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# Integrated Urban Services

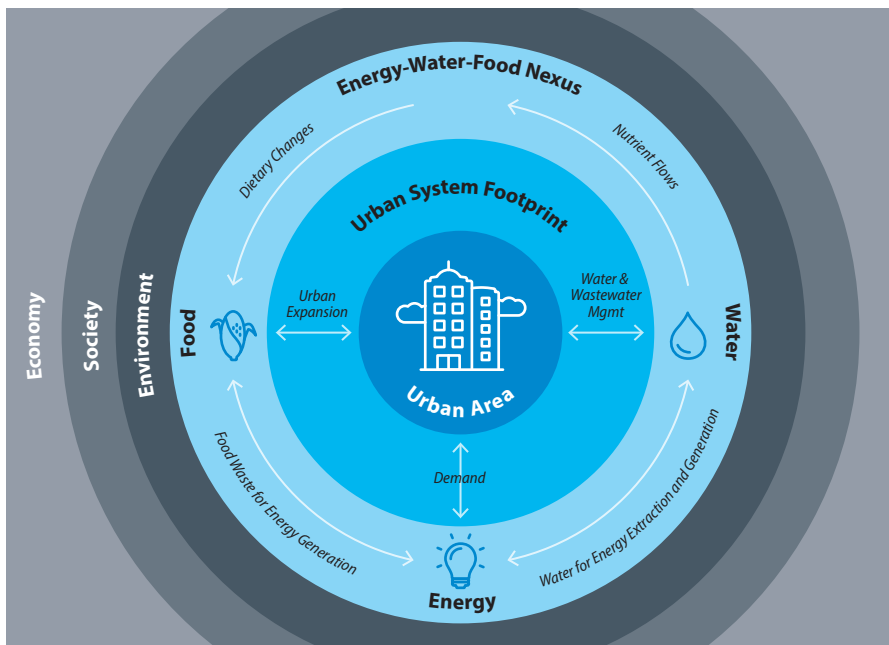
**Integrated Urban Services (IUS) is a program under the United States–Association of Southeast Asian Nations (US-ASEAN) Smart Cities Partnership helping ASEAN cities build resilience in their energy, water, and food provisioning systems. The program was launched by the U.S. State Department in 2021 and is jointly implemented by the U.S. Department of Energy’s National Renewable Energy Laboratory (NREL), with an aim to promote systems integration and circular economy principles for resource recovery and reuse.**

ASEAN cities are hot spots for rapid urbanization over the next 30 years. The goal of IUS is to help local city leaders, the private sector, financial institutions, and other stakeholders identify, design, and implement integrated, climate-smart models for urban service provision that sustainably secure and increase access to energy, water, and food services in a resource-efficient, environmentally friendly manner.

The IUS program will provide technical assistance to two ASEAN cities. IUS technical assistance will aid cities in developing implementation-ready business plans for integrated energy, water, and food system pilot projects. The program will also share knowledge and lessons learned with the ASEAN Smart Cities Network (ASCN) and other interested cities and regional stakeholders on the social, economic, and ecological values of systems integration.

### Learn More

- Visit the IUS web page at <https://www.nrel.gov/international/integrated-urban-services.html>
- Email **Jeff Gingrich** at [jeff.gingrich@nrel.gov](mailto:jeff.gingrich@nrel.gov) to join the IUS Community of Practice.



### Rapid Urbanization

ASEAN urban population is projected to increase by 205 million between 2015 and 2050.<sup>1</sup>

### Global Resource Demands

for energy, water, and food will rise by 50%, 40%, and 35%, respectively, between 2012 and 2030.<sup>2</sup>

### Challenges & Opportunities

Avoid pitfalls of siloed governance and implement innovative, holistic, and equitable solutions.

<sup>1</sup>UN Environment (2018). Sustainable Urban Infrastructure Transitions in the ASEAN Region: a Resource Perspective. United Nations Environment Programme, Nairobi.

