

# Japanese Experience for Building Smart and Resilient Cities and Communities

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- Climate change is causing more and more severe disasters.
- Improving resilience is an increasingly important global issue.
- Japan and Asia and Pacific nations have been working together on various initiatives for resilience.



Pasig-Marikina river channel improvement project, the Philippines



Erosion control dam in Mount Merapi, Indonesia

➤ Japan's smart city effort

➤ Smart JAMP

	1960's~ Economic growth	1980's~ Stable growth	2000's~ Maturity
Issue	<ul style="list-style-type: none"> <li>• Shortage of housing</li> <li>• Infrastructure (electricity, water etc.) shortage</li> <li>• Environmental issues (eg: water, air quality)</li> </ul>	<ul style="list-style-type: none"> <li>• Need for high quality living environment</li> <li>• Worsening of traffic congestion</li> <li>• Changes in land use patterns due to transformation of industrial structure</li> <li>• Increased environmental awareness</li> </ul>	<ul style="list-style-type: none"> <li>• Need for low environmental burden city planning</li> <li>• Decreasing social vitality due to falling birthrates, ageing society, and decreasing population</li> <li>• Utilizing deteriorating housing stock</li> </ul>
Solution	<ol style="list-style-type: none"> <li>1. Decentralize urban functions through “new-town” development in coordination with transportation system</li> <li>2. Mass supply of housing</li> <li>3. Legislation in order to realize urban policy</li> </ol>	<ol style="list-style-type: none"> <li>4. Improved housing performance standards</li> <li>5. Expansion of traffic infrastructure networks</li> <li>6. Redevelopment of existing city areas</li> <li>7. Resource Circulation Efforts</li> </ol>	<ol style="list-style-type: none"> <li>8. Realization of Smart Cities</li> <li>9. Compact City Plus Network</li> <li>10. Rejuvenation of housing stock</li> <li>11. Landscape protection</li> </ol>



## **Eco-Cities (Environmentally Symbiotic Cities)**



## **TOD (Transit-Oriented Development)**



## **Building Disaster-Resilient Cities (Resilient Cities)**

- It is necessary to **maintain diversification of each** city by adapting to various circumstances and requirements which the city has.
- It is necessary to **involve various types of participants** from local governments, industries & companies, academics and citizens.
- It is necessary to **ensure openness and transparency**. At the same time, it is important for a wide range of people from various sectors and organizations to make reliable data freely available. Moreover, it is required to establish confidence in privacy, data protection, intellectual property rights and data security.

# Smart City Projects in Japan

Source: the materials of the 3rd ASEAN-Japan High-Level Meeting on Smart Cities Network,



## FY2017-2020

about **200** Demonstration projects  
in about **160 areas** were done



Implementation of City OS projects  
are in progress in **23 areas**  
(at September 2020)



