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Urban Studio

What makes a city smart?
Co-creating a ‘one ADB’ smart city approach

ADB Perspectives on Smart City

Digital for Technology Development Unit

Arun Ramamurthy

PAK: Integrated Information and Communications Technology Development Project

TA 9411-PAK (Active) | EAKPF Grant/TASF | US$2.1m

- **Cluster 1:** Establishing ICT industrial ecosystem through an IT Park in Karachi along China Pakistan Economic Corridor

- **Cluster 2 :** Demonstrative Smart City Platform in Islamabad (in Health, Education, and Transport section of Islamabad municipal corporation)

- **Cluster 3:** New technology skills development in IoT and AI

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For more information about the project, contact Arun Ramamurthy, rarun@adb.org.

Governance Thematic Group

Claudia Buentjen

PHI: Support to Local Government Revenue Generation and Land Administration Reforms (REGALA)

TA 7809-PHI (2011-2015) | JFPR (US$1.5 million), TASF (US$2.25m)

- Supported 10 cities to improve land management and property tax reforms
- Fair property taxes and effective land management: changing the deepest of state citizen relations
- Project adopted latest thinking on what works and what doesn't in capacity development
  - Opportunities for networking between national and local government and between cities
  - Locally led development, technical capability building, hand holding
- Use of integrated ICT systems (whole of government approach)
  - GIS system (Manifold) for parcel-based spatial land information: land management systems of Assessor, Treasury, Planning etc were unified using basic info such as landowner name, land size, location, value of land (a unique parcel identification number was used for each parcel). Manifold can also be used for land use planning and comprehensive dev. planning
  - ETRACS for tax revenue assessment, collection and administration

For more information about the project, contact Claudia Buentjen cbuentjen@adb.org.

Environment Thematic Group

Daniele Ponzi

Smart = Green Infrastructure Framework

- Green infrastructure should:
  - Be a foundation for planning (included in master plans), developing and maintaining cities
  - Be shaped by existing or past natural systems
  - Prioritize physical and functional connectivity to preserve ecological processes and services benefiting the citizenry
  - Be multipurpose (e.g, constructed wetlands = wastewater treatment, CO2 sequestration, aesthetic function)
  - Involve multisectoral stakeholders and local communities in design, construction management, maintenance and use
  - Be established permanently with financial support for continued maintenance and adaptation

Smart = Green Infrastructure
Ongoing and Exploratory Projects

CAM: Second Integrated Urban Environmental Management in the Tonle Sap Basin Project

+ <u>ETG Support</u>:

+ pilot constructed wetlands (CW) for wastewater treatment

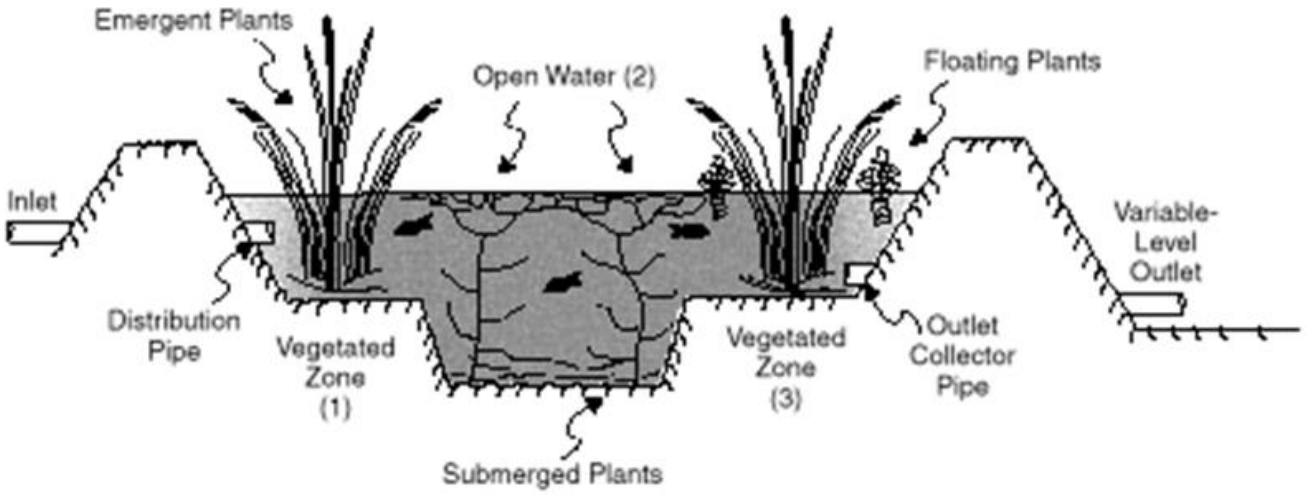
+ 2-day CW training to ~30 participants from national and municipal governments, and PPTA consultants

