

auri research brief

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A Study of Strategies for the Architecture and Urban Planning Industry for Sustainable Development Goals (SDGs)

Paradigm Shift from MDGs to SDGs

Sustainable Development Goals (SDGs), having 17 goals and 169 targets, were created in January, 2016, to replace MDGs. The value of SDGs is to provide a new paradigm which shows a set of principles for solving internal and external problems of individual countries and organizations for the next 15 years. SDGs include various global issues and one of the issues is related to sustainable cities. It is obvious that SDGs will make an influential contribution to the architectural and urban planning industries in the near future. Therefore, it is necessary to estimate impacts of SDGs on the industries and policies of Architecture and Urban Planning, and to seek a direction for the policies in accordance with SDGs.

The Comparison between MDSGs and SDGs

Goals	MDGs	SDGs
Range	Society development focused	Sustainable development (economic, society, and environment)
Achievement topics	Decrease severe poverty	Decrease any kind of poverty and inequality
Target countries for achievements	Developing countries	Both developing countries and developed countries
Economic resources	Economic resource of development: Public development assistance focused (Donors → Receivers)	Domestic public economic resources (tax), public development assistance, and public economic resources (trade, investment), etc.
Surveillance and Monitoring	Each country Voluntarily reports the progress to the UN	Each country report led by the recommendations of the UN

※ Source: Dowoon Moon(2015), "Easy to know sustainable development goals" Korea Civil Society Forum on International Development Cooperation



Sustainable Development Goals

※ Source : <https://www.un.org/sustainabledevelopment/news/communications-material/>

In South Korea, SDGs related strategies and policies were led by the Office for Government Policy Coordination, Prime Minister's Secretariat, Ministry of Environment, and Ministry of Foreign Affairs and Statistics. However, most of the government policies and strategic plans had been made before the beginning of the SDGs, so they are not exactly relevant to the goals. For this reason, new policies and strategic plans would be produced, or existing policies and plans would be amended to reflect SDGs.

Unlike the government, the civil societies in South Korea are more active than the government in implementing SDGs into various parts of Korean culture such as the economy, environment, society, and matters related with North Korea, etc. Their activities now form the early stage of governance, and it is believed that they set up the implementation of SDGs to move in the direction.

Several countries such as Germany, France, and Japan, have established a high level of committee to coordinate SDGs' matters among government organizations and to monitor and evaluate implementations.

SDGs' indicators are still unsettled, and countries have not reached an agreement about which proposed indicators will be adoptable by UN members. Furthermore, many indicators are methodologically not available. Therefore, forecasting the impacts of SDGs with the indicators is not possible in reality. However, there are several similar indicators which Statistics Korea has collected. Therefore, the study uses these similar indicators to forecast the impacts of SDGs for the architectural and urban planning industries. The study limits the scope of its context to SDGs Goal 11, which addresses sustainable and resilient cities.

Details and indicators of SDGs Goal 11

Goal 11. Make Cities and Human Settlements Inclusive, Safe, Resilient and Sustainable

Targets	Indicators
11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums	11.1.1 Proportion of urban population living in slums, informal settlements or inadequate housing
11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons	11.2.1 Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities
11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries	11.3.1 Ratio of land consumption rate to population growth rate 11.3.2 Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically
11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage	11.4.1 Total expenditure (public and private) per capita spent on the preservation, protection and conservation of all cultural and natural heritage, by type of heritage (cultural, natural, mixed and World Heritage Centre designation), level of government (national, regional and local/ municipal), type of expenditure (operating expenditure/ investment) and type of private funding (donations in kind, private non-profit sector and sponsorship)

Targets	Indicators
11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations	11.5.1 Number of deaths, missing persons and persons affected by disaster per 100,000 people 11.5.2 Direct disaster economic loss in relation to global GDP, including disaster damage to critical infrastructure and disruption of basic services
11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management	11.6.1 Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities 11.6.2 Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)
11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities	11.7.1 Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities 11.7.2 Proportion of persons victim of physical or sexual harassment, by sex, age, disability status and place of occurrence, in the previous 12 months
11.a Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning	11.a.1 Proportion of population living in cities that implement urban and regional development plans integrating population projections and resource needs, by size of city
11.b By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015- 2030,	11.b.1 Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030 11.b.2 Number of countries with national and local disaster risk reduction strategies
11.c Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials	11.c.1 Proportion of financial support to the least developed countries that is allocated to the construction and retrofitting of sustainable, resilient and resource-efficient buildings utilizing local materials

Current status of SDGs Goal 11, and the analysis of predictive values in 2030

Similar indicators available in Korea are summarized as follows:

The proportion of the population living in slums for the SDGs indicator 11.1.1 can be assumable using the “Rate of households under minimum housing standards.” The rate has decreased since 2006 and the was 978,000 households in 2014.

For SDG indicator 11.2.1, “Time to access public transportation,” in 2014, 44.3% of people still spent more than 10 minutes on foot to reach a facility to take a public transportation.

