JAPAN AND GLOBAL SMART CITIES

A collection of good practices *Vol. 3*

国土交通省
Ministry of Land, Infrastructure, Transport and Tourism

A collection of
good practices

Contents

Inclusive

Promote diverse community building and support for local governments to realize cities where everyone can live comfortably.

GX

An initiative to ensure urban green space and effective use of energy, in order to resolve earth-scale problems such as measures against climate change and protection of biodiversity, and improve the well-being of people.

Disaster Prevention (Disaster Prevention DX)

With the increasing severity of disasters in recent years, it has become essential to utilize digital technologies in addition to conventional hard and soft disaster prevention and mitigation measures. The initiative promotes the digitalization of disaster prevention throughout all phases — from normal times to before, during, and after disasters.

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Introduction

Smart city initiatives utilize advanced technologies including ICT to address regional issues faced by residents and communities. And these initiatives are now being adopted in fields such as urban development, flood control, and disaster prevention worldwide. In recent years, they have evolved beyond mere technology utilization and now include initiatives aimed at contributing to greenery preservation and reduction in carbon dioxide emission, to ensure benefits for all residents.

In the "ASEAN-Japan Smart Cities Network High Level Meeting" held every year since 2019, green transformation (GX) was selected as one of the major themes in the fiscal year 2024, where case studies were shared by Japan and various ASEAN regions. In addition, there are also many good practices that are noteworthy in areas other than ASEAN countries.

This collection of case studies is a booklet that summarizes good practices of the latest smart city projects in Japan, ASEAN region, and other areas. We sincerely hope that sharing this information will provide insights in solving regional issues and achieving a better living in various regions around the world.

Good Practices of Smart City

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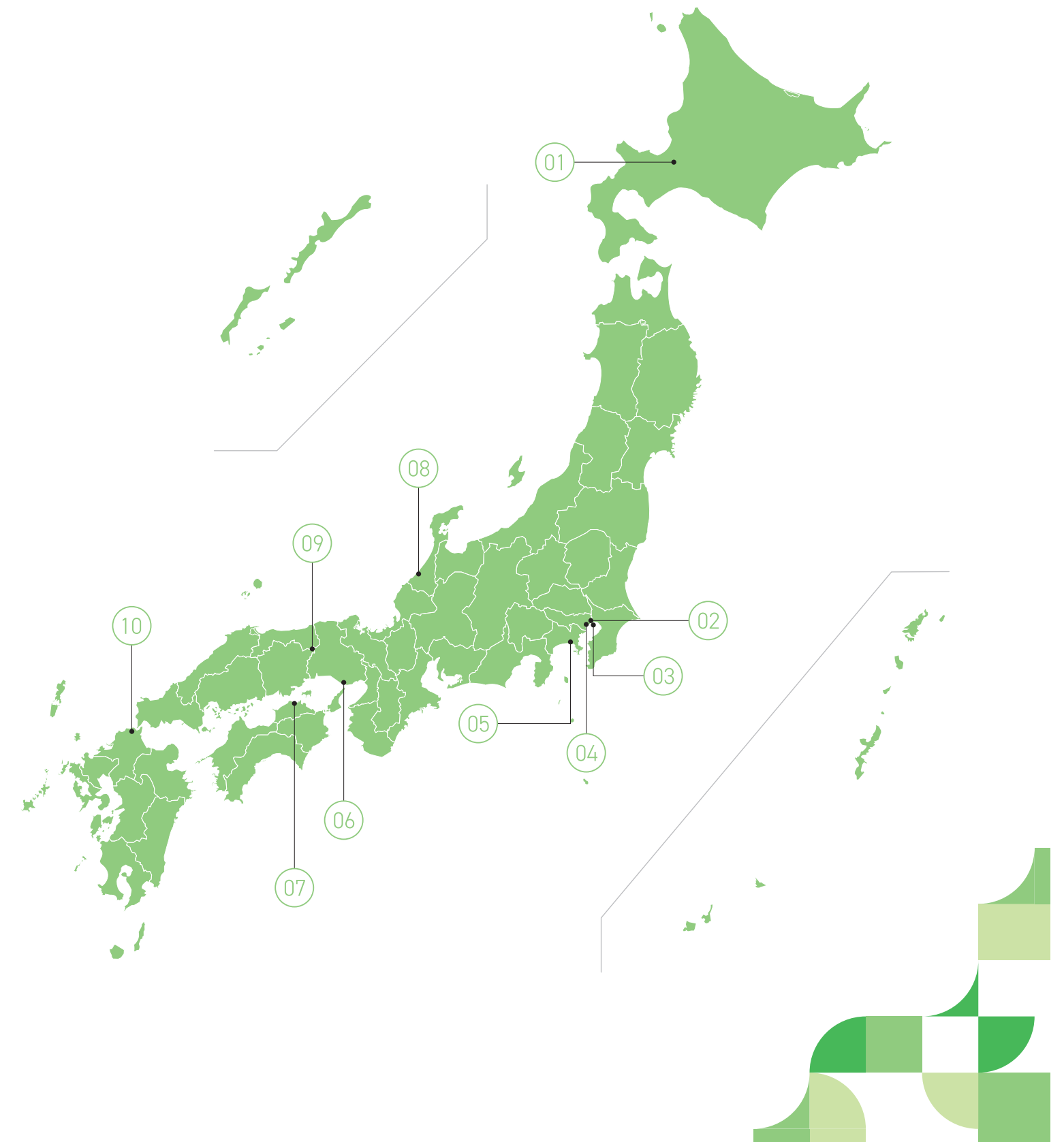Smart City Takamatsu

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01

HOKKAIDO BALLPARK F VILLAGE

Kitahiroshima City, Hokkaido, Japan   2023-

Urban development centered around a ballpark aiming to become a new "symbol of Hokkaido"

Overview of F VILLAGE   ©H.N.F.

Data

Area
32 ha

Project implementing bodies
Fighters Sports & Entertainment Co., Ltd. (FSE)
(Funded by Hokkaido Nipponham Fighters, NH Foods Ltd., Dentsu Group Inc.,Organization for Promoting Urban Development)

Population
56,423 (January 31, 2025, Kitahiroshima City)

Main facilities introduced
Kids area, housing complexes, Agricultural education and experience center, certified childcare center, senior residence, medical mall, private villas, commercial facilities, baseball stadium and field

INCLUSIVE   GX   RESILIENCE

Key Issue

Hokkaido Ballpark F Village (F VILLAGE) is a brand new creative community space with the aim to create a town that promotes next-generation live entertainment which coexists with nature, wellness solutions that nurture the mind and body, and active cultural exchange. With a vast site area of approximately 32 hectares, it accommodates a baseball stadium (ES CON FIELD HOKKAIDO), accommodation facilities, bakeries and restaurants, playgrounds, outdoor activity facilities, and more, which can be enjoyed by everyone from children to adults.
F VILLAGE aims to develop a sustainable town through various partnerships between industry, government, and academia that support the project, and is implementing initiatives for SDGs focused on "children," "community development," and "partnerships." This project is anticipated to provide value not only to the surrounding area but also across Hokkaido and the entire industry.

Project Approach

Fulltech's gating solutions

A partnership agreement has been signed with Fulltech Inc., which sells, installs, and maintains automatic door equipment, and Fulltech's gating solutions will be adopted at each entrance gate of the ES CON FIELD, providing visitors with a seamless, stress-free viewing environment. The major activities include: 1. Introduction of flapper gates (gates that allow entry of up to 50 people per minute while ensuring safety through the use of urethane flaps) and 2. Introduction of the "Fulltech GATE ." The "Fulltech GATE" is a portable gate that allows flexible response to various situations.

©H.N.F.

The portable gate "Mobile Gate," included in the "Fulltech GATE" system

Service for spectating and transportation

Fighters Sports & Entertainment (FSE) concluded a partnership agreement with WHILL Inc., which develops, produces, and sells short-distance mobility products and provides related services, and have introduced a transportation service that utilizes WHILL, a short-distance mobility device that can be driven in pedestrian areas without a license. WHILL is characterized by its comfortable ride and smooth operation, and a service was introduced that allows spectators to enjoy unprecedented premium viewing experience and services that allow comfortable mobility around F VILLAGE, providing an inclusive sports and entertainment experience that everyone can enjoy.

©H.N.F.

Service for spectating and transportation "WHILL"

Introduction of complete cashless system

Prior to the opening of F VILLAGE, FSE created the "F VILLAGE Account" as a new ID platform. By linking this ID with the "F VILLAGE App," the users will be able to use just this ID for everything from purchasing tickets to cashless payments within the facility, and will also be able to accumulate miles that can be exchanged for tickets and coupons. FSE has adopted OpenID Connect for service integration, centered on the "F VILLAGE Account," and is using Authlete*[1] for its implementation.

©H.N.F.

Official F VILLAGE App

To the Next Phase

The evolution of F VILLAGE and ES CON FIELD will continue. The infield of ES CON FIELD will be changed from natural grass to artificial turf, which will reduce the burden on players during practice and allow various events to be held on days when there are no baseball games. They will also strive to become the world's best stadium for food and beverages by introducing new food and beverage menus.
In 2028, a new station is scheduled to open and the Health Sciences University of Hokkaido is scheduled to relocate to F VILLAGE.
In order to make 2028 a year of great progress, F VILLAGE and ES CON FIELD will keep their feet on the ground over the next three years and strive for better quality in each and every aspect of their endeavors.

02

Toyosu Smart City

Koto-ku, Tokyo, Japan   2019-
A "mixed-use future city" where various facilities and individuals coexist and prosper together
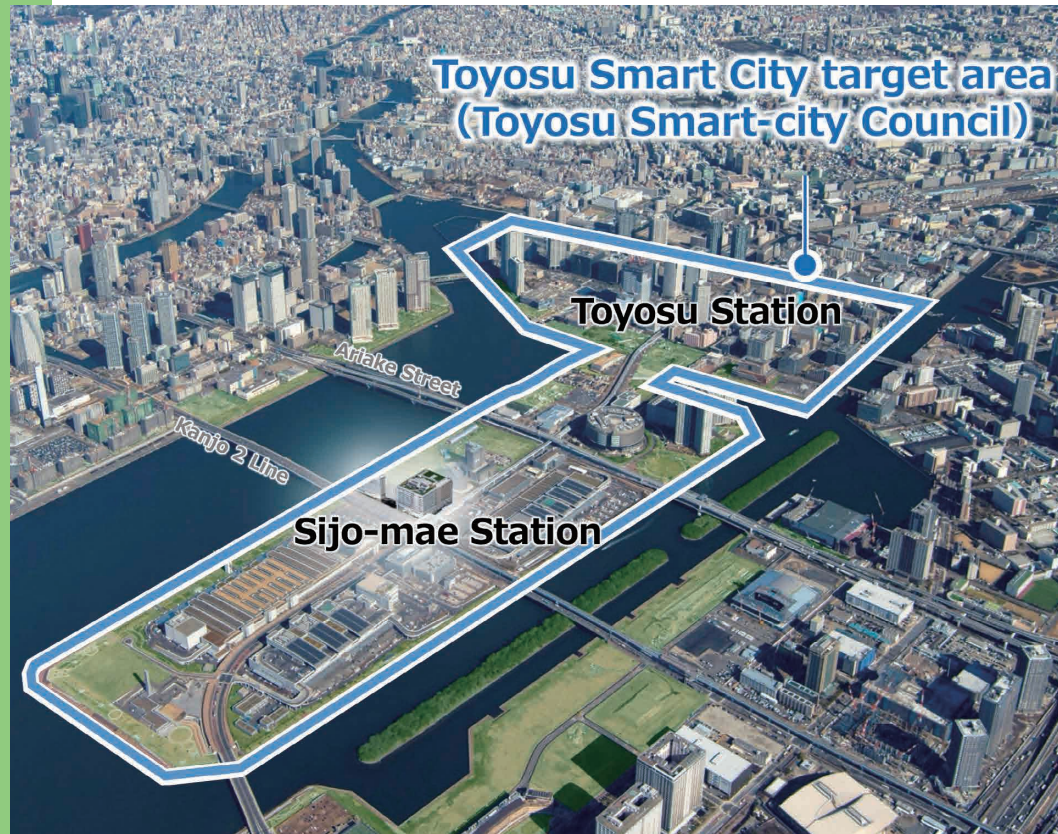
Toyosu Smart City target area
Source: Shimizu Corporation

Data

Area
Approx. 246 ha

Project implementing bodies
・Tokyo Metropolitan Government, Koto City Government
・Toyosu Smart-city Council
(IHI Corporation, NTT DATA Japan Corporation, Shimizu Corporation, TIS Inc., Tokyo Gas Real Estate Co., Ltd., Tokyo Metro Co., Ltd., NEC Corporation, The Japan Research Institute, Limited, Sumitomo Mitsui Financial Group, Inc., Mitsui Fudosan Co., Ltd., Mitsubishi Estate Co., Ltd., Shibaura Institute of Technology)

Population
40,430 (January 1, 2025, Toyosu 1-6 chome)

Main facilities introduced
Offices, commercial facilities, hotels, housing, public facilities, schools, etc.

INCLUSIVE   GX   RESILIENCE

Key Issue

In the growing Toyosu area, which is home to a diverse range of stakeholders including residents, workers, and visitors, the aim is to provide service solutions in a variety of fields by utilizing advanced technology and urban OS, in order to fulfill the needs and improve satisfaction of each and every individual and resolve the district's issues, while realizing a "mixed-use future city" where diverse facilities and individuals can coexist and prosper.
In particular, this area utilizes a data platform to demonstrate and implement smart services across diverse fields from disaster prevention to tourism. By enhancing the comfort of living and working in the Toyosu area and promoting co-creative urban development, its international competitiveness will be strengthened.

