auri research brief

No. 55

Kim, Yonggook
Associate Research Fellow

Park policy improvement plan for inclusive neighborhood regeneration

Parks have been born to resolve urban problems, and have experienced various stages of change. The most contested urban issues of modern cities today are inclusion and regeneration. The problems of inequality and imbalance due to socioeconomic and environmental status have reached a critical level. Many places are losing urban vitality due to complex factors of population decrease, low birthrate, an aging population, and loss of industrial competitiveness. In view of this, modern parks need to transform into spaces that contribute toward inclusion and regeneration. The numerous parks that are underused or neglected, should not be limited to simply functioning as places where nature is experienced or an oasis in the urban realm, but need to mitigate for various urban problems such as imbalance and inequality, the problems of job creation, social cohesion, health promotion, and also adapt to climate change and environmental vulnerability.

This study suggests policy measures to promote neighborhood inclusivity and the urban regeneration capacity of parks. The main contents of the study are as follows. First, the inclusivity of park services was analyzed. The analysis was based on 1,148 eup, myun, and dong (towns, townships and villages administrative districts) located in the seven metropolitan areas, from which the correlation between Socio-economic and environmental status (SEES) and
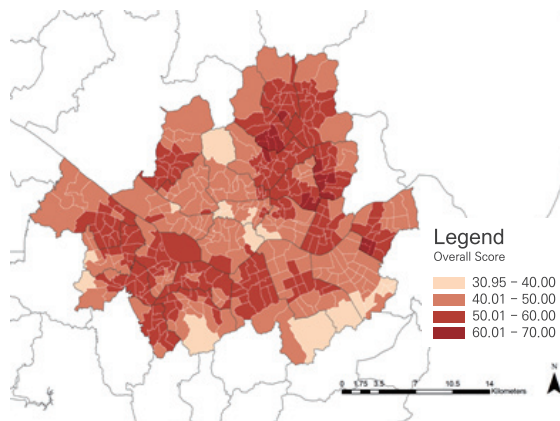
park services was examined. Second, plans to promote an inclusive neighborhood regeneration policy were suggested. The Index of Park Deprivation (IPD), which measures the relative need for park services at the regional level, was applied to the seven metropolitan areas. Third, a park-based inclusive neighborhood regeneration project was simulated, and the economic value, feasibility, and ripple effects were estimated.

The study found that there were a number of areas and residents excluded from park services. The inclusivity of park services was analyzed based on the levels of park services of the 1,148 administrative districts and its respective SEES. As a result, areas with a higher proportion of socially vulnerable groups, such as the elderly or national basic living recipients, suffered from lower levels of park services. The central and local governments need to first consider socioeconomically and environmentally vulnerable groups and areas to improve the quantity and quality of park services and to ensure an inclusive welfare state.
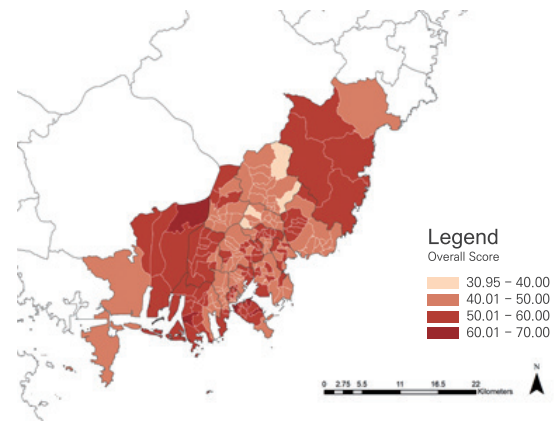
[Table 1] Correlation between SEES and park service level

