ASEAN Smart Cities Network

MONITORING & EVALUATION REPORT 2024

one vision
one identity
one community

Contents

List of Acronyms

AASCTF	ASEAN-Australia Smart Cities Trust Fund
ACTS	Automated Citywide Traffic Control System
ADB	Asian Development Bank
ADMS	Advanced Distribution Management System
DBKL	*Dewan Bandaraya Kuala Lumpur* (Kuala Lumpur City Hall)
DEPA	Digital Economy Promotion Agency of Thailand
EIC	Emergency Incident Command Centre
GIS	Geographic Information System
IMAC	Iskandar Malaysia Analytics Centre
IRDA	Iskandar Regional Development Authority
JICA	Japan International Cooperation Agency
KLUO	Kuala Lumpur Urban Observatory
KKCH	Kota Kinabalu City Hall
NPTDC	Nay Pyi Taw Development Committee
MCDC	Mandalay City Development Committee
MLIT	Ministry of Land, Infrastructure, Transport, and Tourism of Japan
SDP	Social Development Program
SRPA	Siem Reap Provincial Administration
SmartJAMP	Smart City Supported by Japan ASEAN Mutual Partnership
SME	Smart and Medium-sized Enterprises
SEZ	Special Economic Zone
USTDA	United States Trade and Development Agency
YCDC	Yangon City Development Committee

1| Introduction

Over the past year (August 2023 – September 2024), the ASEAN Smart Cities Network (ASCN) has continued to advance the ASCN Smart City Action Plans, promote sharing of best practices, enhance the capacity of national and local governments, develop knowledge products, and strengthen partnership.

Exhibit 1 depicts an overview of the distribution of smart city projects under each of the ASCN's focus areas. With both the existing ASCN cities and new ASCN cities developing and implementing more smart city projects, as of September 2024, the ASCN has seen a total of 108 smart city projects.

At the regional level, the ASCN has continued the development of the ASEAN Smart City Financing Toolkit; embarked on the Phase II of the project on "Accelerating the Implementation of the ASEAN Sustainable Urbanisation Strategy" together with the Lead Implementing Body for Sustainable Infrastructure; convened an ASCN Conference back-to-back with the 7th ASCN Annual Meeting; driven the implementation of the short-term training and Master's Degree scholarships under the ASEAN Smart City Professional Program; expanded membership from 26 pilot cities upon establishment to 31 cities in 2024; as well as actively participated in workshops/events that convened by/in collaboration with ASEAN's external partners, such as the event on ASEAN ASEAN-Norway Business, Policy and Stakeholder Engagement on Circular Economy and Smart Cities Solutions. The ASCN will continue to provide a platform for various stakeholders to support the development of smart and sustainable cities in the region.

Exhibit 1: ASCN Smart City Projects across the Six Focus Areas as of September 2024

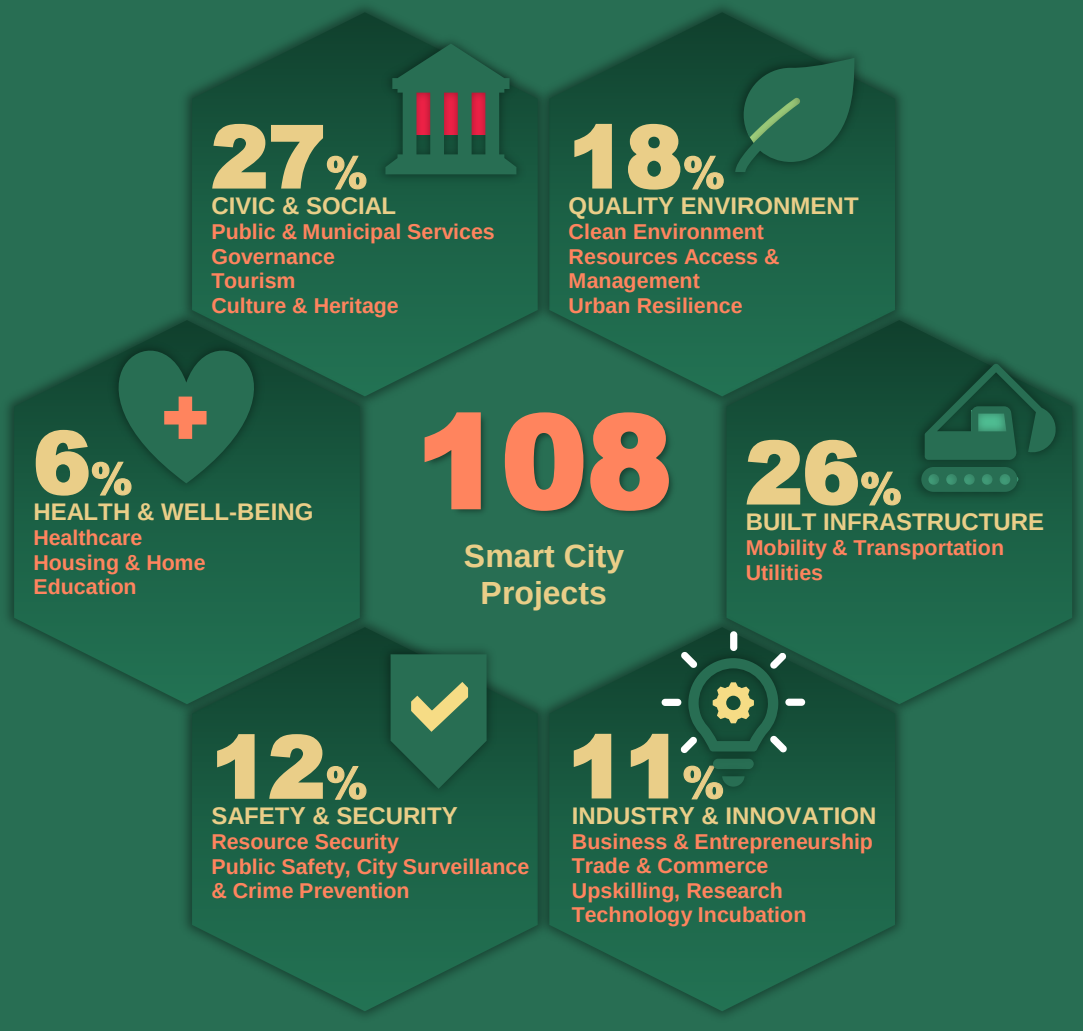
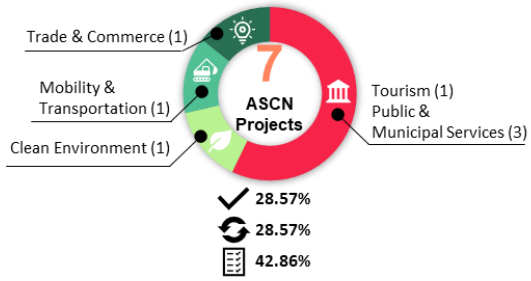


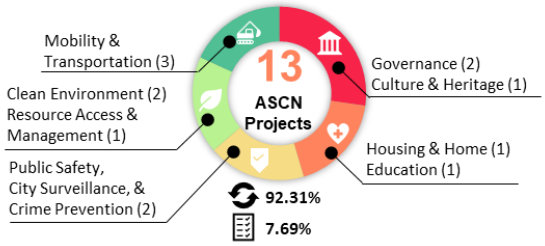
Exhibit 2: Overall Implementation Progress of ASCN Smart City Projects as of September 2024

Exhibit 3: Country Chart as of September 2024

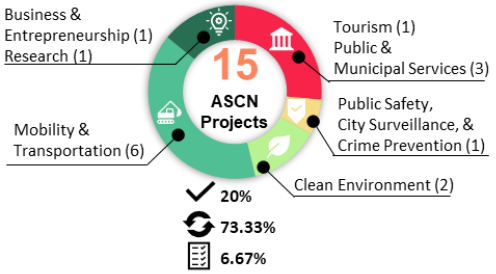
BRUNEI DARUSSALAM
Bandar Seri Begawan



MYANMAR
Mandalay | Nay Pyi Taw | Yangon



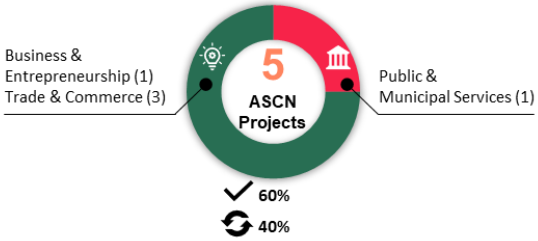
CAMBODIA
Battambang | Phnom Penh | Siem Reap | Sihanoukville City