Project Approach

Japan's first "urban roadside station" "Toyosu MiCHi no Eki"

Toyosu MiCHi no Eki is an urban roadside station with a bright and open plaza at its center, which functions as a place of activity, interaction, information dissemination, a transportation hub, and a disaster response facility. The transportation plaza where Tokyo BRT and airport buses can be accessed, the New Transit Yurikamome Ichiba-mae Station, and the waterfront Toyosu Gururi Park are connected in a three-dimensional manner at deck level. It connects the city center and the bay area, and all urban functions can be accessed within 15 minutes by foot or bicycle, making it the starting point of a walkable district. In addition, as a leading hub of Toyosu Smart City, it is collaborating with various companies to develop and implement new digital technologies and services that contribute to improving the quality of living and area value, such as disseminating information on shops, transportation, disaster prevention, etc., developing apps for tenants, and conducting demonstration experiments on robotic self-driving.
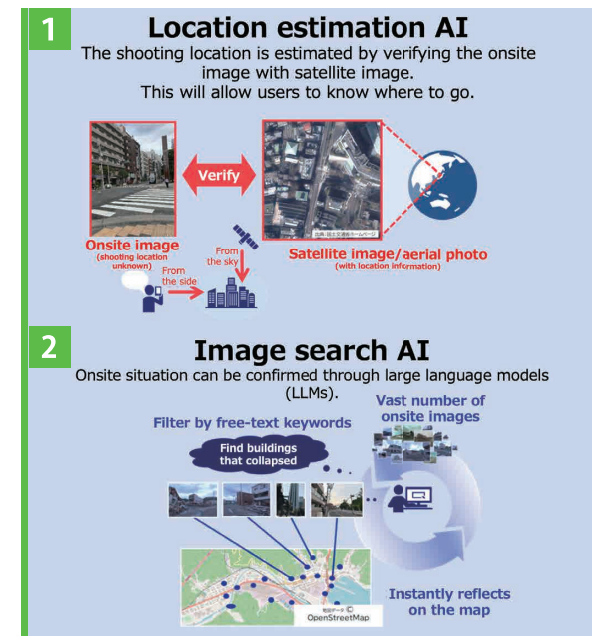

MiCHi no Terrace Toyosu, Toyosu MiCHi no Eki
Source: Shimizu Corporation

Demonstration of resident-led urban development utilizing image posting from normal times to emergencies

Residents/visitors, local government, and local companies collaborated to conduct a demonstration experiment to create a mutually-aided model case. The experiment monitors the district by analyzing images posted by residents through advanced technologies (location estimation and LLM image search[*2]), with an aim to grasp the current situation from normal times to emergencies and accelerate disaster control measures. Regardless of the purpose of the photos or availability of details on latitude and longitude, since the AI estimates and analyzes the location of the posted images and enable users to filer images by free-text keywords, it will be useful for both residents and the local government.

Digital Platform

OS Cloud DX-Core, developed by Shimizu Corporation, is a basic software with a building operation digitalization platform function that facilitates the interconnection of building equipment, IoT devices, and various applications within a building. Not only will the visual tools make it possible to easily link equipment and applications related to building operations regardless of manufacturer, it will also allow the accumulation and analysis of a wide variety of dynamic data collected from equipment, sensors, cameras, robots, etc., and provide feedback to improve energy efficiency, optimize equipment operation and improve various services.

1 Location estimation AI
The shooting location is estimated by verifying the onsite image with satellite image.
This will allow users to know where to go.

2 Image search AI
Onsite situation can be confirmed through large language models (LLMs).

①MLIT,"3D Urban Model (Project PLATEAU[*3]), 23 Wards of Tokyo"
②Okaya Laboratory, Tohoku University
Source:Toyosu Smart-city Council

To the Next Phase

Development and deployment of services targeting wide-area and airspace, such as autonomous vehicles and drones, are being considered in the future to promote community development where mobility, robots, and people can coexist and collaborate.
Pursuing smart city initiatives in a mixed-use city will not only create services targeting a broad range of users but also accumulate knowledge. Therefore, it is anticipated to be a pioneering initiative that will serve as a role model for other cities.

03

Comprehensive Rainwater Management Plan of Urayasu

Urayasu City, Chiba, Japan   2020-
Plan prioritizing sewage system-based rainwater management

Aerial view of suburbs near Maihama, Urayasu City, Chiba
Photo: Adobe Stock/show-m

Data

Area
18.79 square kilometers

Project implementing bodies
Urayasu City Government

Population
171,261 (86,459 households) of end of January 2025

INCLUSIVE   GX   RESILIENCE

Key Issue

In the Motomachi area, which is the old downtown area of Urayasu City, land subsidence since the late 1950s has left some areas at 0-meter above sea level, and houses and roads were frequently flooded during heavy rains such as typhoons. Furthermore, the Nakamachi and Shinmachi areas were developed on land reclaimed from the sea and subsided further in addition to the previous consolidation settlement due to liquefaction caused by the Great East Japan Earthquake on March 11, 2011. During heavy rains when the external water level is high, flooding damages such as road flooding would occur frequently.
In addition to "preventing further disasters," the city, under the Comprehensive Rainwater Management Plan of Urayasu, will assess the risk of flooding from the perspectives of "disaster preparedness and mitigation," "selection and concentration," etc., and will formulate comprehensive short-, medium-, and long-term plans that will include implementing flood prevention measures in high-priority areas.

Project Approach

Large-scale rainwater treatment facility construction project plan Maihama Drainage District No. 4

As tangible measures, while constructing a facility with an aim to prevent flood damages for 60 mm/h rainfall (probability of 1 in 10 years), construction of rainwater storage facilities will be promoted in connection with the construction and renovation of public facilities and housing development projects. As intangible measures, considerations were made to minimize damages for rainfalls exceeding the designed capacity for the facility by ensuring each responsible party to implement their respective measures, such as the use of centralized management system by the sewerage authority to monitor rainfall stations, water level stations, manhole antennas, and opening and closing status of outfall gate, provide information by creating and publishing inland water hazard maps, and arrange local residents and relevant parties to install water barriers and cleaning gutters and collection pits.
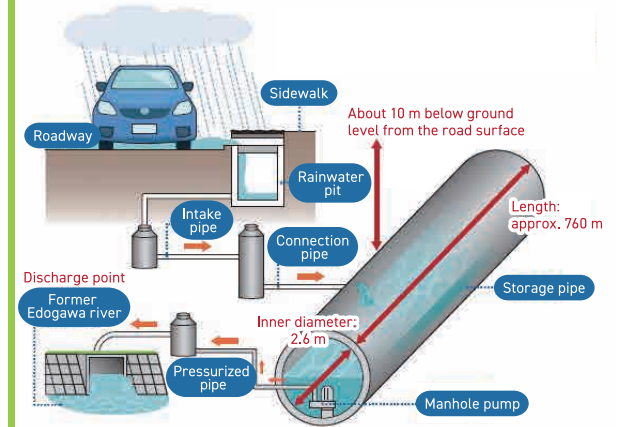
Centralized control system and visual water level monitoring

Urayasu City monitors internal water in manholes at 12 locations through a centralized control system, in order to make quick and accurate assessments of road flooding caused by heavy rain and high tides. Together with the outfall gate status and weather information such as rainfall and tide levels (external water levels), the information is then used to make decisions regarding staff deployment and traffic restrictions as flood prevention measures.

Notification of evacuation procedures to citizens

Urayasu City is asking residents to take the following precautions in advance so that they can evacuate at their own discretion. i) Displaying elevations above sea level on signs within the city and informing evacuation shelters, etc.; ii) Participating in disaster prevention drills conducted by the city, neighborhood associations, and independent disaster prevention organizations; iii) Considering the establishment of self-defense disaster mitigation activities (tentative name: Regional Flood Prevention Corps) to protect people's communities from flooding with their own efforts; iv) Disaster prevention education in schools etc.; v) Collecting weather information; vi) Creation of "My Timeline (Disaster response action plan)" by citizens.

Facility development image
Facility development image
Source: Urayasu City

① Pumping stormwater into the river through a drainage pump station outlet
② Centralized control system screen in the disaster response headquarters displaying river and weather information
③ Urayasu City's design manhole cover
④ Staff dispatched with a maintenance vehicle due to road flooding
⑤ Preparing sandbags at a pump station in anticipation of levee breaches during Typhoo
Source: Urayasu City

To the Next Phase

As future challenges for implementing comprehensive flood control measures covered under this plan, Urayasu City will address measures such as (1) accelerating the construction of new sluice gates and drainage pumping stations, (2) renovating deteriorated drainage drainage facilities and pumping stations, and (3) promoting measures to prevent urban flooding through sewerage systems that take climate change into account.

04

TAKANAWA GATEWAY CITY

Minato-ku, Tokyo, Japan   2025-

A next generation "disaster-resilient" city:
Building a world-class safe and secured community

① THE LINKPILLAR 1
② THE LINKPILLAR 2
SOUTH
NORTH
MoN Takanawa:
The Museum of Narratives
TAKANAWA GATEWAY
CITY RESIDENCE
Toward Shinagawa Station
Toward Tamachi Station
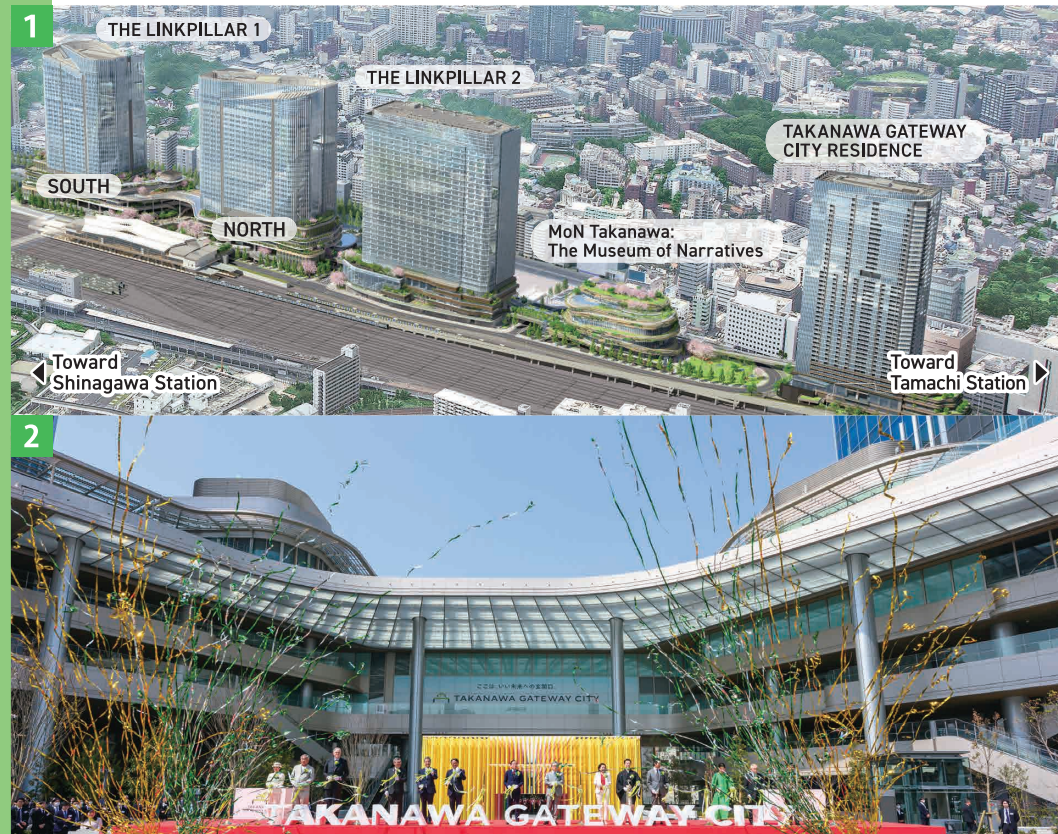
①Overall image of TAKANAWA GATEWAY CITY
②The grand opening ceremony of TAKANAWA GATEWAY CITY
Source: JR East

Data

Area
• TAKANAWA GATEWAY CITY RESIDENCE
• MoN Takanawa: The Museum of Narratives
• THE LINKPILLAR 2
• THE LINKPILLAR 1
Total floor area: 845,000 square meter

Project implementing bodies
East Japan Railway Company (JR East)

Main facilities introduced
Offices, commercial facilities, hotels, convention/conference facilities, childcare support facilities, business creation facilities, cultural and creative facilities, housings, clinics, international school, energy center (district heating and cooling), carparks, etc.

INCLUSIVE   GX   RESILIENCE

Key Issue

As part of the Shinagawa Development Project, this area is being developed based on the "Global Gateway" development concept, as an "experimental site to create enriched lifestyle for the next 100 years" where new businesses and cultures be generated continuously. With the aim to create an environmentally advanced urban development with net-zero CO_2 emission throughout the city, the project aspires to achieve people-and-eco-friendly future community development, including a circular economy that reuses waste as resources.
THE LINKPILLAR 1, which will serve as an international exchange hub that houses MICE facilities, offices, and commercial facilities, was opened on March 27, 2025. With this opening, the Takanawa Gateway Station was also launched and became fully operational. The other buildings including THE LINKPILLAR 2, MoN Takanawa: The Museum of Narratives, TAKANAWA GATEWAY CITY RESIDENCE, and other buildings in the surrounding area are scheduled to open in 2026 spring.

Project Approach

### Area management utilizing 3D city models

JR East joined the "Project PLATEAU*³" led by the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) to promote digital transformation (DX) of urban development through area management activities with local residents who co-create and disseminate information by linking together the city contents in a three-dimensional (3D) city model space. An evacuation simulation using BIM and PLATEAU's open data is performed within the district. Based on this, a safety assurance plan is updated. This simulation system is utilized for evacuation drills and business continuity planning (BCP) reviews. The area will foster disaster preparedness that enables business continuity that minimizes human and material damage without causing major confusion, even in the event of a major earthquake or disaster.

Implementing a station-district integrated people flow management service

With an aim to foster collaboration between the station and the district, and to implement proposal-based services that facilitate the movement and short stay of visitors, data stored in the city OS will be used to provide information to visitors through robots, apps, signage, etc., thereby allowing to. During an emergency, emergency information will be provided in cooperation with Minato City using digital signage to minimize confusion during evacuation and ensure the safety of those remaining in the area.

Energy Management

By installing Japan's largest class thermal storage tank in the district heating and cooling facility inside the basement of THE LINKPILLAR 2, it will allow a highly efficient energy supply as well as the use of water stored in the thermal storage tank as emergency water in the event of a disaster (e.g. for toilet use in temporary accommodation facilities and for firefighting). Furthermore, other measures are used to achieve stable energy supply and to establish a business continuity plan (BCP), such as the utilization of various reusable energy and development of a co-generation system (CGS) capable of generating electricity using medium-pressure gas.
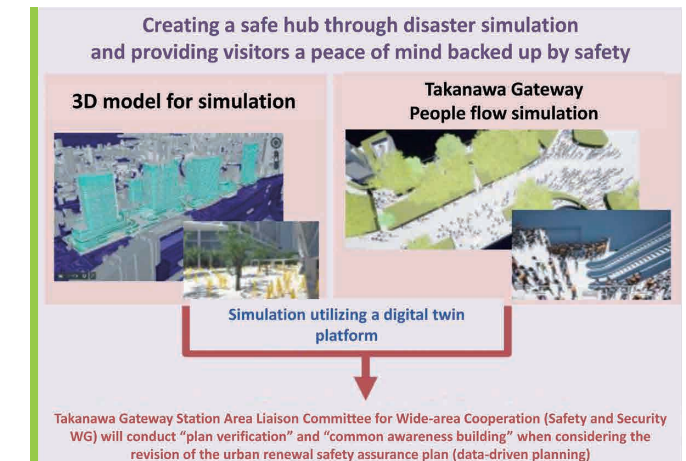
Enhancement of area disaster resilience through simulations using digital twin platforms
Source: Takanawa Gateway Station Area Liaison Committee for Wide-area Cooperation

People flow management service image
Source: JR East

To the Next Phase

Facility operation and other relevant planning will regularly be refined based on the actual flow of people, including review of evacuation plans based on the results of simulations conducted prior to the opening. The refined plans will then be utilized for efficient and effective evacuation guidance. The aim for the station-district integrated human flow management service is to create a framework for more effective people flow guidance, by analyzing people flow based on the actual conditions after the opening and reviewing appropriate information dissemination tools etc.

