (D5)	1	8	4	4	13	7	78
	Etc. (D6)	0	0	0	1	1	12	101
medical facilities Utilization	Sihwa area (D1)	78	18	8	1	0	4	6
	Old City Hall (D2)	1	4	2	10	12	4	82
	Siheung Town(D3)	3	12	19	8	1	3	69
	Around city (D4)	12	39	10	8	3	5	38
	Seoul (D5)	5	22	16	7	10	5	50
	Etc. (D6)	1	0	0	2	2	12	98
Place of Dine out	Sihwa area (D1)	81	12	7	3	2	2	8
	Old City Hall (D2)	3	4	6	11	14	5	72
	Siheung Town(D3)	1	21	23	14	4	2	50
	Around city (D4)	14	38	21	6	3	4	29
	Seoul (D5)	4	12	17	11	10	6	55
	Etc. (D6)	0	0	2	4	2	12	95

Visit frequency (F i) represents the most frequency of the use of facilities going to 1.And Goes to 0 represents the lowest frequency. F1+F2+F3+F4+F5+F6+F0 = 115

Usually mean the frequency of visits 4 (I 4). Means no visit to the frequency of visits 0 (I 0).

TABLE II
BASED IN THE CITY AND CHANGE IN PROPORTION LIVING FACILITIES
VISITING IN SIHWA AREA (%)

Division	Area (D i)	frequency of visit (F i)						
		1	2	3	4	5	6	0
Cultural Facilities Utilization	Sihwa area (D1)	63.5	13	9.6	0.9	1.7	1.7	9.6
	Old City Hall (D2)	1.7	1.7	2.6	13.9	10.4	9.6	60
	Siheung Town(D3)	5.2	12.2	20	10.4	8.7	1.7	41.7
	Around city(D4)	19.1	40	18.3	2.6	4.3	5.2	10.4
	Seoul (D5)	10.4	14.8	15.7	16.5	7.8	1.7	41.7
	Etc. (D6)	0	0	0.9	4.3	2.6	15.7	76.5
Shopping	Sihwa area (D1)	67	14.8	6.1	0	0.9	1.7	9.6
	Old City Hall (D2)	0	2.6	2.6	8.7	12.2	4.3	69.6
	Siheung Town(D3)	0.9	7.8	16.5	13.9	5.2	2.6	53.0
	Around city(D4)	16.5	37.4	19.1	0	3.5	5.2	18.3
	Seoul (D5)	3.5	16.5	22.6	11.3	6.1	7	33
	Etc. (D6)	0	0	0.9	2.6	3.5	10.4	82.6
Education	Sihwa area (D1)	75.7	7.8	5.2	1.7	0.9	1.7	7.0
	Old City Hall (D2)	0	2.6	5.2	1.7	0.9	1.7	73
	Siheung Town(D3)	0.9	18.3	10.4	9.6	0.9	1.7	58.3
	Around city (D4)	6.1	27	9.6	2.6	3.5	3.5	47.8
	Seoul (D5)	4.3	6.1	7	7	9.6	6.1	60
	Etc. (D6)	0	0	1.7	0	1.7	12.2	84.3
Public Office Utilization	Sihwa area (D1)	74.8	7.8	5.2	3.5	1.7	1.7	5.2
	Old City Hall (D2)	1.7	13.9	5.2	7.8	3.5	2.6	65.2
	Siheung Town(D3)	4.3	23.5	10.4	4.3	0.9	0.9	55.7
	Around city (D4)	7.8	11.3	13	10.4	3.5	3.5	50.4
	Seoul (D5)	1.7	4.3	3.5	3.5	11.3	5.2	70.4
	Etc. (D6)	0	0.9	0.9	0	1.7	10.4	86.1
physical plant Utilization	Sihwa area (D1)	74.8	8.7	2.6	2.6	0	0.9	10.4
	Old City Hall (D2)	0.9	7	3.5	12.2	4.3	4.3	67.8
	Siheung Town(D3)	0	15.7	16.5	3.5	1.7	1.7	60.9
	Around city (D4)	5.2	17.4	9.6	5.2	2.6	4.3	55.7
	Seoul (D5)	0.9	7	3.5	3.5	11.3	6.1	67.8
	Etc. (D6)	0	0	0	0.9	0.9	10.4	87.8
medical facilities Utilization	Sihwa area (D1)	67.8	15.7	7	0.9	0	3.5	5.2
	Old City Hall (D2)	0.9	3.5	1.7	8.7	10.4	3.5	5.2
	Siheung Town(D3)	2.6	10.4	16.5	7	0.9	2.6	60
	Around city (D4)	10.4	33.9	8.7	7	2.6	4.3	33
	Seoul (D5)	4.3	19.1	13.9	6.1	8.7	4.3	43.5
	Etc. (D6)	0.9	0	0	1.7	1.7	10.4	85.2
Place of Dine out	Sihwa area (D1)	70.4	10.4	6.1	2.6	1.7	1.7	7
	Old City Hall (D2)	2.6	3.5	5.2	9.6	12.2	4.3	62.6
	Siheung Town(D3)	0.9	18.3	20	12.2	3.5	1.7	43.5
	Around city (D4)	12.2	33	18.3	5.2	2.6	3.5	25.2
	Seoul (D5)	3.5	10.4	14.8	9.6	8.7	5.2	47.8
	Etc. (D6)	0	0	1.7	3.5	1.7	10.4	82.6

