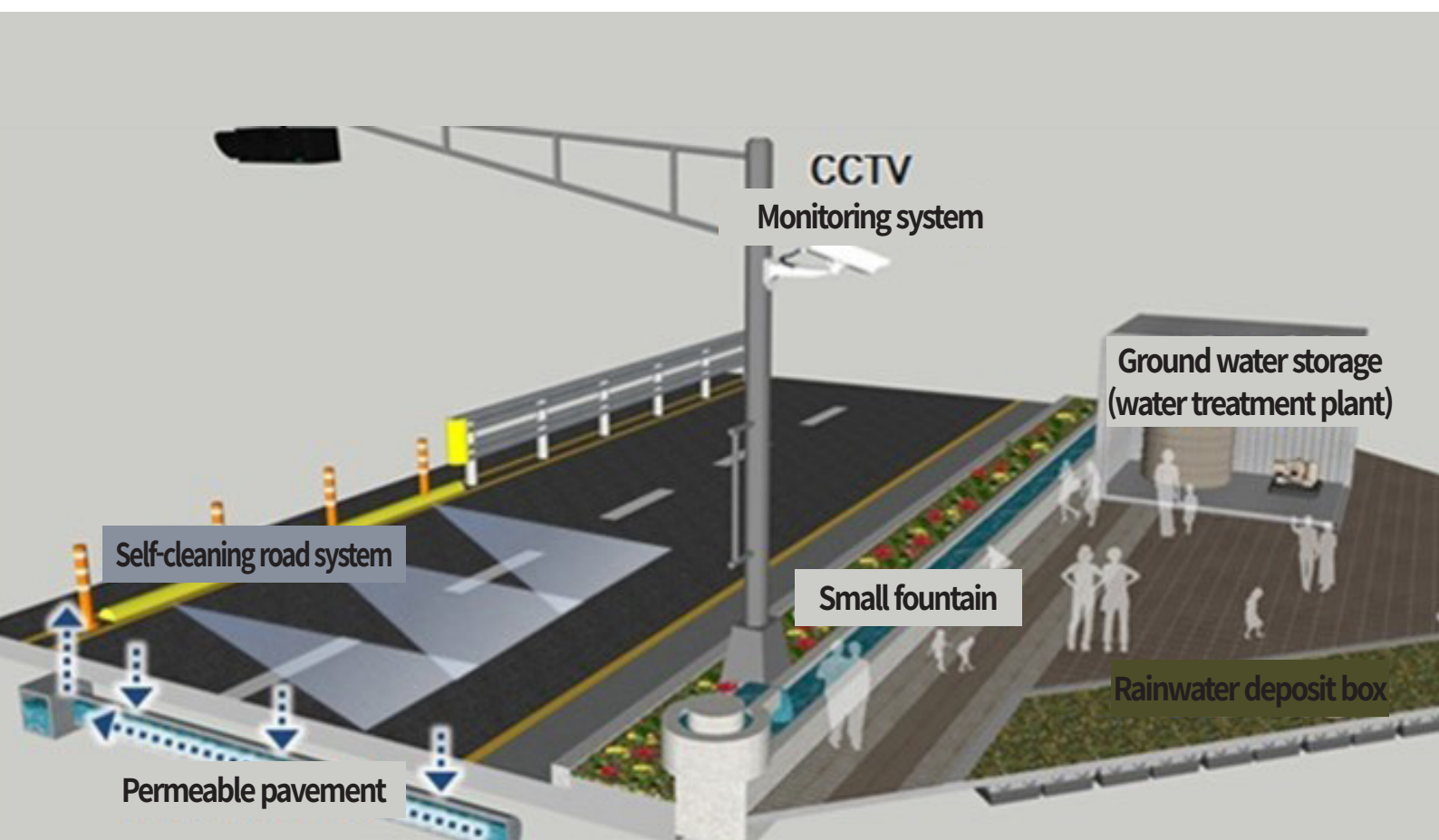


Building a carbon neutrality model optimized for a city in Korea

To solve the global climate crisis, regional climate action is critical. Cities where, about 55% of the world's population resides, produce 75% of greenhouse gas emissions. Thus, developing climate change response models optimized for cities is critical. 91.8% of Korea's population resides in cities, making the impact of urbanization more serious than in many other countries. As such, a carbon neutrality model optimized for a Korean city should be prepared.

Goyang City, one of the new cities built in the early 1990s, has recognized this problem and established a climate change response plan in 2019. Checking and implementation began in 2020. The city has organized the "Goyang Citizens Solidarity for Carbon Neutrality" and the "Carbon Neutrality Implementation Committee," carried out response projects with citizen participation, and developed a carbon neutrality model most suitable for the city which has nearly no industrial facilities.