05

Fujisawa Sustainable Smart Town

Fujisawa City, Kanagawa, Japan   2014-
Bringing energy to life

Panoramic view of Fujisawa SST
Source: Fujisawa SST Consortium

Data

Area
193,154.81 square meters (Approx. 19 ha)
*Including 3,530.67 square meters area
for an aqueduct

Project implementing bodies
Fujisawa SST Consortium
(Lead member: Panasonic Group)
(Land readjustment project builders:
Panahome [currently, Panasonic Homes
Co., Ltd.], Mitsui Fudosan Residential
Co., Ltd.)

Population
2,857 (1,026 households) (February 1,
2025 for Tsujido Motomachi 6-chome)

Main facilities introduced
Housing, commercial facilities, health,
welfare, and educational facilities, parks,
city blocks, etc.

INCLUSIVE   GX   RESILIENCE

Key Issue

The Fujisawa Sustainable Smart Town (Fujisawa SST), which was created in Fujisawa City, Kanagawa Prefecture , is a joint project of industry-government-academia collaboration between Fujisawa City and partner companies that are pursuing cutting-edge initiatives.
Fujisawa SST will first propose a smart community lifestyle that considers residents' comfort, local characteristics, and future lifestyles from various angles, including energy, security, mobility, wellness, and community. The entire town will then be designed as a smart space with the most appropriate homes and facilities, and finally construct the most optimized smart infrastructure to support new lifestyles.
It will evolve sustainably through ideas and processes that are "lifestyle-oriented" and centered on "people."
In order to expand the area where town services are provided, the community area will be expanded to the surrounding area by approximately 1.5 kilometers, and active cooperation will be established with the surrounding area. As a result, the associated population of the people who live, work, and visit, and surrounding residents that make up the community will reach 70,000 people, and the value of the co-creation incubation field—a concept in which the entire town functions as a living laboratory where residents, companies, academia, and government collaborate to test and implement new services and technologies— will increase, further contributing to both the community and the region.

Project Approach

"Energy Creation-storage Linked System" that allows the use of ENE-FARM[*4]

Houses are installed with "Energy Creation-storage Linked System" which controls not only the solar power generation system and storage batteries but also to the ENE-FARM[*4] household fuel cell cogeneration system. This allows a more stable power supply during a power outage by allowing the use of solar-generated electricity and electricity generated by ENE-FARM[*4]. In addition, energy management system will continue to supply energy even in emergencies, by distributing power to the preset minimum essential appliances such as lighting, refrigerators, and televisions, thus achieving a lifestyle that never runs out of energy for residents.

"Community Solar" system that distributes renewable energy

In the south of the town, a community solar power generation system was installed on public land. Under normal circumstances, it supplies electricity to the power grid, contributing to the low carbonization of the entire region. In emergencies, it will become an emergency power source for residents and people in the surrounding area. In addition, the Committee Center, a meeting place in Central Park, is being equipped with a solar power generation system and storage batteries. Furthermore, the town is working to make itself more disaster-resilient by laying underground power lines and using medium-pressure gas pipes that are highly earthquake-resistant.
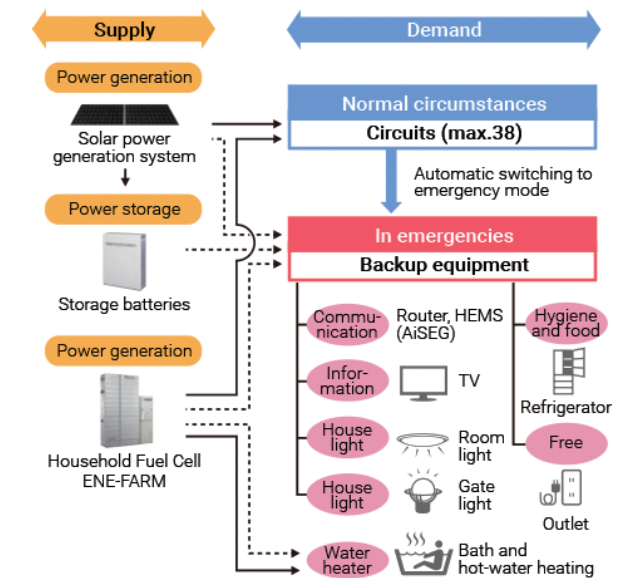
Town-wide security through surveillance cameras, lighting, and patrols

Approximately 50 surveillance cameras and lighting fixtures are strategically installed at town entrances, public buildings, shaded areas in parks, and major intersections. Combined with patrols by "security concierges," these measures provide comprehensive security while maintaining an open atmosphere.
Children's safety can be monitored unobtrusively, and street layouts designed to minimize through traffic further enhance traffic safety.
In emergencies, cameras and lighting are also utilized for disaster prevention. A certain number of streetlights remain illuminated to ensure safety, while entrance and room lights in each house softly illuminate the streets.

● Conceptual image of emergency backup power supply system for detached houses

Conceptual diagram of emergency backup power system for a detached house
Source: Fujisawa SST Consortium

The "town-wide security" system with cameras, lighting, and patrols deployed across the community
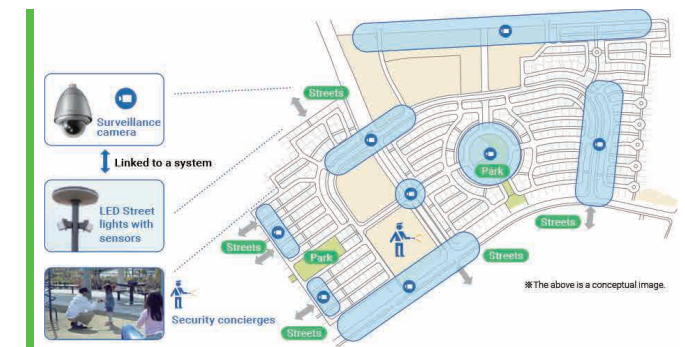Source: Fujisawa SST Consortium

To the Next Phase

Based on the results and knowledge gained from the first 10 years of operation in its three identified key themes of "environment," "safety and security," and "health and connections" , Fujisawa SST has set a "100-year vision" and updated the challenging goals that the ideal society should aspire to in the future. Regarding renewable energy, the goal to be achieved by fiscal year 2034 is to achieve a renewable energy self-consumption rate of 60% or more for the entire Fujisawa SST . Regarding CO_2 reduction, the goal to reduce CO_2 emissions by 70% compared to 1990 levels has already been achieved, and it has set another goal of reducing CO_2 emissions by a further 50% compared to fiscal year 2020 results by fiscal year 2034. In addition, while maintaining lifelines for three days with energy conservation and expanded power storage, 7 days worth of food and drinking water will be stockpiled. The target for healthy life expectancy for residents of Fujisawa SST is to add an additional year compared to the 2024 fiscal year calculation.

06

Akashi City

Akashi City, Hyogo, Japan
Creating an inclusive city where everyone can live true to themselves

Aerial view of Akashi Station area
Photo by Akashi City

Data

Area
Approx. 49.41 square kilometers

Project implementing bodies
Akashi City

Population
306,450 (August 1, 2025)

INCLUSIVE   GX   RESILIENCE

Key Issue

Akashi City promotes inclusive urban development under the principle of "wholeheartedly supporting every child from their perspective together with the whole community." Beginning with initiatives such as continuous support from pregnancy and children's food program in all school districts—where meals are offered free or at low cost—the city has expanded policies that ensure care and opportunities for every child. Building on this foundation, Akashi aims to create "a city where people want to live and continue living," providing a safe and welcoming environment for all residents regardless of age, gender, or disability.

In 2017, Akashi was registered as a "Host Town for an Inclusive Society*5" linked to the Tokyo 2020 Olympic and Paralympic Games, and in 2019 it was recognized as a "Leading Host Town for an Inclusive Society." In 2022, the city adopted the "Akashi SDGs Promotion Plan" and enacted the "Akashi Inclusive City Ordinance," establishing a framework to realize a society where everyone can live authentically and no one is left behind.

Project Approach

Akshi Inclusive Ordinance

Under the Akashi Inclusive Ordinance, the city aims to realize a society where no one is left behind, based on the core principles of "reliable support in times of need," "social contribution by persons with disabilities and others," "promotion of understanding of inclusiveness," and "respecting individuality to enable people to demonstrate their abilities."

Inclusive Advisor System

In Akashi City, to promote universal design in urban development, a system has been introduced in which persons with disabilities and experts participate as Inclusive Advisors from the planning stage of facility renovations and events, so that diverse opinions and needs can be reflected.

By having constructive dialogues between those with experience or knowledge in physical disability and businesses, a more user friendly environment can be achieved.

Basic Measures for an Inclusive Society – Akashi Inclusive Ordinance

To realize an inclusive society, the city advances concrete measures in daily and social life through cross-departmental efforts in collaboration with citizens, businesses, and related organizations.

Inclusive Education
All children learn together in local schools, regardless of disability or background

Support in Emergencies
Ensure the safety of vulnerable residents during disasters through coordination among citizens, businesses, and local authorities

Comprehensive Consultation System
Establish cross-sector support so persons with disabilities can make decisions and receive solutions to daily challenges

Community-Based Support
Promote safe and comfortable living for elderly and disabled people within their local communities

Employment Support
Improve job opportunities and workplace environments for persons with disabilities

Accessible Public Facilities
Upgrade schools, hospitals, and stations so that everyone can use them comfortably

Mobility and Transport
Guarantee safe, seamless mobility for all citizens, including necessary travel information

Promotion of Smooth Transportation
Implement plans to improve accessibility in transport systems under Akashi's Universal Design Master Plan

Universal Tourism
Promote tourism that can be enjoyed by all, regardless of age or disability, in collaboration with local stakeholders

Key Measures for an Inclusive Society (Akashi Inclusive Ordinance)
Source: Akashi City

Image of the Inclusive Advisor System
Source: Akashi City

To the Next Phase

Akashi City is promoting initiatives based on the Akashi Inclusive Ordinance to realize a symbiotic society where everyone can live with peace of mind. Through the Akashi City Universal Design Urban Development Implementation Plan, the city advances barrier-free improvements and event support in collaboration with residents and those with physical disability.

In addition, the city has introduced subsidy programs to assist inclusive activities by shopping streets and neighborhood associations, thereby pursuing efforts in both physical and community aspects. Looking ahead, Akashi City aims to further deepen its inclusive city development under the principle of "leaving no one behind."

07

Smart City Takamatsu

Takamatsu City, Kagawa, Japan   2025-
Data-driven urban development for the future

Takamatsu City with a Scenic View of the Seto Inland Sea
Photo:Takamatsu City

Data

Area
375.67 square kilometers

Project implementing bodies
Takamatsu City

Population
Approx. 410,000

INCLUSIVE   GX   RESILIENCE

Key Issue

Takamatsu City has experienced relatively few large-scale natural disasters, resulting in limited disaster-response experience among municipal staff. As urban functions are located close to the sea, adverse conditions could cause widespread damage. To address this, the city launched a disaster prevention project under the "Smart City Takamatsu" initiative. To integrate and utilize data held by other municipalities and private companies, Takamatsu built a shared IoT platform based on FIWARE[6], combining real-time sensor data—such as water levels—with geospatial information to visualize and enhance early safety measures and disaster response.
The city also took on the "Super City Initiative"[7]—a national program promoted by the Government of Japan under the National Strategic Special Zone[8] framework to create future cities that provide seamless, data-driven services across multiple sectors such as healthcare, education, and mobility—although its 2021 proposal was not selected. Building on this experience, Takamatsu aims to realize FACT (Free-Address City Takamatsu) around 2030 and continues advancing initiatives toward "Smart City Takamatsu."

Project Approach

Integrated visualization of real-time disaster data

Cameras and sensors have been installed along rivers and coastal areas to monitor and visualize real-time conditions, such as underpass flooding and power supply at community centers designated as evacuation sites. In addition, by integrating data from Kagawa Prefecture and private companies into a unified system, the city ensures quick and effective responses during disasters.

Regional partnership via the IoT common platform

As the core city of the Seto–Takamatsu Wide-Area Regional Collaboration Zone, Takamatsu City plays a central role in promoting regional development and strengthening cooperation with surrounding municipalities. In the field of smart cities and digital innovation, the city has begun jointly utilizing its IoT common platform—originally developed by Takamatsu—with neighboring Ayagawa Town and Kanonji City in western Kagawa Prefecture, promoting inter-municipal collaboration in disaster prevention. Going forward, Takamatsu aims to further expand and advance these initiatives on a broader regional scale.
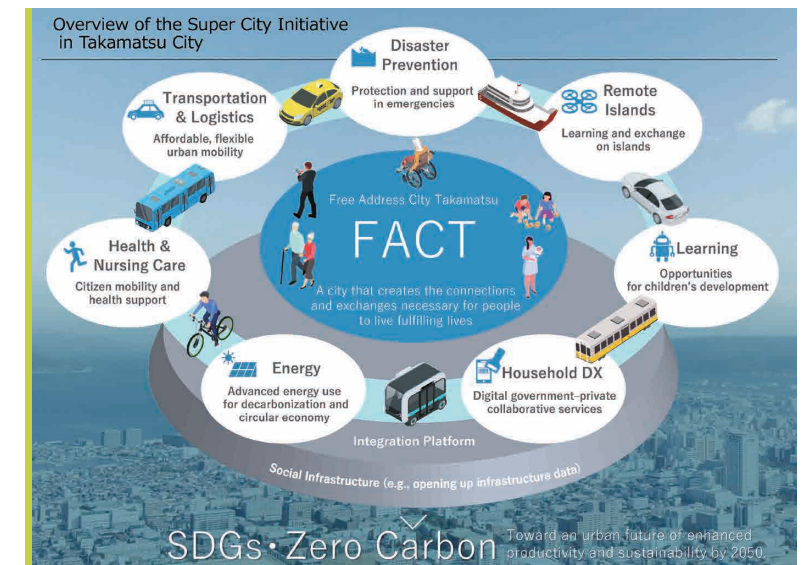
Promoting initiatives to realize FACT

To realize the "FACT" (Free-Address City Takamatsu) , Takamatsu City is working to visualize and share real-time data obtained during disasters, and to provide residents with flood forecasting information via the shared IoT platform.
In addition, by linking data and services with private-sector partners, the city provides residents with information on evacuation centers and evacuation routes, while also sharing data with evacuation centers to establish a system that ensures residents' safety even after evacuation.