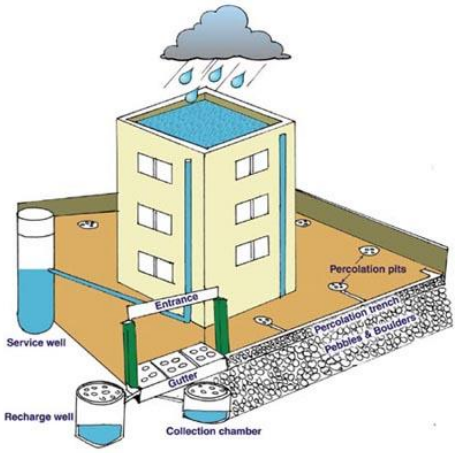
+ <u>Potential ETG Support</u>:

+ bioengineered solutions for urban flood pathways

+ integrated land use preparation

+ sustainable waste management strategies (e.g., 3R, WTE)





INO: Sewerage System Development Project

+ <u>Potential ETG Support</u>: NBA for wastewater management and green infrastructure for water management (e.g., rainwater harvesting; gray water plumbing)

Climate Change and DRM Thematic Group

Frederic Assaline

Platform for Resilient Urbanization

An Initiative to Operationalize Urban Priorities of the Climate Change Operational Framework

- Initial Concept (Version 27 August 2017)
- Urban SG and Climate Change and Disaster Risk Management TG

Image source: MIT Environmental Policy and

Rationale

Urbanization is a defining trend in Asia-Pacific's transformation. However, can transformation be achieved in the absence of climate risk informed urbanization?

- ADB's Climate Change Operational Framework calls for **"Spotlight on Cities"**
- Initiate thinking on how to operationalize emerging lessons from **Urban Resilient Fund**
- Consolidate findings from **ADB wide TAs** on urban development, climate change and disaster risk management. Examples include
  - Low carbon cities (SDCC)
  - Risk-sensitive land use management (SDCC, PARD, SERD)
  - Disaster risk financing (SDCC, SERD)
  - Community-led Resilience (SDCC, SERD, SARD)
  - Resilient low-cost Housing (SDCC, ERCD)
  - Future Cities (SDCC, PARD, EARD, SERD, CWRD)
  - GIS platforms (Spatial Application Facility), (SDCC, SPD, ERCD)
- Resilient urbanization require **cross sector and theme collaboration**

Climate Change Operational Framework (2017-2030)

Item	CCOF2030 Phase 1		CCOF2030 Phase 2
	2017–2020	2020–2023	2023–2030
DMCs	Incorporate climate mitigation and adaptation in national development objectives 1st generation NDCs by 2020	• Translate climate plans, including NDCs, into climate investment plans • Mobilize domestic climate financing resources • 2nd generation NDCs by 2023	• Implement 2nd generation NDCs • Scale up domestic climate financing resources
ADB	Provide climate finance of $6 billion by 2020 Climate proof project pipeline Review operational modalities, institutional structures, new financing and TA mechanisms Work with operations departments to provide upstream support aligned with DMC national development and climate objectives Strategy 2030	• Review progress and assess lessons from reaching 2020 targets and outline delivery plans for more ambitious targets • Pilot innovative, climate smart approaches (technology, finance, business models)	• Apply lessons from phase 1 • Reflect expectations of DMCs in 2nd gen NDCs and other relevant strategies and plans, including regional approaches • Reassess operational modalities, institutional structures, new financing (e.g., investment bank, impact investing) and TA mechanisms • Revisit analytical and other actions to help DMCs confirm opportunities for climate action in support of national development objectives

