Korea's Smart City

EO

Korea's Smart City

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01 Strengths

New Town Development Experience

After the end of the Korean war in 1953, Korea achieved rapid economic growth and urbanization. It was during this post-war development period, Korea gained experience and know-how on new town development and construction.



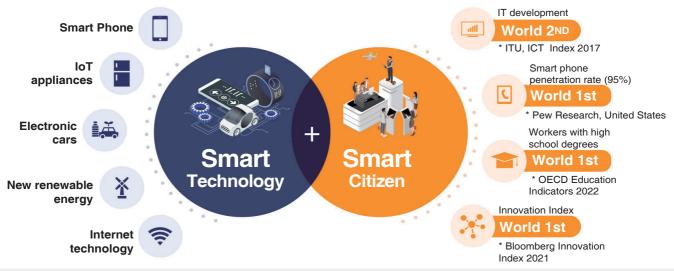
Innovation city 2005~

New town (phase 3) 2019~

History of **Korean Urban Development**

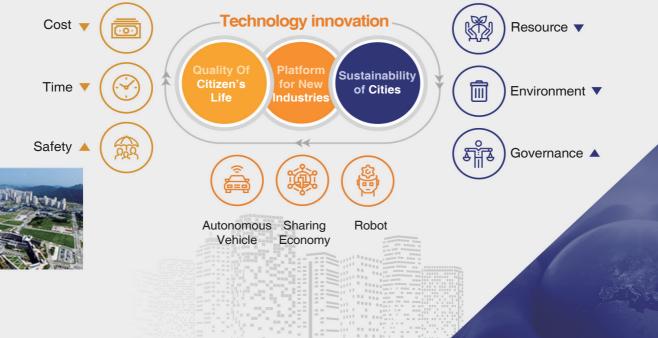
ICT-friendly Enviornment

Korea is well-recognized for its competitive ICT sector. Korea has global ICT companies like Samsung and LG. Korea ranked first in terms of smartphone penetration and second in the ICT Development Index (ITU, 2017), which shows Korea's sophisticated ICT infrastructure and high potential for technological innovations.



Innovation & Sustainable Development

In Korea, smart city means a platform of solving urban problems and improving living with integration of technological innovations like those from the fourth industrial revolution. Smart city also means building a platform for creating new business opportunities and sustainable urban development.



02 Leading Smart Cities

Seoul

As the capital city of South Korea, Seoul is 605km² in size and home to 20% of the national population. Seoul is also one of the leading smart cities in the world. The city received a high score in the smart city technology base evaluation released by the McKinsey Global Research Institute in 2018.

Under the vision of the "Seoul, Leading the Future of Digital Transformation as a Global Smart City", Seoul established the Smart City and Digitization Master Plan. Due for implementation from 2021 to 2025, the master plan includes the city's measures to expand smart infrastructure, increase non-face-to-face public service delivery, and promote digital economy.

Recently, Seoul decided to integrate the metaverse platform to its smart city model and unveiled a master plan to develop a metaverse platform for the city government. Called the Metaverse Seoul, the platform will provide access to various public services and strengthen citizen's rights in the virtual space.





Incheon

Incheon, with an area of 1,066 km², is the gateway city to South Korea, with a population of 3 million. Together with Seoul and Gyeonggi, it forms the metropolitan area. It includes the Incheon Free Economic Zone, which introduced the smart city concept in Korea. It is conducting a new city-type smart city project centered on the Songdo, Yeongiong, and Cheongna districts.

With the vision of a "Smart City with Sustainable Competitiveness as an Urban Platform, " Incheon strategically promotes establishing a sustainable platform foundation by discovering a win-win balanced development model and data-based citizen experience-type services in the new urban center according to the 2020-2024 Smart City Plan.

For regional balance and win-win development, we are promoting smart city-type urban regeneration (Bupyeong, Chemulpo) in the original city center to supply infrastructure and services related to transportation and safety.We are designating the aging Namdong Industrial Complex as Smart Green Industrial Complex (Namdong-gu) to promote manufacturing innovation and job creation. We also operate a smart city startup venture park (Yeonsu-gu) to secure future growth engines.



