

# **Japanese good practices of Smart Cities**

Solving Global Issues Such as the SDGs, etc. through  
Japan's Society 5.0

# **Japan's Smart City Catalog**

# Japan's Smart City Catalog Overview

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## Main report

### 1. Preface

### 2. Japan Offers Various Solutions

## Separate Volume:

### Solutions that Japan Can Offer (Cases and Examples)

URL: Main report [https://www.kantei.go.jp/jp/singi/keikyou/pdf/Japan's Smart Cities-1\(Main Report\).pdf](https://www.kantei.go.jp/jp/singi/keikyou/pdf/Japan's_Smart_Cities-1(Main_Report).pdf)

Cases and Examples [https://www.kantei.go.jp/jp/singi/keikyou/pdf/Japan's Smart Cities-2\(Cases and Examples\).pdf](https://www.kantei.go.jp/jp/singi/keikyou/pdf/Japan's_Smart_Cities-2(Cases_and_Examples).pdf)

# Japan's Extensive Urban Construction Experience and Know-How

## Japan's strengths

- The experience and know-how through a variety of urban development projects
- For example: The world's best urban development projects in terms of environmentally symbiotic cities, transit-oriented development (TOD) cities with no traffic congestion, disaster prevention / disaster reduction, public safety, the world's leading optical fiber and 5G infrastructure.

⇒ This wealth of urban solutions: an essential foundation for creating smart cities



① Eco-Cities  
(Environmentally  
Symbiotic Cities)



② TOD  
(Transit-Oriented  
Development)



③ Building Disaster-  
Resilient Cities  
(Resilient Cities)

# The Originality of Japan's Smart Cities

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## The central principle and concept: Openness and transparency

- The operating system: Information coordination platform.
- The platform collects and manages all kinds of urban data,  
thoroughly takes into account residents' perspectives,  
provides complex and personalized services,  
has data interoperability and distribution capability
- The platform can expand easily and change quickly

## The originality of Japan's smart cities

Oriented toward free, trustworthy and credible norms. Under the norms,

- Major companies are not allowed to monopolize data handling,
- Excessive regulations are not imposed on the usage of data,
- The state is not allowed to monitor data handling

⇒ **DFFT (Data Free Flow with Trust) :presented at the G20 Osaka Summit.**

# Japan Offers Various Solutions

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## Issues and Solutions

- ① Realizing the world's **safest and securest society**  
Example: crime; prevention, disaster preparedness, reduction of traffic accidents, etc.
- ② Maximizing the capacity of **transportation and logistics** infrastructure  
Example: Mobility as a Service (MaaS), automated driving, car sharing, etc.
- ③ **Efficient use of energy** and realizing energy conservation and zero emissions
- ④ Realizing the world's best **recycling society**
- ⑤ **Infectious disease control and public health** that will set a new world standard
- ⑥ Expanding **access to education** and improving **the quality of education** (distance and online education)
- ⑦ Utilizing tourism resources to **attract visitors** from around the world
- ⑧ Asset management and ensuring **long-life and reliable infrastructure**
- ⑨ **Agricultural production and distribution** bases that ensure safety and high quality

# **Japanese good practices**

# ① Realizing the world's safest and securest society (disaster preparedness and crime prevention)

Concept: Real-time notification of emergencies and hazards to residents in wide areas. Promptly providing security and safety.

Issues of Urban Cities and Goals

《Issues》

- Deterring terrorism and crime while protecting individual privacy.
- Responding to the increase in disasters associated with climate change (disaster prevention and reduction).
- Through the abovementioned measures, making residents' living more comfortable, thereby increasing the attractiveness of cities.

《Goals》

- Crime control.
- Improving urban risk assessment.
- Prompt and effective disaster prevention and reduction.
- Improving residents' lives.
- Increasing population inflow.
- Increasing the rate of attracting conferences, events, and regional business bases.

Japan Can Offer Various Solutions

- Detection, prediction, and advanced analytical skills to grasp on-the-spot situation. thereby reducing response time.
- Personal identification while ensuring personal privacy.
- End-to-end connectivity of ICT resources for rapid deployment and configuration optimization.
- Push-type notification of disaster and evacuation information by community applications by taking advantage of location information.
- Urban development using big data (human flow data, health data, etc.).

(Remarks)

- Japan is a safe country with one of the lowest crime rates among developed nations (ranked 3rd to 7th in recent years according to a United Nations survey).
- In addition, despite the fact that the United Nations disaster risk assessment report identified Japan as an area at high risk of all kinds of disasters, Japan was successfully able to control flood damage.

Places visited for on-site inspection

- Kakogawa City, Hyogo Prefecture
- City of Las Vegas (U.S.)

