Innovations and technology applications for disaster risk reduction and climate resilient infrastructure in cities

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ICLEI SEAS

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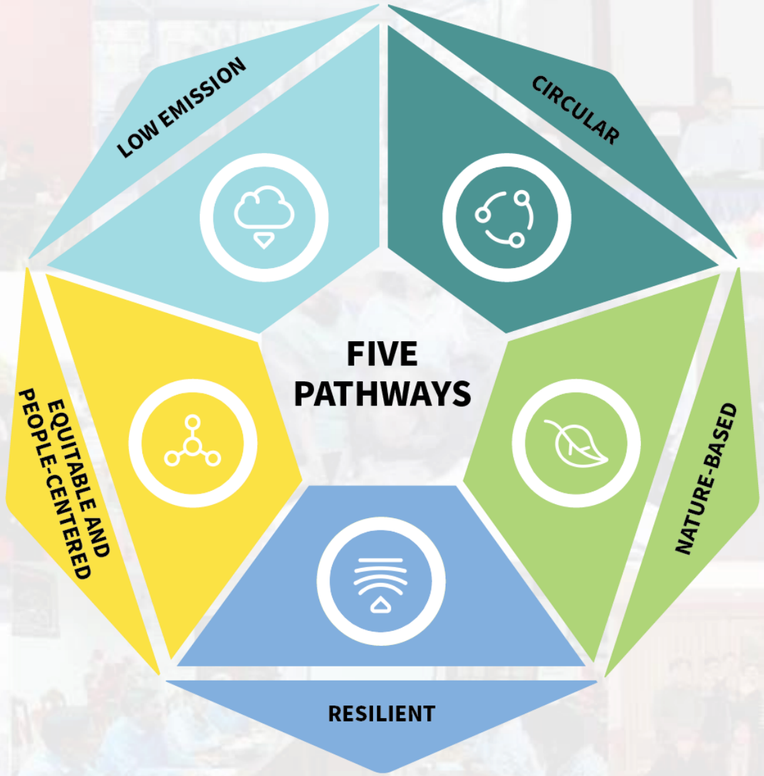
Local Governments for Sustainability
SOUTHEAST ASIA

Over **20 Years*** of Experience in **Sustainable Urban Development**

Philippines • Indonesia • Malaysia • Laos • Vietnam • Cambodia • Thailand

62	**90+**	**77-million+**	**50+**	**50+**
members in SEA	SEA LGs engaged	citizens benefited	major projects	partners

- Connect LGs to resources
- Develop knowledge products
- Organize learning activities
- Consult on sustainability issues
- Facilitate vertical integration
- Conduct research and study projects
- Link LGs with global platforms
- Mentor LGs in climate action
- Build institutional capacities
- Program and project design/management