THE PHILIPPINES
Cebu City | Davao City | Manila

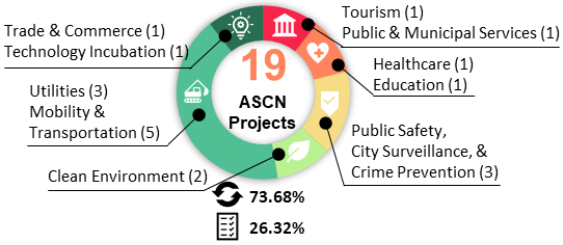
INDONESIA
Banyuwangi | Jakarta | Makassar | Sumedang

SINGAPORE
Singapore

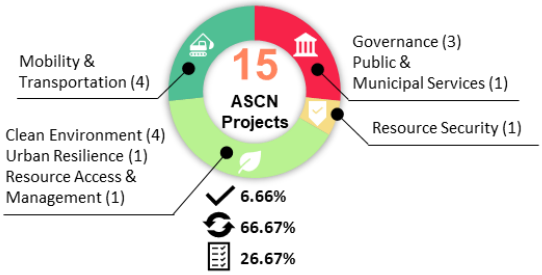


LAO PDR
Luang Prabang | Vientiane

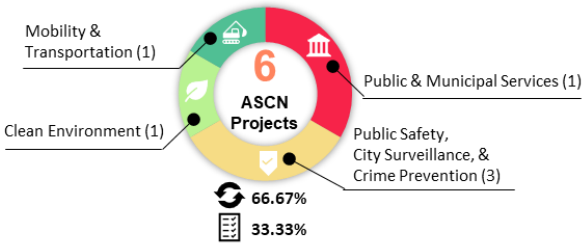
THAILAND
Bangkok | Chiang Mai | Chonburi | Khon Kaen | Phuket | Rayong



MALAYSIA
Johor Bahru | Kota Kinabalu | Kuala Lumpur | Kuching



VIET NAM
Da Nang | Ha Noi | Ho Chi Minh City



The overall implementation progress of ASCN smart city projects appears as **Exhibit 2**, which has shown that 81 smart city projects (around 75%) are on-going with 16 (14.8%) in planning stage, and 11 (10.2%) completed. Depending on the nature of the projects, the on-going projects are typically those beyond feasibility stage. The on-going projects may also include efforts to advance or scale-up the existing works/outputs.

Country Chart in **Exhibit 3** depicts the number of ASCN projects by country, distribution of ASCN projects by focus areas and specific types of projects.

The ASCN M&E Report 2024 comprises three main sections. Following the Introduction section, this Report presents the status of ASCN smart city projects by focus area with each ASCN city having one of their smart city projects highlighted. The full list of ASCN smart city projects can be seen in the Appendix. The last section is a summary of observations and recommendations.

2| Status of ASCN Smart City Projects

Civic & Social

The focus area of Civic and Social aims to achieve social cohesion, promote social equity, preserve and deepen appreciation for cities' cultural authenticity and heritage, promote the tourism sector, and improve the citizen experience. These involve enhancing good governance in the delivery of public and municipal services, decision making, transparency, accountability, and information accessibility. Civic and Social accounts for 27% of the overall ASCN projects. Siem Reap, Johor Bahru, Kuala Lumpur, Yangon, and Manila are examples of ASCN Cities that have projects in this focus area.

Siem Reap, Cambodia

With its Smart Tourism project, Siem Reap Provincial Administration (SRPA) has been working to digitalise the tourism statistics and store data on a cloud platform. This effort aims to address some of the data-related challenges that hinder the progress in Siem Reap's tourism sector. Demand from non-tourist visitors, such as meetings, incentives, conferences, and exhibitions, could also be better captured. Similarly, tourism services with added value (educational aspects of tourism services, community-based tourism, etc.) could be further developed.

Smart Tourism

Objective: To deliver a more convenient and on-demand tourism service, as well as develop diverse tourism resources towards more convenient and satisfactory tourism.

SRPA has also been enhancing cooperation between the public and private sectors on, among others, conducting tourism promotion activities; holding tourism events with smart technologies; discussing expected roles of players, system, regulations of tourism industry; and encouraging start-up businesses in smart tourism.

In this regard, the Japan International Cooperation Agency has been supporting capacity building for Department of Tourism's officers to collect and manage data digitally, as well as, assisting the SRPA to establish the Smart City Consortium to enhance partnership among community, public sector, private sector, and academia.

Johor Bahru, Malaysia

Iskandar Malaysia Urban Observatory has been rebranded to Iskandar Malaysia Analytics Centre (IMAC) in 2024. IMAC is envisaged to be a data centre to collate, update, analyse, manage, and disseminate data.

The Iskandar Regional Development Authority (IRDA) has completed the framework documents for IMAC which consists of business plan, data landscape review and data management and policy with support from the with funding from the United Nations Development Programme. The development of system architecture framework and platform requirements for the IMAC core system was completed with funding from the United States Trade and Development Agency (USTDA). The tendering process to develop the IMAC system and purchase of related hardware and software is ongoing.

Iskandar Malaysia Analytics Centre

Objective: To ease decision-making in planning approval process and to improve government transparencies in tracking development, policies and targets.

Kuala Lumpur, Malaysia

Kuala Lumpur City Hall/ *Dewan Bandaraya Kuala Lumpur (*DBKL) recognises the need to establish an integrated analytics system to manage and analyse urban issues at the city level. Hence, DBKL has been expanding G-Asset as a one-stop platform for geospatial data with a set of Geographic Information System (GIS) data, to the Kuala Lumpur Urban Observatory (KLUO) as a digital platform for

data and information related to the planning, development and progress of Kuala Lumpur city. KLUO seeks to establish data analytics platform where it is able to integrate and comprehend multiple big data platforms to perform data analytics functions. KLUO is expected to start running in 2025.

Exhibit 4: *Kuala Lumpur Urban Observatory*

Objective: To develop a central data repository to collate, update and disseminate social, economic and physical data for planning purposes towards a more efficient city management.

Technical expertise needs to be nurtured to ensure the sustainability of KLUO implementation. Hence, training and knowledge sharing in terms of urban observatory development with other ASEAN cities and stakeholders would be important.

Yangon, Myanmar

Since 2021, Yangon City Development Committee (YCDC) has been collecting building and infrastructure data to enable formulation of building use map, land use map, zoning map, zoning regulation, etc.

One Map Yangon

Objective: To develop an integrated geospatial database platform with spatial and non-spatial data from all YCDC departments.

Exhibit 5: Town dashboards from One Map Yangon. © YCDC

Based on the data collected, YCDC has run a pilot test by establishing an E-government platform, i.e. maps.ycdc.gov.mm for data management and maintenance, as well as data supply to the public. An integrated geospatial database platform will support the city in better provision of public services, transparency in governance, decision-making process, and setting appropriate taxes and fees.

Besides the need of advanced technology related to spatial analysis in urban planning, having a data sharing policy in place, capacity in data management and maintenance, and intensive and thorough coordination across YCDC departments are of paramount importance to sustain this initiative.