Participating companies and main operators

- Kakogawa City, Hyogo Prefecture
- NEC Corporation
- NTT



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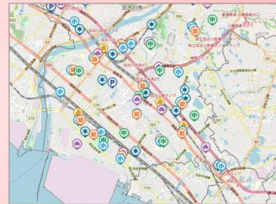
Promoting the use of data in the field of safety and security, etc., with the aim of creating a “city of choice for child-rearing generations.”

## Main Efforts

### (1) Realizing three project goals

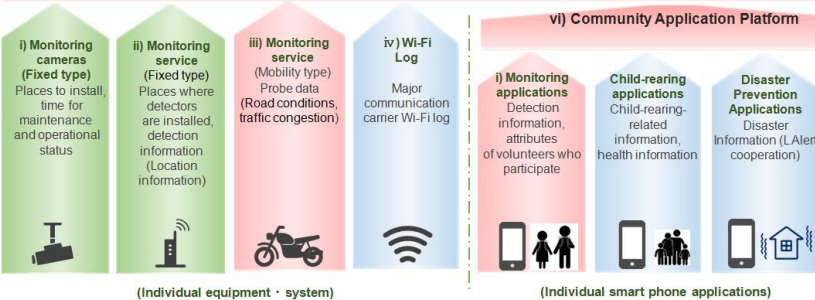
#### Safe and Secure Infrastructure Integrated Dashboard (Display Application)

- Displaying layer of data by field
- Centralized grasping of each region through multi-layered display
- A prototype will be built for this project.  
(Considering necessary functions and screen layout, etc.)
- From next year or after, the functions will be updated for full-scale operation.



### (2) Safe and secure infrastructure Integrated data platform.

### (3) Multi-field data utilization



### (1) Three project goals

- ① Increase the number of immigrants and permanent residents by improving citizen satisfaction.
- ② Improving the quality of life and productivity of citizens and reducing the financial burden.
- ③ Strengthening local power (local communities) and regional revitalization.

### (2) Safe and secure infrastructure Integrated data platform.

- ① Planning the adoption of cloud system and data collaboration.
- ② Composed with FIWARE as the center.
- ③ Open API for data utilization.

### (3) Multi-field data utilization

- ① **Urban planning for crime prevention:** Information on security tag detection, security cameras.
- ② **Urban planning for transportation:** Bus location and vehicle-mounted sensors.
- ③ **Urban planning for disaster prevention:** Community application (push notification), and disaster prevention and disaster reduction Information (J/V/L Alert).



#### Creating a safe and secure city using ICT

Providing guardians with information on the location of children and the elderly with detectors installed in security cameras, postal vehicles, and official vehicles.



Mail vehicle

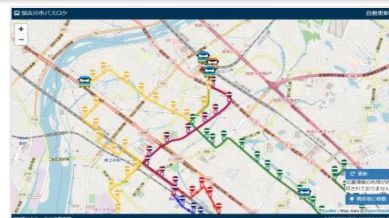


Security camera



#### Improving the convenience of regional public transportation

Opening up information on community bus location and bus stops, etc. by using a data linkage platform.



#### Optimizing evacuation behavior through the timely distribution of information on disaster prevention and disaster reduction

Effective push notification of emergency and disaster information such as evacuation advisory, etc., by using location information



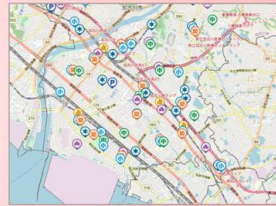
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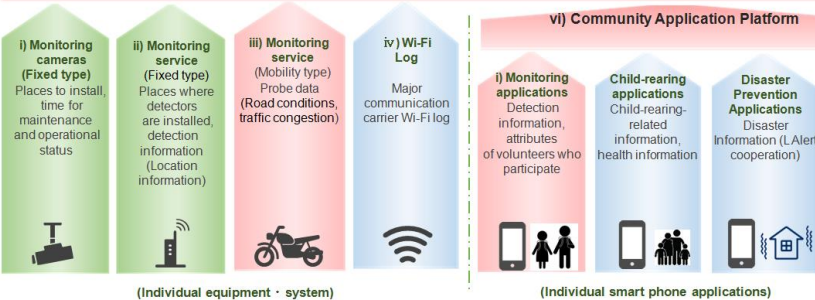
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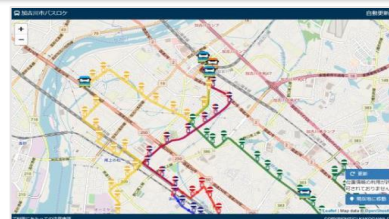
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Mobility

