

The Lessons and Experience of Urban Nexus to Integrate Resources For Asian Cities

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Urbanization & Alarming Growth Trends



4 BILLION
GLOBALLY LIVE
IN URBAN
AREAS

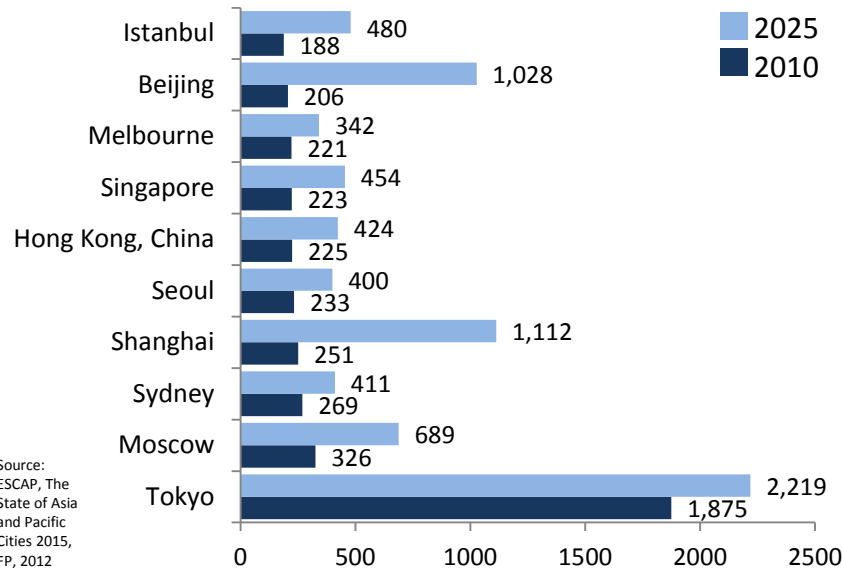
IN 2007
MAJORITY
LIVED IN
URBAN AREAS

80%
GLOBAL GDP
PRODUCED IN
CITIES

60% OF
POPULATION
LIVE IN URBAN
AREAS BY 2030

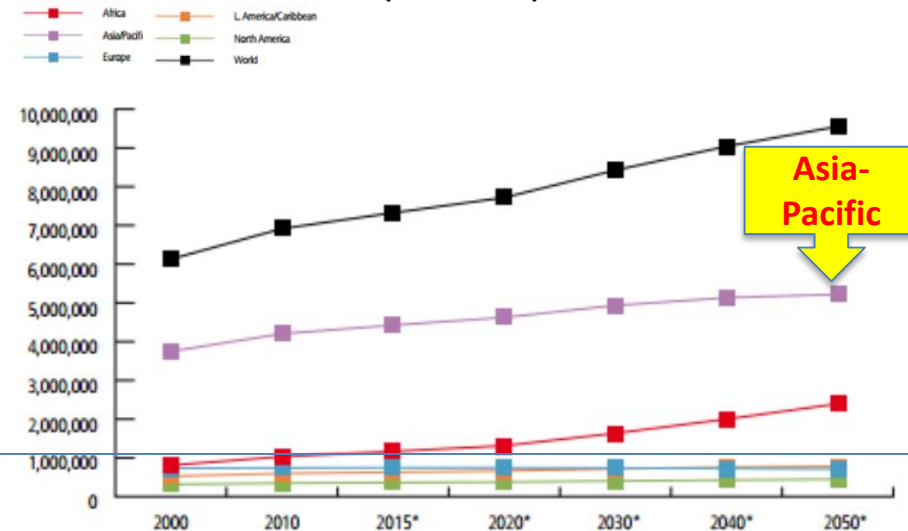


Estimated GDP for the Largest Urban Economies in the Region (USD billions)



Source:
ESCAP, The
State of Asia
and Pacific
Cities 2015,
FP, 2012

Absolute total population numbers, by region, 2000-2050 (thousands)



Source: ESCAP, The State of Asia and Pacific Cities 2015

Why focus on water-energy-food scarcity (WEF)/nexus?