Manila, the Philippines

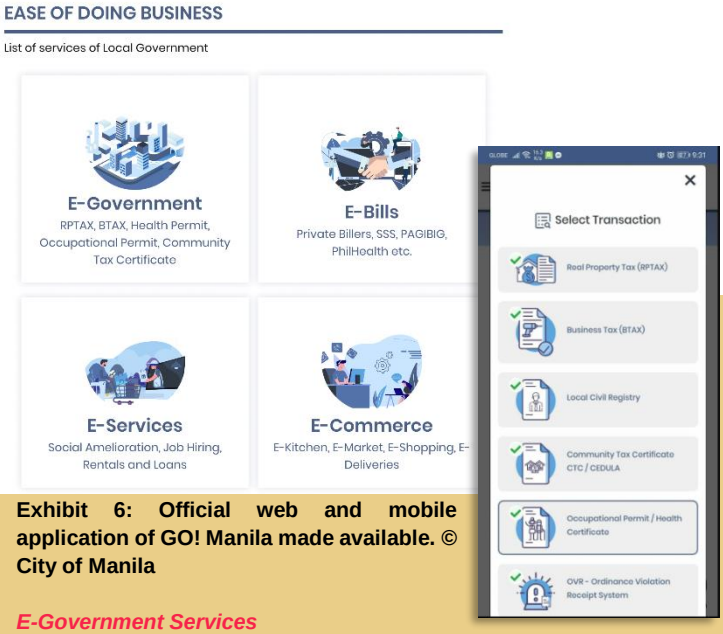


Exhibit 6: Official web and mobile application of GO! Manila made available. © City of Manila

E-Government Services

Objective: To provide fast, secure, effective and convenient manner of various services to the public to access a full range of payments and financial services that will reach not only the constituents of the city but globally.

Manila City has launched Go! Manila as the official web and mobile application of the City Government of Manila that aims to provide fast, effective, and convenient services to the public. It serves as a platform for a more secure and cost-effective means to access a full range of payments and financial services of the City Government. Besides the online features of the system, Go! Manila also has E-Document feature for all the services of Go! Manila, including Business Permitting and Licensing,

Real Property Tax and Certificate of Payment, and Working Permit.

The application is continuously being upgraded to host additional services of the City. The Manila Residents ID (MRID) is being integrated to the Go! Manila to capture resident data and issue MRID Card. As of May 2024, Go! Manila has had 1.2 million registrants, 1.4 million transactions, with 15.9 billion pesos collection.

The City seeks to implement a GIS that centralises the data and functionality of Go! Manila App, MRID and the Command Center's system.

Health & Well-Being

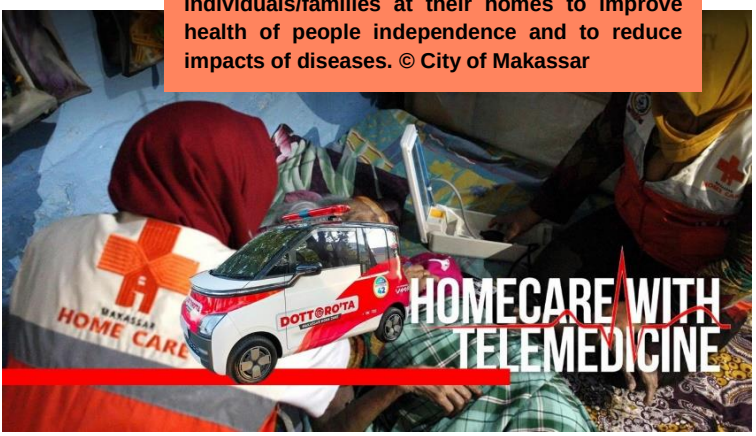
Improving the quality and access to healthcare, housing, and education in a way that is innovative and resource-efficient are the core of Health and Well-Being focus area. Health and Well-Being accounts for 6% of the overall ASCN projects. Examples of ASCN projects fall under this focus area can be found in Makassar, Sumedang, Nay Pyi Taw, and Phuket.

Makassar, Indonesia

Integrating existing healthcare systems through digitalisation towards an inclusive health services to the citizens have been one of the priorities of Makassar City Government in realising Makassar as a world-class city with *sombere'* ("hospitality, humble, and brotherhood" in Makassar language) for all.

Makassar's homecare programme called *Dottoro'ta* or "our doctor" in Makassar language, has attended more than 5,300 patients as of 2023. *Dottoro'ta* aims to improve the level of health independence of citizens and reduce impacts of diseases, reduce the number of patient referrals because patients are directly served at their homes, and increase awareness/knowledge of residents on healthy living behaviours.

Exhibit 7: Health services are provided to individuals/families at their homes to improve health of people independence and to reduce impacts of diseases. © City of Makassar



Dottoro'ta is operating 24 hours in collaboration with the community health centres (*Puskesmas*) and Makassar University Hospital. The programme is supported with 48 homecare electric ambulances that are equipped with tele-ultrasonography, tele-electrocardiography, and tele-spirometry. The mobile-app version of *Dottoro'ta* has been developed.

Efforts continue to disseminate the information on *Dottoro'ta* programme especially to the remote areas of Makassar, including the islands.

Sumedang, Indonesia

Sumedang envisions to become one of the leading knowledge cities in the region recognised for its cutting-edge research, high-quality education and vibrant communities. To achieve this vision, the local authorities have been working towards fostering a culture of innovation, excellence and collaboration among various academic, research and industrial institutions.

Jatinangor City of Knowledge

Objective: To develop a vibrant, inclusive, and sustainable campus district that seamlessly integrates public spaces, promotes open access, and fosters community engagement.

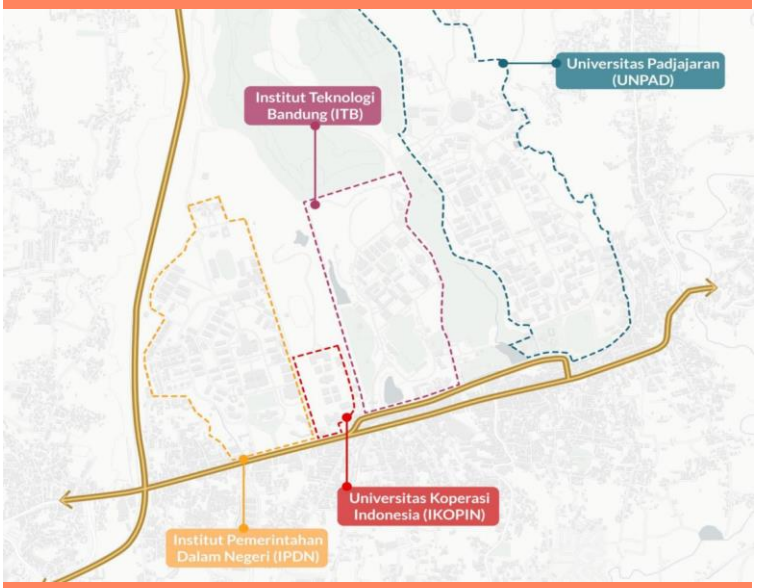


Exhibit 8: Jatinangor is known for hosting several major universities. The area accommodates around 60,000 students from these institutions, with an annual increase of approximately 12,000 new students. © Sumedang Regency.

With its Jatinangor City of Digital Knowledge, Sumedang aims to advance Jatinangor, known as a prominent educational area in West Java, to become an innovative knowledge district that seamlessly integrates public spaces, promotes open access, and fosters community engagement through multifunctional plazas and smart infrastructure.

Nay Pyi Taw, Myanmar

Nay Pyi Taw Development Committee (NPTDC), Nay Pyi Taw Council, and the Ministry of Construction have continued to jointly deliver affordable and low-cost housing for the public and government employees, including the retired government employees. The construction of Thu Kha Taw Win Housing with a total of 3,000 units of housing and basic infrastructures has been completed. All of the units have been allocated to public and government employees, including the retired government employees. The public, including retired government employees, have occupied the completed units.

Exhibit 9: *Affordable and Low-Cost Housing*
Objective: To construct affordable and low-cost housing for the public and government employees, including the retired government employees.

In 2024, NPTDC has called for expression of interest from local private investors to participate in a tender for the Phase II development of Thu Kha Taw Win Housing that aims to construct 1,060 units of low-cost housing. The ground survey for the Phase II has been conducted.

Phuket, Thailand

Phuket Healthcare Platform has been implementing to promote easier access to quality public health services and reduce crowding in the main hospitals.