TYPICAL INSTALLATION
Control Box
Water Level Sensor
Monitoring River/Water Level (Nakanokawa River)
Monitoring Tide Level at Revetment (Tarumi Fishing Port)
Real-time water/tide level monitoring device
Source: Takamatsu City

Overview of the Super City Initiative in Takamatsu City
Disaster Prevention — Protection and support in emergencies
Transportation & Logistics — Affordable, flexible urban mobility
Remote Islands — Learning and exchange on islands
Health & Nursing Care — Citizen mobility and health support
FACT — Free Address City Takamatsu — A city that creates the connections and exchanges necessary for people to live fulfilling lives
Learning — Opportunities for children's development
Energy — Advanced energy use for decarbonization and circular economy
Household DX — Digital government-private collaborative services
Integration Platform
Social Infrastructure (e.g., opening up infrastructure data)
SDGs・Zero Carbon — Toward an urban future of enhanced productivity and sustainability by 2030
Takamatsu City "Super City Initiative"
Source: Takamatsu City

To the Next Phase

Under the "FACT" (Free-Address City Takamatsu) , Takamatsu aims to establish a system that provides residents with flood forecast information before disasters occur. At the time of the 2021 proposal, such forecasts were available only from the Japan Meteorological Agency, but discussions on regulatory reform and institutional arrangements are underway to enable future implementation.

08

Nomi
Smart Inclusive City

Nomi City, Ishikawa, Japan　2022-
Creating a city where essential services are provided sustainably

Aerial View of Nomi City, Ishikawa
Photo by Nomi City

Data

Area
84.14 square kilometers(eaturing diverse landscapes from the sea to satoyama—traditional rural areas of farmland and forested hills—with about 60% of the city covered by forest)

Project implementing bodies
Nomi City

Population
49,645 people, 20,587 households (October 1, 2025)

INCLUSIVE　　GX　　RESILIENCE

Key Issue

Nomi City stretches east to west with diverse landscapes from the sea to the mountains, making it difficult to develop transport, medical, and shopping infrastructure. For those who cannot drive, daily life is hard to maintain, and the risk of isolation is high across generations.
To address this, the city is shifting from "making it possible to go everywhere (Better)" to "making services accessible without having to go there (Change)," by combining digital technology (online) with community strength (offline). Community centers and other local hubs are being used to provide online medical care, delivery of daily necessities, health programs, government services, and mobility options.
Through these initiatives, Nomi City aims to realize a "Smart Inclusive City" where residents can continue living in their familiar communities without isolation, even with limited mobility.

Project Approach

Smart Inclusive city concept
Source: Nomi city
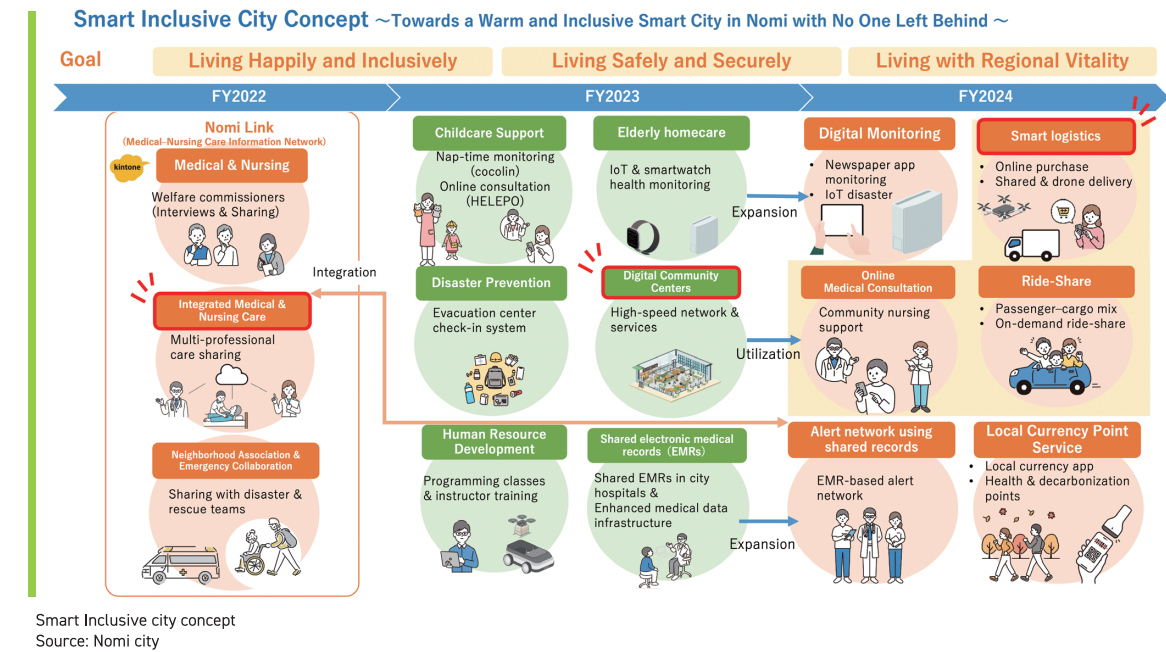
### Integrated Medical and Nursing Care Platform

A common platform has been developed in the medical and nursing care fields, enabling professionals across different disciplines to instantly share care plans and related information beyond organizational boundaries.

Digital Community Centers

"Community Center 2.0" aims to transform traditional community halls into bases where digital services can be accessed through the same infrastructure both in normal times and during emergencies. To achieve this, local community halls are being equipped with Wi-Fi and upgraded into hubs for diverse services. In addition, community supporters promote cross-generational interaction, thereby strengthening civic engagement.

Services provided at digital community centers and local community supporters
Source: Published materials by Nomi City

Smart Logistics Services

Building on the functions of the Digital Community Centers established in FY2023, the city is expanding Digital Community Centers into hubs for daily delivery services. Residents can order essentials online, via app, or by phone, which are delivered to community centers for easy pickup. Joint cargo-passenger transport and drone delivery are also planned to improve efficiency and secure logistics during emergencies.
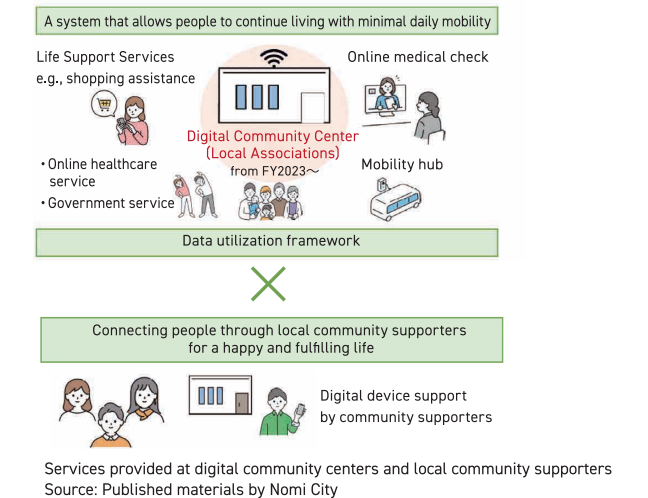
To the Next Phase

To realize the vision of becoming "Japan's most livable city," Nomi City has outlined its desired future in terms of the economy, society, and environment. The city is implementing initiatives toward 2030 while applying the PDCA cycle for continuous improvement.

09

Smart Forest City

Nishiawakura Village, Okayama, Japan   2008-
Decarbonization through energy management

Nishiawakura Nursery School, located within the designated Leading Decarbonization Area, is built using abundant locally sourced timber and equipped with heating and cooling systems that utilize local energy.
Source: Nishiawakura Village

Data

Area
Approx. 57.97 square kilometers

Project implementing bodies
Nishiawakura Village Government,
Nishiawakura Local Invention Lab

Population
1,333 (2025)

Main facilities introduced
Public facilities, public housing, biomass power plant

INCLUSIVE   GX   RESILIENCE

Key Issue

Nishiawakura Village was designated in 2022 as one of Japan's Leading Decarbonization Areas*9, with the construction of the Smart Forest City Platform as one of its core initiatives. Since fiscal year 2020, Nishiawakura Village has promoted the Smart Forest City Platform Construction Project (subsidized by the Ministry of the Environment of Japan) to develop a system for collecting and managing local energy, including renewable energy. In fiscal year 2021, under the Regional Distributed Energy Infrastructure Project (subsidized by the Ministry of Internal Affairs and Communications of Japan), the village conducted demonstrations on data collection from renewable energy facilities, encouraged local production and consumption of resources, and addressed wider issues such as mobility services and health information.
Solar panels and storage batteries have been installed in public, residential, and commercial facilities, complemented by woody biomass and small hydropower generation to improve energy self-sufficiency. By 2030, the village plans to integrate data on health, medical care, education, forests, and mobility into the platform for unified management.
Through these initiatives, Nishiawakura Village seeks to realize a "refined countryside surrounded by 100-year forests", while tackling local challenges and promoting sustainable development.

Project Approach

### Building a Sustainable Nishiawakura through the "100-Year Forest" Project

Conceived in 2008, the "100-Year Forest" Project is Nishiawakura Village's flagship initiative to revitalize local forests. It combines village-led forest management with private-sector innovation, consolidating fragmented privately owned forests through long-term contracts to enable efficient thinning and sustainable use.
To date, about 2,100 hectares of planted cedar and cypress have been systematically maintained.
In 2019, as part of Japan's SDGs Future City Model Project*10, the initiative advanced to "ver. 2.0," focusing on diversifying forest resources, restructuring forest composition, establishing a forest fund with private financing, and promoting renewable energy derived from forest resources. These efforts contribute to creating a sustainable community with enhanced social infrastructure such as welfare, education, and community development, guiding the village toward the next 100 years. At the same time, they also align with the achievement of sustainable development under the SDGs.

Interior of Awakura Community Hall
(A public facility built using timber carefully preserved under the "100-Year Forest" initiative)
Source: Nishiawakura Village

Introduction of biomass power generation and heat supply facilities; Electrification of official vehicles, etc.

In the village, wood-fired boilers at three hot spring facilities, a district heating system using biomass boilers at six public facilities including the new town hall, as well as small-scale biomass heat and power generation equipment have been installed to reduce CO_2 emissions in the commercial and residential sector. In addition, the project aims to further reduce CO_2 emissions in the industrial sector by introducing biomass heating equipment at newly opened wood processing plants. At the same time, the project will also support households in purchasing renewable energy and energy-saving equipment, such as solar power generation system, which contributes to the promotion of a low-carbon society, and increase the proportion of EVs in both official and private vehicles in the village, thereby simultaneously reducing emissions in other sectors.
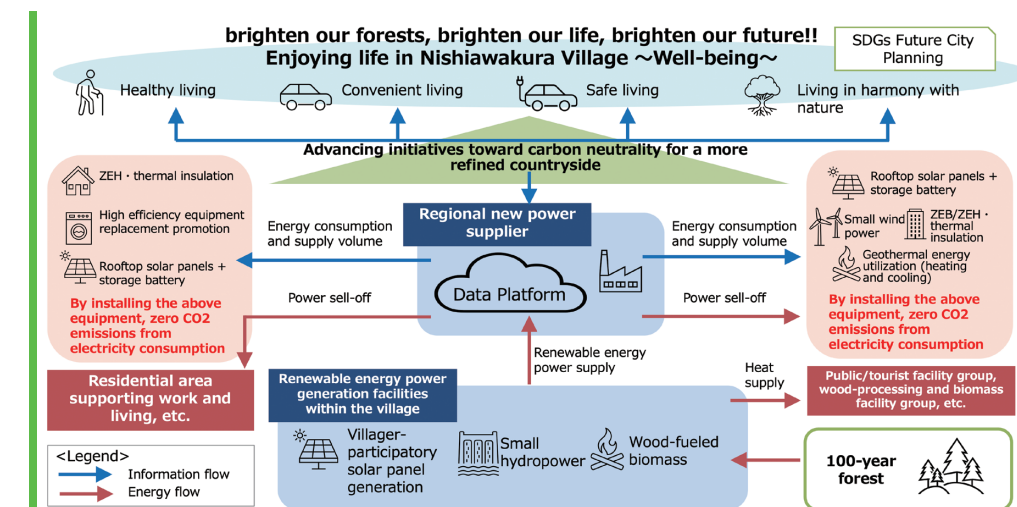
Vision for Regional Decarbonization
Prepared based on the Ministry of the Environment's project: "Nishiawakura Village: Creating a Leading Decarbonization Area for 2050 ─ Welll-being Village"
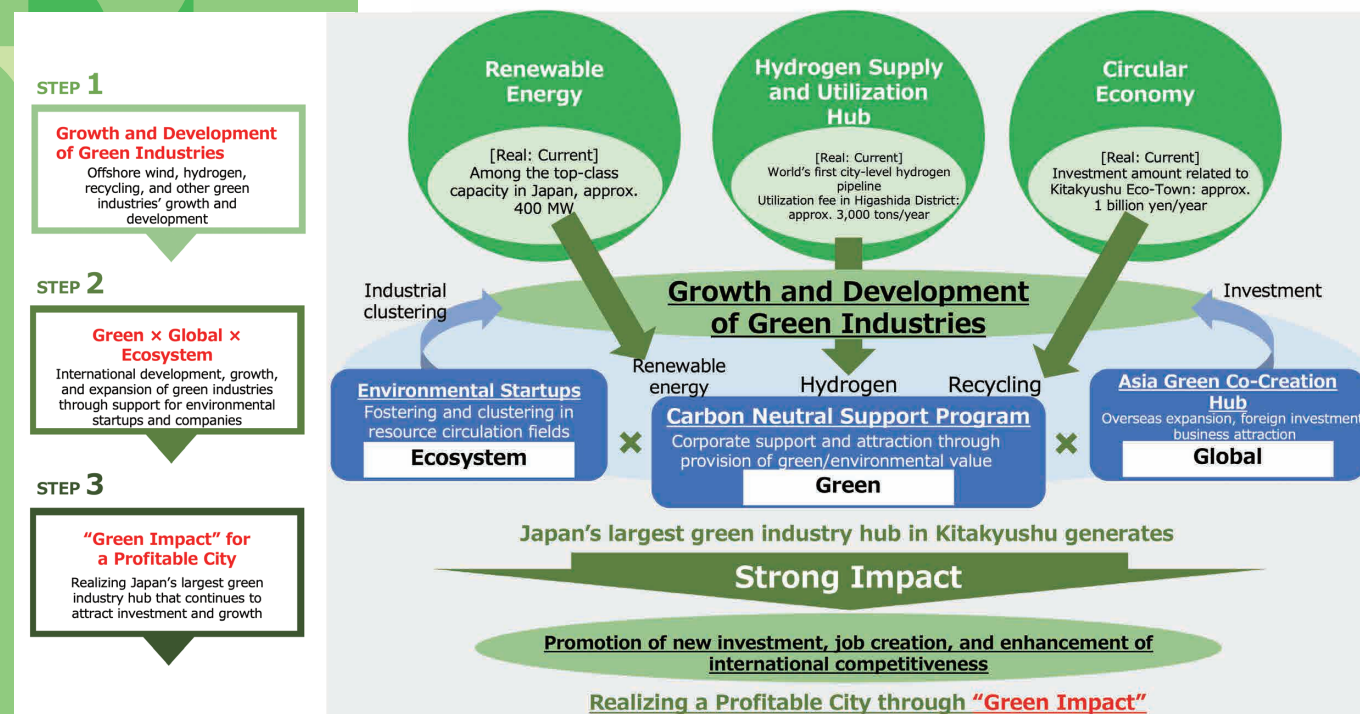
To the Next Phase

Looking ahead to 2050, Nishiawakura Village aims not only to advance initiatives within its designated Leading Decarbonization Area, but also to achieve "Carbon Neutrality for the Entire Village." The village promotes the open sharing and visualization of CO_2 emissions data, while continuing efforts to capture and store CO_2 through the 100-Year Forest management project.