B. Old City Hall

Based in the city and living facilities to visit the region of 36 valid questionnaires, a total of 314 valid questionnaires Old city hall part of the pattern is as follows.

Old city hall local residents using the facilities within each of the six regions, cities, culture, shopping based life starting frequency of visits is shown in Table III, the proportion of the value of the frequency of visits in Table IV.

TABLE III
BASED IN THE CITY AND LIVING FACILITIES VISITING DISTRIBUTION
IN OLD CITY HALL

Division	Area (D i)	frequency of visit (F i)						
		1	2	3	4	5	6	0
Cultural Facilities Utilization	Sihwa area (D1)	3	3	7	2	2	3	16
	Old City Hall (D2)	9	5	4	5	2	2	9
	Siheung Town(D3)	3	6	2	5	3	2	15
	Around city (D4)	9	10	0	5	4	0	8
	Seoul (D5)	7	3	3	2	4	3	14
	Etc. (D6)	0	0	2	0	2	5	27
Shopping	Sihwa area (D1)	2	5	2	6	2	2	17
	Old City Hall (D2)	8	3	7	4	2	0	12
	Siheung Town(D3)	3	4	7	5	2	0	15
	Around city (D4)	11	9	5	1	2	1	7
	Seoul (D5)	5	4	6	3	7	0	11
	Etc. (D6)	1	0	1	1	1	4	28
Education	Sihwa area (D1)	0	1	2	7	0	0	26
	Old City Hall (D2)	16	5	4	0	1	0	10
	Siheung Town(D3)	6	11	3	0	3	0	13
	Around city (D4)	3	5	6	2	0	0	20
	Seoul (D5)	3	2	2	1	4	1	23
	Etc. (D6)	0	0	0	0	0	4	32
Public Office Utilization	Sihwa area (D1)	1	1	4	4	1	0	25
	Old City Hall (D2)	14	9	2	1	2	0	8
	Siheung Town(D3)	9	10	2	0	0	1	14
	Around city (D4)	1	3	8	2	1	0	21
	Seoul (D5)	1	0	1	3	4	0	27
	Etc. (D6)	1	0	1	0	0	3	31
physical plant Utilization	Sihwa area (D1)	1	1	5	2	1	0	26
	Old City Hall (D2)	15	4	1	0	1	1	14
	Siheung Town(D3)	4	10	2	2	0	0	18
	Around city (D4)	2	2	4	4	0	0	24
	Seoul (D5)	1	0	1	1	5	0	28
	Etc. (D6)	0	0	0	0	0	4	32
medical facilities Utilization	Sihwa area (D1)	0	1	2	3	2	0	28
	Old City Hall (D2)	16	4	5	0	0	1	10
	Siheung Town(D3)	6	10	1	3	1	0	15
	Around city (D4)	2	6	11	2	0	0	15
	Seoul (D5)	2	2	3	4	2	0	23
	Etc. (D6)	0	0	0	0	0	3	33
Place of Dine out	Sihwa area (D1)	1	3	4	5	0	1	22
	Old City Hall (D2)	12	4	6	2	1	1	10
	Siheung Town(D3)	5	10	4	0	3	1	13
	Around city (D4)	5	7	7	5	3	0	9
	Seoul (D5)	6	3	4	3	3	0	17
	Etc. (D6)	0	0	0	1	1	4	30