There are not enough indicators available for SDG indicators 11.3.1 and 11.3.2. For 11.3.1, the “Rate of urbanization” might be usable with 91.7% in 2014. On the other side, there is no clear similar indicator for 11.3.2 at the moment.

There is “Budget for cultural heritage” as a similar indicator for SDG indicator 11.4.1. The budget was around 0.3% of the GDP and 1.24% of the total government budget in 2014.

There are several statistical data for natural disasters such as “Frequency of natural disasters,” “Damage to human life by natural disasters,” and “Physical damage by natural disasters.” These indicators can be used as similar alternative indicators for SDG indicators 11.5.1 and 11.5.2.

It is possible to assume how well waste is treated and re-used with “Recycling rate of general waste” for SDGs indicator 11.6.1. In total, 84% of general waste in Korea was recycled in 2013. For SDG indicator 11.6.2, “Annual mean level of PM10 for key cities” is available. However, the 11.6.2 also requires the data for PM2.5 as well, but this data yet available in Korea.

There is no statistical data for public spaces and the scope term for public space is still unclear. Therefore, it should be clearly defined before collecting data for SDG indicator 11.7.1. Moreover, for a similar indicator, several possible data should be re-constructed for the study.

There are few criminal data for SDG indicator 11.7.2, although they are not well categorized according to the requirements of indicator. In terms of sexual crimes, the rate has increased since 2011.

The meaning of SDG indicator 11.a.1 is unclear and there is no similar current data available.

SDGs indicators 11.b.1 and 11.b.2 investigate how many central and local governments have their own strategy for disaster risk reduction. However, these indicators are mainly for developing and under developed countries. For Korea, the central and local governments have such strategies, but they may need to be modified in accordance with the requirements of the Sendai Framework.

SDG indicator 11.c.1 emphasizes a financial support for the least developed countries for construction projects using local materials. There is no data available as ODA statistics do not collect data by the origins of construction materials.

The study conducted a questionnaire survey with experts by email from August 18, 2016, to September 27, 2016. The survey adopted forecasting trends and the Delphi method was carried out five times. The questionnaires collected information on seven topics: the influence of the targets of SDGs goal 11, the selection of similar indicators for SDGs goal 11, forecasting for the selected similar indicators by experts, propriety of existing national policies for individual targets regarding SDGs, policy suggestions for individual targets regarding SDGs, the effectiveness of the policies for individual targets, and the hierarchy of the policies for individual targets.

Among the collected data, forecasting for selected similar indicators by experts and the effectiveness of the policies for individual targets were repeatedly questioned using the Delphi method.

Experts who participated in the survey forecasted that most of the similar indicators would changed to a positive direction according to the predictions, especially with four SDGs indicators, which are expected to have greater changes by 2030, including Indicator 11.1.1: Improvement of housing conditions, Indicator 11.4.1: Culture and natural heritage related issues, Indicator 11.6.2: Reduction of the levels of fine particulate matters, Indicator 11.7.1: Expansion of public spaces, and Indicator 11.7.2: Crime prevention in public spaces.

The Comparison between the Current Value and the Future Value of Indicators related to SDGs Goal 11

Indicators of SDGs	Domestic index		Current	Predictive value in 2030	Variation*
11.1.1.	The number of households below the minimum housing standard		97.8 million (2014)	32.2 million	▼▼
11.2.1	Percentage of public transportation access time	Less than 5 mins	14.0% (2015)	13.0%	▼
		5~10 mins	44.0% (2015)	49.4%	▲
		10~15 mins	29.9% (2015)	27.9%	▼
		15~20 mins	6.8% (2015)	5.3%	▼
		More than 20 mins	5.3% (2015)	4.5%	▼
11.3.1	Urbanization area ratio per capita		17.2% (2015)	17.9%	▲
11.4.1	Percentage of cultural finance to GDP		0.3% (2014)	0.7%	▲▲
11.5.1	The number of deaths and missing persons		2 person (2014)	32 person	▲
	The number of victims		7,691 person (2014)	30,500 person	▲
11.5.2	Natural disaster damage ratio to GDP		0.012% (2014)	0.020%	▲
11.6.1	General waste recycling ratio		84.0% (2013)	86.3%	▲
11.6.2	Fine dust concentration		45.8 $\mu\text{g}/\text{m}^3$ (2013)	28.8 $\mu\text{g}/\text{m}^3$	▼▼
11.7.1	Area of public space per capita		273.5 m^2 (2015)	352.1 m^2	▲▲
11.7.2	Ratio of sexual assaults in public spaces		0.4% (2014)	0.3%	▼▼
	Ratio of violent accidents occurring in public spaces		5.5% (2014)	4.2%	▼▼
11.a.1	Percentage of population living in urban planning area		90.4% (2015)	92.2%	▲

*One triangle means steady variation and two triangles refer to rapid change. Also, green means a positive and red means a negative change.