10

Kitakyushu City

Kitakyushu City, Fukuoka, Japan

Data

Area
490 square kilometers

Population
Approx.900,000 (April,2025)

Major industries
Steel, chemicals, cement, ceramics, automobiles, etc.

INCLUSIVE   GX   RESILIENCE

Overview of the Kitakyushu Green Impact
Source: Kitakyushu City

Key Issue

Kitakyushu City is located in the northeastern part of Fukuoka Prefecture and serves as the gateway to Kyushu, facing Honshu across the sea. The city aims for green growth through a virtuous cycle of the environment and economy, working on initiatives such as establishing a comprehensive base for offshore wind power-related industries and promoting the supply and utilization of hydrogen.
In addition, the city is advancing the development of a circular economy that makes sustainable use of resources, including the creation of new recycling businesses that address social challenges.
Through these initiatives, Kitakyushu seeks not only to further accumulate green industries but also to provide diverse environmental values—such as renewable energy and recycling functions—in order to strengthen the international competitiveness of local companies.
This initiative is known as the "Kitakyushu Green Impact."

Project Approach

Promoting Renewable Energy

Kitakyushu City currently has the largest renewable energy generation among designated cities in Japan. Through the "Renewable Energy 100% Kitakyushu Model" announced in February 2021, and the "Decarbonization Leading Area*⁹" selected by the national government in April 2022 based on a joint proposal with 17 municipalities in the Kitakyushu metropolitan area, the city is installing solar panels and other facilities at public buildings under a low-cost third-party ownership scheme, while also expanding these initiatives to local SMEs. In addition, by supplying clean electricity generated at municipal waste incineration plants to local consumers through the regional power company Kitakyushu Power Co., Ltd., the city aims to achieve local production and consumption of renewable energy.
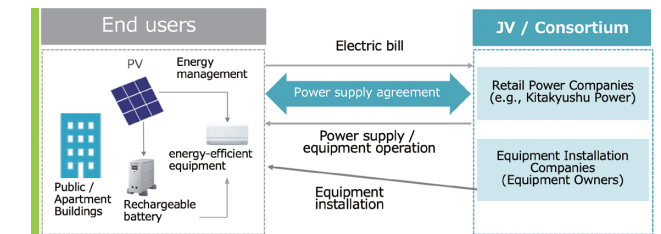

Diagram of the third-party ownership model for renewable energy
Source: Kitakyushu City

[Third-Party Supply Scheme] Users receive renewable energy and air-conditioning services without purchasing solar panels, batteries, or energy-saving equipment. A consortium of a power company and an equipment supplier installs and owns the facilities, allowing zero initial cost, quick introduction, and efficient operation with remote monitoring.

Advancing GX

The global movement toward Green Transformation (GX) for achieving carbon neutrality by 2050 is accelerating, and in Japan as well, public and private GX investments exceeding 150 trillion yen are expected over the next decade. Kitakyushu City regards carbon neutrality as a growth opportunity and has established the Kitakyushu GX Promotion Consortium, a partnership among industry, academia, government, and finance, to attract such investments to the city. Through research and development at the Kitakyushu Science and Research Park, industrial clustering that leverages the city's potential, support for local business growth, and the creation of new industries, the consortium aims to realize Kitakyushu as a "profitable city."

Building a hydrogen supply and utilization hub city

The Higashida District is building on the theme of environmentally sustainable urban development through the "Kitakyushu Hydrogen Town Demonstration Project", by utilizing the hydrogen pipeline to support technology demonstrations by businesses involved in hydrogen businesses" (FY2010~).
In addition, in the Hibikinada coastal area where various energy industries concentrate, the "CO₂-Free Hydrogen Production and Supply Demonstration Project" demonstrated the production and supply of hydrogen without the emission of CO₂ by using solar, wind, or biomass power generation (FY2020~FY2022).
Furthermore, the "Fukuoka Hydrogen Base Promotion Council" was established in May 2023 through which industry, academia, and government collaborate to develop a hydrogen hub and build a supply chain centered around the Hibikinada coastal area.

Technology demonstration utilizing a hydrogen pipeline
Source: Kitakyushu City
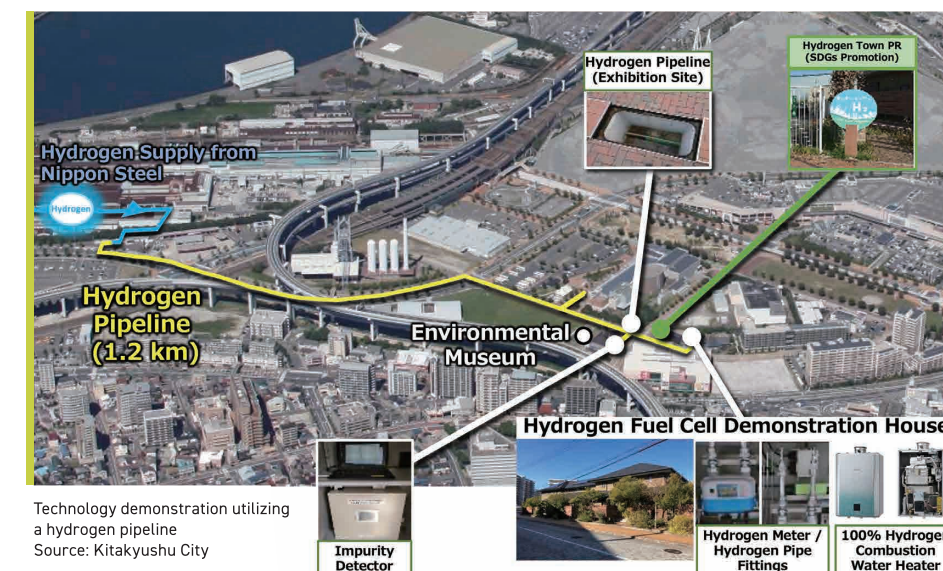
Chapter 02

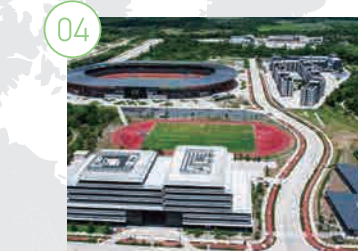## ASEAN and Other Global Cities

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Smart City Thailand : depa's Path to Carbon Neutrality

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01

Smart City Thailand :
depa's Path to Carbon Neutrality

Thailand   2017-
Advancing GX through Urban Planning, Digitalization, and Optimization

Cityscape of Yala City Municipality
Photo: kunanon/Adobe Stock

Data

Yala City Municipality

Area
19.4 square kilometers

Population
58,450(2025)

Nakhon Si Thammarat City Municipality

Area
22.56 square kilometers

Population
98,178(2022)

Phuket Province

Area
543 square kilometers

Population
418,785(2025)

INCLUSIVE   GX   RESILIENCE

Key Issue

The Government of Thailand has set a target of reducing greenhouse gas (GHG) emissions by 30% below the Business-as-Usual (BAU) scenario by the year 2030. In regional cities, where emissions are increasing rapidly, it is imperative to advance industry while also balancing industrial growth with resource-efficient urban development.
The Digital Economy Promotion Agency (depa), established in 2017, is responsible for leading the national Smart City Development Plan. As a division of the Ministry of Digital Economy and Society, depa has invited 20-year master plans from each municipality and designated 37 pilot smart cities as of 2025. To that end, cities must define their vision and goals and propose solutions or projects aligned with seven dimensions: Smart Economy, Smart Energy, Smart Environment, Smart Governance, Smart Living, Smart Mobility, and Smart People. Notable Green Transformation (GX) efforts include Yala City Municipality's citizen tree-planting initiative for carbon sinks in the dimension of Smart Environment, Nakhon Si Thammarat's reporting app that empowers residents to address urban concerns in the dimension of Smart Governance, and Phuket City's smart bus system for tourists in the dimension of Smart Mobility.
In contrast to earlier top-down smart city models where advanced technology is introduced but citizen participation is limited, the examples introduced in this booklet prioritize resident involvement and adopt a "citizen-first" approach to initiative development.

Project Approach

Smart Green Corridor in Yala City Municipality

With a focus on scenic preservation, Yala City Municipality in southern Thailand has a radial road network extending from the center and interspersed with parks and green spaces. Certified by depa in 2021, the city promotes the "Smart Green Corridor & Infrastructure Project," a citizen participation initiative which expands green zones to secure CO_2 sinks and generate clean air. Resident tree-planting activities help maintain an Air Quality Index (AQI) of 25–50, indicating good air quality. These efforts earned Yala City Municipality the ASEAN Sustainable City Award[11] in 2021, receiving attention from even overseas as an environmentally friendly city.

Suan Khwan Muang Park near central Yala
Source: Amazing Thailand

Citizen Engagement App for Urban Challenges in Nakhon Si Thammarat

In Nakhon Si Thammarat City, the government introduced the crowdsourced "My City" mobile reporting app to tackle waterway blockages from severe flooding. By combining citizen reports with data analysis, authorities can identify root causes and improve repair and maintenance. With these results other municipalities follow suit to develop the app, and depa is scaling the smart city solutions nationwide with the aim to cover over 7,000 municipalities by 2027, and has added functions via LINE, a widely used messaging app in Thailand, for reporting issues, tracking progress, and accessing services.

Smart Bus in Phuket

Phuket Smart Bus (PKSB), in collaboration with depa, introduced smart buses and a real-time operation system to reduce traffic congestion, which was a major problem caused by tourists' reliance on private vehicles until the introduction of the app. The routes connect the airport with major beaches, with GPS-enabled buses providing accurate arrival times. Operation data is also integrated with the Tourism Authority of Thailand's "Phuket One Map," improving the convenience of public transport in the city.

①Phuket Smart Bus exterior   ②Rabbit Card used for fare payment
③Wheelchair-accessible bus boarding
Sources:Phuket Smart Bus(PKSB)

To the Next Phase

depa has set a national strategic goal to establish 105 smart cities across Thailand by 2027. When the National Smart City Initiative was first introduced in 2019, the focus was on building high-speed communication infrastructure, particularly 5G networks. Since 2023, however, the emphasis has shifted toward making city centers more livable, resilient, and economically vibrant. To achieve this, priority actions include upgrading public infrastructure—such as transportation, energy, and water systems—to be environmentally friendly and intelligent; developing a workforce equipped with digital skills; and connecting Thailand to global innovation networks to attract both investment and talent. Ultimately, the aim is to move from technology-driven smart cities to citizen-centric, human-focused smart cities.

02

Cyberjaya　Smart & Low Carbon City (CSLC)

Sepang, Selangor, Malaysia　1997-
Towards the realization of a smart and low-carbon next-generation science and technology city

Aerial view of Cyberjaya
Photo: Jackson.S/Adobe Stock

Data

Area
total of 2,812 ha (North 1,095 ha, West 516 ha, South 515 ha, Downtown 688 ha)

Project implementing bodies
Sepang Municipal Council, CYBERVIEW, etc.

Population
Approx. 49,000 (2020)

Main facilities introduced
Office, commercial facility, data center, university and research institute, etc.

INCLUSIVE　　GX　　RESILIENCE

Key Issue

Cyberjaya, located approximately 50 kilometers from Kuala Lumpur in close proximity to the international airport, is part of Malaysia's national "Multimedia Super Corridor (MSC)." The city has established itself as an innovation hub with leading technology companies, research institutions, and universities.
The Malaysian government has committed to reducing GHG emissions intensity per unit of GDP by 45% by 2030 compared to 2005 levels, and Sepang City has introduced the "Cyberjaya Smart Low Carbon City Framework" to leverage ICT for improved quality of life and lower carbon emissions.
In 2021, Cyberview, the master developer of Cyberjaya, unveiled its latest initiative: "Cyberjaya's New Masterplan." This strategic plan places a strong emphasis on three key areas: Smart Mobility, Smart Healthcare, and Digital Creativity. It is also notable for its commitment to ecological urban design, a hallmark of sustainable development.
Cyberjaya functions as a "living lab," collaborating with universities to foster talent, support startups and SMEs, and facilitate demonstration projects.

Project Approach

Creation of a multimodal green transportation network

In the smart mobility, demonstration experiments are being conducted on on-demand ride-sharing services, electric bicycle and e-scooter sharing, full electric trams, and smart traffic management systems.
The introduction of these technologies is expected to reduce dependence on private cars and improve convenience, with estimates suggesting that CO$_2$ emissions in the transportation sector could be reduced by 40% by 2030 compared to 2016 levels.

Digital monitoring and control using District Cooling System (DCS)

One initiative for low-carbon urbanization is the Distributed Cooling System (DCS). Pendinginan Megajana has introduced a peak demand response using ice thermal storage and an ICT-based control platform, enhancing efficiency and enabling early fault detection.
The plant expansion in 2017 achieved an annual power reduction of 2.3 GWh (approximately 1,160 tons of CO$_2$ reduction), contributing significantly to the realization of a low-carbon society in Cyberjaya.

Demonstration and implementation of smart technologies through startup support

The following four areas receive startup support: Smart Living, Digitalization & Data Solutions, Industrial IoT & Robotics, and Green Technology.
As of 2024, 129 companies have received approximately RM264 million in investment, generating approximately RM837 million in cumulative revenue and creating over 1,500 jobs. Beyond funding, the program promotes technology demonstrations—such as V2X*[12] and health analysis applications—that directly advance Cyberjaya's smart city initiatives in urban development, transportation, energy, environment, and healthcare.

Smart mobility solutions are being piloted/implemented in Cyberjaya
①On-demand ride-sharing bus　②e-scooter　③Autonomous trackless trams
④Smart traffic management system
Source: ①②④ Cyberview, ③Vetri Johor
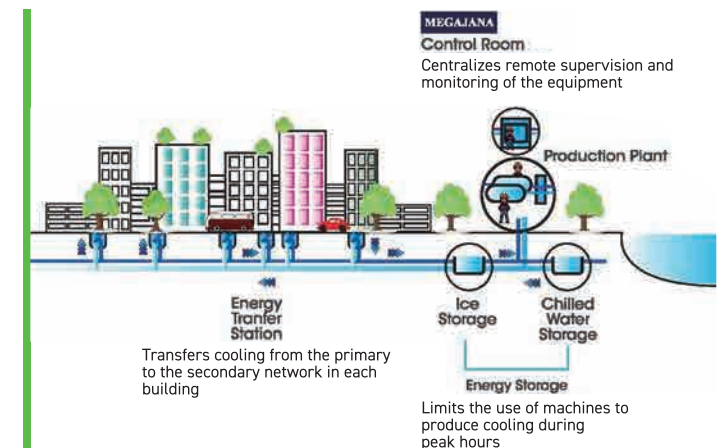
District Cooling System (DCS)
Source：Pendinginan Megajana

To the Next Phase

The "Cyberjaya Smart Low Carbon City Action Plan 2025" establishes CO$_2$ reduction targets based on actual figures in the areas of energy, transportation, waste, and water treatment. The plan sets a challenging goal of a 40% reduction in CO$_2$ emissions across all sectors by 2030 compared to 2016 levels.
The new city master plan is designed to achieve a GDP of RM250 billion, 87,000 jobs, and 1,200 companies by 2045. The development is being carried out in accordance with a three-phase smart city roadmap (2021–2025: expansion of technological infrastructure, 2026–2030: expansion of solutions, 2031–2040: advancement of solutions). The ultimate objective is to establish Malaysia as a global technology hub that leads the world.