A community-level digital health service station, known as Digital Health Post, has been established to cater to people with non-communicable disease that need frequent check-up, such as those with diabetes, high-blood pressure. Digital Health Post is equipped with telemedicine and IoT medical devices. Data is collected and linked to a health command centre that stores big data, monitors service and network, as well as, undertakes healthcare analytics and report. Preventive care car and homecare services have also been made available to allow citizens to do regular check-ups.

Phuket Healthcare Platform
Objective: To utilise digital technologies to improve public healthcare services.

Exhibit 10: Citizens doing regular check-ups in a Digital Health Post and a preventive care car.
© depa

Safety & Security

The focus area of Safety and Security refers to the adoption of effective technologies to address urban security problems, such as, strengthening public safety, city surveillance and crime prevention, among others.

Safety and Security accounts for 12% of the overall ASCN projects. Sihanoukville City, Cebu City, Chiang Mai, Rayong, Da Nang, Ha Noi, and Ho Chi Minh City are examples of ASCN Cities that have projects in this focus area.

Sihanoukville City, Cambodia

In anticipation of the growth in tourism industry and trade-related traffic as the result of the new Phnom Penh-Sihanoukville Expressway, expansion of airport and sea ports, and establishment of Special Economic Zones (SEZs), it has become Sihanoukville City's priority to establish a centralised real-time adaptive system of technologies that enhances safety and security of pedestrians, cyclists and public transport users in the urban areas, while facilitating efficient cargo movement in relation to the port, SEZs and industrial areas.

In this regard, the government has installed 433 GPS cameras on upgrading 34 arterial and other critical roads in and around the city. The GPS cameras use Wireless Technology 6LoWPAN and Centralised Management System as an integration of network device for data analysis using AI, risk management and maintenance.

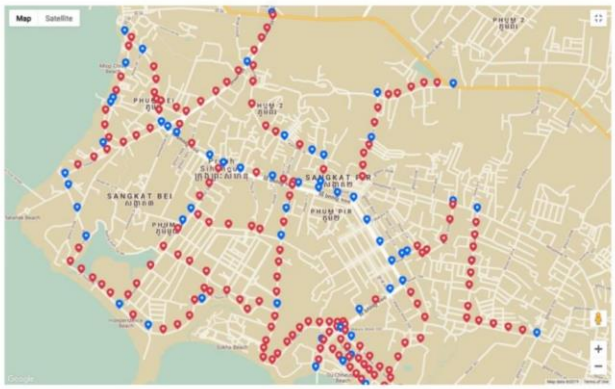


Exhibit 11: GPS cameras linked to a control centre monitor the public safety and security. © Sihanoukville City

Smart Security
Objective: To enhance the effectiveness and timeliness of policing including crime prevention, investigations and evidence gathering.

Technical support to develop the control system such as the real time notification system, as well as, institutional arrangement and staff capacity building are some of the urgent need to ensure sustainability of the effort.

Cebu City, the Philippines

Cebu City Government has continued to building the foundation for a more responsive and adaptive traffic management system by developing the Automated Citywide Traffic Control System (ACTS). The effort involves replacing outdated traffic infrastructure; coordinating traffic signals based on real-time traffic conditions; optimising signal timings to minimise delays and congestion, and prioritising the movement of vehicles along major thoroughfares. The real-time monitoring of traffic conditions will allow traffic engineers and officials to have a comprehensive view of traffic patterns, congestion hotspots, and incidents. This real-time data will facilitate proactive decision-making and allows for timely interventions to alleviate congestion and improve traffic flow.

Exhibit 12: ACTS. © Cebu City

Automated Citywide Traffic Control System
Objective: To upgrade and modernise the traffic infrastructure which can also effectively synchronise traffic flow and movements in the key intersections within the city.

Cebu City Government is reviewing the installed Phase 1 ACTS and the constructed command centre to ensure optimum operation by the Traffic Management Coordination Committee and Cebu City Traffic Office. Meanwhile, permit requirements are being fulfilled to complete the Phase 2 installation.

Chiang Mai, Thailand

Chiang Mai Provincial Administrative Organisation has developed a forest fire prevention and resolution command centre that serves as a command hub for managing forest fire smog issues. It also functions as a database system centre and a website reporting PM2.5 levels and provides information to support decision-makers who authorise certain land use activities that necessarily rely on fire or burning, such as agricultural areas, which comprise the majority of Chiang Mai Province. The Command Centre integrates measured data, forecast data, and satellite imagery data, allowing for an understanding of the current situation from measured data and satellite images. It provides insights into near-future trends through air quality prediction models. The development of application on both iOS and Android platforms is on-going.

Forest Fire Prevention and Resolution Command Centre

Objective: To create an integrated control centre for preventing and solving wildfire smoke haze problems during wildfire incidents.

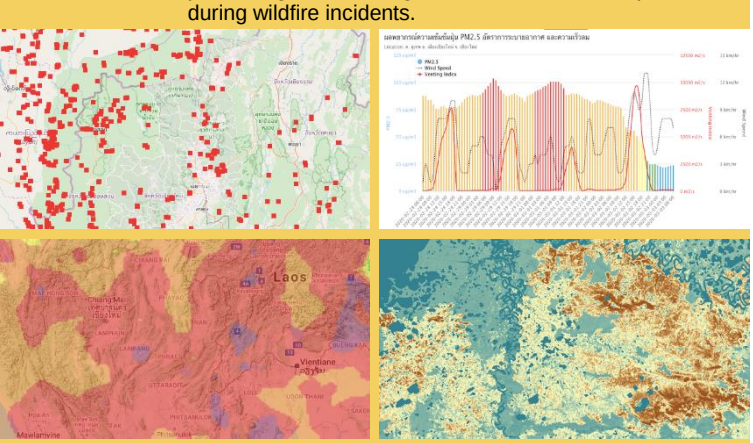


Exhibit 13: The Chiang Mai Provisional Administrative Organisation PM2.5 Dust Situation Database and Reporting System provides, among others, hotspot data, forecast data, burn traces data, and PM2.5 emission rate from burning. (Clockwise from top-left) © CM PAO PM2.5 DSS

Rayong, Thailand

Learning invaluable lesson from a factory explosion in the past, the local authorities in Rayong has established the Emergency Incident Command Centre (EIC) in Maptaphut Town that integrates innovative digital technology across five areas, namely: water quality, air quality, databases, public relations and communications, and safety.

Exhibit 14: EIC aims to serve as a systematic and prompt public communication centre during emergencies. © depa

Emergency Incident Command Centre

Objective: To develop a systematic and prompt public communication centre during emergencies.

EIC predicts, monitors, and sends notifications during unforeseen disasters or emergencies, ensuring a timely and intelligent response. EIC also serves as a complaint channel for residents and disseminates news and information to safeguard lives and property.

Da Nang, Viet Nam

Da Nang has been advancing its intelligent operation centre to integrate different services and cater to various needs, as well as, support analysis and decision-making. The intelligent operation centre has been providing complaint service, traffic monitoring service, order security monitoring service, social network monitoring service, information security monitoring service, and public service monitoring. Work continues to capture a wider-range of services which include environmental warning monitoring, open data services, monitoring socio-economic indicators, natural disaster prevention, and monitoring garbage truck journeys.

Ha Noi, Viet Nam

Forming an intelligent operation centre in Ha Noi is expected to contribute the goal of becoming an interactive, transparent, efficient administration, providing services based on the needs of people and businesses. In this regard, an intelligent operation centre is sought to provide services for and contribute to, among others, monitoring security and safety, press and media, traffic management and crime prevention in public areas, data analytics, as well as, receiving and processing information

on emergency, fire prevention, search and rescue, medical rescue.

Ho Chi Minh City, Viet Nam

Ho Chi Minh City has been investing in the development of an emergency response centre and enhancement of the efficiency of emergency call service which includes facilitating emergency cases reported through methods other than voice call, i.e. mobile app,

Coordination with central-level ministries and agencies has been taking place to ensure compatibility and compliance with, among others, legal regulations and telecommunications policies.

Quality Environment

The focus area of Quality Environment aims to leverage technologies to, for example, maintain a clean and pleasant environment; promote the sustainable use of ecosystems, natural resources and biodiversity; and strengthen resilience against disaster risks and potential climate change impact. Quality Environment accounts for 18% of the overall ASCN projects. Battambang, Luang Prabang, Vientiane, Kuching, and Mandalay are examples of ASCN Cities that have projects in this focus area.