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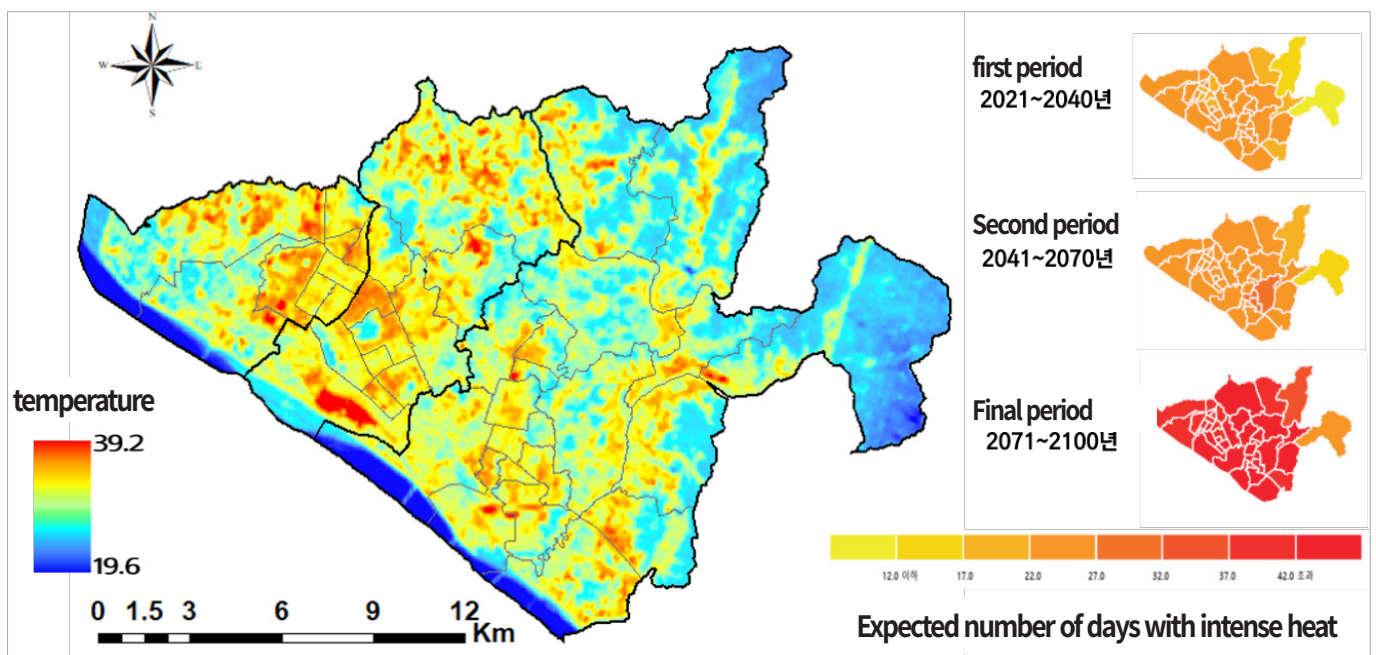
Developing a carbon neutrality model tailored for Goyang City

Goyang City is a large municipality with a population of 1.08 million and an eco-city with outstanding environmental conditions. Situated near the mouth of the Hangang River, the city has 78 streams, with about 55% of its land being green. In particular, Goyang Janghang Wetlands, registered as a Ramsar Wetland, is an internationally famous habitat for about 30,000 migratory birds and an ecological site that absorbs carbon emissions. Goyang City is also a low-emission city with per capita emission of 6.4 tons as of 2017, which is less than half of the nation's average per capita emission of 13.8 tons.

Goyang City established a climate response plan based on these local characteristics and greenhouse gas inventory. It aimed to reduce greenhouse gas emissions by 15.6% by 2030 from 2017 and declared the intention to reach net-zero emissions by 2050, thereby solidifying its pledge to respond to climate change. To achieve this objective, the city reviewed emissions reduction performance by sector. Furthermore, the city has ensured a consistent and continuous decarbonation process by enacting and revising related ordinances.

The city also focused on expanding sources of carbon absorption. By adopting a 1.05 million trees pledge and the Goyang Tree Rights Declaration, the first city in the nation to do so, Goyang City set a basic ideal for public tree management and laid a foundation for an eco-city fostering harmony between people and trees. Then these efforts make it possible for the city to create a pleasant living environment and store carbon dioxide in the city at the same time.

Still, despite these efforts to reduce carbon emissions, global climate change cannot be averted. Since the current amount of carbon emissions accumulated so far will lead to a rise in temperature for several decades into the future, adapting to climate change is essential for our survival. Hence Goyang City, in cooperation with the Korea Institute of Civil Engineering and Building Technology, prepared a satellite image analyzing the change in land surface temperature between 2010 and 2020 and identified spots vulnerable to climate change under differing scenarios, and prepared a response strategy for each spot.