WEF scarcity affecting human security

Supply securities of WEF

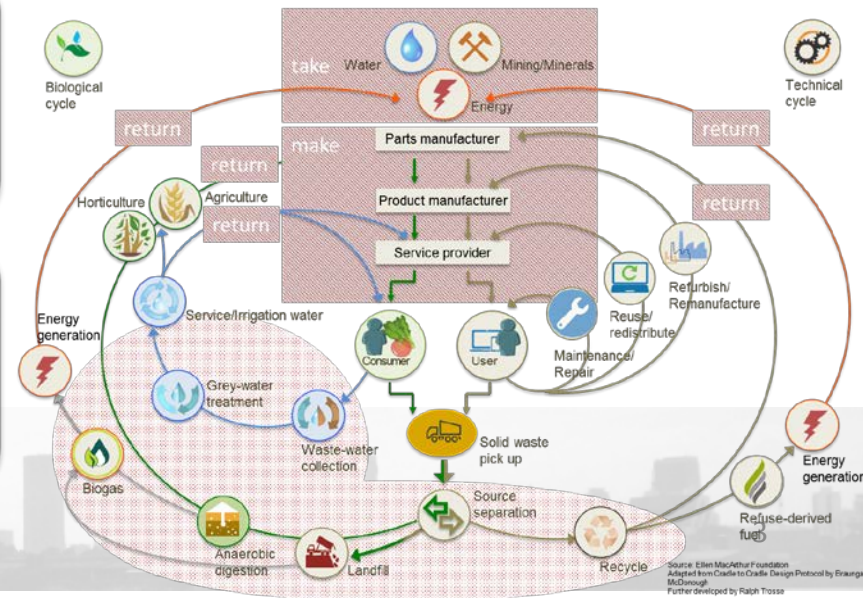
Cities drivers of demand for WEF

Bridge resource gaps:

“By 2030, we will need at least
50% MORE FOOD,
45% MORE ENERGY,
30% MORE WATER.”

UN SECRETARY-GENERAL'S
STATEMENT AT THE UN GENERAL
ASSEMBLY

To Circular Economy with Energy & Mass Flow Cycles



Synergies and trade-offs between SDG2, SDG6, SDG7 & SDG12



SDG 6 & 7

Energy ↔ Wastewater

Energy for Wastewater:

- Transportation (pumping stations)
- Sewage treatment plant

Wastewater for Energy:

- Black water (separately collected from rainwater e.g. via vacuum sewer system) can be used for electricity production in anaerobic digesters
- Sludge for fertilizer production

Energy ↔ Solid Waste

Energy for Solid Waste:

- Transportation ('waste miles')
- Waste treatment facilities

Solid Waste for Energy:

- Energy generation from landfills (landfill gas to energy)

Energy ↔ Urban Development

Energy for Urban Development

- Horizontal low density development
- Urban sprawl
- Preponderance of car usage
- Loss of biodiversity
- Loss of agricultural land

Urban Development for Energy (Reduction of energy consumption - long-term view)

- Compact city form
- High density city (high rises)
- Public transit
- Bus rapid transit
- Subway systems
- Energy efficient buildings
- Retrofitting existing building stock

SDG 2 & 7

Challenges of Implementing Nexus Approach



Opportunities of Urban Nexus Approach



Provide better understanding of interdependence and interconnectedness of numerous complex systems (water, energy, ecosystem, etc..)



Recognize tensions among sustainability goals, enhance synergies and reduce trade-offs



Strengthen institution and governance and building capacities for integrated planning and implementation



Promote water-energy food security to all & sustainable and resilient development

Integrated Resource Management in Asian Cities: the Urban Nexus Project

The Urban **NEXUS**



DONOR



Federal Ministry
for Economic Cooperation
and Development

EXECUTING AGENCY

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

POLITICAL PARTNER



IMPLEMENTING PARTNER



7 TARGET COUNTRIES

(12 secondary cities)

China
India
Indonesia
Mongolia
Philippines
Thailand
Viet Nam

SOME ACTIVITIES TO DATE

- ✓ 7 regional workshops
- ✓ 14 outreach global events
- ✓ 6 national dialogues
- ✓ Policy guideline & tools



The Urban Nexus Wheel

Urban Nexus Enabling Dimensions	Enabling Factors
1. Governance	Collaborative governance
	Capacity and institution building
2. Inclusive Decision-making	Public participation
	Inclusiveness and equity
3. Urban Planning	Urban and spatial planning
	Monitoring and evaluation
4. Science, Technology and Innovation	Data and information sharing
	Technological & innovative application
	Environmental and social assessment
5. Finance and Business	Financing
	Municipal budget