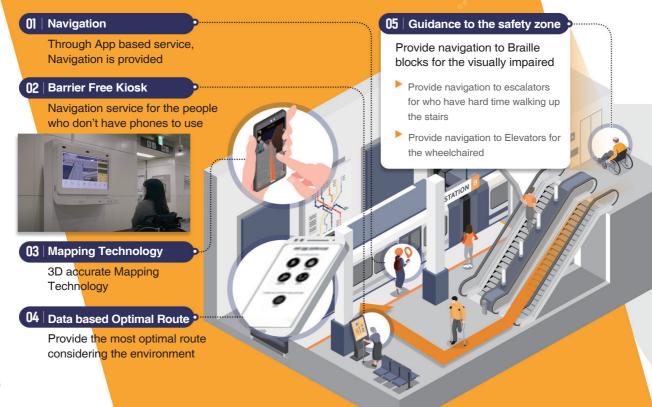
02 Leading Smart Cities

Busan

As the leading port city of South Korea, Busan is a city of 769.8km² in size with 3.41million population. Geographically located in the center of Northeast Asia, the port city has ideal infrastructure and environment for trading. It is also a world-renowned tourism destination thanks in part to its hosting of international events like the Busan International Film Festival.

In its pursuit to become a green smart city, Busan has established an action plan to achieve carbon neutrality by 2050. The city is developing new services based on public data analysis to facilitate digital transition and to strengthen public safety. It is also introducing digital technologies to various industrial sectors to make its economy more intelligent.

In 2018, Busan was designated as the national pilot smart city (Eco Delta City) and won grants for the Smart City Challenge projects. The city gained attention for its pioneering introduction of smart solutions such as 'Barrier-free Service(Solution for creating a barrier-free traffic environment)', and 'Pure 365 App Service(Solution for a Blockchain-based water supply management).'



Daejeon

Daejeon covers an area of 540km² and is one of the five largest cities in Korea located in the center of the country with 1.5 million people and is considered a mecca of Korean science and technology with universities and research institutes such as the Korea Advanced Institute of Science and Technology (KAIST), and is the administrative center city responsible for more than 2/3 of the central administration along with Sejong City, a complex administrative city.

Daejeon established an innovative city plan for 2020~2024. It announced the 2022 Smart City Daejeon Creation Action Plan to improve citizens' quality of life and the city's competitiveness. Under the D.N.A.-based smart city Daejeon vision, we have built a cloud data hub to provide various smart services, such as policy decision support based on city data, parking sharing, and electric fire prevention.

In addition, by building a smart safety net, the CCTV video can support 112 and 119 to act faster in accidents. As of 2021, the net provided 98,522 emergency CCTV video clips and has guided emergency video drivers to drive the most optimal routes. Indeed, the smart network and services demonstrate operational achievements such as increasing the arrest rate* and shortening the traveling time to get to the fire scenes.

* Based on the Year 2021(compared to 2016) corporate arrest rate increased by 3.2%, and firefighting arrived within 7 minutes was maintained above 50%

Vision

Data-driven intelligent city Daejeon



03 Smart Solutions

Integrated Public Transportation Fare System

Integrated Public Transportation Fare System is a fare system in operation in Korea where public transportation passengers are charged based on the total distance travelled regardless of the modes of transportation or service providers they used.



Demand-Responsive Transportation (DRT)

Demand-Responsive Transportation is a new mobility service, often provided in new cities and rural areas with low passenger demands, where a mini van driver gives ride to a group of passengers on demand. All rides (where to pick up, which route to travel, etc.) are carried out based on data analysis.



Bike Sharing Program

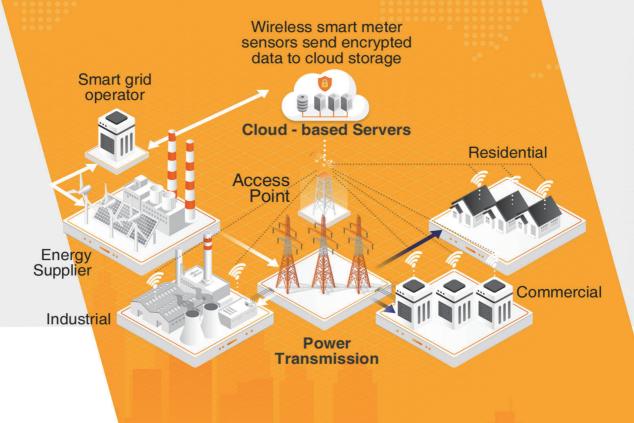
Usually operated at the city level (e.g., Ddareungi in Seoul), a bike sharing program involves a bicycle fleet installed with IoT sensors. Using a smartphone application, people can rent and return bicycles wherever they like. The fleet operator collects and redistributes the bicycles to ensure an easy access.