Implementation **100 areas**  
by **FY2025**

**Hokuriku region**  
7 areas, 11 projects

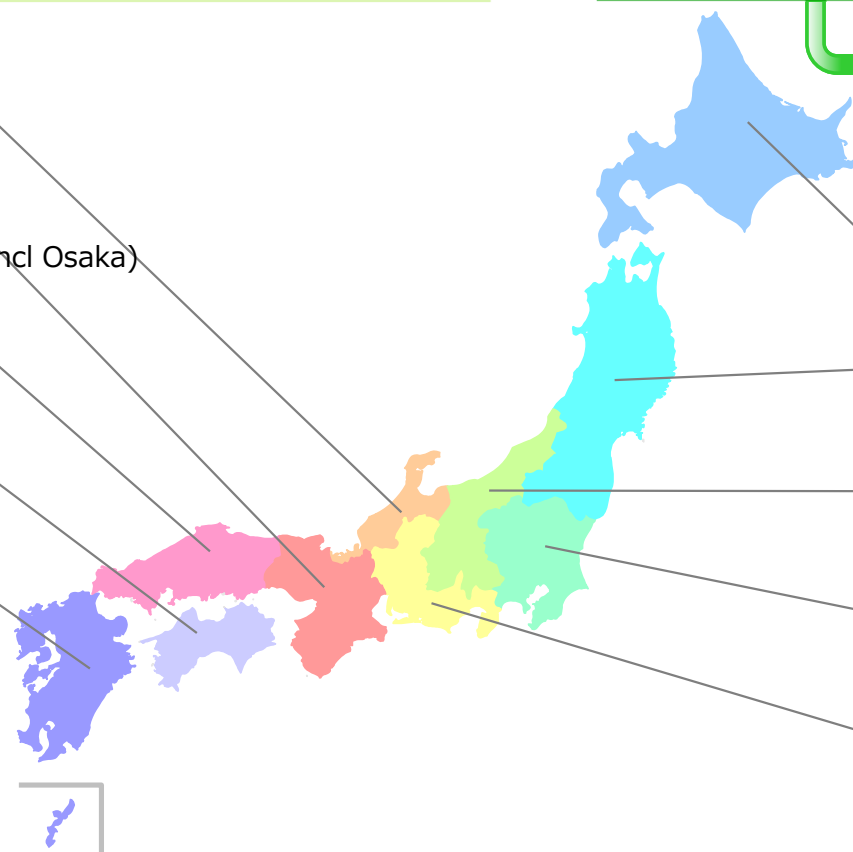
**Kansai region\***  
26 areas, 29 projects

(\*incl Osaka)

**Chugoku region**  
17 areas, 19 projects

**Shikoku Region**  
10 areas, 12 projects

**Kyushu region**  
16 areas, 16 projects



**Hokkaido region**  
9 areas, 12 projects

**Tohoku region**  
7 areas, 10 projects

**Shin-etsu region**  
5 areas, 7 projects

**Kanto region\*\***  
44 areas, 58 projects

(\*\*incl Tokyo)

**Tokai region**  
19 areas, 26 projects

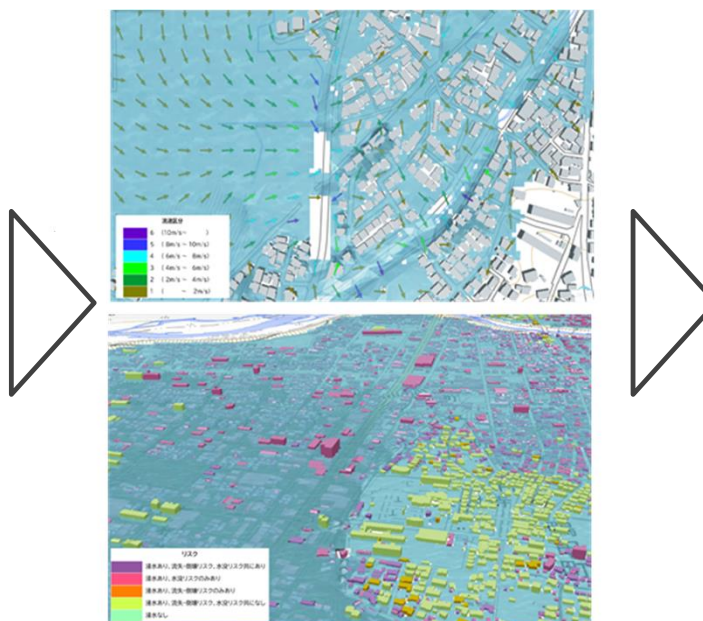
(Cabinet Office)

- DX can solve problems in all phases: normal times, pre-disaster, and post-disaster.

## Normal times [Sophistication of evacuation planning by visualizing disaster risks]



3D model of the area around the Yahagi River (PLATEAU)



3D models allow simulation of water flow around buildings and the flooding/collapsing risk of each building.



Used in disaster preparedness discussions to examine advanced measures

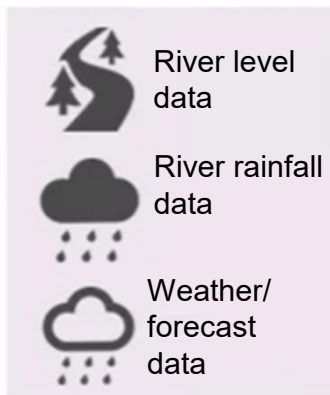


- DX can solve problems in all phases: normal times, pre-disaster, and post-disaster.