Visit frequency (F i) represents the most frequency of the use of facilities going to 1.And Goes to 0 represents the lowest frequency. $F1+F2+F3+F4+F5+F6+F0 = 36$

Usually means the frequency of visits 4($I 4$). Means no visit to the frequency of visits 0($I 0$).

TABLE IV
BASED IN THE CITY AND CHANGE IN PROPORTION LIVING FACILITIES
VISITING IN OLD CITY HALL (%)

Division	Area (D i)	frequency of visit (F i)						
		1	2	3	4	5	6	0
Cultural Facilities Utilization	Sihwa area (D1)	8.3	8.3	19.4	5.6	5.6	8.3	44.4
	Old City Hall (D2)	25	13.9	11.1	13.9	5.6	5.6	25
	Siheung Town(D3)	8.3	16.7	5.6	13.9	8.3	5.6	41.7
	Around city(D4)	25	27.8	0	13.9	11.1	0	22.2
	Seoul (D5)	19.4	8.3	8.3	5.6	11.1	8.3	38.9
	Etc. (D6)	0	0	.6	0	5.6	13.9	75
Shopping	Sihwa area (D1)	5.6	13.9	5.6	16.7	5.6	5.6	47.2
	Old City Hall (D2)	22.2	8.3	19.4	11.1	5.6	0	33.3
	Siheung Town(D3)	8.3	11.1	19.4	13.9	5.6	0	41.7
	Around city(D4)	30.6	25	13.9	2.8	5.6	2.8	19.4
	Seoul (D5)	13.9	11.1	16.7	8.3	19.4	0	30.6
	Etc. (D6)	2.8	0	2.8	2.8	2.8	11.1	77.8
Education	Sihwa area (D1)	0	2.8	5.6	19.4	0	0	72.2
	Old City Hall (D2)	44.4	13.9	11.1	0	2.8	0	27.8
	Siheung Town(D3)	16.7	30.6	8.3	0	8.3	0	36.1
	Around city (D4)	8.3	13.9	16.7	5.6	0	0	55.6
	Seoul (D5)	8.3	5.6	5.6	2.8	11.1	2.8	63.9
	Etc. (D6)	0	0	0	0	0	11.1	88.9
Public Office Utilization	Sihwa area (D1)	2.8	2.8	11.1	11.1	2.8	0	69.4
	Old City Hall (D2)	38.9	25	5.6	2.8	5.6	0	22.2
	Siheung Town(D3)	25	27.8	5.6	0	0	2.8	38.9
	Around city (D4)	2.8	8.3	22.2	5.6	2.8	0	58.3
	Seoul (D5)	2.8	0	2.8	8.3	11.1	0	75
	Etc. (D6)	2.8	0	2.8	0	0	8.3	86.1
physical plant Utilization	Sihwa area (D1)	2.8	2.8	13.9	5.6	2.8	0	72.2
	Old City Hall (D2)	38.9	25	5.6	2.8	5.6	0	22.2
	Siheung Town(D3)	25	27.8	5.6	0	0	2.8	38.9
	Around city (D4)	2.8	8.3	22.2	5.6	2.8	0	58.3
	Seoul (D5)	2.8	0	2.8	8.3	11.1	0	75
	Etc. (D6)	2.8	0	2.8	0	0	8.3	86.1
medical facilities Utilization	Sihwa area (D1)	0	2.8	5.6	8.3	5.6	0	77.8
	Old City Hall (D2)	44.4	11.1	13.9	0	02.8	27.8	
	Siheung Town(D3)	16.7	27.8	2.8	8.3	2.8	0	41.7
	Around city (D4)	5.6	16.7	30.6	5.6	0	0	41.7
	Seoul (D5)	5.6	5.6	8.3	11.1	5.6	0	63.9
	Etc. (D6)	0	0	0	0	0	8.3	91.7
Place of Dine out	Sihwa area (D1)	2.8	8.3	11.1	13.9	0	2.8	61.1
	Old City Hall (D2)	33.3	11.1	16.7	5.6	2.8	2.8	27.8
	Siheung Town(D3)	13.9	27.8	11.1	0	8.3	2.8	36.1
	Around city (D4)	13.9	19.4	19.4	13.9	8.3	0	25
	Seoul (D5)	16.7	8.3	11.1	8.3	8.3	0	47.2
	Etc. (D6)	0	0	0	2.8	2.8	11.1	83.3