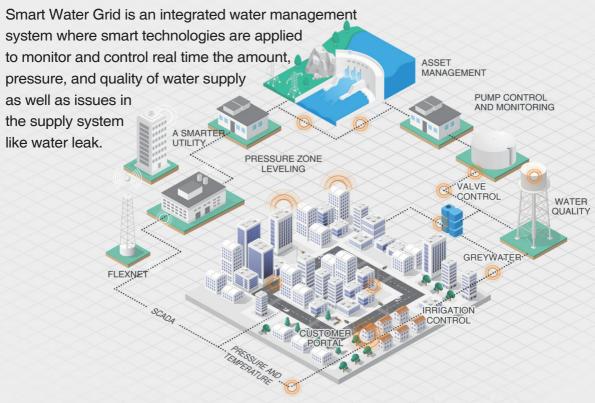
03 Smart Solutions

Smart Grid

Smart grid is an advanced grid system that utilizes the ICT in monitoring and managing electricity distribution. It can contribute to intelligent management of electricity supply and a dramatic improvement in energy efficiency.



Smart Water Grid



Smart Waste Management System

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Smart Waste Management System is a solution for automated waste management. The system can monitor the waste volume real time and if necessary, compress the waste, and also recommend optimal collection routes.



Best method for trash management



Trash Color Detector



Real time data analysis



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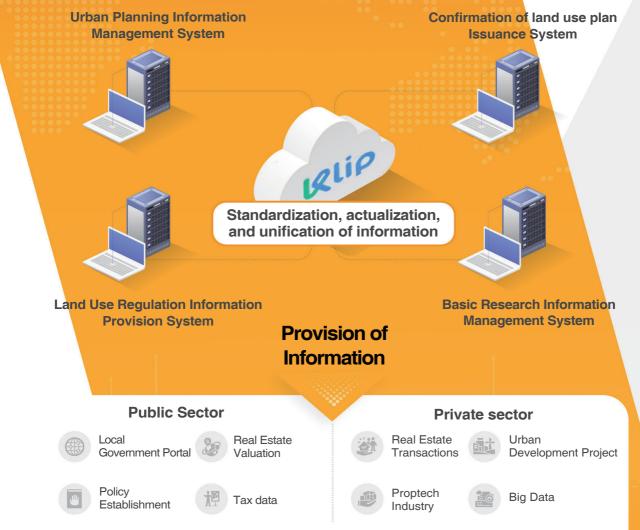
Solar-powered trash compactor



03 Smart Solutions

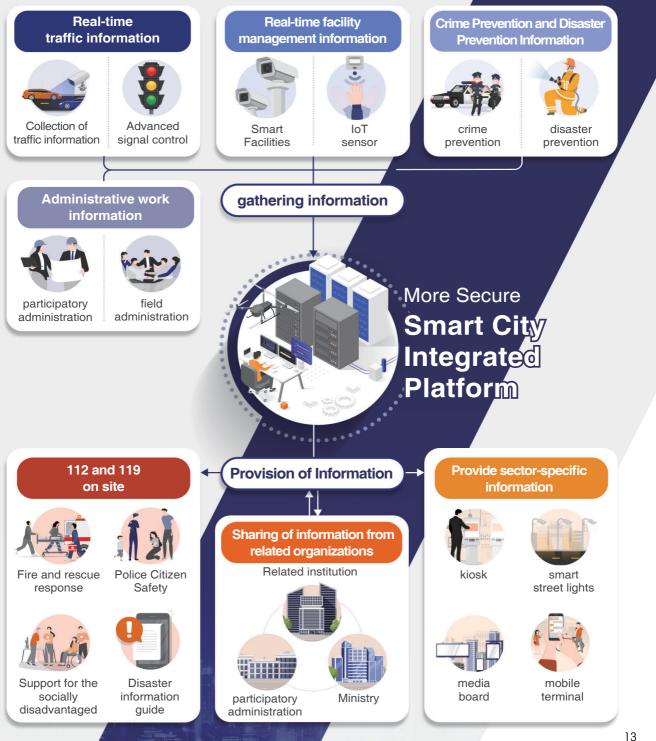
National Land Information Platform

National Land Information Platform is a public portal where anyone can search various information about cities in Korea, including urban planning, population, economy, society, environment, transportation and housing, and land use regulations.