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## Optimizing evacuation behavior through the timely distribution of information on disaster prevention and disaster reduction

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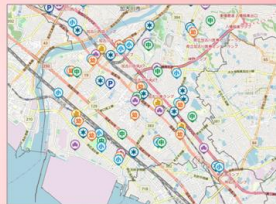
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### Monitoring

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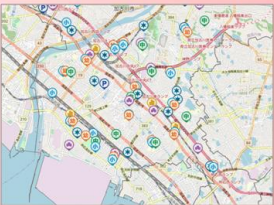
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i) Monitoring cameras (Fixed type)  
Places to install, time for maintenance and operational status



ii) Monitoring service (Fixed type)  
Places where detectors are installed, detection information (Location information)



iii) Monitoring service (Mobility type)  
Probe data (Road condition, traffic congestion)



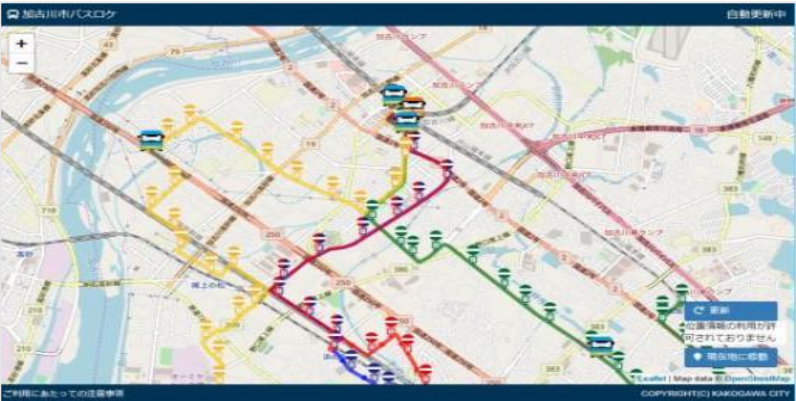
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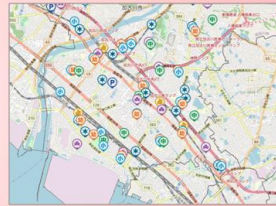
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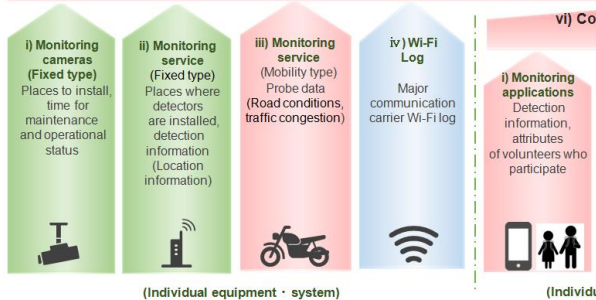
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### ③ Efficient use of energy and realizing energy conservation and zero emissions

Concept: Encouraging the efficient use of energy and reducing greenhouse gas emissions. Also improving the resilience of urban cities.

#### Issues of Urban Cities and Goals

##### 《Issues》

- Efficient use of energy.
- Developing urban infrastructure which is less dependent on utilities companies.
- Increasing greenhouse gas emissions.
- Stable use of renewable energy.
- Strengthening resilience at the time of disaster including securing energy in the event of a large-scale disaster.
- Treatment and utilization of livestock manure generated by the livestock industry.

##### 《Goals》

- Reducing CO2 emissions.
- Reducing greenhouse gas (GHG) emissions.
- Smart energy management.
- Realizing local production and local consumption of renewable energy.
- Industrializing local resources (example: establishing a hydrogen supply system).
- Strengthening the resilience of urban cities.

#### Japan's Solutions

- Local production and local consumption of energy with a focus on renewable energy.
- Industrialization of local resources, Shikaoi Town and Obihiro City (hydrogen, which does not generate CO2, is produced from biogas obtained from livestock manure and used for fuel cell vehicles, aquaculture, etc.).
- Establishing autonomous distributed energy system.
- Dispersing electricity peaks according to demand response by using Community Energy Management System (CEMS).
- Establishing a locally produced and locally consumed energy system that utilizes CEMS, Home Energy Management System (HEMS), Building Energy Management System (BEMS), Electric Vehicle (EV), etc.
- Standardization of smart homes equipped with solar power generation system and storage battery unit.

##### (Remarks)

- The town of Shikaoi has been demonstrating GHG reduction through the use of livestock manure and hydrogen.
- Securing power at the time of a large-scale disaster. Establishing a disaster prevention base and maintaining hygiene in the event of a disaster.
- Another demonstration test confirmed a reduction of 9,000 tons of CO2 emissions.

