



# NRW Management and 24x7 Water Supply In Cities: How is ADB Helping The Government

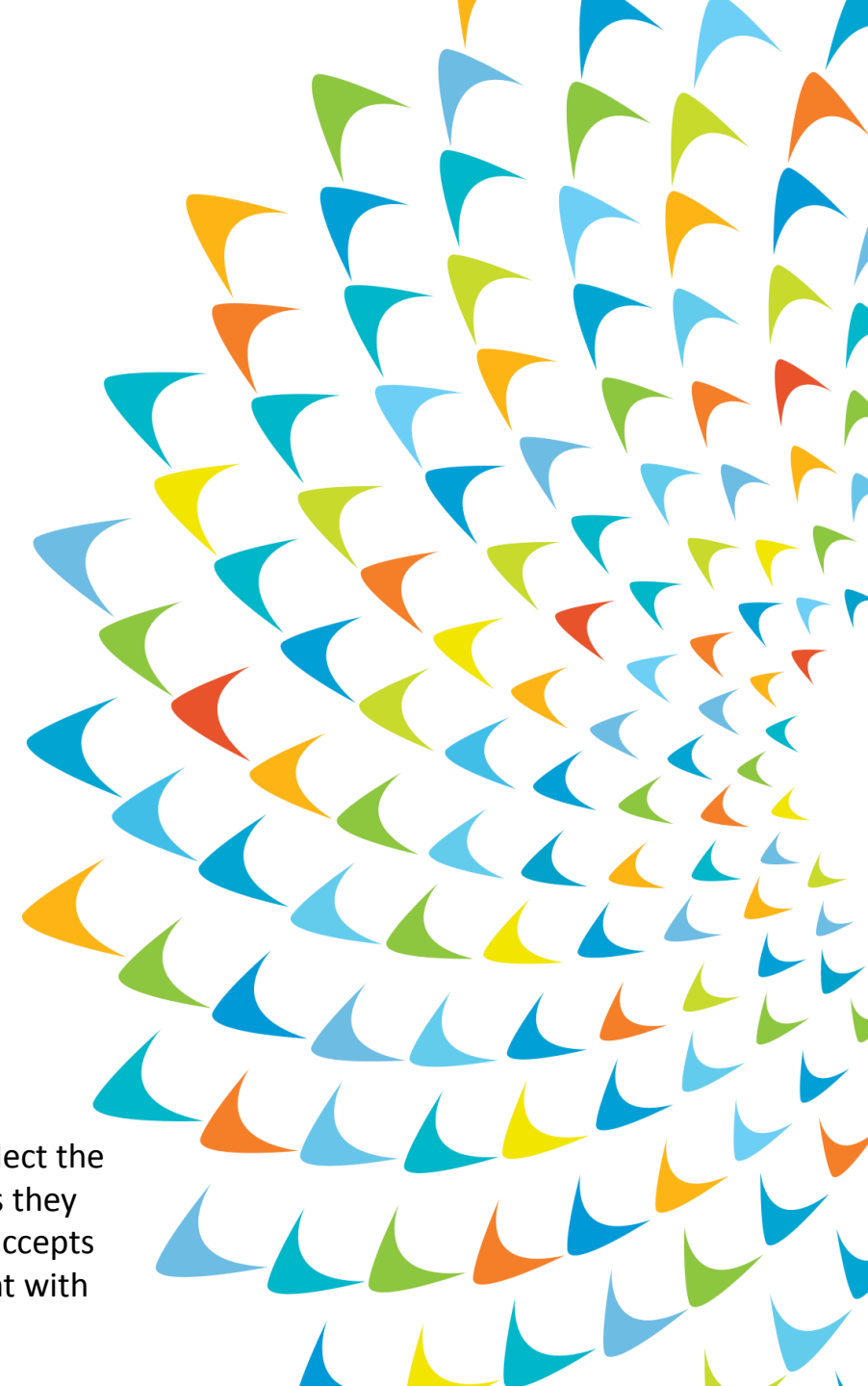