Smart City Integrated Platform

Serving as the command center of a smart city, the Smart City Integrated Platform gathers feeds from the CCTVs to monitor traffic, crimes, accidents or disasters real time and shares the information with relevant authorities to coordinate disaster or emergency response.



04 Smart City Strategy

To build smart cities where everyone can live happily,

the Korean government unveiled its first five-year road map for smart city development in June 2019. The road map contains the four strategies and 14 tasks for their implementation.

First,

the Korean government will design and improve Korea's smart city model through its implementation of the two national pilot smart city projects.

Second,

the Korean government will support technological and capacity development in relevant sectors to build the basis for future smart city development.

Third,

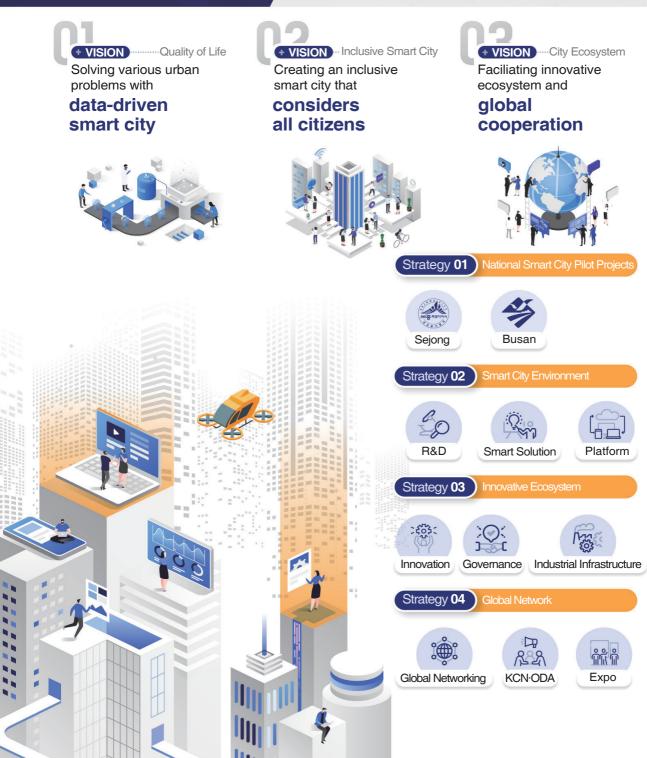
the Korean government will nurture the ecosystem for smart city innovation through improvement of regulations, support for start-ups, and promotion of cooperative governance.

Fourth,

the Korean government will develop international cooperation and network to share Korea's smart city development experience with the world.

VISION

An Innovative Platform that Changes Citizens' Daily Lives, SMART CITY



15

Strategy

Nat ional Smart City Pilot Projects

Sejong Smart City Project

The Smart City to be built in the Sejong 5-1 district will transform urban living with technological innovations in seven areas, including transportation, health care, education and energy.



Sejong City

- Project
 Public-private SPC
 (Sejong Smart City Co., Ltd.)
- Location Hapgang-ri, Sejong City
- Area 2.7km²
- Planned Population 22,500 people
- Move-in time 2026~

7 Innovation Factors



Transportation Shared Mobility (Shuttle, C-ITS)



Health Care Al-based smart prescription



Education 3D Printing, online education



Energy CEMS, Payment through electronics



Governance Digital Twin



Culture Demand Based programs



Job opportunity Smart ups

Knowledge sharing

Innovations in transportation ard health care



Mobility

New mobility technology and service (e.g. autonomous driving, car-sharing) introduction to transform the way people move around the city.

- Designation of the 'ride-sharing zones' to promote the use of smart mobility services
- Development of the MaaS (Mobility as a Service) platform to integrate searching and booking of public transportation and personal mobility services.

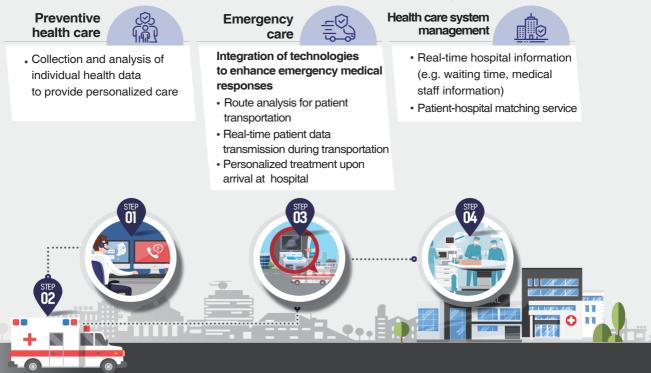
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Sidewalk	Bicycle		РМ	Sharing	Autonomous	Sharing





Health Care

Development of a citywide healthcare test bed to facilitate access to preventive and emergency health care and improve the health care system management.