C. Siheung Town

Based in the city and living facilities to visit the region of 163 valid questionnaires, a total of 314 valid questionnaires Siheung Town part of the pattern is as follows.

Siheung Town local residents using the facilities within each of the six regions, cities, culture, shopping based life starting frequency of visits is shown in Table V, the proportion of the value of the frequency of visits in Table VI.

TABLE V
BASED IN THE CITY AND LIVING FACILITIES VISITING DISTRIBUTION
IN SIHEUNG TOWN

Division	Area (D i)	frequency of visit (F i)						
		1	2	3	4	5	6	0
Cultural Facilities Utilization	Sihwa area (D1)	26	32	24	16	15	5	45
	Old City Hall (D2)	7	17	20	17	15	5	82
	Siheung Town(D3)	30	20	26	20	7	4	56
	Around city (D4)	81	34	12	2	2	1	31
	Seoul (D5)	16	26	29	14	21	4	53
	Etc. (D6)	1	3	4	5	2	18	130
Shopping	Sihwa area (D1)	34	37	13	11	14	8	46
	Old City Hall (D2)	5	15	23	27	12	7	74
	Siheung Town(D3)	27	25	36	17	7	4	47
	Around city (D4)	68	37	21	5	2	1	29
	Seoul (D5)	10	19	26	24	24	2	58
	Etc. (D6)	1	2	2	4	5	17	132
Education	Sihwa area (D1)	20	17	14	16	9	3	84
	Old City Hall (D2)	10	32	14	10	9	3	85
	Siheung Town(D3)	76	17	15	10	3	2	40
	Around city (D4)	29	34	24	9	1	2	64
	Seoul (D5)	9	12	7	9	20	3	103
	Etc. (D6)	2	3	3	0	4	13	138
Public Office Utilization	Sihwa area (D1)	14	18	20	12	5	3	91
	Old City Hall (D2)	10	37	17	6	6	2	84
	Siheung Town(D3)	111	23	5	2	2	1	19
	Around city (D4)	16	23	23	10	3	3	85
	Seoul (D5)	3	6	4	11	22	2	115
	Etc. (D6)	1	1	1	1	2	16	141
physical plant Utilization	Sihwa area (D1)	22	19	14	15	6	1	86
	Old City Hall (D2)	14	27	16	8	5	3	90
	Siheung Town(D3)	90	28	10	4	1	1	29
	Around city (D4)	19	26	34	7	1	1	75
	Seoul (D5)	2	4	2	12	18	2	123
	Etc. (D6)	4	1	1	0	4	13	140
medical facilities Utilization	Sihwa area (D1)	14	12	20	12	6	3	96
	Old City Hall (D2)	22	18	18	15	5	2	83
	Siheung Town(D3)	81	37	13	4	6	1	21
	Around city (D4)	3	43	24	7	1	2	56
	Seoul (D5)	8	10	13	13	22	1	96
	Etc. (D6)	1	1	1	0	2	14	144
Place of Dine out	Sihwa area (D1)	12	26	31	16	12	3	63
	Old City Hall (D2)	16	20	17	19	11	4	76
	Siheung Town(D3)	78	30	20	8	1	2	24
	Around city (D4)	43	43	19	15	2	2	39
	Seoul (D5)	5	15	22	18	29	3	71
	Etc. (D6)	4	2	4	1	5	15	132