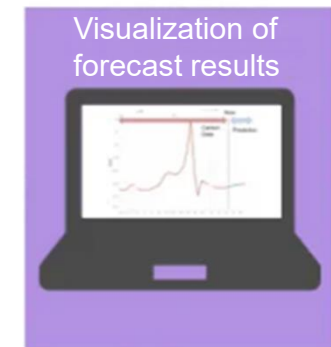
## Pre-disaster

[Speeding up flood response and evacuation with AI]

River water level gauge



AI-powered water level prediction system



Water level gauges, rain gauges, and inundation sensors are installed in rivers to acquire real-time data

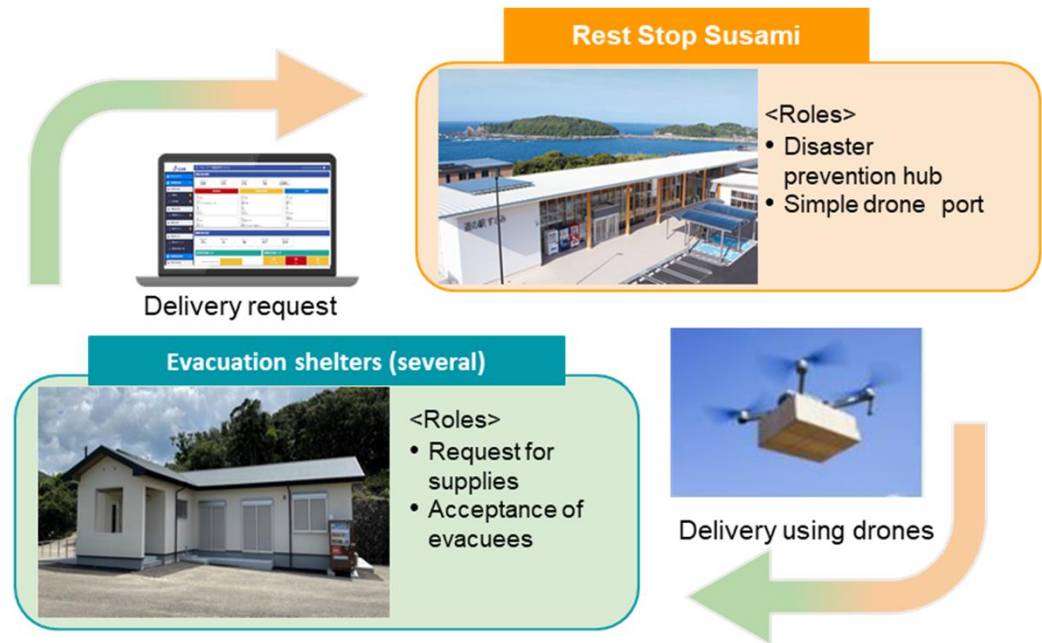
AI water level prediction at each measuring point based on the acquired data and forecast rainfall

Early grasp of the situation  
Evacuation preparations

- DX can solve problems in all phases: normal times, pre-disaster, and post-disaster.

## Post-disaster

[Delivery of relief supplies using automated drones]



## Indonesia – Delta Mas City



Completed image drawing of Delta Mas City

## Vietnam - Complex Urban Development in Binh Duong Province



Becamax Tokyu



Tokyu bus  
(Uses ICT technology, low environmental impact)

## Thailand - Urban Development Project around Bang Sue Station (TOD)



Image of urban development around Bang Sue Station

## Thailand - EEC (Eastern Economic Corridor) AMATA Chonburi Smart City Development Project



Chonburi Smart City master plan drawing

## Vietnam - Smart City Development in Northern Hanoi



Image drawing of completed first  
(※First stage is in the red dotted area)

- Japan's smart city effort
- **Smart JAMP**

“SmartJAMP” is a four-pillar support measure.