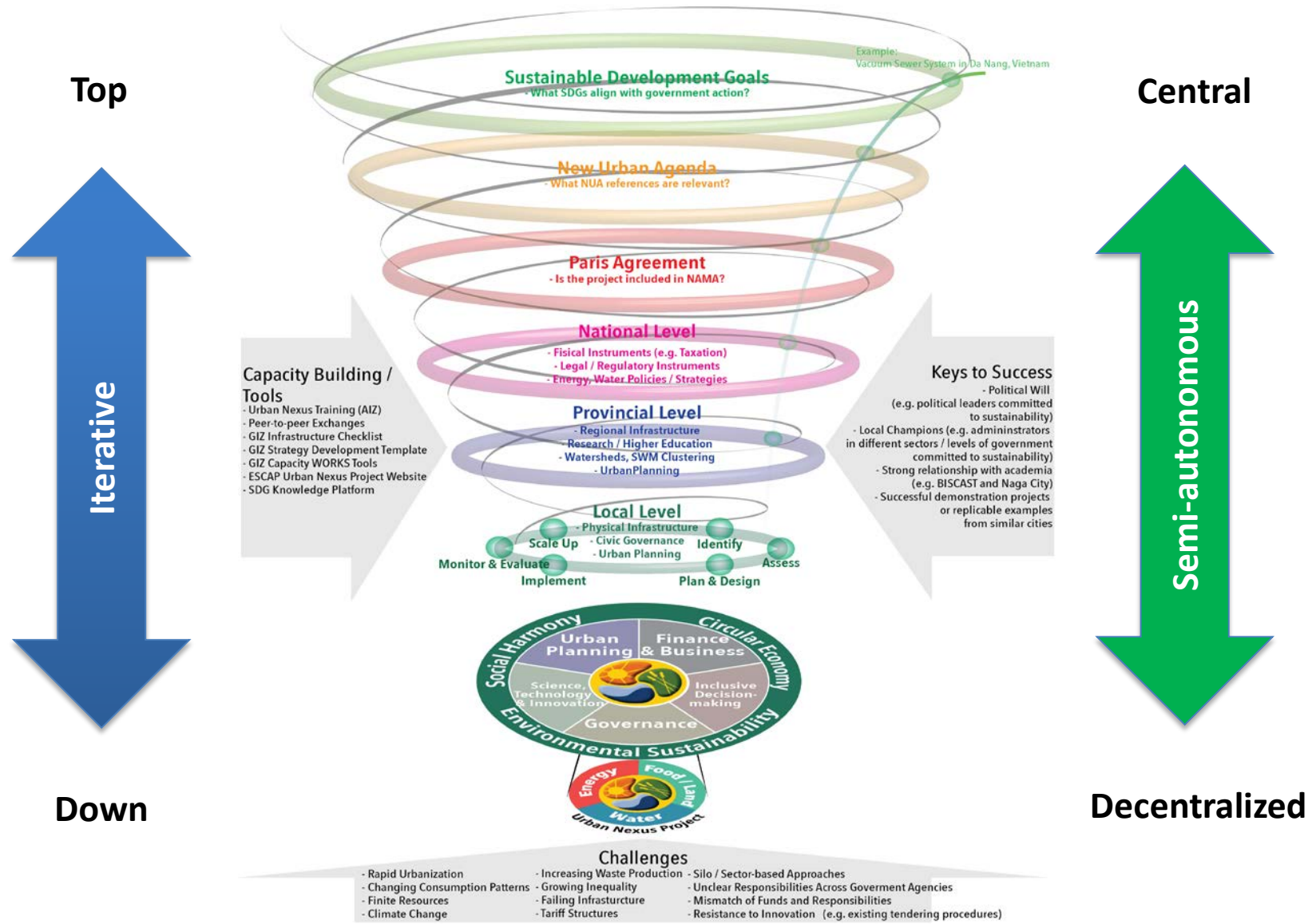


Nexus Framework

Enabling Dimensions

Enabling Factors

The Urban Nexus Vortex



Urban Nexus Technical Field Projects

Energy Efficiency of Buildings:

Climate Change Resilient Pilot Housing(CCRPH), Naga, Philippines



- Partnered with BISCAST (Academia)
- Reduced electricity consumption by over 25%
- Reduced waste material and wastewater on site by up to 30%

Urban Nexus Technical Field Projects

Energy Efficiency of Buildings:

Model Houses ECO-City, Ulaanbaatar, Mongolia



- Thermo-technical rehabilitation (TTR)
- Passive energy apartment & public buildings
- Solar-thermal panels for warm water & heating



THANK YOU
@stefanosfotiou

Please visit our website:
www.unescap.org/urban-nexus