Battambang, Cambodia

Battambang is embedded with heritage infrastructures and buildings which has driven the city's efforts to direct the citizens to use the public spaces and infrastructures more responsibly.

Exhibit 15: Walkable and wheelchair-friendly path, as well as cycling path along Sanger River (photo above). River embankment built to stop landslide in the city centre (photo below).
© Battambang Provincial Hall

Urban Street and Public Space Management
Objective: To enhance public safety and city beautification, and promote local economy, as well as walkable, green, and clean city.

One of Battambang's flagship efforts aims to connect communities with the gardens and museums along Sanger River and attract tourism. Walkable and wheelchair-friendly path as well as cycling path have been created; river embankments have been built; market has been relocated making it more accessible, hygienic, and organised. Canopies, sidewalks, and internet cables in the city centre have been re-arranged, and smart street light along the main roads has been installed. The Independence Monument Park has been upgraded to increase accessibility to greenspace and recreational activities.

To contribute to the revitalisation of Sanger riverfront, Battambang has completed the studies on smart museums and is exploring partnerships to support the realisation of the smart museum.

Luang Prabang, Lao PDR

Luang Prabang has developed the Luang Prabang Smart and Integrated Urban Strategy supported through the ASEAN-Australia Smart Cities Trust Fund (AASCTF) with the technical support from Ramboll. The Strategy outlines strategic pillars and pilot projects towards a liveable heritage city for all, taking into account the cross-cutting factors, namely integrated spatial planning, gender equality, disability, and social inclusion, as well as data management and governance.

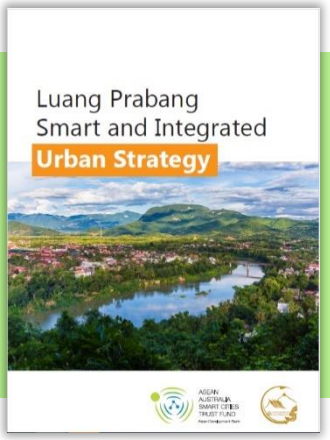


Exhibit 16: Luang Prabang Smart and Integrated Urban Strategy was completed in December 2023. One of the strategic pillars identified in the Strategy is 'Clean and Safe Environment'. © ADB

Clean and Safe Environment
Objective: *to improve solid waste and wastewater management and promote smart climate and disaster risk solutions appropriate for the local context*.

Some of the pilot projects identified under the Strategic Pillar: Clean and Safe Environment will be implemented under the Urban Environment Improvement Investment Project funded by the Asian Development Bank (ADB). The project aims to: (i) improve the quality and coverage of urban infrastructure and services; (ii) strengthen institutions and capacity to foster climate and disaster resilient development pathways; (iii) promote inclusive and gender-responsive urban planning; and (iv) enhance women's leadership and economic empowerment.

Vientiane, Lao PDR

To support Vientiane's effort in mitigating flood and increasing water reserves, the city is putting together a comprehensive concept and planning covering wastewater treatment to increase water supply and quality, flooding management service, and waste management service to improve waste collection efficiency, reduce the amount of waste disposal.

In July 2024, the construction of wastewater treatment plant with expected capacity of 52,000 m^3/day has started. The construction is expected to complete in March 2025. Regulatory compliance, resource efficiency, behavioural change, and technical expertise are some of the essential aspects to address to ensure effective implementation and long-lasting impact of the effort.

Exhibit 17: Construction of wastewater treatment in Vientiane. © Department of Public Works and Transport of Vientiane Capital

Kuching, Malaysia

Kuching has upgraded 78 telemetry stations to obtain real-time data/information through various means of communication. The ability to provide real time rainfall and water level on-line enable close monitoring of the development of floods at critical flood prone areas and drought situation in the river basin. This will then allow for the proper, timely and smooth co-ordination of essential disaster relief operations and management to the affected areas.

Data and alerts are provided to the citizens via IHYDRO, an online Hydrological Telemetry System. With IHYDRO, users can be kept informed on the rainfall condition and river condition in their areas.

Integrated Flood Management and Response System
Objective: To create a comprehensive and real-time flood-related database through the upgrading critical rainfall/ water level telemetry-enabled stations for more accurate flood modelling and prediction to prevent and mitigate floods.

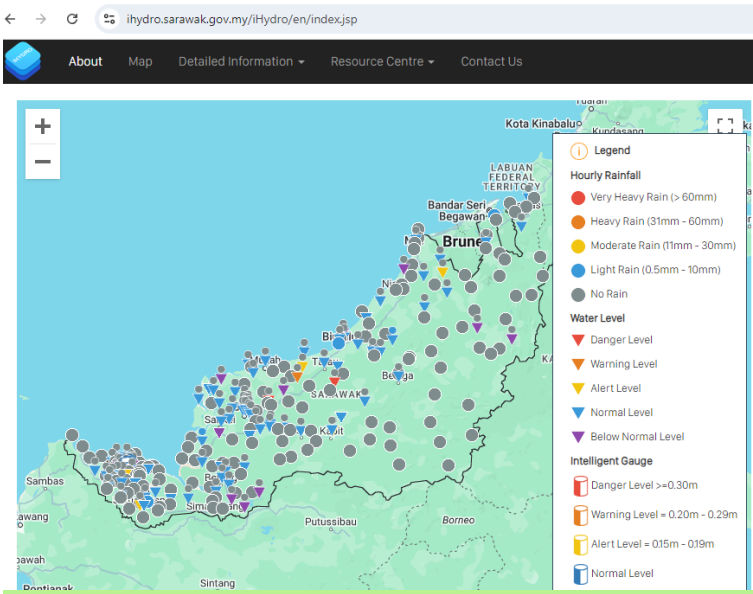


Exhibit 18: IHYDRO is an online platform for real-time flood and drought monitoring. © DID Sarawak

Mandalay, Myanmar

As part of the continuous effort to resolve flooding and reduce water contamination, the Mandalay City Development Committee (MCDC) has been treating the domestic wastewaster near U Shwe Taung Bridge. This is to reduce air and water pollution in Taungthaman Lake, which is infamous for various species of fishes and other aquatic lives. A centralised wastewater treatment plant will be implemented for treating both domestic and industrial wastewater.

Further to that, MCDC has expedited the expanding and upgrading the drainage system using the precast concrete to have an effective flood management system, improve water quality, and beautify the neighbouring environment with the provision of better drainage within the city areas.

Exhibit 19: Wastewater Treatment Plant near U Shwe Taung Bridge (Taungthaman Lake). © MCDC

Solid Waste and Wastewater Treatment

Objective: To ensure quality water supply through good solid waste and wastewater management.

Built Infrastructure

The focus area of Built Infrastructure advocates investment in infrastructure to deliver multiple benefits across various stakeholders, whether private or public. These can include investing in utilities such as energy, mobility and transportation, as well as buildings and construction.

Built Infrastructure accounts for 26% of the overall ASCN projects. Kota Kinabalu, Davao City, Bangkok, Chonburi, and Khon Kaen are examples of ASCN Cities that have projects in this focus area.

Kota Kinabalu, Malaysia

Kota Kinabalu has been working improving the accessibility and enhancing network a better and systematic public transportation. The revamp of the Central Bus Terminal was completed, covering towns located in Southern Sabah (Beaufort, Menumbok and Sipitang), Sarawak and Brunei Darussalam. Terminal design for the Southern Kepayan Integrated Bus Terminal has been completed and construction will be kicked off in 2024 through joint venture model.

Integrated Public Transport System
Objective: To develop an efficient and integrated public transport system for Kota Kinabalu.

Exhibit 20: Design of the Southern Kepayan Integrated Bus Terminal. The construction will be kicked-off this year. @KKCH

To provide a convenient, stable and interconnected network of public transport services towards increasing the use of public transport, the city has been developing the Stage Bus Transformation System which adopts a more efficient 'hub and spoke' network concept for people to arrive at their destinations and its operations are monitored through electronic and modern systems. The plan includes providing mini-sized buses that can accommodate up to 30 passengers and equipped with LED displays, CCTV, e-Ticket Machine, GPS, and On-Board Unit.