#### Places visited for on-site inspection

- Mutsuzawa Town, Chiba Prefecture
- Fujisawa City, Yokohama City, Kanagawa Prefecture
- Shikaoi Town, Kato-gun, Obihiro City, Hokkaido

#### Participating companies and main operators

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# Fujisawa Sustainable Smart Town (Fujisawa SST)

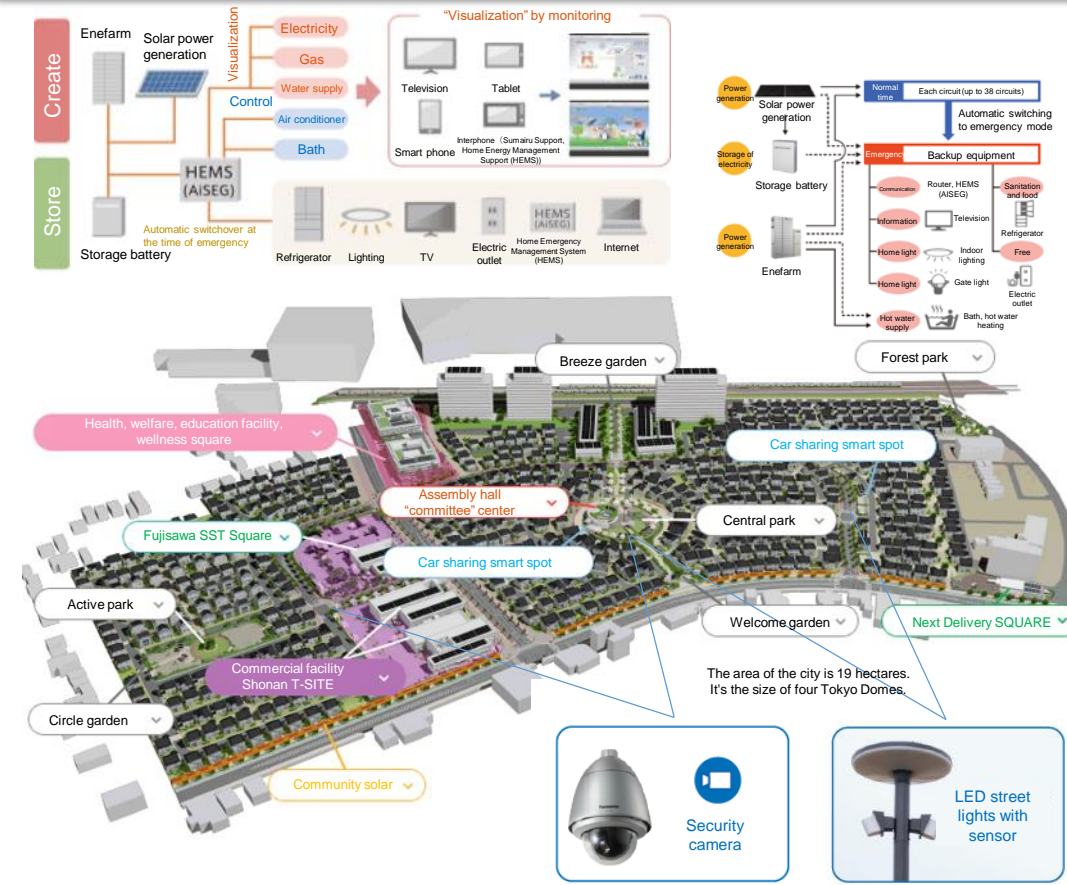
Constructing an environmentally conscious smart town at Panasonic's former Fujisawa plant, about a 19-hectare area (Fujisawa City, Kanagawa Prefecture). Occupancy started in 2014 and there are currently 561 households with approximately 1,900 residents.



## Energy

Realizing carbon free housing through the thorough introduction of low-carbon technologies

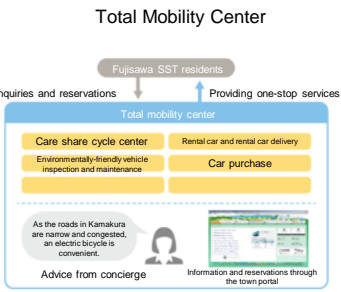
Through the visualization of energy use and standardization of smart homes equipped with photovoltaic power generation system and storage battery unit in all detached houses, realizing a self-produced, self-consuming energy life, ensuring that energy supply will continue for three days even in an emergency.



## Mobility

Providing total mobility services according to the occasion of usage and needs.

Providing more convenient and eco-friendly mobility services, including electric vehicle (EV), electrically power assisted bicycle sharing, and delivery service of rental car close to home.