Detailed policy directions to achieve SDGs Goal 11

The analysis results indicate that four sectors may be more strategically focused than the other sectors in the areas of Architecture and Urban Planning including Target 11.1 (Indicator 11.1.1): Improvement of housing conditions, Target 11.7 (Indicator 11.7.1): Expansion of public space, Target 11.7 (Indicator 11.7.2): Crime prevention in public spaces, and Target 11.5 (Indicators 11.5.1 and 11.5.2): Risk reduction of natural disasters.

In terms of target 11.5: Risk reduction during natural disasters, it is important to integrate a risk reduction strategy for natural disasters. However, the integration would not be easy and would take some times.

On the other hand, crime prevention (Indicator 11.7.2 of Target 11.7) and the improvement of slums (Target 11.1) are on-going issues currently. The two sectors are closely related as many crime prevention projects have been implemented in the housing areas where the relatively aged and poor people live in the cities. Moreover, Target 11.1 is a directly involved an issue for the Architecture and Urban Planning.

In terms of Target 11.7 and Indicator 11.7.1: Expansion of public spaces, the policies need to focus on building safe and accessible public spaces for relatively vulnerable groups in our society such as the disabled, the elderly, women, and the children.

In addition, although it was relatively low in impact, Target 11.c: Financial support for the least developed countries for sustainable and resilient building is also a sector for the focus of the architecture and urban planning industries. Depending on a budget increase and a change of strategy in the ODA, this target may become a chance to expand business to the least developed or underdeveloped countries.

In terms of the hierarchy of policies for the individual targets of SDGs Goal 11, the experts put executive policies at higher ranks than planning. This would be implicit that Korea could be well-organized countries and most related strategies or plans. However the execution of the plans could be a different issue with making plans.

The Summary of Prioritised Domestic Policy and effect prediction by the areas of SDGs Goal 11

SDGs Goals	Prioritised Policies	Predicted Effect Ranking
Target 11.1	1. Social housing expansion policy	3
	2. Housing policy that can directly support households that are below minimum housing standards	1
	3. Low-income housing improvement/local government house repair support project	2
Target 11.2	1. Improving public transportation service for vulnerable users	1
	2. Assisting transportation deprived areas and blind areas	1
	3. Customized transportation service for the disabled and the elderly	1
Target 11.3	1. Improvement to participation system to provide a long-term deliberations process instead of one-time participation	2
	2. Expansion of the transfer of budget authority to residents through linkage of space planning and participatory budget projects	1
	3. Residents' participation in the budget system	5
Target 11.4	1. Restoration of modern cultural assets and cultivation of related talented individuals	1
	2. The excavation, preservation, protection, and education of natural heritage	2
	3. Strengthening and advertising storytelling through cultural property	4
Target 11.5	1. Analyze scenarios and impacts by disasters and implement a mitigation system at each local level	2
	2. Survey living conditions of poor and vulnerable people from the perspective of disaster prevention and preparation measures	1
	3. Strengthening and reinforcing safety standards of major facilities (dams, banks, etc.)	3
Target 11.6	1. Fine dust reduction policy	5
	2. Report accurate statistical data on the occurrence of fine dust	1
	3. Closure and replacement plan for coal-based thermoelectric power plants (excluding nuclear power)	3
Target 11.7 (Indicator 11.7.1)	1. Policies for protecting small parks and green areas in neighborhood units	1
	2. Reinforcing installation guidelines for proper placement of public spaces	3
	3. Support construction of a pedestrians-centered city	2
Target 11.7 (Indicator 11.7.2)	1. Establish a night security crime prevention system for urban parks, playgrounds, etc.	1
	2. Diversification of Crime Prevention Through Environmental Design (CPTED) project according to place, crime, and crime type.	2
	3. Public disclosure of sexually violent criminals and resident alarm service/reinforcement of post management.	3
Target 11.a	1. Mandate to establish integrated regional planning of neighboring local governments	4
	2. Establish a city-wide plan and a city-wide transportation network plan	1
	3. Initiate a growth management plan	4
Target 11.c	1. Transfer applicable technology and local technology	3
	2. Expansion of aid funds for construction of infrastructures to utilize local materials	1
	3. Support new technology research which can be shared with the world's poorest nations	2

Policy Frameworks to Achieve SDGs Goal 11

SDGs focus on various topics and the key is cooperation by the relevant government departments. However, there is not a single entity to coordinate them currently. Therefore, the study proposes to establish a new presidential organization to coordinate relevant government organizations. The study also suggests various policies and projects for the architecture and urban planning industries for the next 15 years under the SDGs.

Finally, SDGs are a kind of guidances for determining directions and goals for each nation to transform their societies to create a more sustainable future. The Korean government also needs to make proper strategies and plans to implement SDGs in various parts of the country. For this reason, open-discussions with potential participants would be necessary. Also, most of accessible data that the government has should be opened to the public.

Key words : SDGs, Goal 11, Sustainable City, Future Forecast, Policy, Slum, Housing, CPTED