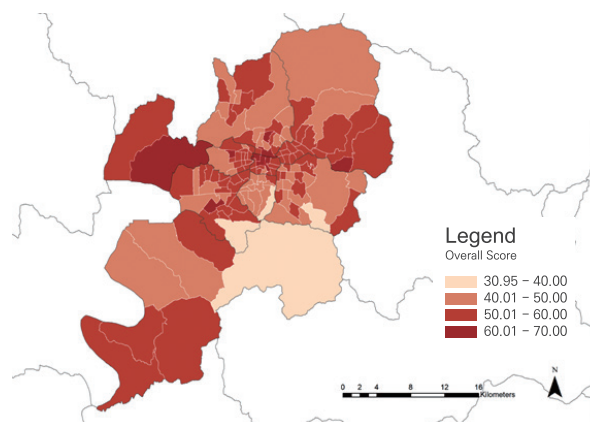| Category	Mean	SD	Inter-Construct Correlations														
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Park service area ratio	43.53	20.71	1.00														
2. Population density	16263.89	11632.89	.493**	1.00													
3. Elderly population ratio	15.52	5.68	-.300**	-.223**	1.00												
4. Youth population ratio	11.07	3.77	.121**	.024	-.717**	1.00											
5. Core working-age population ratio	37.32	5.24	.303**	.340**	-.757**	.376**	1.00										
6. Financial independence	30.25	12.71	.171**	.056	-.223**	.111**	.342**	1.00									
7. National basic living recipient ratio	3.88	3.39	-.133**	-.180**	.533**	-.453**	-.463**	-.300**	1.00								
8. Highly-educated population ratio	40.91	12.68	.187**	.135**	-.359**	.208**	.416**	.294**	-.336**	1.00							
9. Walking rate	51.97	10.30	.323**	.426**	-.174**	-.045	.451**	.407**	-.245**	.368**	1.00						
10. Obesity	26.52	2.66	-.082**	-.099**	.137**	-.023	-.190**	-.310**	.128**	-.397**	-.299**	1.00					
11. Depression experience rate	6.19	1.92	.169**	.275**	-.079**	-.020	.223**	.087**	-.075*	.075*	.434**	.144**	1.00				
12. Stress rate	27.02	3.35	.187**	.215**	-.061**	-.020	.138**	.064*	-.006	-.025	.243**	.376**	.479**	1.00			
13. Heat vulnerability index	.27	.13	.186**	.307**	-.233**	.117**	.229**	.091**	-.108**	.112**	.064*	.008	.060*	.066*	1.00		
14. Flood vulnerability index	.17	.10	-.034	.116**	-.025	-.030	.056	.005	-.016	.065*	.002	-.087**	.008	-.127**	.002	1.00	
15. Fine dust vulnerability index	.33	.15	.105**	.216**	-.155**	.050	.105**	.009	-.063*	.098**	-.036	.044	.069*	.026	.422**	.146**	1.00
*p < 0.05, **p < 0.01																	

Second, the IPD was developed as a composite of 17 variables including park service level, demographic characteristics, economic and educational level, health, and environmental vulnerability. The IPD values of the 1,148 districts in seven metropolitan areas revealed that the following areas were particularly in need of park services: Samgaksan-dong in Gangbuk-gu, Seoul; Daejeo 1-dong in Gangseo-gu, Busan; Ansim 1-dong in Dong-gu, Daegu; Samsan 1-dong in Bupyeong-gu, Incheon; Sinchang-dong in Gwangsan-gu, Gwangju; Hoedeok-dong in Daedeok-gu, Daejeon; and Nongso 3-dong in Buk-gu, Ulsan. These areas with high IPD require customized projects with consideration to the regional conditions and characteristics. For instances, an 'elderly welfare park service' may be needed in areas with a high concentration of elderly population in poverty. A 'childcare support park service' may be suggested in areas with a high ratio of infants and toddlers. 'Environmental problem mitigation park service' can be suggested for environmentally vulnerable areas of fine dust, flooding, or other climate-related vulnerabilities. A 'local economic support park service' may be provided in areas of low financial capability and a relatively high poverty rate. As such, different park policy measures can be developed to respond to local characteristics and needs.
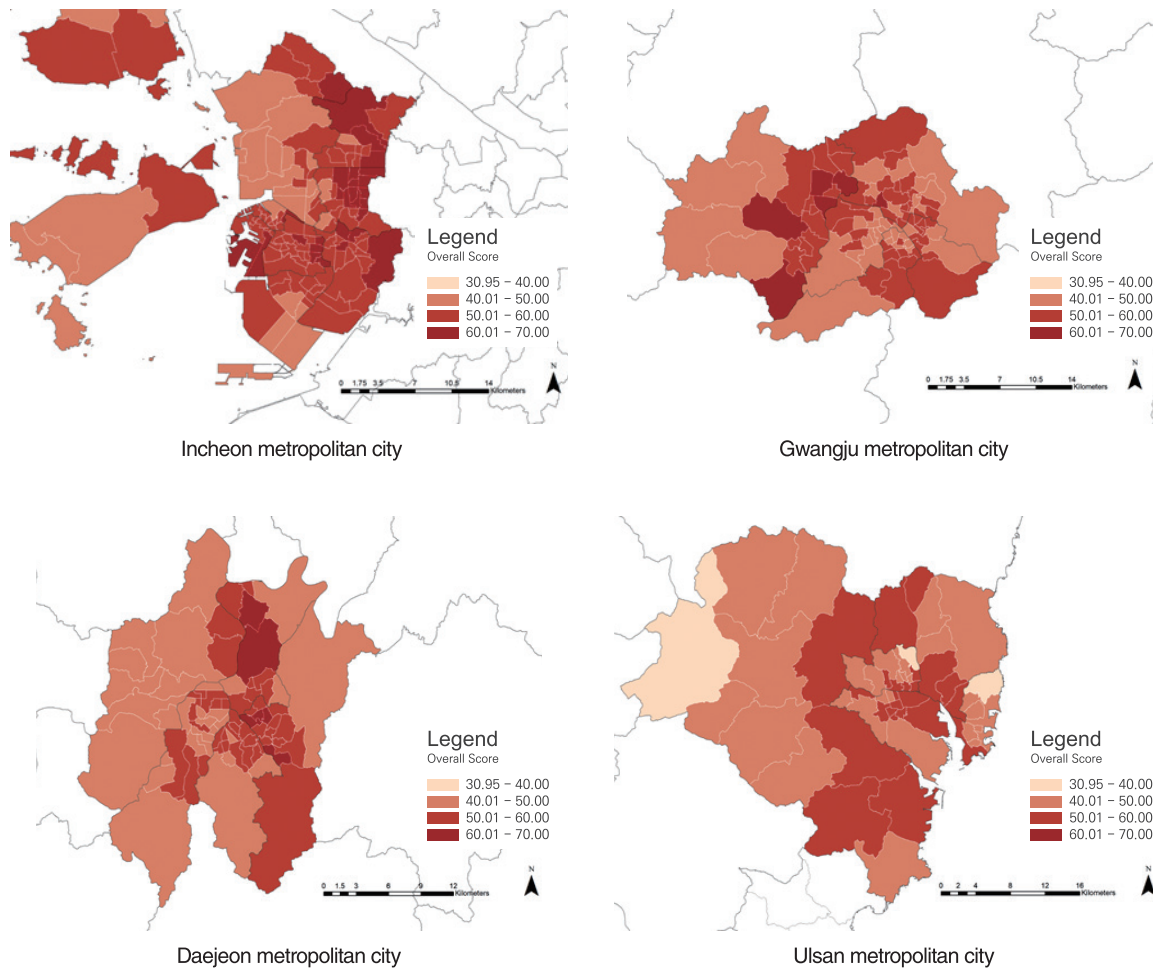
Seoul metropolitan city