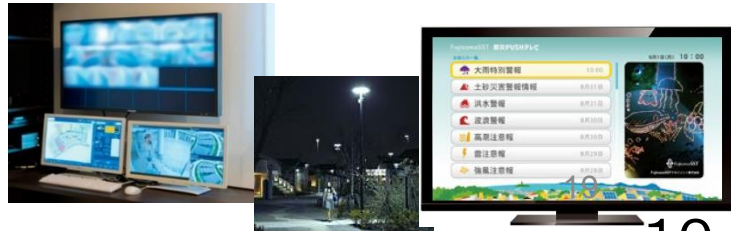
Two EVs are reserved. In case of an emergency, the V2H system supplies electricity to the assembly room, etc.



## Monitoring

Realizing a safe and secure city by ICT

Realizing a safe and secure city with a security system covering the whole area, including security cameras, smart lights that detect people and increase their luminous intensity, patrol by security concierges, and PUSH transmission of disaster prevention information to home TVs in the event of an emergency,

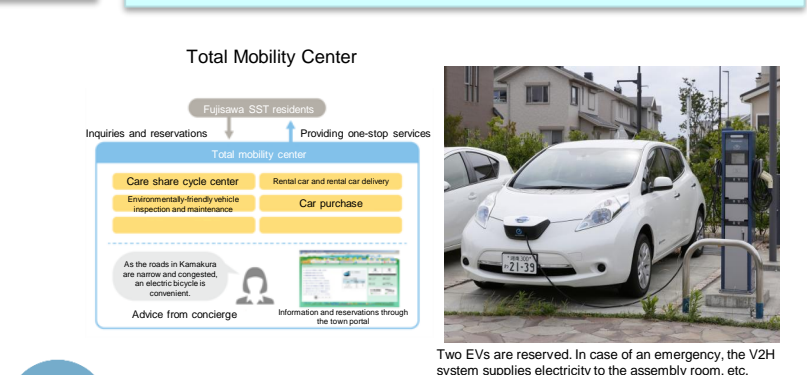
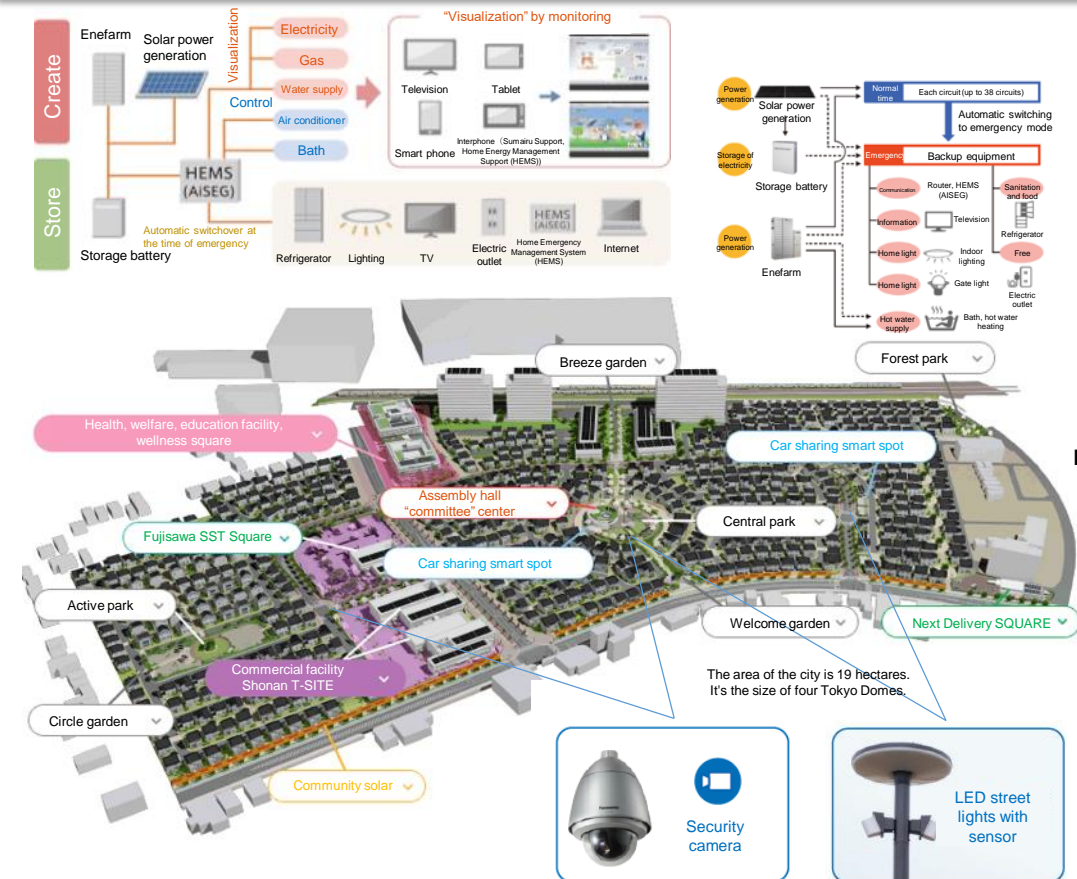