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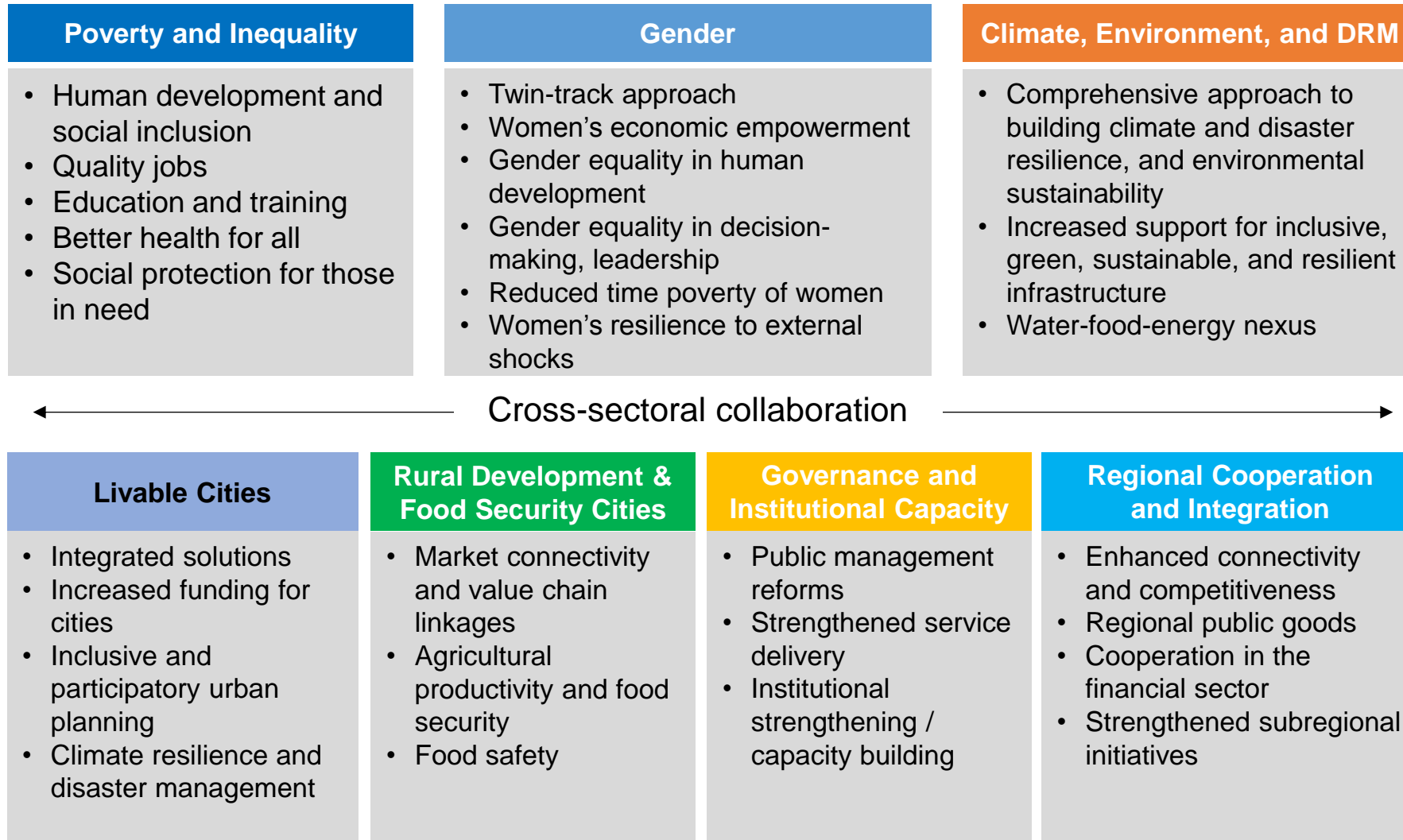