Visit frequency (F i) represents the most frequency of the use of facilities going to 1.And Goes to 0 represents the lowest frequency. F1+F2+F3+F4+F5+F6+F0 = 163

Usually mean the frequency of visits 4(I 4). Means no visit to the frequency of visits 0(I 0).

TABLE VI
BASED IN THE CITY AND CHANGE IN PROPORTION LIVING FACILITIES
VISITING IN SIHEUNG TOWN (%)

Division	Area (D i)	frequency of visit (F i)						
		1	2	3	4	5	6	0
Cultural Facilities Utilization	Sihwa area (D1)	16	19.6	14.7	9.8	9.2	3.1	27.6
	Old City Hall (D2)	4.3	10.4	12.3	10.4	9.2	3.1	50.3
	Siheung Town(D3)	18.4	12.3	16	12.3	4.3	2.5	34.4
	Around city(D4)	49.7	20.9	7.4	1.2	1.2	0.6	19
	Seoul (D5)	9.8	16	17.8	8.6	12.9	2.5	32.5
	Etc. (D6)	0.6	1.8	2.5	3.1	1.2	11	79.8
Shopping	Sihwa area (D1)	20.9	22.7	8	6.7	8.6	4.9	28.2
	Old City Hall (D2)	3.1	9.2	14.1	16.6	7.4	4.3	45.4
	Siheung Town(D3)	16.6	15.3	22.1	10.4	4.3	2.5	28.8
	Around city(D4)	41.7	22.7	12.9	3.1	1.2	0.6	17.8
	Seoul (D5)	6.1	11.7	16	14.7	14.7	1.2	35.6
	Etc. (D6)	0.6	1.2	1.2	2.5	3.1	10.4	81
Education	Sihwa area (D1)	12.3	10.4	8.6	9.8	5.5	1.8	51.5
	Old City Hall (D2)	6.1	19.6	8.6	6.1	5.5	1.8	52.1
	Siheung Town(D3)	46.6	10.4	9.2	6.1	1.8	1.2	24.5
	Around city (D4)	1	20.9	14.7	5.5	0.6	1.2	39.3
	Seoul (D5)	5.5	7.4	4.3	5.5	12.3	1.8	63.2
	Etc. (D6)	1.2	1.8	1.8	0	2.5	8	84.7
Public Office Utilization	Sihwa area (D1)	8.6	11	12.3	7.4	3.1	1.8	55.8
	Old City Hall (D2)	6.1	23.3	10.4	3.7	3.7	1.2	51.5
	Siheung Town(D3)	68.1	14.1	3.1	1.2	1.2	0.6	11.7
	Around city (D4)	9.8	14.1	14.1	6.1	1.8	1.8	52.1
	Seoul (D5)	1.8	3.7	25	6.7	13.5	1.2	70.6
	Etc. (D6)	0.6	0.6	0.6	0.6	1.2	9.8	86.5
physical plant Utilization	Sihwa area (D1)	13.5	11.7	8.6	9.2	3.7	0.6	52.8
	Old City Hall (D2)	8.6	16.6	9.8	4.9	3.1	1.8	55.2
	Siheung Town(D3)	55.2	17.2	6.1	2.5	0.6	0.6	17.8
	Around city (D4)	11.7	16	20.9	4.3	0.6	0.6	46
	Seoul (D5)	1.2	2.5	1.2	7.4	11	1.2	75.5
	Etc. (D6)	2.5	0.6	0.6	0	2.5	8	85.9
medical facilities Utilization	Sihwa area (D1)	8.6	7.4	12.3	7.4	3.7	1.8	58.9
	Old City Hall (D2)	13.5	11	11	9.2	3.1	1.2	50.9
	Siheung Town(D3)	49.7	22.7	8	2.5	3.7	0.6	12.9
	Around city (D4)	18.4	26.4	14.7	4.3	0.6	1.2	34.4
	Seoul (D5)	4.9	6.1	8	8	13.5	0.6	58.9
	Etc. (D6)	0.6	0.6	0.6	0	1.2	8.6	88.3
Place of Dine out	Sihwa area (D1)	7.4	16	19	9.8	7.4	1.8	38.7
	Old City Hall (D2)	9.8	12.3	10.4	11.7	6.7	2.5	46.6
	Siheung Town(D3)	47.9	18.4	12.3	4.9	0.6	1.2	14.7
	Around city (D4)	26.4	26.4	11.7	9.2	1.2	1.2	23.9
	Seoul (D5)	3.1	9.2	13.5	11.0	17.8	1.8	43.6
	Etc. (D6)	2.5	1.2	2.5	0.6	3.1	9.2	81