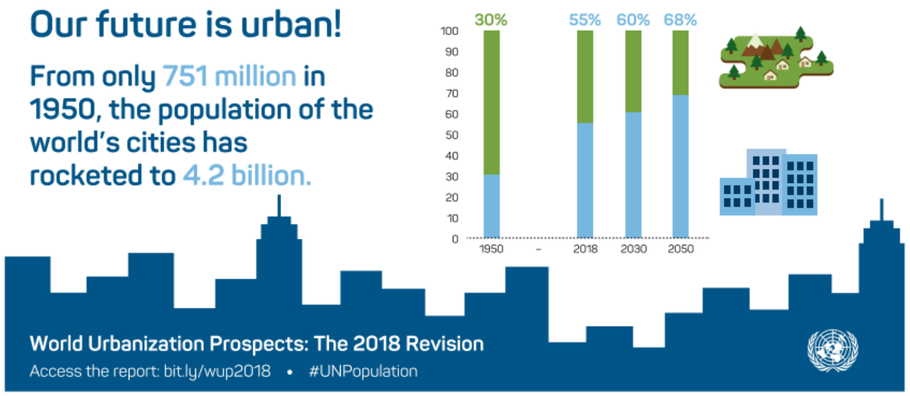


*5 as a Project Office and 17 as a Secretariat; as of 2021

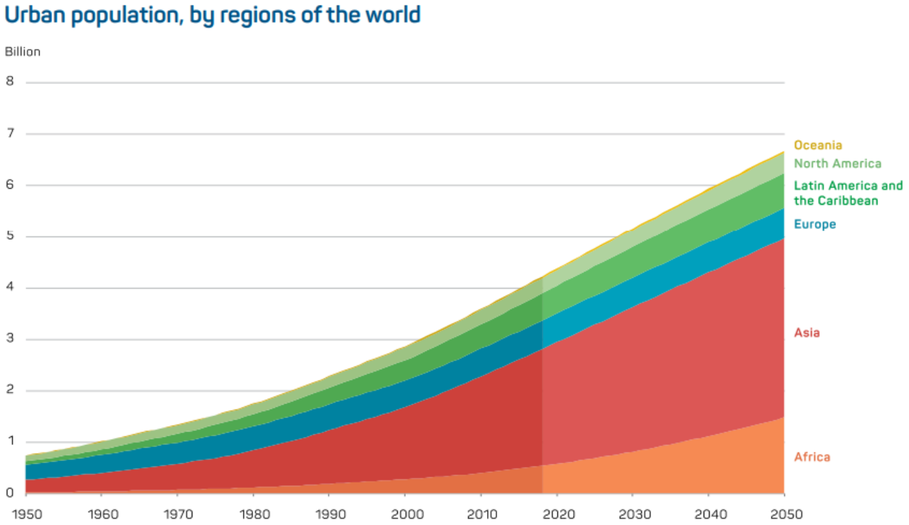
OUTLINE

I. Asian cities vulnerability and role in building overall climate resilience
II. Integrated Resource Management: The Urban Nexus Project
    A. Project Overview
    B. A Case Study of an Innovative Project and Practice
III. Lessons Learned
IV. Recommendation

I. Asian cities vulnerability and role in building overall climate resilience



Source: United Nations, 2018c.



Source: ESCAP.

ment actions to address these

Integrated Resource Management in Asian Cities: the Urban NEXUS

(Water / Energy / Food Security / Land Use)

TIMEFRAME:
2013-2019

Financed by:
BMZ
(German Federal Ministry for Economic Cooperation & Development)

Implemented by:
GIZ
German International Cooperation

Political Partner:
UN ESCAP
United Nations Economic & Social Commission Asia Pacific

Implementation Partner:
Local Governments for Sustainability
(ICLEI South Asia & South East Asia)

II. Integrated Resource Management: The Urban Nexus Project

GOAL

Enhance the capacity of local and national governments to formulate and implement integrated policies, plans and initiatives to sustainably manage natural resources in urban areas.

OBJECTIVES

Ensure that Nexus concepts are increasingly taken into account in selected Asian cities and by relevant stakeholders.

II. Integrated Resource Management: The Urban Nexus Project

Innovative engineering technologies through the 28 practically oriented cross sectoral infrastructure projects identified in the Nexus partner cities amounting to an estimated investment volume of EUR 300 million.

- ✓ waste to energy & water, recovery of valuables,
- ✓ waste water to energy, nutrients and reuse of water,
- ✓ replacement of outworn water pumps through energy efficient pumps for water supply
- ✓ reduction of water losses through leakage detection and
- ✓ energy efficiency of buildings through thermo-technical retrofitting and renewable energy application.

Santa Rosa, Philippines

Waste water to Energy, Water-recycling, Low cost housing (LCH)

Cooperation with:
GIZ / Promotion of Green Economic Development (Pro GED),
Bilfinger Water Technology/Aqseptence, Laguna Water /
AYALA,
Clustering, strengthening of inter communal cooperation