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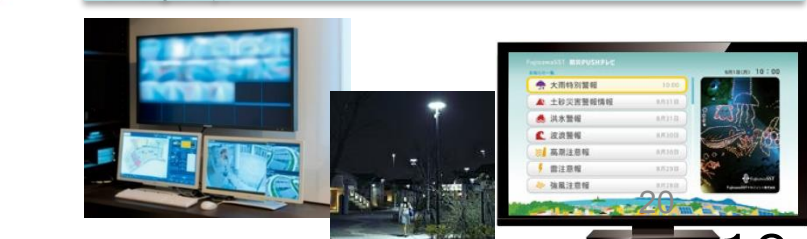
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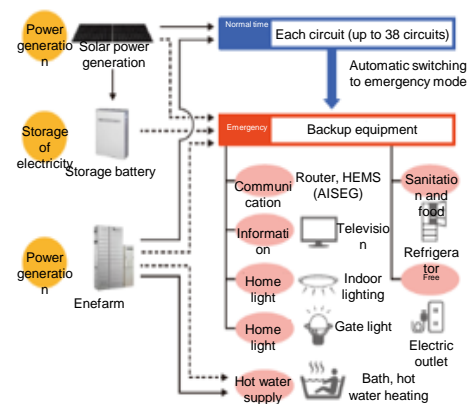
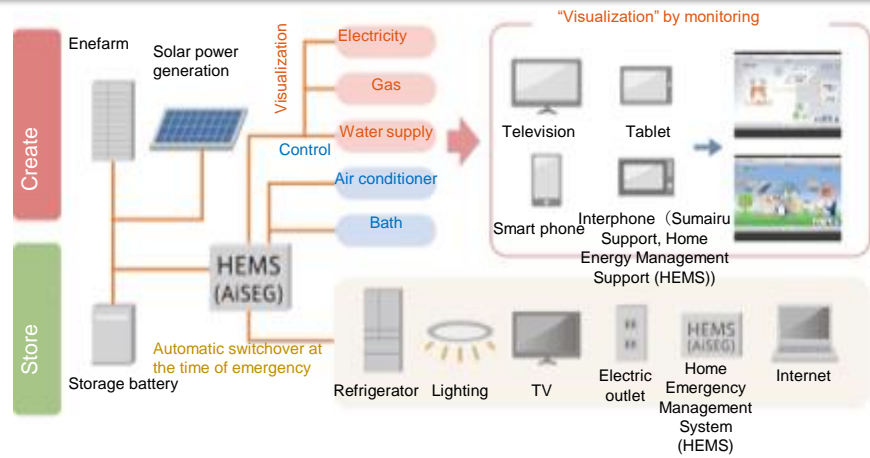
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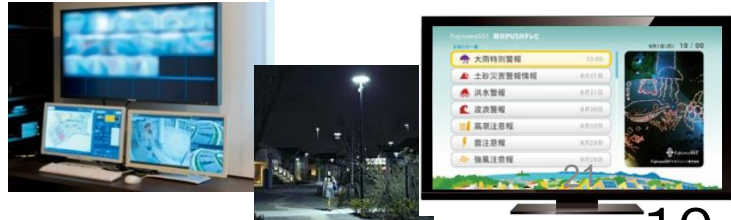
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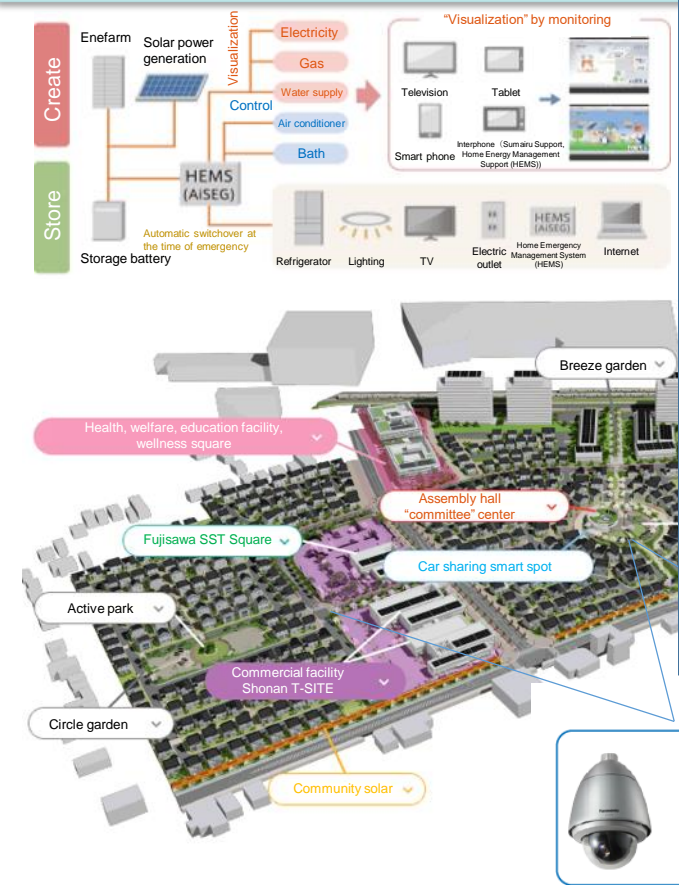
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Constructing an environmentally conscious smart town at Panasonic's former Fujisawa plant, about a 19-hectare area (Fujisawa City, Kanagawa Prefecture). Occupancy started in 2014 and there are currently 561 households with approximately 1,900 residents.