DATA processing was granted weighted in the rankings according to the original data of the frequency of visits to the station. The frequency of visits by high ranking 1 had a value of 6and lower ranks 6 was to have a value of 1. If you have never visited, it is 0. Adults with data changed % ratio and shown for each purpose of the passage as a distribution with % ratio. The weights between % ratio and the weighted were obtained average value as the final result of the. Higher priority value is 1, the lowest value is priority 7, and the data were analyzed.

Analysis results for each target passage, but there are differences cultural facilities, shopping, education, medical facilities and activities, eating out, if you did not consider the job as a whole Siheung citizens outside the of dependence was higher. Be used in the proportion of government offices and athletic facilities, Siheung for dependence can take 1 ranking.

IV. CONCLUSION

In this dissertation, we analyzed the pattern of urban spatial structure of Siheung City that had been divided into two parts and presented alternative plans in order to get rid of these phenomena. Concerning patterns of urban spatial structure, we examined it through means of analyzing status of land use, population density and distribution of residence, status of distribution of main facilities, medical facilities, status of distribution of cultural facilities, distribution of land prices and traffic volume trends. The results of study revealed that status of facilities distribution and distribution of land prices, etc. were bisected by the surrounding area of former municipal office and the district of Sihwa, which were both regarded as one apex of the city divide, forming a duo-centric city. And the results of investigation into seven major fields for life activities, such as use of cultural facilities, shopping, education, visiting government agencies, using medical facilities and eateries that most popularly used by families are as follows:

First, most of residents who live in the district of Sihwa carry out their 7 main life activities within the same district, and their dependency upon Seoul was much higher than that of those residents who are living in the area adjacent to former municipal office and the central districts of Siheung City and other regions.

Second, those resident who are living in the surrounding zone of former municipal office mostly answered that they use facilities located in the cities adjacent to their residences or in Seoul when engaging in 7 main life activities, so that they seldom use facilities located in the district of Sihwa.

Third, in case of those residents who live in other regions than the aforesaid zones in Siheung City, the results revealed that, in case they are not from the same region, their dependency upon nearby cities and Seoul are greater.

In order to get rid of this problem concerned with urban spatial structure that has been bisected, it is required that:

First, measures in order to expand facilities in Siheung City should be taken. Particularly, the results of investigations revealed that there is lack of cultural and shopping facilities, and so forth, in the surrounding area of former municipal office.

Second, it is required that there be constructed a system for transportation network that would connect the central part of

duo-centric city. That is to say, primarily, expansion of existing national road and local road or its pavement works should precede more than anything else. Recently the city has been made growths and developed centering around the surrounding zone of new municipal buildings, therefore, it is required that transportation networks, such as roads and railways be constructed accordingly.

Third, it is also required that, having established axis of development and of Green Zone, such demands as for developments be led to the regions near axis of development and Green Zone must be taken care of for further use of preservation though the agreements of citizens.

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