Other projects in the pipeline include the plans to provide free electric bus service between the Kota Kinabalu International Airport and City Centre, and launch the digital parking system this year.

Davao City, the Philippines

Efforts continue to improve transportation system in Davao City. Through the Davao Bus project supported by ADB, the city has been constructing bus lane, bus stops, depots, terminals, procuring buses, improving the existing traffic signals at a number of intersections, and developing intelligent transportation system. The Davao Bus Information System has been also developed to serve as a web-based application for the Social Development Program (Davao Bus-SDP) provided to the affected operators, drivers, and their beneficiaries, Davao Bus-Grievance System for concerns, complaints, incidents, damages or conflicts resulting from the Davao

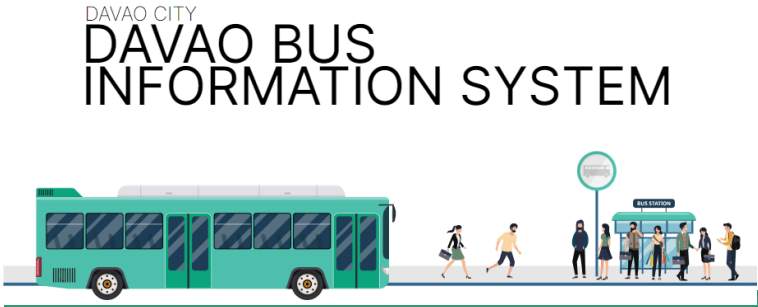


Exhibit 21: Davao Bus Information System consisting social development program, grievance system, and information dissemination tool.
© Davao City

Intelligent Transportation and Traffic Systems with Security
Objective: To enhance transportation and traffic management capabilities by leveraging on the latest technological innovations available and ensuring inclusivity and security.

Bus project, as well as Davao Bus-SMS for administrator's information dissemination tool.

Due to the ever-growing challenges on the traffic management, the City Government of Davao is also looking to enhance traffic management capabilities to complement the effort in improving transportation system. The United States Trade and Development Agency (USTDA) has supported Davao City in undertaking situation assessment, analysis of economic and developmental impacts, providing recommendations on the to-be environment, organisational considerations, budgeting, and implementation plan. This technical assistance was aimed at supporting the modernisation or upgrade of the Public Safety and Security Command Center's operational capabilities and the development of an intelligent transportation management system. Meanwhile, through the Smart City supported by Japan ASEAN Mutual Partnership (SmartJAMP), the Ministry of Land, Infrastructure, Transport, and Tourism (MLIT) of Japan has completed a feasibility study on the introduction of automated traffic control system which also lays out a future system concept of an integrated central traffic control system in Davao City.

Managing the different projects and coordinating with different partners would be key to the successful implementation. This is particularly important as Davao City is currently formulating of the Davao City Comprehensive Transport and Traffic Masterplan, and the Arterial Urban Corridor of Metropolitan Davao.

Bangkok, Thailand

Through its Bang Sue Smart City project, Bangkok envisions a liveable and innovative city that connects Thailand and the world. On the mobility aspect, Krung Thep Aphiwat Central Terminal Station or Bang Sue Grand Station is expanding its service.

Currently, the Grand Station has been operating one metro line (Blue Line) and one commuter line (Red Line). In 2027, the high-speed train to the north eastern part of Thailand (first section) is expected to be completed. This high-speed train will be operated through the Grand Station and link with the high-speed train from the southern of China to Lao PDR and to Thailand. Moreover, the high-speed train linking three airports, i.e. Don Mueang- Suvarnabhumi - U-Tapao airports, is expected to be completed in 2028 and will be operated through the Grand Station as well.

As part of the smart station initiative, the State Railway of Thailand has developed an operation control centre to control and manage train operations.

Exhibit 22: Operation control centre developed at Krung Thep Aphiwat Central Terminal Station to control and manage train operations. © SRT

Chonburi, Thailand

Government of Thailand has partnered with AMATA Corporation PCL, the industrial city developer for Chonburi AMATA Smart City, in implementing the smart grid that focuses on power quality, price, and response time. Chonburi has also been upgrading the software and hardware of Automated Meter Reading system to get the load profile near real time (15-minute read). The development of Advanced Distribution Management System (ADMS) has started since July 2022. The test and commissioning for ADMS have been completed in the first quarter of 2024 for Chonburi AMATA Smart City.

Exhibit 23: Smart Data Utilisation for Smart Microgrid Development (top) and Floating Solar (bottom). © AMATA

Besides pursuing a systematic energy management and energy storage structure through the smart grid, Chonburi AMATA Smart City has also been promoting more renewable energy generation and uses in the industrial estate with solar rooftop and floating solar. Both the smart grid technologies and solar energy require supporting regulations and incentives from the government to advance.

Khon Kaen, Thailand

Aiming to improve the quality of life for residents and transportation in the city, Khon Kaen Smart Bus project involves participation of the private sector and local university.

The Khon Kaen Bus Transit Company operates the public transport system across the city, providing 24-hour service. It supports ticketing through a smart card system, enhancing user convenience. As a testbed for a city-wide smart bus, Khon Kaen University provides a welfare electric public transportation bus service. The university has extended service routes to areas outside the campus, including Non-Muang Village and the Kangsadan area, to facilitate students living off-campus.

Exhibit 24: *Khon Kaen Smart Bus*. © depa

Objective: To use digital technology to improve the quality of life for residents and transportation in the city.

Going forward, Khon Kaen Smart Bus seeks to integrate real-time monitoring to enhance accuracy and punctuality, implement an AI- and IoT-operated system to bolster safety measures, advance payment system to simplify fare transactions, and expand the network to connect with other transit modes.

Industry & Innovation

The focus area of Industry and Innovation pertains to encouraging industries and businesses to capitalise on new technologies, using innovation as a catalyst to build competitive advantages and transform processes. Industry and Innovation accounts for 11% of the overall ASCN projects. Bandar Seri Begawan, Phnom Penh, Banyuwangi, Jakarta, and Singapore are examples of ASCN Cities that have projects in this focus area.

Bandar Seri Begawan, Brunei Darussalam

The Digital Payment Hub (DPH) is scheduled to launch to the public in the fourth quarter of 2024. National QR specifications for payments have also been released to the industry to enable QR interoperability between participating banks and e-wallets. Following the successful completion of a pilot in 2024, National Digital Payments Network Sdn Bhd (ndpx) is in the process of completing all necessary operational and regulatory requirements in preparation for the public launch of the system.

Digital Payment Hub

Objective: To enable secure, instant, and cost-effective account-to-account fund transfers and payments available around the clock across local participating banks and e-wallets, alongside the roll-out of a national QR code for payments.

Phnom Penh, Cambodia

As articulated in the Phnom Penh Smart and Sustainable City Strategic Roadmap 2022-2035, the city aspires to become a city for all with highly connected community and strong collaboration between government, industry, and business. In this regard, the Phnom Penh Capital Administration has been spearheading research and development, through the Build4People project, to support a transformative shift in the current development path of Phnom Penh and improve the urban quality of life of the citizens.

Funded by the German Federal Ministry of Education and Research, the Build4People project has conducted Ecocity Transition Labs which sought to provide a multi-stakeholder dialogue platform to deliberate on current urban development issues in Phnom Penh.

Build4People

Objective: To achieve a transformative shift in the current development path of Phnom Penh and improve the urban quality of life of Phnom Penh citizens through research.

Exhibit 25: EcoCity Transition Lab 2024
© Build4People

Capacity building activities have also been conducted for Phnom Penh Capital Hall, university students, and the private sector on urban management. Results of the research will be disseminated through knowledge products such as a toolbox on sustainable neighbourhood that is currently being developed.

The Phnom Penh Capital Administration continues to explore and catalyse collaboration with international and local stakeholders to implement and advance the Build4People project.