## Energy

Realizing carbon free housing through of low-carbon technology

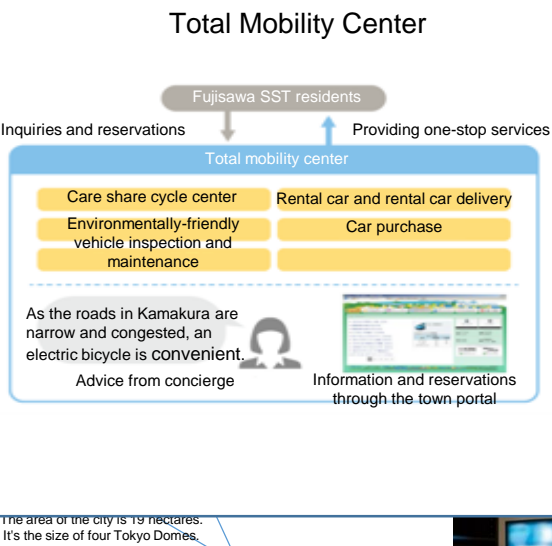
Through the visualization of energy use and standardization of power generation system and storage battery unit in all detached consuming energy life, ensuring that energy supply will continue



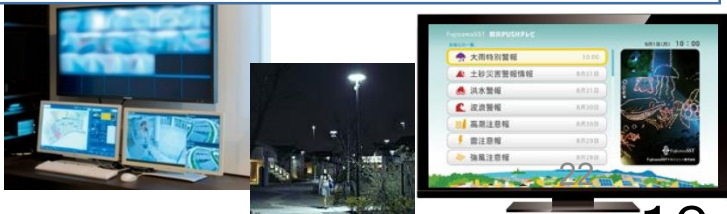
## Mobility

Providing total mobility services according to the occasion of usage and needs.

Providing more convenient and eco-friendly mobility services, including electric vehicle (EV), electrically power assisted bicycle sharing, and delivery service of rental car close to home.



Two EVs are reserved. In case of an emergency, the V2H system supplies electricity to the assembly room, etc.



# Fujisawa Sustainable Smart Town (Fujisawa SST)

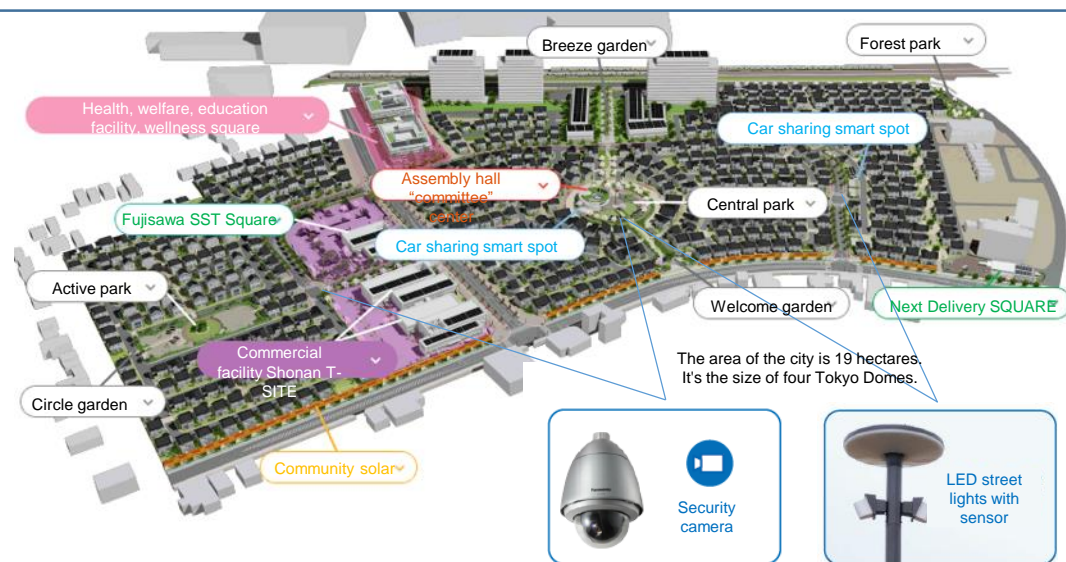
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## Monitoring