Image source: World Bank

Potential Scope

- Initial focus 2 DMCs in SERD (proposed Indonesia, Cambodia)
- Expand to 1 or 2 DMCs from other region with 1 or 2 urban areas/cities in each DMC
- 6 years implementation (2018-2023)

Platform for Resilient Urbanization (2018-2023)

1. Working with national agencies to

- Guide on **climate risk-informed urbanization** (cities, city-region, metropolitan, corridors, economic zones etc.) to inform wider **national development and NDCs**
- Strengthen risk-informed **decentralization** to enable cities as "front runners" for resilience
- Influence decisions on **risk-informed resource allocation and mobilization**
- Undertake analytics to **priorities cities** that would benefit most from investments in climate resilience

2. Working with selected cities to

- Develop robust **information base** for risk-informed decision making (link to SAF)
- Prioritize **multi-sectoral investments** with starting point being climate risks and opportunities linked to **city's vision**
- Strengthen capacity to tap **financing** for strengthening resilience
- Strengthen capacity to **partner** with private sector and civil society

3. Shaping ADB's approach and investments beyond 2023

- Informing urban priorities of **next generation CPSs**
- Ground work for developing **pipeline of urban investments** that has primary objective of strengthening resilience

4. Leveraging partnerships

- Donors, technical agencies and academia, private sector, civil society

Scoping Exercise

(October 2017-March 2018)

- Scope the design of Platform for Resilient Urbanization
  - Key components
  - Potential DMCs
  - Potential partners
  - Financing
  - Linkages with global frameworks
- Possible skills required for scoping exercise – (i) urban development, (ii) fiscal decentralization/municipal finance, (iii) climate change adaptation; (iv) PPP; and (v) urban partnerships

Direct Charges (URF and CCF)

Image source: IIED

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Urban Sector Group

Joris van Etten İ Chee Anne Roño

FIJ: Technical assistance for Digital Land Registry in Suva

TA 9170-REG (Active) | JFPR | US$2.0m

❑ **URBAN SECTOR GROUP**

EXPECTED OUTCOMES

- Harmonized data and land management systems through digitization, HLT application
- Shared municipal digital services through formulation of policy paper, governance framework

OUTPUTS

Data	Analytics	Integration
Land Registry Database	Land Price Index	Land Management Systems
Blockchain Prototype	GIS Satellite Processing	digital

For more information about the project, contact Joris van Etten, jvanetten@adb.org.

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Transport Sector Group

Ki-Joon Kim

Technical Assistance: E-mobility Policy and Strategy for ADB DMCs (Jan-Dec 2018)

❑ **TRANSPORT SECTOR GROUP**

Key Project Components:

- E-vehicle policy and strategy for **different DMC conditions** and provide policy advice in choosing different types of e-vehicles (Buss, Para transit, passenger cars, two-wheelers)
- E-vehicle **technical advancement** reviewed especially for buses.
- Impact on **electricity grid** reviewed for different degree of e-vehicle deployment.
- Supporting **policy and business model** for e-vehicles and charging station infrastructure deployment reviewed and recommended
- **Shared mobility** policy using e-vehicles reviewed
- Optimum e-mobility policy for different DMCs recommended

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For more information about the project, please contact kjkim@adb.org.

TA: Toward a Green Urban Transport System in Melaka 2017

❑ **Background**

- **Smart City Action Plan ADB 2014**
- **IMT-GT Reginal Initiative**

❑ **Highlights**

- **Pedestrian/Bus only street for UNESCO Heritage Area**
- **Public transport expansion :**
  - **from 60 to 200 buses including e-bus fleet renewal**
  - **2% modal share to 20%**
- **Bike-sharing including e-bike**
- **Parking Management**

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South Asia Urban and Water (SAUW)

