Key Findings
US-Singapore Tech & Innovation Virtual Dialogue
Session #4: Advancing Sustainable and Equitable Digital Solutions
February 24, 2022 (US) | February 25, 2022 (Asia)

On February 24, 2022, with the support from the US Embassy Singapore, the Pacific Forum hosted the fourth session of the US-Singapore Tech & Innovation Virtual Dialogue, "Advancing Sustainable and Equitable Solutions," with over 30 participants (excluding speakers or staff) from the government, private sector, academia, and other non-governmental organizations.

Courtney Weatherby, Research Analyst and Deputy Director of Energy, Water and Sustainability, Southeast Asia at the Stimson Center, and **Dr. Natalie Pang**, Senior Lecturer at the Communications and New Media Department, National University of Singapore, examined various digital innovations and solutions that the US and Singapore can leverage to address pressing issues such as climate change, renewable energy, and smart cities.

The Key Findings from this webinar are below.

Renewable energy in Southeast Asia

Energy demand in Southeast Asia will rise to 60% by 2040. Countries like Cambodia will experience a 20% demand in electricity consumption, requiring increased power generation capacity. Simultaneously, ASEAN faces growing concerns about climate change and pressure to lower its carbon emissions. Unfortunately, Southeast Asia is still highly dependent on fossil fuels. Natural gas is easing the transition to renewable energy. But overall investments required to switch from large-scale hydropower and coal to renewable energies such as solar and wind in the short- to medium-term are still lagging.

Digital technologies can facilitate the integration of renewable energy into the national electric grids. Smart meters allow enhanced data collection and analysis. Some private companies in Southeast Asia utilize advanced algorithms to examine historical data to aid energy forecasting in coordination with utility companies and power plants. Data analytics can predict, for example, the likelihood of weather disruptions on solar and wind energy. Insights drawn from such digital tools can help draft policies and plans to improve infrastructure investment and capacity building.

In ASEAN, Singapore is leading the deployment of renewable energy, characterized by its investments in operational capacity and digital infrastructure. Using digital tools, Singapore is automating and optimizing its energy consumption to improve electricity demand management. It collects detailed data on energy consumption for both households and the commercial sector.

In addition to data analytics, blockchain technology can support peer-to-peer trading systems

for renewable energy certification. As the region attempts to move away from natural gas, Singapore can use blockchain technology to facilitate intra-ASEAN energy trading schemes with Mekong countries such as Cambodia or Laos. Doing so would build their infrastructure and capacity toward renewable energy certification systems.

On this front, Singapore and the United States can collaborate to share lessons learned from integrating digital technologies to manage electricity demand, modernize utility operations, and facilitate renewable energy trading and certification systems in pursuit of the UN Climate Change Conference in Glasgow (COP26) carbon emission targets.

Emerging smart cities

Through the ASEAN Smart Cities Network, ASEAN member states are working toward a common goal of building smart and sustainable urban development. Although developments underpinning smart cities in Southeast Asia are promising, various challenges still exist to realizing their full potential. The COVID-19 pandemic has raised awareness of the lack of digital access and inclusion at the community level. Digital gaps were exposed, reflecting deeply seated socio-economic divides.

As Southeast Asia moves toward rapid urbanization through smart cities, the region should prioritize digital equity and digital citizenship in formulating digital innovation policies. Platforms such as community dialogues can facilitate deliberations on legal frameworks concerning data privacy and security -- specifically, data use, collection, and exchange. Amid growing concerns about surveillance, users must have the option to opt out or withdraw to protect their rights. Smart cities across the region have begun to incorporate digital equity. However, raising awareness about data collection, management, and usage remains a key challenge, especially among indigenous and vulnerable communities.

Across the region, governments have essential functions in the digital era, from being an arbitrator that holds private tech companies to account or as a coordinator or facilitator of innovation at the national level. Ideally, a network of local communities empowered by civil society will complement the government's top-down and high-level approaches to smart cities. Such a dynamic can help bridge the gap between rural and urban areas and scale down urban technologies and projects.

Building a sustainable and equitable future

As the region moves toward digitalization, the US and Singapore must be conscious of the growing digital divide marked by a lack of equitable access to digital infrastructure for both renewable energy and smart cities.

The US and Singapore can incorporate digital solutions and renewable energy as vital components in third-country technical training programs in Southeast Asia to facilitate the sharing of technical expertise with case studies and lessons learned. Our governments must emphasize the value of sustainability in digital innovation at the national and community levels. They should adopt community-based dialogues, programs, and initiatives involving civil

society, academia, and think tanks to engage citizens on topics such as sustainable energy consumption and smart cities for the benefit of the next generation.

Throughout these engagements, feedback will be essential for American and Singaporean policymakers. With proper data privacy and security standards, they can leverage digital tools to obtain and analyze open-source data available at the local, municipal, and national levels. Alongside the US, Singapore is the prime partner in the region to lead efforts in capacity-building, especially with the growing interest in renewable energy.

This document was prepared by Mark Manantan. For more information, please contact Dr. Crystal Pryor (crystal@pacforum.org), Vice President of Pacific Forum. These preliminary findings provide a general summary of the discussion. This is not a consensus document. The views expressed are those of the speakers and do not necessarily reflect the views of all participants. The speakers have approved this summation of their presentation.