**Smart City supported  
by Japan ASEAN Mutual Partnership  
(Smart JAMP)**

- **Conducting Feasibility Studies contributing to the overseas development of smart cities.**

# Smart JAMP studies in 2022 (cont).

## 6 Priority Area from “ASEAN Sustainable Urbanisation Strategy”

Civic & Social	Health & Well-being	Security	Quality Environment	Built Infrastructure	Industry & Innovation
<p>Feasibility study for projects listed in Master Plan (Smart Tourism)</p> <p>Feasibility study for projects listed in Master Plan (Digitization of village functions)</p>		<p>Feasibility study for projects listed in Master Plan (Traffic safety monitoring)</p> <p>Pilot project of river disaster prevention (river management, evacuation behavior)</p>	<p>Pilot project of river environment monitoring system</p>	<p>Feasibility Study on Bus Operation Management System</p> <p>Feasibility Study on Smart Road Management System</p> <p>Pilot project of for Smart Bus Shelter</p> <p>Feasibility Study on Automated Traffic Control System</p> <p>Feasibility study on MaaS※ apps</p>	<p>Feasibility Study on Smart City Concept around Station Area (Utilization of Big Data)</p> <p>Feasibility study on road management system using AI image recognition app.</p>

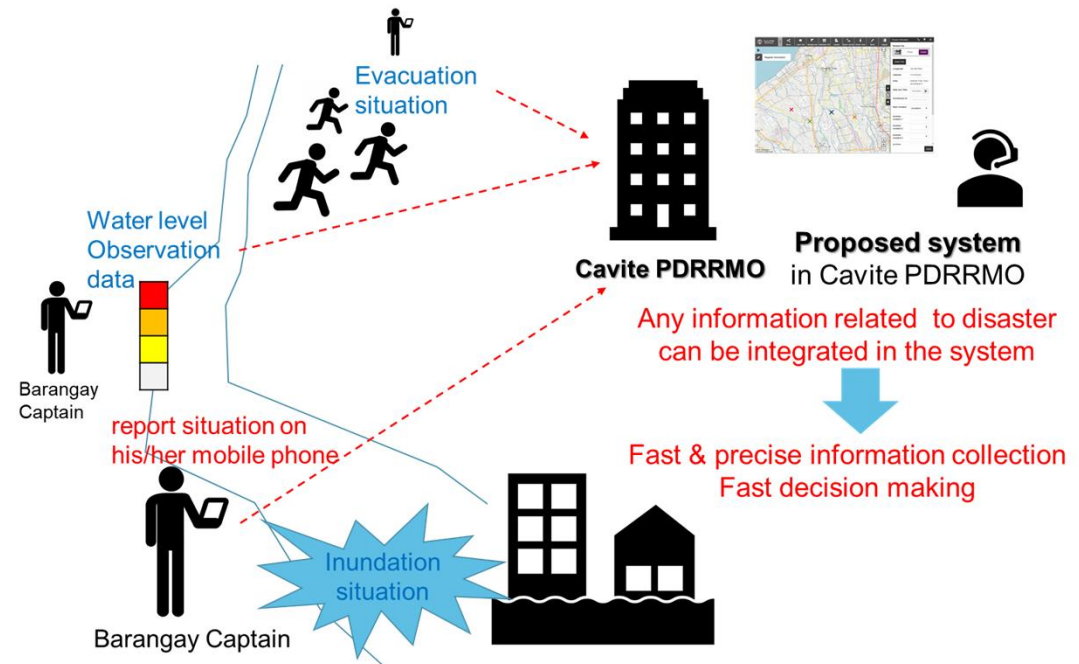
 Wide range of surveys have been conducted.

※MaaS: Mobility as a service is a type of service that, through a joint digital channel, enables users to plan, book, and pay for multiple types of mobility services.

## Pilot project of river disaster prevention (river management, evacuation behavior)

- Province of Cavite, Republic of the Philippines

- Pilot version of a disaster prevention dashboard system that streamlines the collection and organization of information in the event of a disaster was constructed, and disaster prevention drills were conducted using this system.

