DIGITAL SOLUTIONS

ASEAN AUSTRALIA SMART CITIES TRUST FUND
Asian Development Bank

BIG DATA FOR COVID-19 TRACKING

TRACKING THE SPREAD OF COVID-19 THROUGH DIGITAL SOLUTIONS

OPPORTUNITY

The COVID-19 crisis presents a pressing opportunity to rethink public health, infrastructure provision, and social protection systems. With an eye toward the future, we must find ways to make our cities more resilient without compromising the interdependence that holds our society — including the urban poor — together.

The first phase of the COVID-19 pandemic has brought a lot of uncertainty on how the coronavirus is spreading. As a response, many countries were forced to impose various containment measures such as stay-at-home orders and border closures in an attempt to control the spread of the virus. Given our still-evolving understanding of the nature of the disease, the challenge is to track and contain the virus to avoid extended or repeated lockdown measures. Governments must be able to observe and predict when, where, and how diseases are spreading to be able to set up efficient safety measures towards disease outbreaks. By using digital tools and technologies, governments have efficiently applied big data analytics and artificial intelligence (AI) to analyze spread patterns in the urban landscape. New data sources serve as timely indicators, and citizens' input has proven to be an efficient new way of collecting data through apps and websites.

Technology companies such as Amazon and Google have developed shared data platforms and dashboards to assist governments and citizens in COVID-19 surveillance. Many governments have used digital platforms for data-driven surveillance operations to identify disease hotspots and strengthen decision-making on pandemic strategies for city- and public health stakeholders.

BENEFITS

- Supports rapid response for city and public health actors.
- Strengthens insights on the efficacy of applied safety measures and advice to the public.
- Enhances short-term policymaking on responses, e.g. social distancing to minimise transmission of COVID-19.
- Enhances long-term policymaking efforts for the post-COVID-19 era and interrelated economic recovery phase.

PRECONDITIONS

- Data sources are required, and data collected must be relevant to make valuable correlations for decision-making.
- Data sources must be reliable and must comply with rules of privacy, ethics and data protection.
- A shared data platform must be set up, both to undertake analytics and to visualize results.

KEY TAKEAWAYS ON BIG DATA

From the ASEAN Australia Smart Cities Webinar Series Part 1: Tracking the Spread of COVID-19 through Digital Solutions:

- Big data can be used to support the analysis of highly interconnected and complex policy problems.
- COVID-19 underlines the need for multisectoral urban planning through methods such as digital cross-analysis tools that integrate big data to enable swift, fact-driven and holistic decision-making among local government stakeholders.
- The use of big data during the COVID-19 pandemic shows excellent use cases on how smart digital technologies can support local governments in flattening the curve and achieving longer-term and more far-reaching urban resilience.

USE CASES

MAKASSAR, INDONESIA

Mapping the spread of COVID-19 using spatial planning software

AGENCIES INVOLVED

- City of Makassar
- Future Cities Laboratory (FCL) Singapore
- Asian Development Bank (ADB)

COVID-19 related data in Makassar is analyzed and visualized to support policy-making, planning, and design of a post-COVID-19 city development. Data analyzed include: population density, clean water provision, distribution of public facilities, slum locations, street network configuration, and location of transport hubs. The data suggests a socio-economic divide in COVID-19 transmission patterns, with hotspots concentrating in areas containing higher population densities and lower-income groups, as well as areas with less access to water.

AUSTRALIA

AI-powered tool gives early prediction of disease outbreak

AGENCIES INVOLVED

- University of New South Wales
- Commonwealth Scientific and Industrial Research Organisation (CSIRO)

In collaboration with the University of New South Wales, CSIRO's Data61 team developed a new artificial intelligence (AI) powered tool to predict serious diseases. The digital tool combines natural language processing, data science, and statistical time series modeling to identify specific syndrome keywords and their context as mentioned in Twitter posts, facilitating the early detection of outbreaks despite expected daily, weekly and seasonal influences. The keywords 'fever', 'cough,' 'headache,' and 'head cold' are used to determine the spread of COVID-19 across Australia, with the tool already generating results.

About the ASEAN Australia Smart Cities Trust Fund

The ASEAN Australia Smart Cities Trust Fund (AASCTF) assists ASEAN cities in enhancing their planning systems, service delivery, and financial management by developing and testing appropriate digital solutions and systems. Digital solutions address vital cross-cutting themes such as social inclusiveness, gender equity & women's empowerment, climate change & environmental sustainability, and public-private partnerships. By working with cities, AASCTF facilitates their transformation to become more livable, resilient, and inclusive, while in the process identifying scalable best practices to be replicated across cities in Asia and the Pacific.

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