03

Vinhomes Grand Park

Thu Duc, Ho Chi Minh, Vietnam   2017-2026
Smart city development project utilizing cutting-edge

Overall image
Source: Vinhomes Grand Park

Data

Area
272 ha

Project implementing bodies
Vingroup Joint Stock Company
(Vingroup JSC)
(with participation of Nomura Real
Estate, Mitsubishi Corporation,
and Samty Asia Investments in selected
phases)

Estimated resident population
200,000(projected for 2026)

Main facilities introduced
Apartment buildings, detached houses,
townhouses, shophouses

INCLUSIVE   GX   RESILIENCE

Key Issue

Vinhomes Grand Park in Thu Duc City, Ho Chi Minh City, Vietnam, is a smart city development that utilizes advanced AI and IoT technologies. Located about 20 kilometers from the city center (approximately 40 minutes by car), the township covers a total area of about 272 hectares and is scheduled for full completion in 2026. Featuring offices, housing, sports facilities, commercial centers, schools, hospitals, and parks, it is designed to accommodate approximately 200,000 residents.
The Grand Park project is one of the largest urban developments in Ho Chi Minh City.
It is attracting significant attention not only from communities in Japan, Korea, Hong Kong, Singapore, Europe, and the United States, but also from local Vietnamese residents.

Project Approach

Smart Security

The artificial intelligence (AI)-powered multi-layer camera system has built-in AI that alerts suspicious individuals entering or exiting the Grand Park , as well as detects, analyzes and identifies irregularities (crimes, car theft, car accidents, etc.) and relays the information to the security center. Equipped with facial recognition, elevators promise high safety for apartment building residents. The smart fire alarm system will notify residents of fire alerts and guide them to a quick evacuation. Residents will be able to quickly gather information even if they are not within the Grand Park. Beyond safety and security, residents' daily mobility is also enhanced. The smart transportation system will be linked to Google Maps and various apps to provide real-time updates on traffic conditions, facilitating convenient travel to the city center.

Smart Operation

The operation system, equipped with cutting-edge technology (AI, IoT), operates 24 hours a day, 365 days a year to monitor the apartment complex and provides support on early problem resolution. A Wi-Fi system (fee required) covers the entire Grand Park, allowing residents to access the internet anytime, anywhere. Also of note is the state-of-the-art intercom system, which allows apartment residents to not only check the situation in the lobby from inside the building, but also check on visitors from anywhere via a registered smartphone. A parking system (parking lot search system) will also be introduced, enabling residents to easily identify vacant spaces through an app. This advanced system is seamlessly linked to license plate registration and cashless payment, further enhancing convenience and security.

Smart Community

While the Grand Park is characterized by its cutting-edge systems, the smart community also promotes cashless living through a resident app, enabling convenient access to e-commerce and daily services. In addition, a household accounting app designed for children helps them easily track and manage their daily spending activities, fostering financial literacy from an early age.

Image of smartification
Source: Ho Chi Minh Suzuki Real Estate

MyVinhomes – Integrated smart community and living app
The official digital platform that connects residents to daily services, payments,
and the wider Vingroup ecosystem, enabling a seamless and intelligent urban lifestyle.
Source: Google PLAY

To the Next Phase

Long Thanh International Airport is scheduled to open in 2026, and infrastructure development is underway that will be convenient for people who travel abroad frequently. In addition, VIN BUS, an electric bus provided exclusively for residents of Vinhomes Grand Park, is planned to operate on key city routes, further enhancing daily commuting and access to the city center.

04

New Clark City

Capas, Tarlac, Philippines   2016-
The Philippines' first smart, green and disaster resilient urban development

Data

Area
9,450ha

Project implementing bodies
Bases Conversion and Development Authority (BCDA) * JOIN , a Japanese public-private fund, participated in the creation of the master plan . Japanese companies such as Marubeni, Kansai Electric Power, and Chubu Electric Power are participating in the power distribution business in the actual development.

Estimated resident population
1.2 million (projected for 2065)

Estimated employed population
0.6 million (projected for 2065)

Main facilities introduced
Park,housing complex, athletes' village, government building, athletics stadium, aquatics center

INCLUSIVE   GX   RESILIENCE

Government and public building
Source: BCDA

Key Issue

New Clark City (NCC) is an urban development project being carried out by Business entity Bases Conversion and Development Authority (BCDA), a government agency under the direct control of the President, on the former site of Clark Air Base, located approximately 120 kilometers(km) northwest of Metro Manila . Prior to the development, BCDA worked with Japan Overseas Infrastructure Investment Corporation for Transport & Urban Development (JOIN) to create a master plan for urban development. The project aims to develop the area into an environmentally friendly city, Clark Green City, by developing infrastructure for electricity, water, sewage, gas, communications, and transportation, developing industrial parks and residential and commercial facilities, and attracting cutting-edge research facilities, universities, hospitals, etc., in four phases, with the aim of making the area a large-scale city with a population of 1.2 million by 2065.
With an emphasis on sustainability, the city aims to promote the use of renewable energy, and is proactively introducing solar and wind power generation throughout the city. The Energy Management System (EMS) provides efficient power supply and storage for surplus energy. The city is also designed to be disaster-resistant, with enhanced drainage infrastructure as a flood prevention measure, and earthquake-resistant building structures.

Project Approach

Smart Mobility

By introducing the cloud-based traffic control system Smart Mobility Operation Cloud (SMOC), the Clark area aims to improve the convenience and efficiency of public transport while reducing energy consumption and greenhouse gas (GHG) emissions. Demonstration operations began in September 2024. Developed by Zenmov, a Japan-based startup specializing in smart mobility, SMOC provides operators with IT-based solutions for traffic control and fleet management. Deployed in environmentally friendly vehicles such as electric and autonomous buses, SMOC enhances operational efficiency through demand-responsive scheduling, headway management to reduce waiting times, and cashless payment options, thereby contributing to energy savings and GHG reduction.
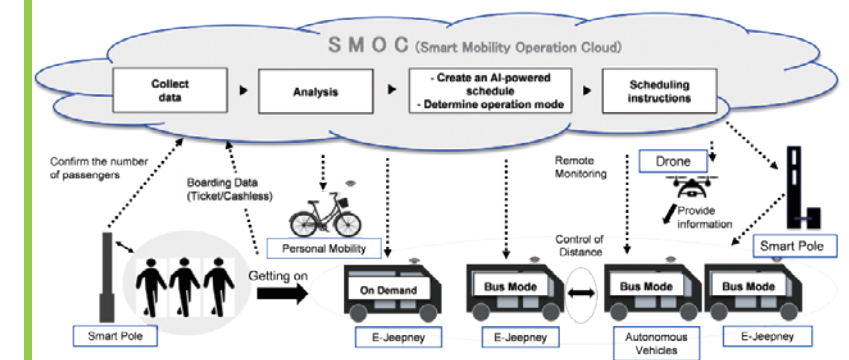

Image of traffic control using SMOC , linking devices and installed equipment, and analyzing data
Source: New Energy and Industrial Technology Development Organization [NEDO]

A city rich in greenery and resistant to disasters

BCDA is developing New Clark City as the Philippines' first and largest resilient city. A master-planned community*[13] of smart buildings, green spaces and an intelligent, eco-friendly transportation system, New Clark City represents the modern Philippine city where residents can live and work in a better climate and safer environment. Large areas of the city will be walkable and an efficient transport system will be planned, reducing the need for cars and therefore pollution. Roads will be equipped with wide pedestrian sidewalks, bike lanes and a fully Automated People Mover*[14].

Green City
Source: CNN

To the Next Phase

As for future development trends, BCDA continues to seek partners to develop transit-oriented development (TOD), industrial zone development, the 25MW solar power plant project, and the Filinvest Innovation Park. By embracing TOD and utilizing an environmentally friendly multi-modal transport system*[15], BCDA aims to design a "15-minute city" where anywhere is easily accessible.
Furthermore BCDA is planning to procure at least 30 percent of power supply from renewable energy sources for New Clark City, and assist owners and developers, as well as residents within the city.

05

BSD City

Tangerang, Banten, Indonesia   1984-
A future-oriented new town where green meets digital

BSD City(Green Office Park)
Source：Mitsubishi Corporation

Data

Area
Approx.6,000ha
(Phase1：1,500ha, Phase2：2,000ha,
Phase：2,500ha)

Project implementing bodies
Sinar Mas Land

Population
Approx.500,000 (2024)

Main facilities introduced
Offices, commercial facilities, universities
and research institutes, exhibition halls,
public parks, convention center,
and a general hospital

INCLUSIVE   GX   RESILIENCE

Key Issue

BSD City, which began as a new town development in 1984, is now promoted as a sustainable smart city with themes of sustainability, healthy environment, and enhanced mobility. It includes a specialized zone dedicated to the digital economy called the Digital Hub, which aims to integrate living, working, and leisure in close proximity. Spanning a vast area of 6,000 hectares, the development provides more than 40,000 housing units, together with multiple shopping malls such as AEON MALL, universities, research institutions, and one of Indonesia's largest exhibition and convention centers. A distinctive district within BSD City is the Green Office Park, covering approximately 25 hectares, which incorporates environmentally friendly designs such as water and energy-efficient usage and recycling systems. Japanese companies have also entered BSD City, engaging in initiatives such as transit-oriented development (TOD) and pilot projects for autonomous driving, thereby contributing to the realization of its smart city vision.

Project Approach

Creating sustainable buildings

The Green Office Park, developed as a 25-hectare park-like district, comprises eleven five-story buildings designed with solar shading, natural ventilation, and energy efficiency in mind. Environmental measures such as recycled water use are widely adopted, and several buildings have earned Platinum or Gold certification from the Green Building Council Indonesia*[16]. The district also features Breeze Mall BSD City, a mixed-use complex that reduces energy for air conditioning and lighting through trees and water features. Conceived as a "wall-less mall," it integrates greenery and waterfront areas, providing distinctive dining spaces and outdoor entertainment experiences.

Optimizing energy consumption with diverse technologies

BSD City is actively promoting renewable energy through rooftop solar panels on commercial and residential buildings, along with the introduction of wind and biomass power generation. A symbolic example is the rooftop solar installation at AEON Mall BSD CITY, the first AEON Mall in Indonesia, implemented with Sojitz. Covering about 4,244 square meters, the panels generate 1,161 MWh annually, reducing CO_2 emissions by roughly 712 tons per year. The city is also advancing smart grid systems that allow real-time monitoring of water, electricity, and gas consumption to optimize energy use. To encourage such efforts, the government provides tax incentives for companies installing these facilities.

Pilot projects utilizing electric vehicles in collaboration with Japanese companies

Mitsubishi Corporation, together with Macnica, Inc. (in charge of vehicle procurement, modification, and system setup), conducted a demonstration of autonomous electric shuttle buses in BSD City under JICA's support scheme, with more than 5,600 trial passengers. The company also partnered with Lawson Indonesia (a subsidiary of a well-known Japanese convenience store chain) to pilot a mobile convenience store using electric vehicles, providing shopping opportunities in areas with limited retail outlets. Both initiatives aimed to enhance mobility and daily convenience for households without daytime car use and visitors commuting by public transport, while also contributing to CO_2 reduction by curbing private car dependence.

①Sustainable Buildings in the Green Office Park
Source：Sinarmas land
② Breeze Mall BSD City
Source：Jerde

①Autonomous EV bus NAVYA ARMA
Source：Jerde
②Mobile convenience store using electric vehicles "Mobile Lawson"
Source: Mitsubishi Corporation

To the Next Phase

As of 2024, the city's population of approximately 500,000 is projected to grow to 3 million, with continuous urban development expected to follow. In addition to ongoing initiatives in digital transformation (DX) and green transformation (GX) that have been emphasized since the project's inception, the city was designated as a special economic zone in October 2024, where education, healthcare, digital, and creative industries have been identified as priority sectors. Collaborative efforts with Japanese companies are also underway across various fields, and the city is expected to serve as a leading model for smart city development in Southeast Asia in the coming years.

06

Smart City Ahmedabad

Ahmedabad, Gujarat, India   2015-

Government-led urban development plan with transportation and mobility, IT environment and digitalization, and water and sewerage as key sectors

View from Atal Bridge, Ahmedabad
Photo : Click on Pics /Adobe Stock

Data

Area
8,107 square kilometers

Project implementing bodies
Smart City Ahmedabad Development limited (SCADL)

Population
7.2 million (2011 census)

INCLUSIVE   GX   RESILIENCE

Key Issue

Ahmedabad, one of India's fastest-growing scientific and industrial hubs, was selected in the first round of the Smart Cities Mission—the Government of India's flagship program launched in 2015 to promote sustainable and inclusive urban development. Under this mission, Ahmedabad has received financial and institutional support to upgrade basic infrastructure, enhance service delivery, and improve the quality of life. A major center for education, IT, and chemical industries, the city has been rapidly expanding its population and economy.
To address these changes, it has been actively leveraging advanced ICT to strengthen its transportation network and other urban systems.
Through the Smart City initiative, Ahmedabad aims to create a comfortable, resilient, and sustainable urban environment for its residents.

Project Approach

IoT -driven transportation management system

SCADL(Smart City Ahmedabad Development Limited) partnered with NEC Corporation (Japan) to implement an Intelligent Transportation Management System (ITMS) that uses a cashless, open-loop payment system*[17] to improve the efficiency of Bus Rapid Transit (BRT) and City Bus (AMTS) bus services. In addition to automated fare collection, the one-stop IoT-driven system manages bus resources, bus maintenance, transportation information, and personnel. It also collects and analyzes data that helps optimize resources and boost ticket sales. ITMS incorporates five smart transport subsystems: 1. Automated Fare Collection Service (AFCS); 2. Automatic Vehicle Location System (AVLS); 3. Passenger Information System (PIS); 4. Vehicle Planning Scheduling and Dispatch System (VPSD); 5. Depot Management System (DMS). Launched in 2017, ITMS has already helped in developing efficient and convenient bus transport services, transforming Ahmedabad into a world-class smart city.
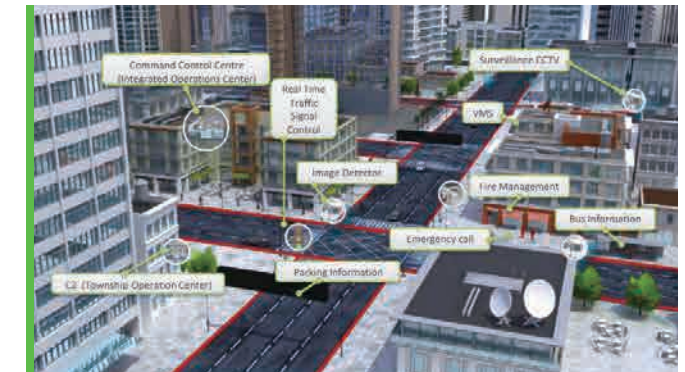
IT environment and digitalization

Under the Smart Cities Mission, Ahmedabad Municipal Corporation (AMC) and its Special Purpose Vehicle, SCADL, have deployed an optical fiber cable (OFC) backbone to interconnect municipal offices, civic centres, schools, health centres, and other public buildings.
This digital infrastructure aims to enhance data integration across departments, reduce future bandwidth costs, and support key smart city applications such as smart water management, intelligent transport, energy audits, city-wide surveillance, and traffic monitoring.
The network comprises a passive fiber infrastructure layer and active equipment (routers, switches) to manage data flows.