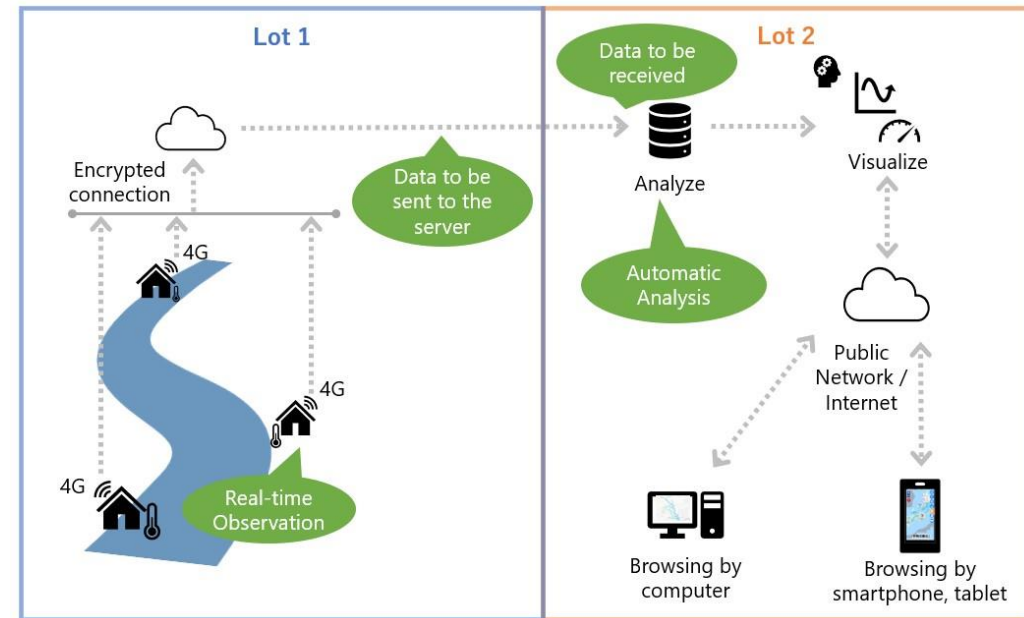


Conceptual diagram of the disaster prevention dashboard system

## Pilot project of river environment monitoring system

- Johor Bharu, Malaysia

- Preparation for the procurement of equipment for the water quality monitoring system for the Skudai River, as well as a plan that includes everything from demonstration tests to maintenance and management.



Project Overview



Matching opportunities with service provider companies and capacity-building efforts are important.

## Business matching



At the 5th Japan-ASCN High Level Meeting



## Capacity building



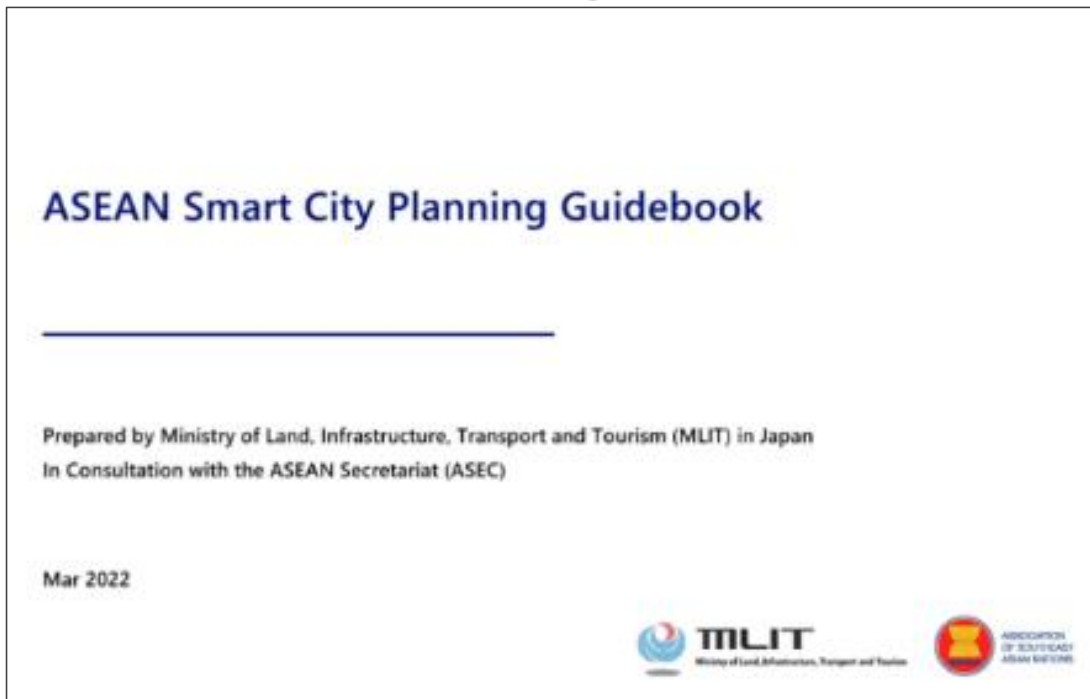
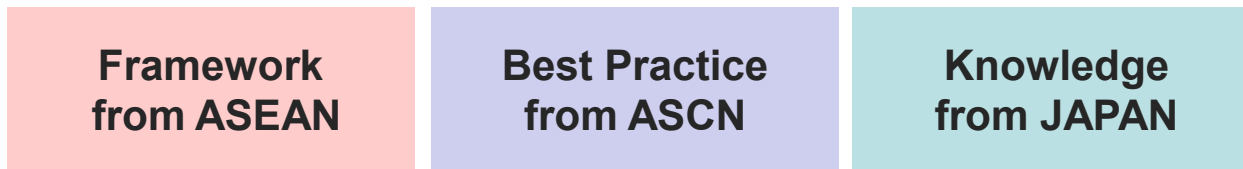
UNCRD Training