Jaemin Nam İ Luca Di Mario

REG: Promoting Smart Drinking Water Management in South Asian Cities

TA 9048-REG (Active) | EAKPF/TASF/K-water | US$2.7 m

❑ OUTCOME

√ Capacity of water utilities enhanced to raise their operational efficiency and financial sustainability

❑ TA period: 5 years (2016-2020)

❑ Target: 7 South Asian Cities

√ Completed: Dhaka, Colombo
√ Ongoing: Chennai
√ Proposed: Kolkata, Kathmandu, Thimphu, Male

❑ OUTPUTS

① **Operational Efficiency Improvement Plans**
- Diagnostic Assessment of the Existing Systems
- *Pilot Testing the Application of Smart Devices*
- *Short-, Medium-, and Long-term Operation Plans*

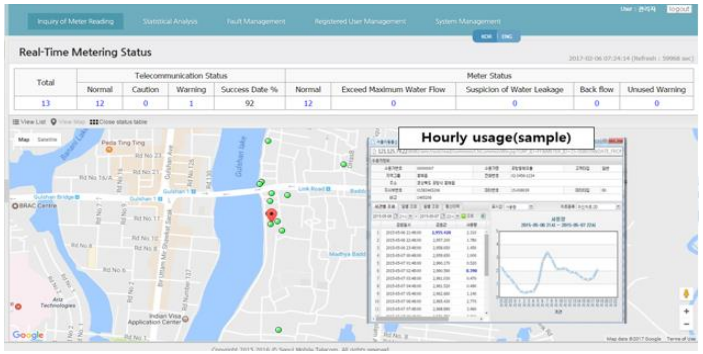
② Training on Smart Water Management
- Training, Study Visit Programs, International Workshop

③ Financial Sustainability Improvement plans

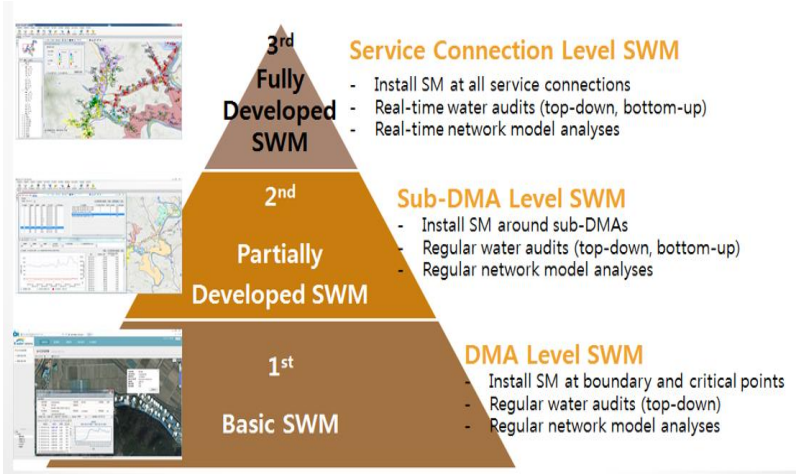
④ New drinking water PPP contract modalities

Piloting Smart Devices in Dhaka

(1 base station, 12 smart meters, 1 monitoring system)