### Realizing a safe and secure city by ICT

Realizing a safe and secure city with a security system covering the whole area, including security cameras, smart lights that detect people and increase their luminous intensity, patrol by security concierges, and PUSH transmission of disaster prevention information to home TVs in the event of an emergency,



Two EVs are reserved. In case of an emergency, the V2H system supplies electricity to the assembly room, etc.



# List of Japan's support available for the Introduction of Smart Cities

Organizations	Contents of Support
JICA	<ul style="list-style-type: none"> <li>● Technical support for developing countries to formulate and implement their smart city plans.</li> <li>● Formulation of an urban development master plan that envisions the overall vision of a smart city, technical support for the promotion of TOD in conjunction with public transportation, financial cooperation for the development of social infrastructure to realize the plan, and response to private sector demand for funds through overseas investments and loans.</li> <li>● Expanding support by local governments that are proactive in sharing their experience in smart cities to overseas by utilizing financial cooperation and grassroots technical cooperation to promote the export of urban infrastructure.</li> </ul> <p><a href="https://www.jica.go.jp/information/seminar/2019/20190516_01.html">https://www.jica.go.jp/information/seminar/2019/20190516_01.html</a>  <a href="https://www.jica.go.jp/publication/mundi/ku57pq00002kfsx7-att/201611.pdf">https://www.jica.go.jp/publication/mundi/ku57pq00002kfsx7-att/201611.pdf</a></p>
JBIC	<p>Support for projects such as smart city, smart energy and green mobility, etc. with Japan's technology through loans/guarantees/equity participations etc.</p> <p><a href="https://www.jbic.go.jp/en/business-areas/sectors/infrastructure.html">https://www.jbic.go.jp/en/business-areas/sectors/infrastructure.html</a></p>
NEXI	<p>Providing insurance covering country risks and credit risks associated with international trade and other overseas transactions (export, investment, loan) conducted by Japanese companies.</p> <p>Loan Insurance for Green Innovation with higher coverage rates can be applied particularly to projects that contribute to environmental protection and energy conservation. Examples of projects covered by the insurance: renewable energy, smart grid, energy management system (EMS), Net Zero Energy House Grade B (ZEH/B), green mobility, hydrogen-related technologies, fuel cell-related technologies, etc.</p> <p><a href="https://www.nexi.go.jp/en/topics/newsrelease/2019072901.html">https://www.nexi.go.jp/en/topics/newsrelease/2019072901.html</a></p>
JOIN	<p>In addition to Transportation and Urban Development Projects, JOIN is able to support related businesses which support these projects (such as developing, operating and maintaining energy facilities, communication facilities, water supply, waste treatment facilities and data collection/analysis/control/management facilities, and investing in and operating local subsidiaries that produce mechanical equipment and materials).</p> <p><a href="http://www.join-future.co.jp/english/our-mission/index.html">http://www.join-future.co.jp/english/our-mission/index.html</a></p>
JICT	<p>When Japanese companies participate in overseas projects to develop and operate ICT infrastructure related to smart cities (networks, data centers, sensor networks, etc.) and projects to provide services using such infrastructure (e.g. ICT solutions using social data collected from sensor networks), JICT can help to organize financing schemes and provide hands-on support after investment.</p> <p><a href="https://www.jictfund.co.jp/en/business/isJict/">https://www.jictfund.co.jp/en/business/isJict/</a></p>
Ministry of the Environment (JCM)	<p>The Financing Program for JCM funding support program provides support for the initial cost of introducing Japanese advanced decarbonization and low-carbon technologies and equipment such as renewable energy and energy conservation in the JCM partner countries.</p> <p>Financing Program for JCM Model Projects : &lt;<a href="http://gef.jp/jcm/">http://gef.jp/jcm/</a>&gt;  CARBON MARKET EXPRESS : &lt;<a href="https://www.carbon-markets.go.jp/eng/">https://www.carbon-markets.go.jp/eng/</a>&gt;</p>



**Thank you for your kind attention.**