JICA Training

# About "ASEAN Smart City Planning Guidebook"

- ✓ Aimed to develop a reference for ASEAN cities to promote Smart City.
- ✓ Issued March 2022.
- ✓ Having a common framework to be referred during project implementation.



**Objectives and Definition of Smart City Development**  
 A smart city leverages digital infrastructure across business areas, to address the urban challenges observed across ASEAN Member States.

**Objectives and definition of smart city**

- Rapid urbanisation has caused issues and challenges in the ASEAN Member States, for areas including the quality of life for the residents, environment, and infrastructure.
- Smart cities in ASEAN aims to address such issues and challenges and provide new value to the citizens, by leveraging digital infrastructure and data as an enabler.

**Issues and Challenges caused by Rapid Urbanisation**

<b>City Congestion</b>	Insufficient public transport infrastructure and services, and traffic congestions.
<b>Water / Air Quality</b>	Increased water demand causing strains on the existing water infrastructure.
<b>Security and Safety</b>	In addition to traditional threats, non-traditional threats such as cyber threats.
<b>Urban / Rural Divide</b>	Less opportunities for residents residing in rural areas compared to urban residents.
<b>Rising Inequalities</b>	Economic inequality, further accelerated by the digital technology adoption as a result of the Corona Virus Disease (Covid-19).

**Overview of Smart Cities in ASEAN**

Source: Smart City Guidebook (Japan), ASEAN Sustainable Urbanisation Strategy

**Basic Concept for Smart City Development**  
 Smart city should be developed in alignment with the key principles and guidelines, to ensure that the city enhances the quality of life for the citizens.

**Key Principles and Guidelines for Smart City Development**

**3 Key Principles**

- Prioritize the Citizens:** Focus on the well-being of the citizens and promote the participation by the citizens.
- Focus on the Vision and Issues:** Aim not only to implement new technology, but focus on solutions which resolves the issues.
- Collaborate across Business Areas and Cities:** Work across different business areas and cities, to address challenges which are complex and arise across cities.