Savings from chronic disease management improvement: 1.11 million won per year* * Annual per-patient expenditure/disease: 570,000 won/hypertension, 540,000 won/ obesity Strategy

Nat ional Smart City Pilot Projects

Busan Smart City Project

The Busan Smart City envisions a high-tech waterfront city built upon data analysis and augmented reality technologies with innovations in ten areas, including robotics, water management and energy.

The two primary areas of development in Busan will be 1) application of the smart water management solution to the entire water management cycle (rainfall capture-purification-waste water treatment-reuse) and 2) energy self-sufficiency by tapping into renewable energies like water and solar.

10 Innovation Factors

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Robot Digital assistant, Delivery robot, Rehab robot, Robot industry cluster



LWP Hub place that mixes learning, work and play



City Admin Administration based on AI and augmented reality

Water

Water technology exhibition, Low Impact Development(LID),Smart purification plant



Energy

Use of renewable energy such as hydrogen fuel and hydrothermal, ESS, city integrated energy management

Mouth of Nakdong river







Education

Smart home, Smart shopping, Smart education



Health Care Healthcare cluster, Real-time personal health monitoring



Mobility

Total mobility solution provision by liking all mobility services



Safety

Intelligent disaster prediction system Intelligent CCTV for citizen safety



Park

Smart park for experiencing innovations In technologies and design

Busan

- Project Operator Korea Water Resources Corporation
 Location Gangseo-gu, Busan
- Area 2.2km²
- Planned Population 8,500 people
- Move-in time from 2027

▶ Reducing greenhouse gas (CO₂) emissions in cities by 60,000 tons (26%) per year

Innovations in robotics, water management and energy



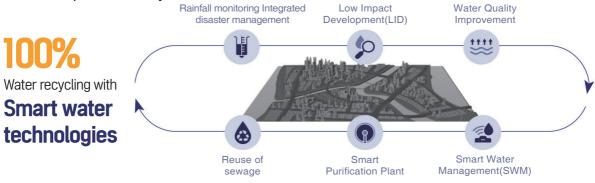
Robot

Incorporation of robots to daily living and industries and expansion of robot-related infrastructure to become a world-renowned robotic city



Water Application

Application of digital technologies to the entire water management cycle (rainfall capture-purification-waste water treatment-reuse) to become Korea's first water-specialized city



Energy

Production and use of renewable energy (e.g. fuel cell power plant and recycling of hydrothermal energy from rivers) to become an energy self-sufficient city.

Fuel cell power plant

A hydrogen fuel cell power plant that produces both electricity (60MW) and heat for the city.



Hydrothermal energy

By recycling ambient heat from rivers, the hydrothermal energy can meet about 10% of the energy need in the city. Strategy

2

Smart City Environment

Dissemination of Smart Solutions

Smart City Challenge

Through the Smart City Challenge projects in cities across the nation, the Korean government provides cities with grants for development and demonstration of smart solutions to tackle urban problems.

Incheon

The flexible operation of stops based on demand for rides, regardless of existing bus routes, will demonstrate a demand-responsive transportation system.

Bucheon

Solve urban issue by sharing the real-time measuring of public and private parking occupancy information within the city by block chain based platforms

Chungcheongbuk

Providing smart emergency medical care and autonomous mobility services

Daejeon 🖻

Link and share public and private parking information

Chun Cheon

Demonstration of citizen participatory carbon emission platform

Gangneung

Mobility As A Service (MaaS)* Demonstration of 'Smart Alley' service * An integrated service that allows you to search and pay sightseeing spot and transportation services

in the city Pohang

Ponang

Provide road safety services by automatic detection of unsafe areas using IoT sensors

