

KINGDOM OF CAMBODIA Nation Religion King

The 5th ASEAN-Japan Smart Cities Network High Level Meeting

Smart Cities Solve Various Disaster Challenges in Cambodia

H.E. DR. PEN SOPHAL SECRETARY OF STATE

MINISTRY OF LAND MANAGEMENT, URBAN PLANNING AND CONSTRUCTION, KINGDOM OF CAMBODIA

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- The right implementation of Win-Win Policy and Government Rectangular Strategies leads Cambodia to achieve peace and sustainable high economic growth at an average annual rate of <u>7%</u> per year for nearly three decades prior to the COVID-19 Pandemic. This has helped Cambodia achieve its goal of becoming a lower-middle-income country by 2015.

- In order to respond to the challenges, and achieve Cambodia Vision 2050, the Royal Government of Cambodia launched the Pentagonal Strategies-Phase I for Growth, Employment, Equity, Efficiency, and Sustainability by adopting five key priorities aiming Cambodian *"Live in dignity and happiness, and enjoy equal access, equal rights, and equal opportunities in social protection"*.



Diagram of Rectangular Strategy-Phase IV



Diagram of Pentagonal Strategy-Phase I





Commercial Area



POPULATION 2023 (Census, 2008 and 2019)

Urban Rural



Cambodia has rapid urbanization, with the urban population increased more than 2 times in the 16 years from 27,1% in 2008 to 56,23% in 2023 and projecting to 67% in 2050.



Climate Change: Cambodia Context

The impacts of climate change are already being felt in Cambodia. In recent years, the country has experienced more frequent and severe floods and droughts. These events have caused billions of dollars in damage to crops and infrastructure, and have displaced millions of people.

The main climate risks facing Cambodia are:

- Increased temperatures: Cambodia is already experiencing warmer temperatures, and this trend is expected to continue in the future. This will have a negative impact on human health, agriculture, and ecosystems.
- More extreme weather events: Cambodia is also experiencing more extreme weather events, such as floods, droughts, and storms. These events can cause widespread damage to infrastructure, crops, and homes.
- Sea level rise: Cambodia is a coastal country, and sea level rise is a major threat. This could lead to inundation of coastal areas, displacement of people, and salinization of agricultural land.

Integrated Planning and Smart Cities

Sustainable ,Smart & Inclusive Cities

- The concept of smart and sustainable cities has been introduced in urban planning and development
- Smart technologies may enable residents to produce information for city management and also disaster resilience.
- \rightarrow Integrated, affordable technologies make it possible for cities to scale up solutions and impact



Integrated Planning and Smart Cities



Smart City Definition

Each country has defined different concepts and definitions of smart cities depending on their geographical, economic, social and contextual factors. In general, the concept of a smart city is defined by the integration of information and communication technology (ICT), in solving problems in people's lives.

For Cambodia, based on the Cambodian Digital Economic and Social Policy Framework (2021-2035), Smart Cities are defined as cities equipped with and using digital and technology modern to increase operational capacity throughout the citv by sharing information with the public and improve the quality of public services as well as social welfare.

Smart City can be structurized and connected with Built environment, Cyber infrastructure, and Social systems



Smart Green City

Smart Green City is one where there is "effective and sustainable integration of physical, digital and human systems in the built environment to deliver a green, prosperous and inclusive future for its citizens" The Purpose of Smart city Industrialization and Evolutionary City Urban Transformation Solution Urbanization has been rapidly expanded since the industrial revolution. 4th Industrial Revolution BENEFITS OF SMART CITY Cities have been evolved (Super-intelligence, Virtualised Efficiency in urban management in various formats in line Hyper-connected) Through a data-driven Smart City with the social changes Improved quality of life Sustainable Growth Urban Resolve urban problems Problem 3rd Industrial Revolut (IT, Information, Data) Sustain-1st Industrial Revolution ability (Steam Engine, Machine, R Smart City With protecting environment, energy and the underpreviledged u-city/Digital city in 2000's Sustainable Smart City in the 21st Pursue Sustainable Growth century Citv Social Cooperation Modern 91 Planning in 80's Industrial City Digital New Urbanism in 90's City Development booming in Paradigm of Urban Reasonable Urban Planning Through the spread of Smart City Promote Digital Economic Development

Source: Dr. Daeyeon Cho, 2023

Some examples of successful cases of smart cities in disaster resilience

Some examples of successful cases of smart cities:

- In San Francisco, California, the city is using sensors to monitor the risk of landslides. The sensors send data to a central system that can predict when a landslide is likely to occur. This information is then used to warn residents in at-risk areas.
- In New York City, the city is using a mobile app called Notify NYC to send emergency notifications to residents. The app provides information about weather warnings, evacuations, and other important updates.
- In Tokyo, Japan, the city is using drones to assess damage and identify survivors after earthquakes. The drones can fly over disaster zones and send real-time video to emergency responders.
- In Kobe, Japan, the city is using 3D printing to build temporary housing for displaced residents after earthquakes. The 3D printers can produce small, prefabricated homes that can be quickly assembled.
- In Songdo, South Korea. Data center, traffic, crime, and disaster control





Listening" drone helps find victims needing rescue in disasters | Tokyo Tech News | Tokyo Institute of Technology Images may be subject to copyright. Learn More

Its first uniquely globular building, pictured below, was printed in March 2202.