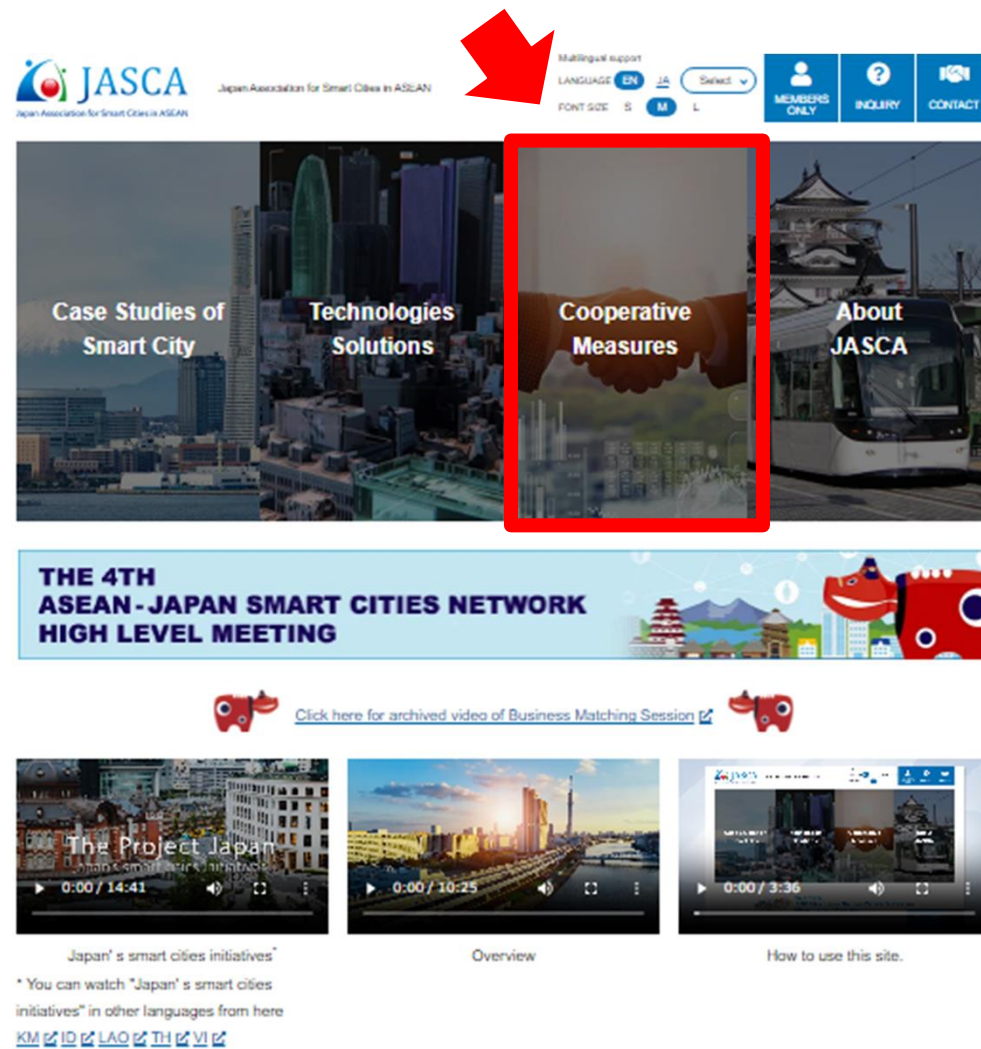
**5 Key Guidelines**

- Fair and Inclusive:** Achieve a smart city which all citizens can participate and access the service equally.
- Ensure Privacy:** Ensure that the privacy of citizens is maintained, when using data.
- Security and Resilience:** Ensure that security is maintained, and a resilient infrastructure is developed, for emergency situations.
- Transparent and Interoperable:** Develop digital infrastructure which the data can be used in a transparent and interoperable manner.
- Sustainable Finance and Management:** Secure sustainable finance and management system, to ensure that the city can grow sustainably.

Source: World Economic Forum: Global Smart Cities Alliance, Smart City Guidebook (Japan)

# How to get “ASEAN Smart City Planning Guidebook”

Please Access to JASCA website



**JASCA** Japan Association for Smart Cities in ASEAN

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Case Studies of Smart City | Technologies Solutions | **Cooperative Measures** | About JASCA

**THE 4TH ASEAN - JAPAN SMART CITIES NETWORK HIGH LEVEL MEETING**

[Click here for archived video of Business Matching Session](#)

Japan's smart cities initiatives | Overview | How to use this site.

\* You can watch "Japan's smart cities initiatives" in other languages from here  
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**Thank you for your attention.**