Sewerage management system improvement

In November 2022, the World Bank approved a USD 280 million loan for the Gujarat Resilient Cities Partnership: Ahmedabad City Resilience Project (G-ACRP) to enhance sustainable wastewater treatment services in the city. The project provides financial and technical support for the development of wastewater treatment infrastructure and resilient public works systems. With the cooperation of multiple agencies and drawing on expertise from its partner city Fukuoka, which has an advanced and well-managed sewerage system, Ahmedabad Municipal Corporation (AMC) is strengthening its institutional and financial capacity in areas such as asset management and operations, water quality monitoring and pollution early warning, long-term infrastructure planning, wastewater reuse and management, and improving the financial sustainability of the water sector.

Automated fare collection service
Source: Urban Mobility India Conference 2019, Presentation Materials

OFC Network
Source: JETRO

To the Next Phase

In coordination with AMC and the Government of Gujarat, the Ahmedabad Urban Development Authority (AUDA) is drafting the Urban Development Plan 2031, which will guide the city's long-term spatial growth and infrastructure development. The plan focuses on key areas such as integrated land use and transport planning, expansion of affordable housing, solid waste management, and sustainable mobility systems to support Ahmedabad's continued urban growth.

07

Melbourne as a Smart City

Melbourne, Victoria, Australia   2015-
Creating urban appeal through cutting-edge innovation

Aerial panoramic view of Melbourne, Australia
Photo:Michael Evans/Adobe Stock

Key Issue

The Government of Australia aims to harness the power of new technology to develop creative, liveable and intuitive major cities, and nationwide smart city initiatives are being promoted to this end. These initiatives include projects that apply digital technology and data-driven solutions to improve urban management and address social challenges. Among them, the City of Melbourne has played a leading role: since 2009 it has deployed sensors to monitor pedestrian flows in the CBD and applied the data to guide public space planning, while also prioritizing sensor deployment and open data policies.
Building on this foundation, the city launched the Emerging Technology Testbed in 2018 with 26 industry and academic partners to trial new applications of 5G, IoT and other innovations in real-world environments.Pilot projects have been carried out in areas including Argyle Square, Fishermans Bend, and urban tree management, with the aim of exploring how innovation can contribute to more sustainable and resilient city development.

Data

Area
Approx. 9,900 square kilometers

Project implementing bodies
City of Melbourne

Population
4.92 million (2021 Census)

INCLUSIVE   GX   RESILIENCE

Project Approach

Smart Park Management with Sensor Technology in Argyle Square

A large number of sensors are installed in Argyle Square in the city center to collect diverse data, including weather conditions and patterns of park use. Information such as peak visiting times, cooler areas within the park, and frequently used benches and trash cans is gathered and analyzed. The findings are then applied to develop measures that make the city's squares and parks more comfortable and functional for all users.
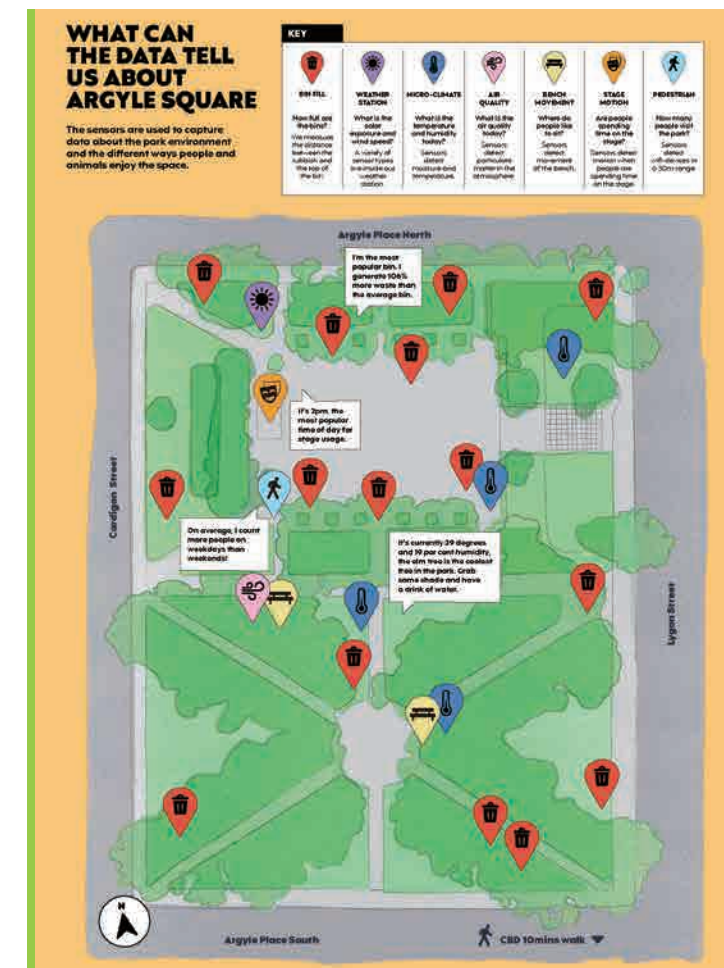
The Sensors in Argyle Square
Source:City of Melbourne

Urban Forest Visual: Managing 70,000 Trees with Open Data

The City of Melbourne has compiled data on and made public the condition of over 70,000 trees. Trees in cities play an important role in creating a good urban environment by providing shade, purifying the air, and providing habitat for animals.While there are trees that are over 100 years old in the city, replanting may be required at the appropriate time as they age and their functionality decline.A systematic replanting plan is being promoted to ensure that replanting is carried out at the appropriate time and to ensure tree diversity.

Melbourne Urban Forest
Source:City of Melbourne

To the Next Phase

Melbourne integrates smart technologies with long-term urban planning. Under Plan Melbourne 2017–2050, initiatives such as 20-minute neighbourhoods, the Urban Forest Strategy (from 22 % to 40 % tree canopy cover *[18] by 2040), and the Fishermans Bend urban renewal project demonstrate the city's commitment to sustainability and resilience through a low-carbon, mixed-use inner-city model.

08

Barcelona Smart City

Barcelona, Spain   2017-

Promoting decarbonization of energy and innovation

Barcelona's Superblocks
Source: Cities Forum

Data

Area
101.4 square kilometers

Project implementing bodies
Barcelona City Council
(Ajuntament de Barcelona)

Population
Approx. 1.628 million

INCLUSIVE   GX   RESILIENCE

Key Issue

Barcelona is promoting several smart city projects with the aim of creating a sustainable city. Thousands of sensors have been installed in Barcelona to collect data on traffic volume, noise levels, temperature, air quality, etc. in real time, allowing for real-time understanding of the city's condition and efficient urban management. In addition, the city is using the citizen-participation digital platform "Decidim*[19]" to provide a digital space where citizens can express their opinions and make proposals about the future of the city, and policy decisions are being made that reflect the voices of citizens. In addition, certain areas in Barcelona are designated as "Superblocks" in which vehicle traffic is restricted to create safe and comfortable public spaces for pedestrians and bicycles, increase green spaces and parks, improve air quality and reduce noise, and aim to improve the health and quality of life of residents.

Project Approach

## Introduction of a system to reflect citizens' voices in policy

In Barcelona, the city uses the digital participation platform Decidim*[19] to enable citizens to submit opinions and proposals about the city's future. The municipal government analyzes these inputs and incorporates them into policies and urban development plans, realizing a more democratic model of governance.
For example, in the redevelopment of Via Laietana, numerous citizen comments were collected through Decidim*[19] regarding the expansion of pedestrian areas, greening, and traffic regulation. Based on these inputs, the city adopted design guidelines emphasizing wider sidewalks, bicycle lanes, and public transport priority. Construction began in 2022, reflecting citizens' opinions in the street's redesign.

Via Laietana — Street redesign with wider sidewalks
Source: White Paper on Land,Infrastructure, Transport and Tourism in Japan, 2023

Barcelona Superblocks (Superilles): From pilot to city-wide transformation

Barcelona's Superblocks are internationally recognized for two key reasons: prioritizing people over cars and embedding community participation in design. Each Superblock is roughly 400 × 400 m, grouping nine city blocks into one low-traffic zone. Within these areas, through-traffic is restricted to create safe, green, and socially vibrant public spaces.
Originating in the 2013–2018 Urban Mobility Plan, the city identified 120 intersections for conversion, aiming to cut vehicle pollution and promote sustainable mobility. The new 2024 Urban Mobility Plan envisions 503 Superblocks city-wide by 2030, starting with the L'Eixample district, where 21 streets are being redesigned.
Pilot projects since 2016 have shown measurable results — pedestrian trips rose 10%, cycling 30%. The concept has evolved with stakeholder input via digital platforms such as Decidim, workshops, and local consultations. While early resistance emerged over business access and gentrification concerns, design revisions now include loading zones, social housing, and inclusive green plazas.
The long-term goal is to reduce private-car journeys from 26 % to 18 % and ensure over 80 % of trips use walking, cycling, or public transport. Backed partly by European Investment Bank funding (€95 million), the initiative also expands tree cover, permeable paving, and accessible, car-free intersections, reinforcing Barcelona's "Citizen Commitment for Sustainability 2012–2022."

Superblocks
Source: https://barcelonarchitecturewalks.com/superblocks/
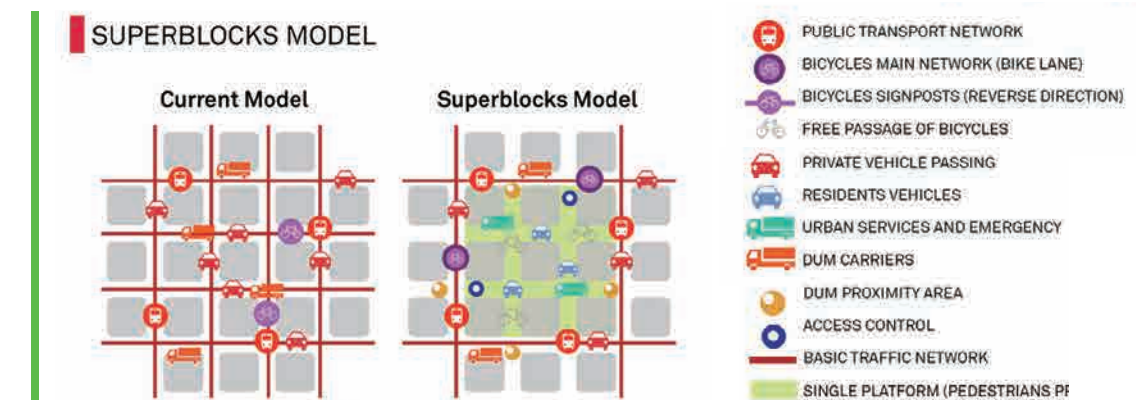
To the Next Phase

The City of Barcelona aims to significantly reduce its environmental impact and build a citizen-centred, sustainable city by 2030.
Under the Urban Mobility Plan 2024, the city seeks to increase the share of trips made by walking, cycling, and public transport to over 80 percent, promoting a shift away from private car use.
A key initiative is the expansion of the Superblock (Superilles) model across the city—an ambitious plan to reorganize about 503 urban blocks into low-traffic, green, and pedestrian-friendly areas.
Through this transformation, Barcelona aims to connect green corridors and public spaces, reduce noise and air pollution, and advance its broader Climate Action Plan 2018-2030 toward a more sustainable and inclusive urban future.

09

Zenata eco-city

Casablanca, Morocco   2012-2042
A sustainable, environmentally friendly city with good transportation links

Overall picture of Zenata eco-city
Source: Casablanca-Settat Regional Investment Center [RIC]

Data

Area
1,830 ha

Project implementing bodies
Société d'Aménagement de Zenata (SAZ, Zenata Development Company)

Resident population
Approx. 300,000

Employment population
Approx. 100,000

Main facilities introduced
Housing, offices, business services, public facilities and infrastructure, public spaces, cultural facilities, educational facilities, green spaces, etc.

INCLUSIVE   GX   RESILIENCE

Key Issue

Located between Morocco's administrative capital, Rabat, and its economic capital, Casablanca, Zenata Eco-City serves as a strategic hub integrating road, rail, and logistics infrastructure.
Placing people and innovation at the heart of its urban vision, the city aims to become a new economic centre through the development of education, healthcare, commercial, and logistics facilities.
Designed in harmony with nature, it features a network of parks and green spaces, with buildings nestled amid greenery.
Along the coastline, dunes serve as a natural barrier against ocean waves.
Zenata is recognised as the first city in Africa to be awarded the Eco-City Label (ECL)*20 developed by Cerway (France).

Project Approach

Alter-mobility

Mobility is explored in Zenata Ecocity to make it easier for residents to get around and provide alternatives to car use, combining walking and cycling with a robust public transport network. Zenata Ecocity will provide 44 kilometers of safe paths for pedestrians and cyclists separated from the motorways, which will connect all the districts of the city and allow people to go to the beaches, parks, cinemas, cafes or do their shopping in a different way, completely silently, quickly and efficiently. The city is also connected by an efficient public transport network (the RER regional express trains, lightrails, and elevated service buses), providing users with a comfortable and sustainable experience.

Pedestrian and bicycle paths
Source:zenataecocity.ma

Smart water management

Beyond economic growth, Zenata Eco-City seeks to create a sustainable urban model that reduces environmental impact through the intelligent use of natural resources.
Its urban design incorporates systems that mitigate the effects of climate change and enable efficient water circulation throughout the city.
To prevent flooding during heavy rains, rainwater retention basins are planned to collect and store runoff, allowing the water to infiltrate the ground and replenish groundwater.
The stored water will also be used to irrigate parks and green areas, supporting a resilient urban ecosystem that coexists harmoniously with nature.