Daegu

Al-based intelligent transportation system for urban transportation innovation

Busan

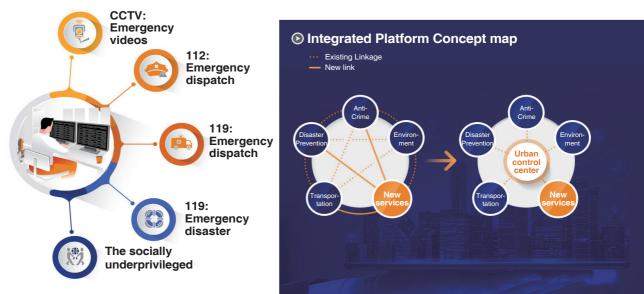
Provide Barrier Free Transportation Service

Jeju

Governing Province Providing eco-friendly shared mobility and renewable energy trading platform linkage services as hubs such as gas stations and convenience stores

Smart City Integrated Platform

The Korean government promotes establishment of the Smart City Integrated Platform in cities to facilitate information sharing and coordination with relevant authorities (112, 119) on traffic, crimes and disasters.



Smart City Data Hub

In order to support data-driven and AI-based smart city management, the Korean government funded an R&D project to develop the Smart City Data Hub. Currently efforts are underway to distribute and pilot the platform in municipalities.



Strategy

Innovative Ecosystem

Regulation improvement

The Korean government enacted a legislation to provide comprehensive support for smart city development and operation and introduced the regulatory sandbox program to give regulatory waivers to new technologies.

Legislation of Smart City(2008)

Introduction of 'Smart City Act*' to provide a legal framework for smart city development/management

* Provisions on project implementation procedure, governance, measures for industry promotion, etc.

Smart City Regulatory Sandbox(2020)

Introduction of a system that temporarily removes regulations so that various innovative technologies and services introduced in smart cities can be freely demonstrated or commercialized under certain conditions



Creating a support system for start-ups

To foster the smart city industry, the Korean government provides various support for startups, including operation of start-up incubators and online solution marketplace.



Global Network

K-city Network: Global Cooperation Program (KCN)

The Korean government develops smart city collaboration with various countries around the world for the sustainable, smart future of cities.



Technical Consulting for Smart City Development

To share Korea's urban development experience and knowledge on smart city, the Korean government provides technical support (master plan, feasibility study, etc.) for overseas smart city projects.

(Example) Nusantara(Indonesia), Clark(the Philippines), Tashkent (Uzbekistan), etc.

Projects of 2020 Basic Plan for the Smart City Project for Indonesian New Capital City

Location ----- Eastern Kalimantan of Borneo, Indonesia

Project Site Description Wew capital development plan of the central government for balance d national development

Scale of Support// Project Period 490 million KRW// from Jul 31, 2020 to March 27, 2021 (8 months)

Contents Range

Smart City Basic Plan and Proposal of Project

- Appropriate zone for Smart City basic plan
- Smart City basic plan and proposal of Smart City pilot project
- PPP scheme for solution business

Integrated Water Resource Management and Smart Water Management

- Analysis of water management system in Indonesia
- Basic conceptual plan for the construction of IWRM and SWM
- Proposal of pilot project in water sector

Regional Metropolitan Transportation and Smart Urban Transportation

- Review transportation infrastructure and systems
- Basic conceptual plan for the construction of RMT and SUT
- Proposal of pilot project in transport secto

Special Range Eastern Kalimantan of Bomeo

Eastern Kalimantan

Temporal Range 240days from contract date

Demonstration of Smart Solutions

The Korean government provides Korean companies with grants for cross-validation of Korean smart solutions overseas. In countries like Indonesia, Thailand, Turkey, Bolivia, and Vietnam, the demonstration projects helped facilitate digital transition in the countries.



One Pass (Public transport card system)



Smart City Integrated Platform



Bus Information System

Strategy

Global Network

KIND Joint expansion through investment

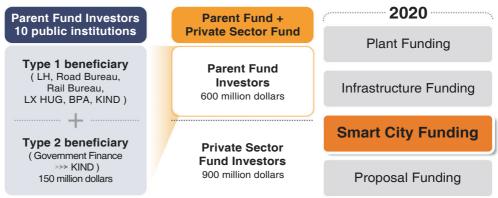
In 2018, the Korean government established the Korea overseas Infrastructure and urbaN Development corporation(KIND) under the Overseas Construction Promotion Act. As the Korean government corporation specialized in overseas public-private partnership (PPP) projects, KIND provides consulting or investment in projects of all phases to promote Korean contractors' participation in the projects.



PIS Fund

The Korean government raised 2.4 billion won to create the PIS (Plant, Infrastructure and Smart City) Fund to support overseas projects developed/built by Korean companies.