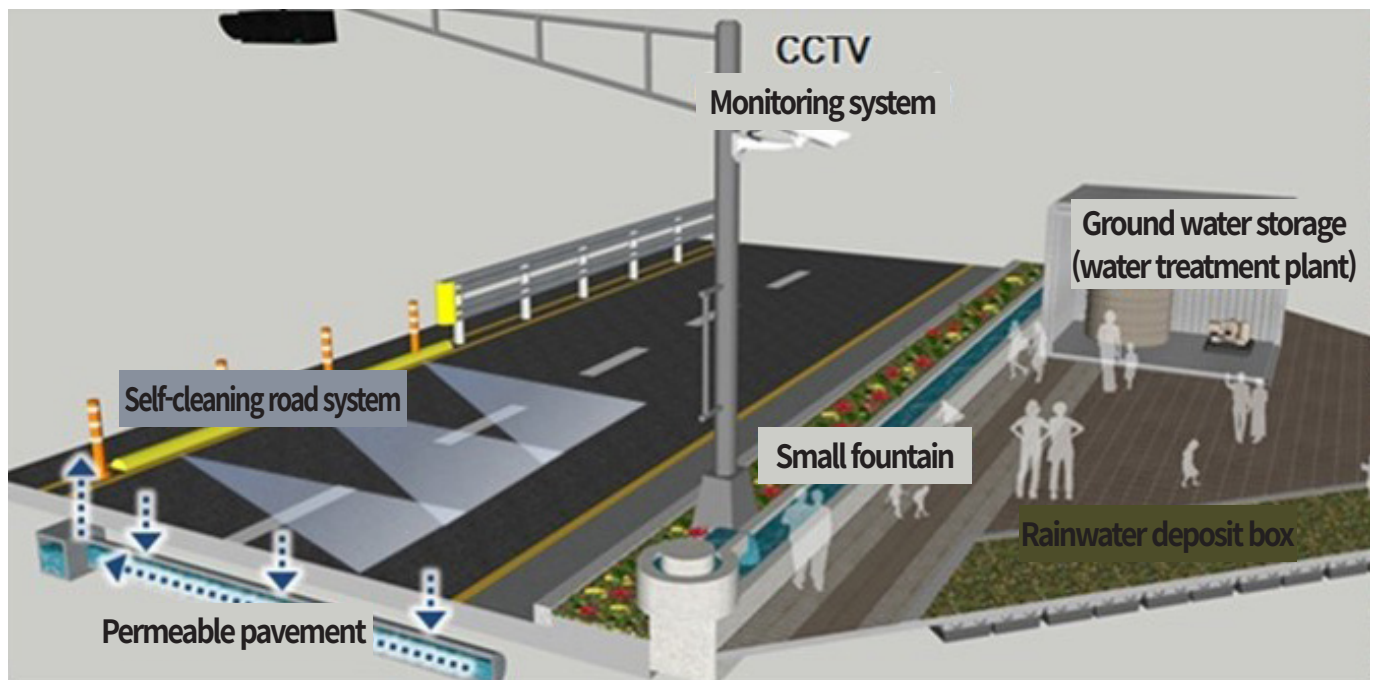


Land surface summer temperature and expected number of days with intense heat in Goyang City (Meteorological Administration, 2019)

Through collaboration with research institutes, the city developed policy projects such as “urban ecosystem” that uses effluent groundwater and rainwater and “green zones for vulnerable people” to improve water circulation in the city and transform a gray urban space into a green one. In addition, Goyang City made patent registration for the technology it developed to protect the intellectual property rights of its leading projects and disseminate them across the public sector.



Goyang Green Zone building project



Development of urban ecosystem using groundwater and rainwater

Lastly, Goyang City encouraged the participation of citizens in developing the carbon neutrality model. Since the activities of citizens are major sources of carbon emissions for a city with few industrial facilities, residents' cooperation is essential. Thus, the city launched the Goyang Citizens Solidarity for Carbon Neutrality and enacted an ordinance to support it. By drawing diverse organizations and residents' autonomy councils, the city ensured the participation of citizens in response to climate change. Various events, such as green workshops, the Goyang Environmental Film Festival, the Goyang Climate Environment School, and car-free streets, were held. Green financial products were developed, and related forums were hosted.

Achieving carbon neutrality is not something far away and seemingly unattainable. By developing a policy and strategy reflecting the characteristics of the city and encouraging citizens' participation in low-emissions life, a carbon-neutral society can be attained. Further efforts of Goyang City to achieve a carbon-neutral society going forward deserve keen attention.