Banyuwangi, Indonesia

Banyuwangi Regency Government with its flagship programme called *Jagoan Banyuwangi*, or Banyuwangi Champs, has been consistent in providing a holistic approach to support small and medium-sized enterprises (SMEs) in the areas of entrepreneurship

(*Jagoan Bisnis)*, digital (*Jagoan Digital)*, and agriculture (*Jagoan Tani*).

Through *Jagoan Bisnis*, young entrepreneurs have the opportunities to submit their business ideas on local products in fashion, creative industry, culinary, craft, and services, and get included in an incubator programme with experienced mentors and trainings on topics such as business planning, product development, digital marketing, financial management, and business operation. Networking events have also been organised for the programme participants to interact with potential investors, business professionals, and other entrepreneurs. Participants are also given access to business software, marketing tools, and co-working space.

Spearing Industrial Growth through Education
Objective: To collaborate with private entities to provide the youth with knowledge in e-commerce and online trading through the inclusion of customised IT modules in the skills curriculum.

Exhibit 26: Participants of *Jagoan Bisnis* working on their business ideas. © Banyuwangi

In 2024, *Jagoan Banyuwangi* has been focusing on, among others, accelerating the existing businesses of programme alumni, strengthening the business ecosystem (involving ministries, local universities, venture capitals, accelerators, media, international organisations), and developing a database and undertaking regular monitoring of the activities taken place.

Jakarta, Indonesia

Jakarta Provincial Government has continued to empower MSMEs through JakPreneur, a platform for innovation, facilitation, and collaboration for MSME development through creating entrepreneurial ecosystem, involving start-ups, educational institutions, and financing institutions. Since the launch of JakPreneur in February 2020 until June 2024, 380,267 MSMEs from various business sectors have registered with JakPreneur. More than 200 JakPreneur Bazaars promoting MSMEs from various industries have already been held from the beginning of 2023 to 2024.

JakPreneur
Objective: To encourage economic growth through supporting the MSMEs in Jakarta for long-term cooperation by providing training and mentoring to gain capital which could be accessed through digital platforms.

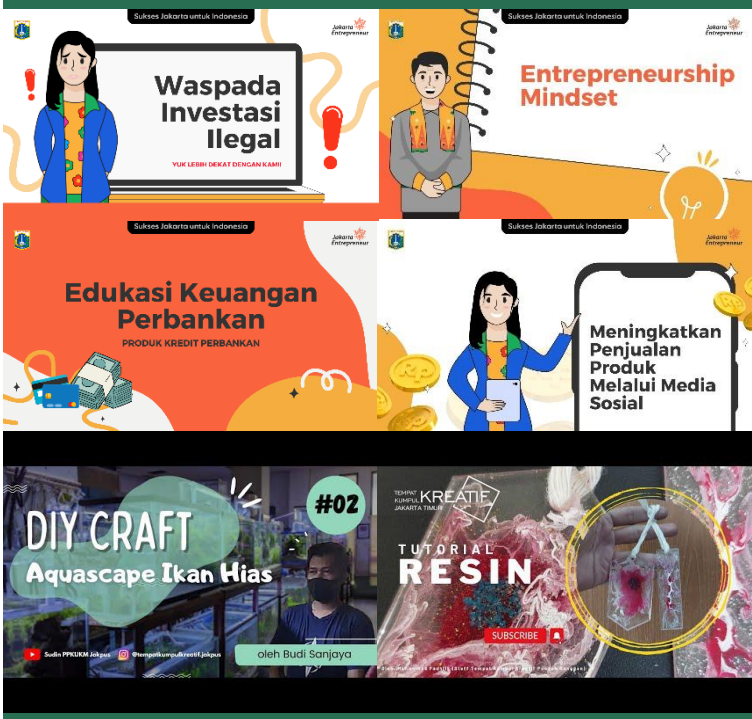


Exhibit 27: Manuals and video tutorials on various topics for MSMEs. © JakPreneur

JakPreneur offers various support to MSMEs covering trainings, licensing, marketing, financial reporting, as well as capital facilities. On-site trainings have continued to be conducted and training materials on various topics have been made available on JakPreneur. To advance the current implementation, the development of an e-marketplace ecosystem through JakPreneur is

necessary to facilitate digital payment, online transaction training, and product marketing. In this regard, continued collaboration between Jakarta Provincial Government, Financial Institutions, and start-ups will be key to ensure the sustainability of MSMEs' businesses and enable expansion of their market size beyond Jakarta towards increasing the economic growth.

Singapore

Singapore constantly explores how smart infrastructure and technologies can support the continued growth of the manufacturing sector that makes up over 20% of the country's GDP and employs close to half a million workers, as well as secure Singapore's digital economy.

Through developing the Punggol Digital District, Singapore aims to build a smart and sustainable business district that offers new operating and service delivery concepts. A Smart City Operating System (OS) is being developed to enable district level facility management to achieve maintenance and manpower cost savings, as well as achieve resource optimisation.

Phase 1 of the Punggol Digital District will be ready by September 2024 where the Smart City OS for district level facility management will start operations and begin data collections to validate its value proposition.

Punggol Digital District

Objective: To build a smart and sustainable business district that offers new operating and service delivery concepts.

Exhibit 28: Concurrent development of physical and digital infrastructure. © Smart Nation Group

3| Observations and Recommendations

The ASCN has continued to advance the implementation of their respective smart city projects, expand membership and deepen cooperation.

Under the Chairmanship of Lao PDR, the ASCN has held the 7th ASCN Annual Meeting on 30 July 2024 and brought together various ASEAN's partners and representatives from the academe and private sectors in the ASCN Conference on Smart Solutions for Solving Urban Issues held on 31 July 2024. The ASCN Conference discussed lessons, ideas, and innovative solutions on how to advance smart and sustainable urban development, taking into consideration the opportunities and challenges presented by the rapidly urbanising ASEAN.

The web-based ASEAN Smart City Financing Toolkit, which is expected to be launched by the end of 2024, intends to support local governments in ASEAN Member States in accessing a wide range of financing options available for smart city projects.

The Phase II of the project on "Accelerating the Implementation of the ASEAN Sustainable Urbanisation Strategy" has commenced and aims to deliver strengthened technical support and advice to ASEAN cities, further build capacity within cities to execute viable project proposals; and facilitate outputs that enhance knowledge management and production to support broader implementation of ASEAN Sustainable Urbanisation Strategy across the region.

The ASCN has built further momentum in engaging ASEAN Dialogue Partners and other external partners to facilitate cooperation on smart cities development and catalyse viable projects with the support of the private sector and other solution providers.

For example, under the ASEAN Smart City Professional Programme in partnership with the Seoul National University supported by the ASEAN-Republic of Korea Cooperation Fund, the ASCN observed a growing appetite and participation by national and local governments of ASEAN Member States in the Short-Term Training and Master's Degree Scholarships. This reflects the importance of developing quality programme on smart and sustainable urban development with relevant topics, such as data-driven smart city planning.

Nurturing existing partnerships and forging new partnerships in developing and delivering quality capacity building and technical cooperation programmes on smart and sustainable urban development will be critical. These could include supporting cities in formulating smart and sustainable urban development priorities and making the most efficient use of its resources and create sustainable investments; and enhance cooperation between the peoples, the public and the private sector, the partners and other relevant stakeholders at local and national level on smart and sustainable urban development activities.