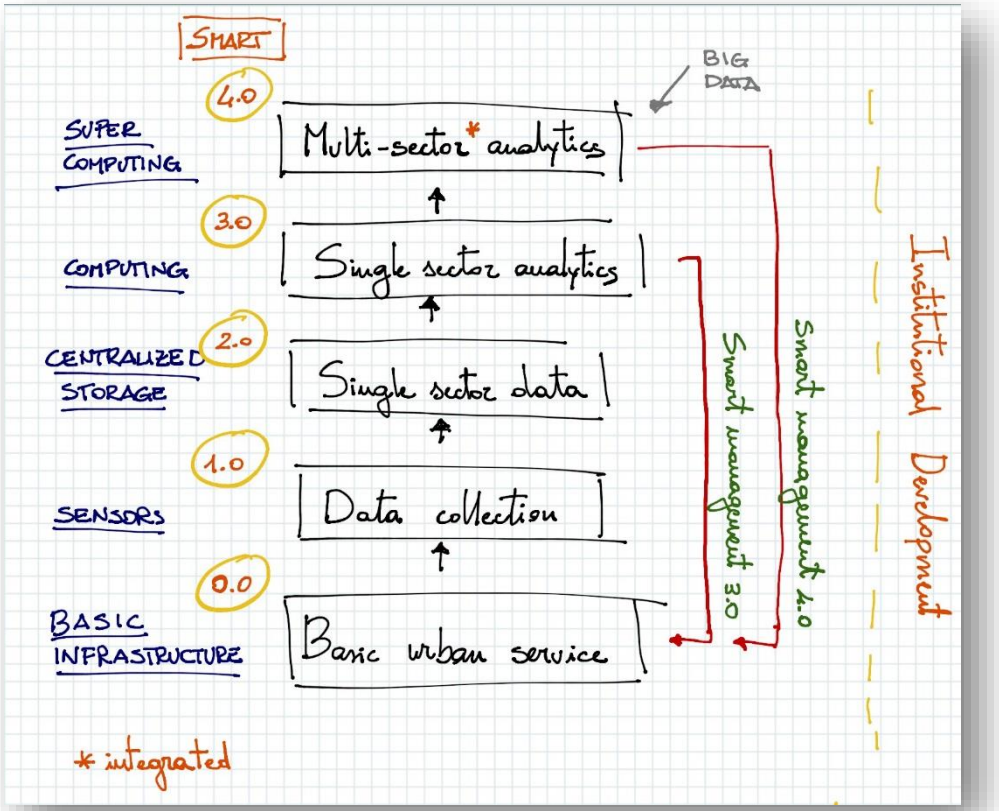


Suggestions on Smart Water Management



For more information about the project, contact Jaemin Nam, jnam@adb.org.

Building blocks towards a “Smart City”?



Towards "Smart" Applications in SAUW

	Water Supply	Wastewater	Drainage/Flood	SWM	Other
4.0 – Multi-sector (integrated) analytics	3.5? **KEIIP** (multi-layered GIS for assets management, property tax collection, flood early warning system, public safety and SWM) + TA support to India Smart Cities Mission				
3.0 Single-sector analytics + management	Tamil Nadu; Karnataka*; Rajasthan; Nepal	Rajasthan (GIS mapping, SCADA); Nepal;	Tamil Nadu (flood early warning)		
2.0 – Single sector data	Bhutan	Kathmandu		GIS for optimizing collection	
1.0 – Data collection	Dhaka				
0.0 – Basic urban service		0.1 TN Solar-powered WWTP		0.1 Maldives (WTE)	

*(i) customer database and online billing management system; (ii) ring-fenced water and waste water accounting; (iii) GIS based dynamic asset management system; (iv) financial management system; (v) performance management system; and (iv) maintenance management and active leakage control program including NRW management

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Urban, Social Development & Public Management Division (PAUS)

Anupma Jain

‘Smart’ Urban Development
PARD’s Working Definition

- ‘Smart’ city development is looked within the wider livable cities approach and solution pathways (water, nature, equity, resilience, digital)
- Cities can be governed using technology, but other elements are important to make a city smart and livable.
- Technology and data is connected to services and used to influence behavior.
- Data capture and data management for improving the delivery urban services and/or managing assets.
- ‘Smart’ city in Suva ≠ ‘Smart’ city in Jakarta
- Consider key constraint: Resourcing ‘smart’ interventions after any project ends.

‘Smart’ Urban Development
PARD’s Working Approach

Countries	Subsector	‘Smart’ features
Fiji, Kiribati, and others	Water and Sanitation	Smart meters
		GIS
		SCADA
		Pre-payment meters
		Mobile application for bill payments
Potential area	Integrated water/urban – energy/transport	Potential for integrated platforms for service-delivery in combined energy-water utilities
Fiji, Vanuatu, and others	Urban	CCTV
	Integrated flood risk management	Early warning systems
		Systems to monitor climate change risk and disaster risk management
		Mobile application for bill payments
		Mobile application for customer complaints

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Perspectives from the audience

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Discussion

What do ADB ‘smart city’ projects have in common?