Green city

In Zenata Eco-City, buildings are designed with bioclimatic strategies to maximize natural light. Approximately 30 percent of the site is earmarked for green space and public parkland, supporting heat mitigation and biodiversity. A linear park of about 40 hectares will link the city entrance with the coastal park over a distance of roughly 3 kilometers. Along the Atlantic shore, the development spans around 5.35 kilometers, providing ample opportunity for a waterfront promenade that invites walking and outdoor activities. Dunes along the exterior edge act as a natural barrier against ocean waves.
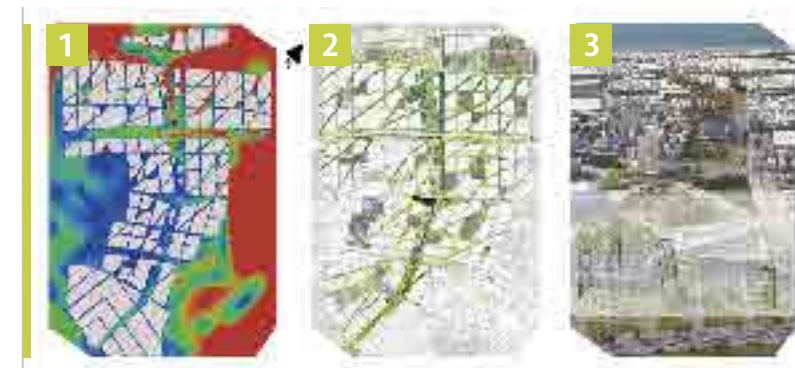
Bioclimatic urban design of Zenata Eco-City
– From air flow grid to framework to master plan
①The air flow grid
②Future grid of the program landscape
③Artist view
Source: Atelier Franck Boutté Consultants

To the Next Phase

Zenata Eco-City aims to help rebalance the eastern and western sectors of the Greater Casablanca metropolitan area by creating a new urban centre founded on social inclusion, economic development and environmental protection. The project targets approximately 300,000 residents and envisages the creation of up to 100,000 jobs, especially in high-value-added fields such as health, education and commerce, yielding a long-term ratio of roughly one job for every three residents.

10

Medellin City

Medellin, Colombia   2016-

Urban transformation through the fusion of diverse stakeholders and technologies

City of Medellin
Source: Medellin City Hall

Data

Area
380.6 square kilometerst

Project implementing bodies
City of Medellin

Population
Approximately 2.56 million (2020)

INCLUSIVE   GX   RESILIENCE

Key Issue

Medellin, Colombia's second largest city, was once known for its rampant drug trafficking, poverty, and one of the world's worst crime rates. However, since the 2000s, it has undergone rapid transformation, and in 2013 it was ranked first in "Innovative City of the Year" organized by Wall Street Journal and Citigroup.
With complete public transport network such as the Metrocable gondola, buses, and the EnCicla bicycle-sharing system, as well as investments in both hard and soft aspects such as public facilities and education in poor areas, and the planning process that involved residents, are credited with bringing about this transformation. Even today, resident participation, transparency, and sustainability remain important pillars of the city's policies.
In recent years, with the aim of becoming a smart city, the digitalization of transportation, disaster prevention, and all government services has been actively promoted. In addition, a public corporation called Ruta N, established by the city, Empresas Públicas de Medellín (EPM), and a telecommunications companies are providing programs to support startups and technological innovation.

Project Approach

Multi-modal public transport network

Medellín has an integrated public transport system consisting of 12 routes across 4 modes: metro, gondola, tram and bus.
In particular, the gondola (Metrocable), which began operation on its first route in 2004, has now expanded to 6 routes covering 14.62 km, and is a valuable means of transport for residents in this hilly city. The Metrocable was built along with other public facilities to link the city center with poor areas that had previously seen little investment in infrastructure, and is seen as a catalyst for transformation in the city. EnCicla, a bicycle sharing service, has been available since 2011 to complement these transportation systems. Although there is a one-hour time limit, it can be used for free using a common transportation card.

Metrocable and EnCicla
Source: Medellin Metro

Integrated Traffic Management System (SIMM)

An integrated road management system using information technology (The Medellin Intelligent Mobility System [SIMM]) has been operating since 2011. In addition to 24-hour monitoring by 40 cameras installed at major risk locations, the system also analyzes road conditions such as congestion levels based on image information from multiple cameras, and adjusts traffic signals. Furthermore, 22 road information panels etc have been installed, and real time road information is provided on SNS. The Traffic Control Center operates with manned personnel 24 hours a day to enable first response to accidents and other emergencies. Based on collected data etc, analysis for further road planning, development, and management are also carried out.

Traffic Control Center
Source: Medellin City Hall

EPM's Contribution

EPM is a public corporation established in 1955 as a supplier of electricity, gas, water and sanitation services in the city of Medellin. Its ability to provide high-quality services has earned it a reputation, and it now provides utility services not only to Medellin and its surrounding municipalities, but also to Chile,
El Salvador, Guatemala, Mexico, Panama and other countries. Apart from supplying energy, the company also supports the city of Medellin financially. A portion of its profits is transferred to the city and used for the construction of the Metrocable and other projects. It is still complementing budgets annually for society and education, sports, culture, infrastructure, etc.

To the Next Phase

Medellín is advancing its Smart City Vision 2030 to become a leading inclusive and sustainable city. Building on past urban transformation, the city promotes digital governance, open data, and citizen participation while expanding integrated mobility such as the new Metro de la 80 and the Parques del Río Medellín green corridor. Through Ruta N and the public utility EPM, Medellín fosters innovation, startups, and climate-friendly infrastructure. Guided by its 2024–2027 Development Plan, the city aims to position itself as one of Latin America's most innovative and resilient urban models by 2030.

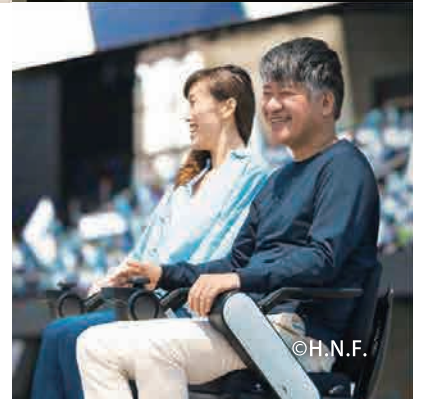# Towards the Realization of Carbon Neutral Smart City

Smart city building projects are being implemented in various cities across ASEAN and other countries.
In order to solve problems regarding global climate change, measures against global warming are becoming the pressing issues. How to transform urban structures and activities to limit CO_2 emissions has become critical for various cities, and each city is accelerating green transformation (GX) related initiatives to evolve from fossil fuel-based to clean energy-centered urban structures.
Japan has the experience and knowhow in supporting such initiatives of various countries.
In 2020, Japan declared its aim to "reduce overall greenhouse gas emission and become carbon neutral by 2050." To achieve this goal, Japan is undertaking GX related initiatives by maximizing the technological strength held by private enterprises in various areas such as transportation, urban form, energy.
This booklet is a summary of how Japan has addressed urban issues to date and what kind of city initiatives are being progressed in various countries, as understood from three perspectives – GX, inclusiveness, and disaster resistance DX. We strongly believe this booklet will serve as a reference to further advance the future initiatives of ASEAN cities.
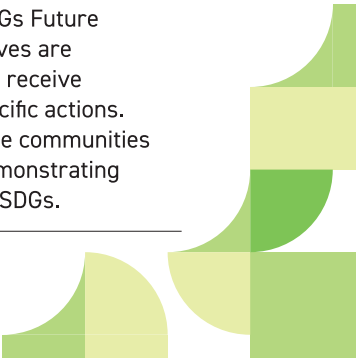Sharing the outstanding initiatives will help us advance further and open up infinite possibilities.
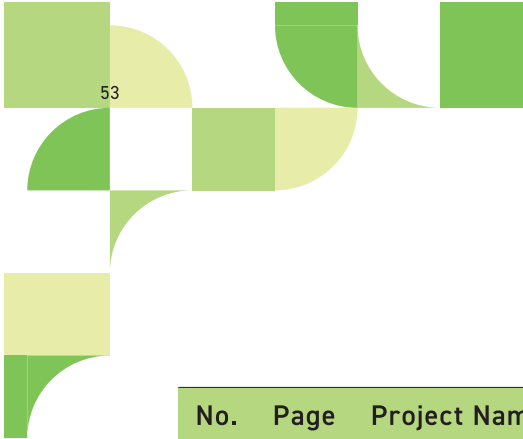By deepening cooperation between ASEAN and their partners, the success of each project will be all but certain.

©H.N.F.

Appendix

Glossary

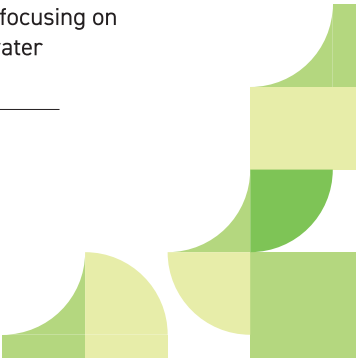| No.	Page	Project Name	Terminology	Definition
1	8	HOKKAIDO BALLPARK F VILLAGE	Authlete	A Japan-based service that provides a secure login system based on international standards such as OpenID Connect and OAuth 2.0, enabling users to access multiple services with a single ID.
2	10	Toyosu Smart City	LLM image search	An image search technology that uses Large Language Models (LLMs) to analyze and interpret the content and context of photos. Even without location data or captions, the AI can estimate where and what the image depicts, enabling its use for situation awareness and disaster response based on resident-posted images.
3	10	Toyosu Smart City	Project PLATEAU	A 3D city modeling project promoted by Japan's Ministry of Land, Infrastructure, Transport and Tourism (MLIT). It aims to digitize urban spaces across Japan in 3D and utilize them for urban planning, disaster prevention, and infrastructure management. The 3D city models are publicly available under the "PLATEAU" brand.
	14	TAKANAWA GATEWAY CITY		
4	16	FujisawaSustainable Smart Town	ENE-FARM	The brand name of a residential fuel cell cogeneration system developed in Japan. It generates electricity from hydrogen extracted from city gas or LP gas, while using the heat produced in the process for hot water supply. By producing both electricity and heat at home, it improves energy efficiency and reduces CO_2 emissions. Introduced in 2009, ENE-FARM has become a key example of Japan's distributed energy system for households.
5	17	Akashi City	Host Town for an Inclusive Society	A program promoted by the Cabinet Secretariat of Japan to make Japan a "Sports Nation" and to encourage globalization, regional revitalization, and inbound tourism toward the Tokyo 2020 Olympic and Paralympic Games. Under this initiative, municipalities across Japan engage in human, economic, and cultural exchanges with participating countries and regions, aiming to build an inclusive society where everyone can live together in harmony.

No.	Page	Project Name	Terminology	Definition
6	19	Smart City Takamatsu	FIWARE	An open-source IoT platform originally developed under the European Commission's initiative. It enables interoperability and integration of diverse data—such as sensors, administrative systems, and geographic information—supporting data-driven management in areas like disaster prevention, mobility, and environment. It is increasingly adopted as a foundation for smart cities in Japan.
7	19	Smart City Takamatsu	Super City Initiative	A "Super City" type of National Strategic Special Zone promoted by the Cabinet Office of Japan. The initiative aims to realize future-oriented cities by integrating advanced technologies such as AI and big data across sectors—healthcare, mobility, energy, and public services—to optimize citizens' lives as a whole.
8	19	Smart City Takamatsu	National Strategic Special Zones	A framework established by the Government of Japan in 2013 to promote deregulation and institutional reform in designated regions, with the aim of achieving national strategic goals. It allows collaboration between local governments and private sectors to implement innovative projects in various fields, such as urban development, education, healthcare, and agriculture.
9	23	Smart Forest City	Decarbonization Leading Area	A program launched in FY2022 by Japan's Ministry of the Environment to promote model regions leading the transition toward carbon neutrality by 2050. These areas implement integrated initiatives suited to local conditions—such as renewable energy deployment, energy efficiency, and low-carbon urban and transport systems—with financial and technical support from the government.
	26	Kitakyusyu City		
10	24	Smart Forest City	SDGs Future City Model Project	A program launched by the Cabinet Office of Japan in FY2018 that designates municipalities promoting sustainable development across economic, social, and environmental dimensions as "SDGs Future Cities." Among them, advanced initiatives are recognized as "Model Projects," which receive focused support for implementing specific actions. The program aims to foster sustainable communities by utilizing regional resources and demonstrating practical approaches to achieving the SDGs.

No.	Page	Project Name	Terminology	Definition
11	30	Smart City Thailand : depa's Path to Carbon Neutrality	ASEAN Sustainable City Award	An award program organized by the ASEAN Ministerial Meeting on the Environment (AMME) and the ASEAN Sustainable Urbanization Network (ASCN) to recognize cities in ASEAN member states that have demonstrated outstanding achievements in sustainable urban development across environmental, social, and economic dimensions. The first awards were granted in 2019, and selected cities serve as exemplary models for sustainable development in the region.
12	32	Cyberjaya Smart & Low Carbon City	V2X	A general term for technologies and systems that use wireless communication to exchange information between vehicles (V2V), between vehicles and roadside infrastructure (V2I), and between vehicles and pedestrians (V2P).
13	36	New Clark City	Master-Planned Communities(MPCs)	A type of urban or district development designed through an overall master plan that integrates land use, transport, housing, public facilities, and the environment. It aims to create a sustainable and convenient living environment by strategically organizing residential, commercial, and business functions within a coherent urban layout.
14	36	New Clark City	Automated People Mover(APM)	Automated People Mover (APM) refers to a fully automated, grade-separated mass transit system used for short-distance travel within confined areas such as airports, urban districts, or large developments.It operates driverless vehicles on dedicated guideways—using monorail, automated guideway, or maglev technologies—to provide frequent and efficient service between key destinations.
15	36	New Clark City	Multi-modal transport system	The multi-modal transport system integrates different modes of transportation—such as public transit, cycling, and walking—into a seamless and sustainable network, enabling efficient end-to-end mobility within the city.

No.	Page	Project Name	Terminology	Definition
16	38	BSD City	Green Building Council Indonesia(GBCI)	Green Building Council Indonesia (GBCI) is a non-profit organization established in 2009 that promotes sustainable building practices in Indonesia. It is responsible for developing and managing the Greenship certification system—the country's official green building rating tool that evaluates environmental performance in design, construction, and operation.
17	40	Smart City Ahmedabad	Open-loop payment systems	Open-loop payment systems allow transit riders to pay fares directly using debit or credit cards or digital wallets.Unlike proprietary fare media within closed systems, open-loop systems enable direct transactions between customers' and merchants' financial institutions. In such systems, travelers do not need to maintain a separate transit account or pre-load a card with value—they can simply tap their existing bank or credit card on a contactless reader. Transit agencies worldwide are adopting this technology to make public transportation more convenient, accessible, and consistent with retail payment experiences.
18	42	Melbourne as a Smart City	Tree canopy cover	The proportion of land area covered by the branches and leaves of trees when viewed from above.
19	43	Barcelona Smart City	Decidim	An open-source platform developed by the City of Barcelona that enables citizens to participate in policy proposals, idea sharing, and consensus building.
20	45	Zenata eco-city	ECO-CITY LABEL	An international certification system developed by SAZ and Cerway (France) to evaluate the environmental, social, and economic sustainability of urban development projects. Based on the HQE (Haute Qualité Environnementale) framework, it assesses cities across planning, construction, and operational phases, focusing on land use, mobility, energy efficiency, water management, and social inclusion.

List of Interviewees