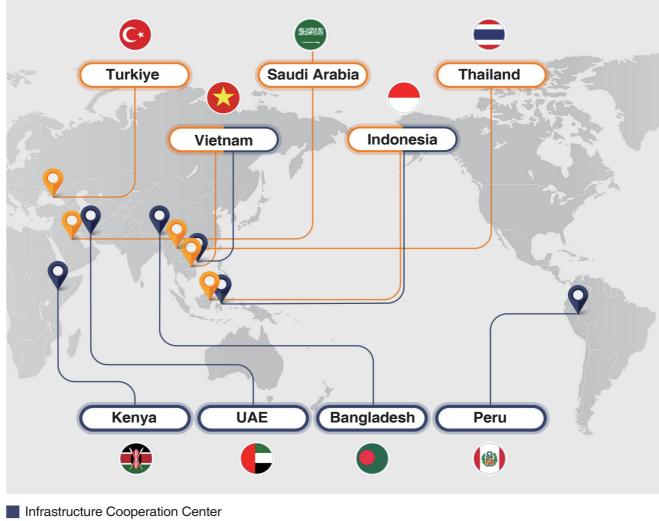
Business General Dpt.



Infrastructure Cooperation Center

The Korean government establishes the Infrastructure Cooperation Centers in countries with high potential for infrastructure cooperation with Korea. The role of the centers is to strengthen intergovernmental cooperation on infrastructure development and provide consulting on project discovery and development. Currently, KIND runs the centers in Bangladesh, Kenya, Vietnam, and Indonesia and the International Contractors Association of Korea (ICAK) operates the centers in the UAE and Peru.

In addition, KIND operates the Smart City Cooperation Centers in partnership with KOTRA to boost Korea's smart city export. Currently, the centers are up and running at the KOTRA branch offices in Bangkok, Hanoi, Jakarta, Istanbul, and Riyadh.



Smart City Cooperation Center

Strategy

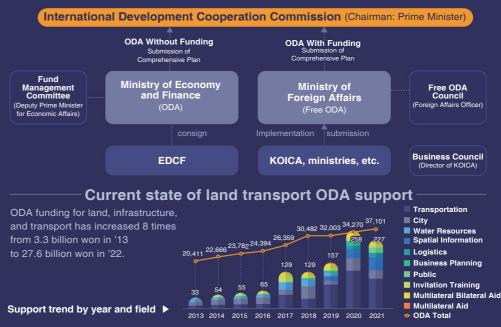
Global Network

ODA for Infrastructure Development

As part of Korea's Official Development Assistance (ODA), the Ministry of Land, Infrastructure and Transport of Korea (MOLIT) supports infrastructure or smart city projects in developing countries to contribute to their sustainable growth and development.

ODA work flow

It takes 2 years for funding to be approved., After project initiation (N-2 years), related agencies (Ministry of Foreign Affairs and Finance, National Assistance Office) confirms project (N-1 year) and project implementation year (N years)



ODA for Capacity-building

To share Korea's best practices and strengthen cooperation on infrastructure development, MOLIT invites high-level officials from developing countries for capacity-building courses or master's programs.



On-site inspection of ODA invitation training project for land transport

World Smart City Expo (WSCE)

Hosted by MOLIT every September, the World Smart City Expo (WSCE) is the largest smart city event in the Asia-Pacific region. Delegates from government, businesses, and academia gather to discuss the latest issues and exhibit cutting-edge technologies shaping the smart city field.



Global Infrastructure Cooperation Conference (GICC) and other efforts to boost infrastructure cooperation

Also hosted by MOLIT, the GICC provides a venue for networking and project partnerships between the foreign government officials in charge of infrastructure projects and the Korean companies interested in the projects.

MOLIT also pursues infrastructure cooperation through other channels, including bilateral meetings, dispatching of high-level delegations and MOU signing.