Clouds AO / serendix

Visit

Smart cities can solve various disaster resilience challenges through the use of technology and data

- **Prevention:** Smart cities can use data and analytics to identify and assess risks, and then develop mitigation strategies. A smart city could use sensors to monitor flood levels and send alerts to residents in at-risk areas.
- **Preparedness:** Smart cities can use technology to improve communication and coordination between emergency responders and the public. A smart city could use a mobile app to send emergency notifications to residents and track the location of first responders.
- **Recovery:** Smart cities can use technology to help communities rebuild after a disaster. A smart city could use 3D printing to build temporary housing for displaced residents.
- **Investing in green infrastructure:** Green infrastructure, such as rain gardens and green roofs, can help to reduce flooding and other hazards. Furthermore, the Nature Base Solution Initiative will contribute to improving the city to become more resilient.
- **Designing for resilience:** When planning new development or rebuilding after a disaster, smart cities can consider factors such as elevation, flood risk, and seismic activity to design infrastructure and buildings that are more resilient to damage.
- **Building social resilience:** Smart cities can also help to build social resilience by investing in education, healthcare, and other social services that can help communities to recover from disasters.



"Smart Cities solve various disasters resilience challenges in Cambodia"



<u>Cambodia</u>, and other ASEAN nations, is susceptible to weather-related catastrophes including storms, droughts, and floods. These risks are becoming more severe due to climate change, making it even more crucial for Cambodia to invest in disaster resilience especially smart technologies-smart cities.

Smart cities have a significant impact on Cambodia's ability to better withstand natural disasters, aiding in catastrophe prevention, preparation, response, and recovery by utilizing technology and open data.

Disasters in Cambodia



Disasters in Cambodia

- The COVID-19 pandemic has affected the global economy and the growing crisis is hitting developing countries, not only as a health emergency but also devastating social and economic development.
- Cambodia is one of the ASEAN Member states that have been affected by COVID-19 and key sectors like tourism, manufacturing, construction, and social are seen to be the most affected sectors.

COVID-19 posts economic threats to different aspects of Cambodia's development :



"Best Practice in Cambodia's City"

• Disaster-resistant infrastructure: Smart cities can design and build

infrastructure that is more resilient to damage from natural disasters. For example,

smart cities can build elevated roads and bridges to reduce the risk of flooding.

Preah Sihanouk, Infrastructures and 34 urban roads project

This was implemented last year in *Preah Sihanouk and Siem Reap Province*.



Siem Reap, Infrastructures and 38 urban roads project

"Smart Cities solve various disasters resilience challenges in Cambodia"

• Early warning systems: Smart cities can use sensors to monitor flood levels, rainfall, and other environmental data. This data can then be used to develop early warning systems that can alert residents and emergency responders to potential disasters.

Cambodia's Early Warning System EWS 1294: An Adaptable Technology Promoting Safety for All: provides an upstream
response to flood and disaster risk challenges by disseminating timely and reliable information to communities at risk.



Strengthening disaster peparednes in Cambodia's Battambang Province

EWS1294 Tepmachacha sensor installed in Boeung Preav commune, Sre Ambel district in Koh Kong

Early Warning System 1294

"Smart Cities solve various disasters resilience challenges in Cambodia"

- Emergency response plans: Smart cities can develop emergency response plans that are tailored to the specific risks that they face. These plans should include clear communication and coordination protocols between emergency responders and the public.
- **Community preparedness programs:** Smart cities can invest in community preparedness programs to educate residents about the risks that they face and how to stay safe during a disaster. These programs can also help to build social networks that can support communities in the wake of a disaster.



Nov 2, 2021 | reading time 5 minutes

Urban Innovation: Helping Cambodia's Cities Prepare for Disasters



Oct 21, 2021 | reading time 5 minutes

Innovation in Cambodia: Strengthening the Country's Early Warning System (EWS) 1294



Jan 6, 2021 | reading time 5 minutes

Putting the Human in Humanitarian Aid Technology

Way forward

- Promote human capital development in sciences, technologies, innovation and governance with better morality to promote smart city development and digital transformation solutions.
- Promote Urban, Regional, and Country Integrated Planning and Development for Vision 2050
 - A Vibrant Society
 - A High-Income and Resilient Economy
 - Are highly Knowledgeable and have at least one skill in life
 - Live in dignity and happiness, and enjoy equal access, equal rights, and equal opportunities in social protection
 - A country that enjoys harmony, resilience, and inclusivity of Physical and natural Environment and has a good balance between development and environmental conservation with the Khmer noble culture and civilization.



Way forward





Thank You