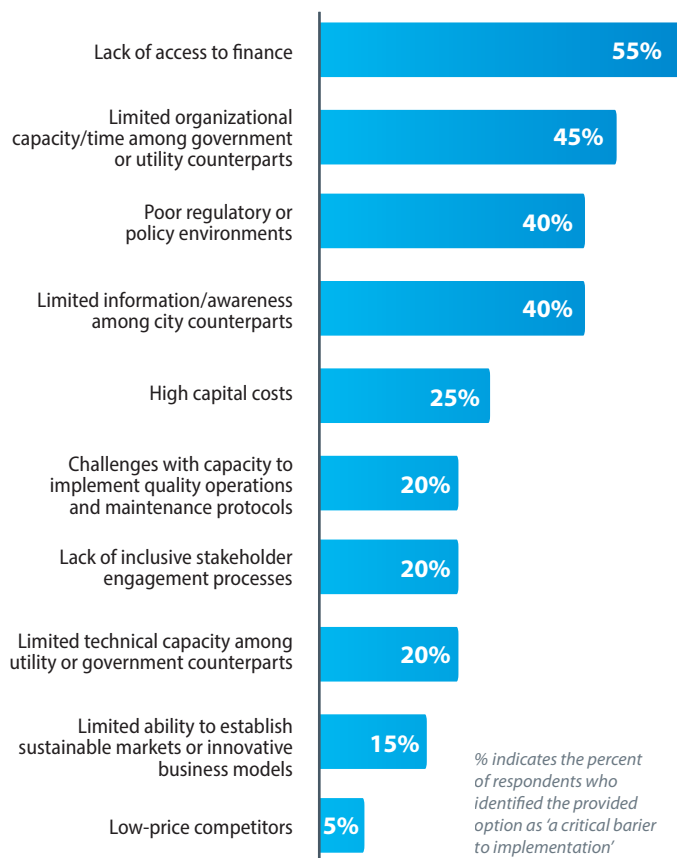
<sup>2</sup>National Intelligence Council (U.S.), ed. 2012. Global Trends 2030: Alternative Worlds: A Publication of the National Intelligence Council. December 2012: National Intelligence Council.



# Key Drivers and Challenges for Integrated Approaches

In August 2021, more than 50 experts from the United States and across the globe participated in an IUS regional launch event to discuss energy, water, and food system challenges facing ASEAN cities as well as barriers and opportunities to implement integrated urban service projects, including fast rates of urbanization, environmental change, resource stresses on cities, and access to adequate basic services.

A survey of the private sector, research and development companies, and other stakeholders, conducted by the IUS program, ranked the following critical barriers for implementation of integrated solutions to address energy, water, and food system challenges:



The challenge of providing energy, water, and food services in cities requires crosscutting solutions that reduce pollution, increase efficiency, and build resilience. The IUS project will create business plans for the pilot cities to develop innovative, data-driven solutions that help advance planning and operations of precision urban agriculture, circular waste management, water and energy recovery facilities, among others.

## How can these challenges be addressed in an integrated way?

- Service integration:** It is critical to design and deliver urban services in ways that address a changing climate. Integrated solutions capitalize on the interdependencies among multiple sectors to increase efficiency, mitigate greenhouse gas emissions, decrease waste, and strengthen urban resilience; for example, producing energy from wastewater and/or food waste.
- Equity:** To design urban services for all, there must be an underlying focus on affordability and access, with special emphasis on vulnerable communities (i.e., by age, gender, minority, ability, income, environmental exposure) and diverse stakeholder engagement.
- Cross-sectoral, cross-scale partnerships:** It is essential to mobilize the government, private sector, international organizations, and other stakeholders to optimize resources and knowledge to implement integrated urban services that will accelerate equitable, inclusive, sustainable growth of cities.
- Re-imagining:** To change behaviors, urban service providers must rethink how to harness new technologies, design innovative business models, and develop supportive regulations that provide consumer inducements or incentives.
- Co-innovation and finance:** Alternative funding models, such as public-private partnerships (PPPs) and funds from international development banks and organizations, can be leveraged to design and implement high-impact projects by bringing together cities, academia, and private sector partners to foster innovation.
- Holistic approaches:** Integrated system projects will need to consider the transboundary nature of urban systems, as urban energy, water, and food resource demands have environmental, social, political, and economic impacts far beyond city limits. Transboundary project partners are essential to creating comprehensive and sustainable solutions for cities and regions.



NREL is a national laboratory of the U.S. Department of Energy  
Office of Energy Efficiency and Renewable Energy  
Operated by the Alliance for Sustainable Energy, LLC

NREL/FS-7A40-81424 • February 2022

This work was authored in part by the National Renewable Energy Laboratory, operated by Alliance for Sustainable Energy, LLC, for the U.S. Department of Energy (DOE) under Contract No. DE-AC36-08GO28308. Support for the work was also provided by Department of State under Agreement 19318820Y0008. The views expressed in this publication do not necessarily represent the views of the DOE or the U.S. Government.

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