Busan metropolitan city

Daegu metropolitan city

Incheon metropolitan city

Gwangju metropolitan city

Daejeon metropolitan city

Ulsan metropolitan city

[Figure 1] IPD of seven metropolitan areas

Third, the economic value, feasibility, and effects of simulated park-based inclusive neighborhood regeneration projects were estimated for three of the high IPD areas: Myeonmok 2-dong, Seoul; Guwol 2-dong, Incheon; and Panam 1-dong, Daejeon. Based on the socio-economic and environmental characteristics, the simulated projects suggested expanding green infrastructure and installing customized facilities such as cafes, daycare centers, and welfare facilities for the elderly. Applying the conditional value measurement method (CVM), the study revealed that the individual projects were worth about 3.4 to 6.4 billion KRW. Using the benefit-cost ratio, net present value, and internal rate of return, the study also showed that all three projects were economically feasible. Fourth, the study analyzed the economic ripple effects by applying an input-output analysis and found that all three projects would create high-level production inducement effects, employment inducement effects, and value-added effects in neighboring regions

[Table 2] The estimated effects of park-based inclusive neighborhood regeneration

Classification		Within region (%)			National (%)		
		Production	Employment	Value added	Production	Employment	Value added
Excluding site purchasing fee	Myeonmok 2-dong, Jungnang-gu, Seoul	1.25	11.74	0.51	2.13	13.3	0.75
	Guwol 2-dong, Namdong-gu, Incheon	1.22	14.59	0.48	2.10	18.99	0.75
	Panam 2-dong, Dong-gu, Daejeon	1.16	13.14	0.47	2.11	17.92	0.76
Including site purchasing fee	Myeonmok 2-dong, Jungnang-gu, Seoul	0.71	6.67	0.29	1.21	7.56	0.43
	Guwol 2-dong, Namdong-gu, Incheon	0.99	11.84	0.39	1.71	15.41	0.61
	Panam 2-dong, Dong-gu, Daejeon	0.15	1.71	0.06	0.27	2.33	0.10

Keywords : Inclusive City, Urban Regeneration, Index of Park Deprivation, Economic Value Analysis