Contact information for smart city-related organizations

Government _

Ministry of Land, Infrastructure and Transport

Urban Policy Division, Urban Economy Division, Ministry of Land, Infrastructure and Transport +82 044-201-3720 [11, Doum 6-ro, Sejong City] http://www.molit.go.kr/english/

Ministry of Land, Infrastructure and Transport

Construction Policy Bureau Overseas Construction Support Division +82 044-201-3532 [11, Doum 6-ro, Sejong City] http://www.molit.go.kr/english/

Ministry of Science and ICT

Planning and Coordination Office International Cooperation Office International Cooperation General Manager +82 044-202-4330 [194 Gareum-ro, Sejong Special Self-Governing City] https://www.msit.go.kr/eng/

Ministry of Strategy and Finance

Future Strategy Bureau Future Strategy Division +82 044-215-4913 [477 Galmaero, Sejong Special Self-Governing City] https://english.moef.go.kr/

Ministry of Trade, Industry and Energy

Investment Policy Division, Investment Policy Bureau, Trade Negotiation Headquarters +82 044-203-4094 [402 Hannuri-daero, Sejong Special Self-Governing City] http://english.motie.go.kr/

Ministry of Foreign Affairs

Development Cooperation Bureau Development Cooperation Division +82 02-2100-8138 [60 Sajik-ro 8-gil, Jongno-gu, Seoul] https://www.mofa.go.kr/eng/

Ministry of Public Administration and Security

Planning and Coordination Office International Public Administration Cooperation Office International Cooperation Officer

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Ministry of Environment

Climate Change Policy Office International Cooperation Division, Climate and Carbon Policy Office +82 044-201-6565 [11 Doum 6-ro, Sejong Special Self-Governing City] http://eng.me.go.kr/eng/

Local Government

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Busan Metropolitan City

External Relations Team, General Affairs Division, Bureau of Government Administration and Home Affairs +82 051-888-1422 [1001 Jungang-daero, Yeonje-gu, Busan] https://www.busan.go.kr/eng/

Seoul Metropolitan Government

Economic Policy Office International Cooperation Division Overseas Policy Exchange Team +82 02-2133-5270 [110 Sejong-daero, Jung-gu, Seoul] http://english.seoul.go.kr/

Sejong City

External Cooperation Officer, Planning and Coordination Office +82 044-300-6222 [2130 Hannuri-daero, Sejong City] https://www.sejong.go.kr/eng.do

Incheon Metropolitan City

Global Urban Planning Division Global Cooperation Team, Global Cities Bureau +82 032-440-3482 [29 Jeonggak-ro, Namdong-gu, Incheon Metropolitan City] https://www.incheon.go.kr/en/

Public Institution _

Korea Agency for Infrastructure Technology Advancement

Future Strategy Group +82 031-389-6334 [286, Simin-daero, Dongan-gu, Anyang-si, Gyeonggi-do] https://www.kaia.re.kr/eng/

Korea Research Institute for Human Settlements

Global Development Cooperation Center +82 044-960-0217 [5 National Research Institute-ro, Sejong City] https://www.krihs.re.kr/eng/

Korea Trade-Investment Promotion Agency

Innovative Growth Headquarters Service ICT Office ICT Convergence Team +82 02-3460-7462 [13 Heolleung-ro, Seocho-gu, Seoul] https://www.kotra.or.kr/english/

Korea Institute of Civil Engineering and Building Technology

External Cooperation and Public Relations Office External Cooperation Information Office +82 031-910-0036 [283 Goyang-daero, Ilsanseo-gu, Goyang-si, Gyeonggi-do] https://www.kict.re.kr/eng/

Korea Transport Institute

Global Transport Cooperation Center +82 044-211-3160 [370 City Hall-daero, Sejong City] https://english.koti.re.kr/

Korea Water Resources Corporation

Global Business Division Global Cooperation Department +82 042-629-4231 [200 Sintanjin-ro, Daedeok-gu, Deajeon] https://www.kwater.or.kr/eng/

Korea Land and Housing Corporation

Regional Balanced Development Headquarters Global Business Department +82 055-922-4709 [19 Chungui-ro Jinju-si Gyeongsangnam-do] https://www.lh.or.kr/eng/

Korea Overseas Infrastructure and Urban Development Corporation

Business Development Headquarters Project Management Team +82 02-6746-7387 [10 Gukjegeumyung-ro, Yeongdeungpo-gu, Seoul] http://www.kindkorea.or.kr/eng/

Association _

Smart City Association Business Development Global Team +82 02-3667-3114 [855, Gyeongin-ro, Yeongdeungpo-gu, Seoul] https://www.smartcity.or.kr/

Overseas Construction Association

International Development Cooperation Center, Policy Headquarters +82 02-3406-1078 [42, Sejong-daero 9-gil, Jung-gu, Seoul] http://eng.icak.or.kr/

Smart city, let's build it together.



Ministry of Land, Infrastructure and Transport

smartcity.go.kr