Appendix

A. List of ASCN Smart City Projects that are Ongoing and under Planning across the Six Focus Areas

No.	Country	City	Project	Focus Area
1.	Brunei Darussalam	Bandar Seri Begawan	Revitalisation of Kampong Ayer (Water Village)	Civic & Social
2.		Bandar Seri Begawan	Digital Identity	Civic & Social
3.		Bandar Seri Begawan	Digital Payment Hub	Industry & Innovation
4.		Bandar Seri Begawan	Gov.bn	Civic & Social
5.		Bandar Seri Begawan	Bus Passenger Information System	Built Infrastructure
6.	Cambodia	Battambang	Urban Street and Public Space Management	Built Infrastructure
7.		Battambang	Solid and Liquid Waste Management	Quality Environment
8.		Phnom Penh	Phnom Penh Walk Way	Built Infrastructure
9.		Phnom Penh	Phnom Penh Public Bus Service	Built Infrastructure
10.		Phnom Penh	Phnom Penh Smart City Hub	Industry & Innovation
11.		Phnom Penh	Build4People	Industry & Innovation
12.		Siem Reap	Smart Tourism	Civic & Social
13.		Siem Reap	Smart Waste Management	Quality Environment
14.		Siem Reap	Smart Mobility	Built Infrastructure
15.		Siem Reap	Data Management	Civic & Social
16.		Sihanoukville City	Smart Security	Safety & Security
17.		Sihanoukville City	Smart Parking	Built Infrastructure
18.	Indonesia	Banyuwangi	Spearing Industrial Growth through Education	Industry & Innovation
19.		Banyuwangi	Creating Inclusive Economic Growth through Tourism-Based Development	Civic & Social
20.		Banyuwangi	Digital Public Service Mall	Civic & Social
21.		Banyuwangi	Caring for Stunting	Health & Well-Being
22.		Banyuwangi	Sustainable Waste Management	Quality Environment
23.		Jakarta	JakPreneur	Industry & Innovation
24.		Jakarta	JakLingko	Built Infrastructure

No.	Country	City	Project	Focus Area
25.		Jakarta	JAKI	Civic & Social
26.		Jakarta	Jakarta Smart City Goes to School	Civic & Social
27.		Makassar	Smart Health Care	Health & Well-Being
28.		Makassar	Smart E-Tax Services	Civic & Social
29.		Makassar	Tourism Alleys	Civic & Social
30.		Makassar	Makassar Virtual Economic Centre	Industry & Innovation
31.		Makassar	Makassar Incubator Centre	Industry & Innovation
32.		Sumedang	Jatinangor City of Knowledge	Industry & Innovation
33.	Lao PDR	Luang Prabang	Restoration of Wetlands for Green Spaces	Quality Environment
34.		Luang Prabang	Construction of Concrete Roads for Communities	Built Infrastructure
35.		Luang Prabang	Clean and Safe Environment	Quality Environment
36.		Vientiane	Smart Environment Development	Quality Environment
37.		Vientiane	Vientiane Sustainable Urban Transport	Built Infrastructure
38.	Malaysia	Johor Bahru	Iskandar Malaysia Analytics Centre	Civic & Social
39.		Johor Bahru	Management of Water Resources and Distribution	Quality Environment
40.		Johor Bahru	Integrated Smart Mobility Programs	Built Infrastructure
41.		Kota Kinabalu	Integrated Public Transport System	Built Infrastructure
42.		Kota Kinabalu	Integrated Solid Waste Management	Quality Environment
43.		Kota Kinabalu	Smart New Township and Smart Water Management	Quality Environment
44.		Kuala Lumpur	Kuala Lumpur Urban Observatory	Civic & Social
45.		Kuala Lumpur	OSC 3.0 Plus Online	Civic & Social
46.		Kuala Lumpur	GoKL Journey Planner	Built Infrastructure
47.		Kuala Lumpur	Smart Bin	Quality Environment
48.		Kuala Lumpur	Bicycle Friendly City	Quality Environment
49.		Kuching	Integrated Smart Traffic Light System	Built Infrastructure
50.		Kuching	Integrated Flood Management and Response System	Quality Environment
51.		Kuching	Introduction of Blockchain Technology	Civic & Social
52.	Myanmar	Mandalay	Traffic Congestion Management	Built Infrastructure
53.		Mandalay	Solid Waste and Wastewater Treatment	Quality Environment

No.	Country	City	Project	Focus Area
54.		Mandalay	On-Grid Solar System at the Water Pumping Stations	Quality Environment
55.		Mandalay	Cadastral Map and GIS Database	Civic & Social
56.		Mandalay	Public Parks	Quality Environment
57.		Nay Pyi Taw	Affordable and Low-Cost Housing	Health & Well-Being
58.		Nay Pyi Taw	Comprehensive University	Health & Well-Being
59.		Nay Pyi Taw	Smart Street Lighting	Safety & Security
60.		Nay Pyi Taw	Safe City	Safety & Security
61.		Nay Pyi Taw	Electric Vehicle System Development	Built Infrastructure
62.		Yangon	Conservation of Downtown Yangon	Civic & Social
63.		Yangon	Transit Oriented Development in Hlaing Thar Yar Township	Built Infrastructure
64.		Yangon	One Map Yangon	Civic & Social
65.	Philippines	Cebu City	Cebu City Bus Rapid Transit	Built Infrastructure
66.		Cebu City	Automated Citywide Traffic Control System	Safety & Security
67.		Davao City	Converged Command and Control Center	Safety & Security
68.		Davao City	Intelligent Transportation and Traffic Systems with Security	Built Infrastructure
69.		Manila	Command Center Upgrade	Safety & Security
70.		Manila	E-Government Services	Civic & Social
71.	Singapore	Singapore	Punggol Digital District - Smart Facility Management	Industry & Innovation
72.		Singapore	Woodlands North Coast - Autonomous Delivery Robot	Industry & Innovation
73.	Thailand	Bangkok	Bang Sue Smart City	Quality Environment
74.		Bangkok	Bang Sue Grand Station	Built Infrastructure
75.		Chiang Mai	Forest Fire Prevention and Resolution Command Centre	Safety & Security
76.		Chiang Mai	Mae Kha Canal Development	Quality Environment
77.		Chiang Mai	Chiang Mai University Smart Campus	Health & Well-Being
78.		Chiang Mai	Mea-Hia Smart City	Civic & Social
79.		Chonburi	Smart Data Utilisation for Smart Microgrid Development	Built Infrastructure
80.		Chonburi	Solar Energy (Solar Rooftop and Floating Solar)	Built Infrastructure
81.		Chonburi	Hydrogen Energy (Hydrogen Forklift)	Built Infrastructure
82.		Khon Kaen	Kaen Nakhon Tram	Built Infrastructure

No.	Country	City	Project	Focus Area
83.		Khon Kaen	Khon Kaen Smart Bus	Built Infrastructure
84.		Khon Kaen	Knowledge Governance Token	Industry & Innovation
85.		Phuket	Artificial Intelligence-Led Image Traffic Visualisation and Analysis	Built Infrastructure
86.		Phuket	Mobility-as-a-Service	Built Infrastructure
87.		Phuket	Smart Pier	Safety & Security
88.		Phuket	City Data Platform	Civic & Social
89.		Phuket	Healthcare Platform	Health & Well-Being
90.		Rayong	Wangchan Valley Smart City	Industry & Innovation
91.		Rayong	Emergency Incident Command Centre	Quality Environment
92.	Viet Nam	Da Nang	Intelligent Operation Centre	Safety & Security
93.		Da Nang	Smart Water Management System	Quality Environment
94.		Ha Noi	Intelligent Operation Centre	Safety & Security
95.		Ha Noi	Transport Operation and Surveillance Centre	Built Infrastructure
96.		Ho Chi Minh City	Integrated Operation Centre	Civic & Social
97.		Ho Chi Minh City	Integrated and Unified Emergency Response Centre	Safety & Security

B. List of Completed ASCN Smart City Projects across the Six Focus Areas

No.	Country	City	Project	Focus Area
1.	Brunei Darussalam	Bandar Seri Begawan	National Information Hub	Civic & Social
2.		Bandar Seri Begawan	Clean River Management	Quality Environment
3.	Cambodia	Phnom Penh	Smart City Strategic Planning	Civic & Social
4.		Siem Reap	Formulation of Smart City Roadmap	Civic & Social
5.		Siem Reap	38-Road Construction	Built Infrastructure
6.	Lao PDR	Luang Prabang	Smart City Planning and Development	Civic & Social
7.		Luang Prabang	Smart and Integrated Urban Strategy	Civic & Social
8.	Malaysia	Johor Bahru	Iskandar Malaysia Integrated Urban Services Program	Safety & Security
9.	Singapore	Singapore	E-Payments	Industry & Innovation
10.		Singapore	National Digital Identity	Civic & Social
11.		Singapore	Smart Nation 1.0 Initiatives	Industry & Innovation