Energy Efficient Healthcare System in Chiang Mai, Thailand

Cooperation with:
ONEP, MONRE

Korat (Nakhon Ratchasima), Thailand

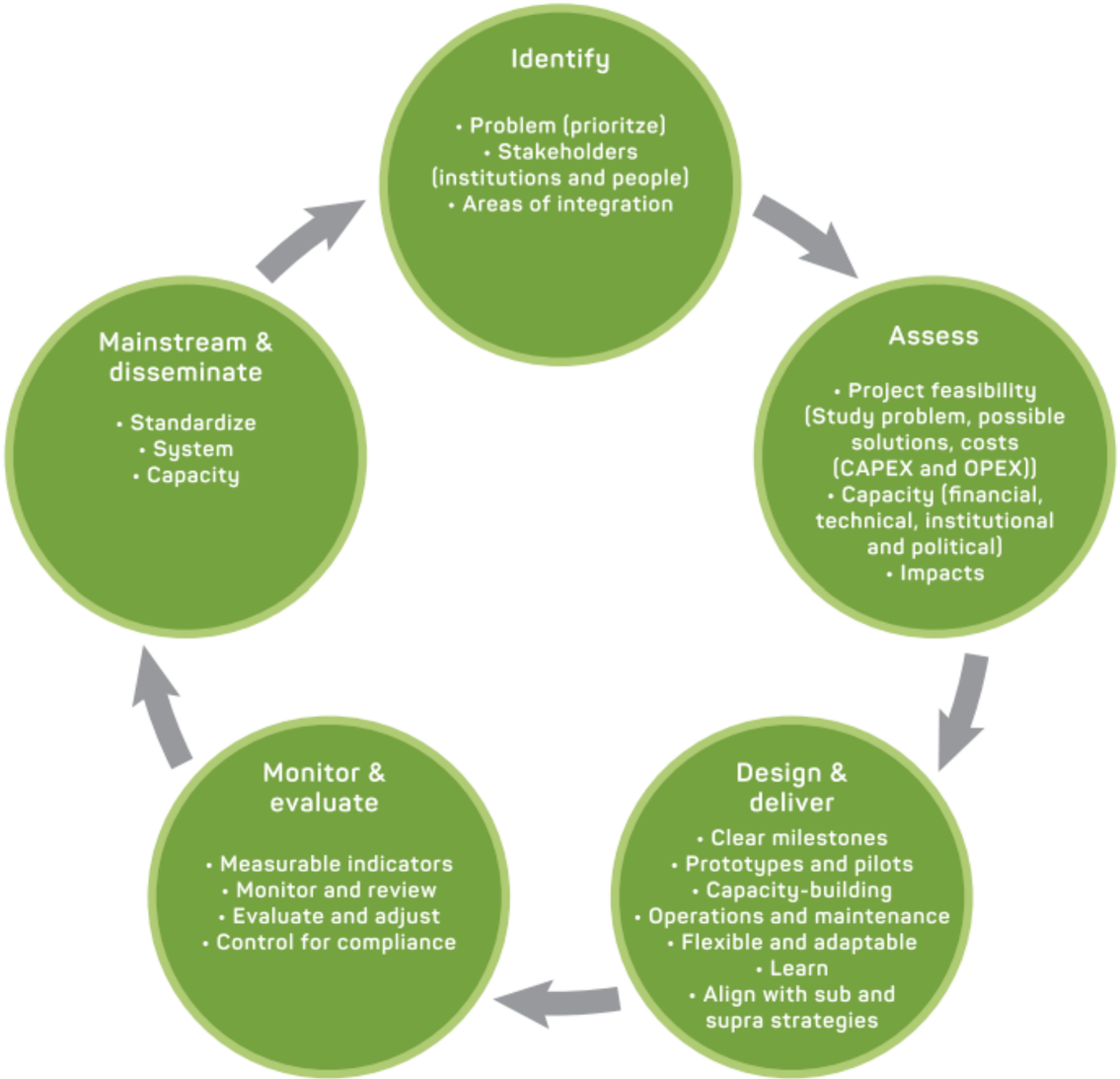
Energy efficiency of pumps, water leakages detection (tap water),
Organic waste management (Bio-gas production)

Cooperation with:
GIZ / KSB, Fraunhofer IGB, Fraunhofer IAO, Wehrle Umwelt GmbH

II. Integrated Resource Management: The Urban Nexus Project

Urban Nexus wheel

Urban Nexus project cycle



III. LESSONS LEARNED

- Water, energy and food/land are interconnected in a non-linear manner
- Horizontal and vertical administrative fragmentation emerged as a major risk to implement technological innovation within the framework of urban nexus.
- Customized institutional arrangements, based on unique local and subnational governance contexts, available capacities and the needs identifed through projects helped to advance the Nexus approach
- Further capacity-building among government agencies, especially at the national level, should continue to be carried out in order to increase understanding of Urban Nexus as a concept and approach, not only technology.

III. LESSONS LEARNED

Governance

- Recognize the importance of supportive framework conditions at all levels of governance
- Improve and systemize inter- and intra-institutional cooperation

Inclusive decision-making

- Empower cities and enhance citizen engagement
- Bring the social dimension into the fold

Science technology and innovation

- Align the identification and selection of innovative technological solutions to urban development concerns, such as solid waste and wastewater management, with relevant national government regulations and policies and global development agendas
- Work with other sectors (e.g., universities) to build urban nexus thinking and behaviours

Finance and Business

- Link cities to financial institutions and support introduction of innovative financial instruments

Urban Planning

- Consider introducing Nexus screening of investment projects to ensure that they have been planned in a cross-sectoral manner

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