# ADB STRATEGY 2030

## OPERATIONAL PRIORITIES







# The Livable Cities Operational Priority Plan

ADB's platform for cross-sector, thematic, and knowledge work in cities

## Operational Directions

- | Implementing integrated solutions to achieve green, competitive, inclusive, and resilient cities
- | Expanding and diversifying funding for cities
- | Increasing capacities for inclusive and participatory urban planning
- | Enhancing climate change resilience and disaster risk management systems

## Building Blocks

- | Current Sector and Thematic Operational Plans  
(Urban Operational Plan focus on 3Es – Equity, Environment, and Economy)
- | UN Habitat's New Urban Development Agenda
- | Sustainable Development Goals (SDG 11 - Safe, Inclusive, Resilient and Sustainable Cities)
- | World Bank's Ease of Doing Business; World Economic Forum's city competitive index
- | Commercially available Livable Cities indices  
(e.g., Mercer – composed of 50 measurement parameters)





# ADB's Water Operational Plan (2011–2020)

## ADB's "Water for All" Policy



- Transforming urban water utilities into accountable corporatized service providers
- Integrated water resources management
- Focus on NRW reduction, Distribution Network Mgmt and 24/7 water supply
- City-wide Inclusive Sanitation Systems
- Capacity building, Institutional Strengthening and Knowledge Management





# ADB's Water Operational Plan (2011–2020)

## ADB's targets in Urban Water Supply Investments

- ADB's annual water lending increased to to \$3.0 billion (out of a total of \$30 billion)
- Share of sanitation and wastewater increased to 25% of total water lending
- Urban water utilities to work for improving corporate governance
- PSP/PPP projects provide finance of not less than \$500 million per year







# Fundamental Questions



1. Can intermittent supply systems provide clean water?
2. Can developing countries afford Continuous Water Supply?
3. Is there enough water in developing countries for Continuous Water Supply?
4. Can developing countries afford **NOT** to have Continuous Water Supply?





# Intermittent supply - overview

## Water resources

### Water Quantity issue:

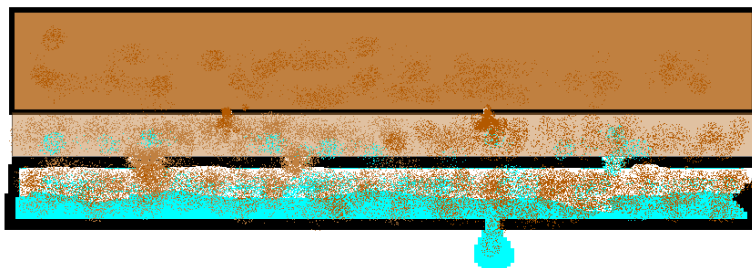
- Huge NRW (Mostly physical losses) due to high pressure and short period of supply
- Inefficiencies at the consumer level: to keep tap open, and store more water than required.
- Leaks increase because of network stress.
- Leak detection is difficult under intermittent supply



## Public health

### Water Quality issue:

wastewater contamination due to non-pressurized network



## Capital Expenditures

### Asset lifespan issue:

because of network stress, surges and water hammer







# Intermittent supply—a vicious circle



Intermittent  
supply

water  
shortage

Excessive **pressure**  
Excessive **pressure**  
**variation**

Supply needs increase  
Pipe renewal needs increase

Pipe bursts  
water losses  
increase







# Impact of Intermittent Water by Income Group

## Each Household Acts like a Mini Water Utility

- **High Income**      • Coping costs: Pumps, tanks, treatment
- **Middle Income**      • Coping costs: Pumps, tanks treatment and/or lost time
- **Low Income**      • Lost wages, education, health, and cost of water.  
(Many Pay 20 times the cost of wealthier neighbors)
- **Municipality**      • Higher Capital and Operating Costs  
• Lost Revenue

***National Economic Loss and  
Global Economic Loss***






# Continuous supply – Opportunities for cities' livability

- SDG 6 - reduce the number of people who do not receive potable water;
- Sustain the growth of population, urban migration;
- Adapt to climate change which will increase stress on water systems and health problems;
- Ensure potable water on the long term, optimize investment of water systems, to accelerate the economic development and attractiveness of municipalities; and
- Reduce social barriers, ensure schooling of kids, ensure householders dedication to other activities.

**6** **CLEAN WATER  
AND SANITATION**



**Continuous supply:**

- Reduce risk of water contamination, network degradation
- Reduce operational costs, Improve services to customer
- Facilitate water losses reduction and carbon footprint reduction (energy)





# ADB strategy to accompany transfer from intermittent to continuous supply

**In the scope of ADB S2030, continuous supply is a defined target.**

ADB implements an integrated approach on the overall water cycle that is including:

1. Water resources and distribution management
2. Capacity building and utility transformation
3. New technologies and digital transformation
4. New contractual and financing modalities
5. Wastewater management



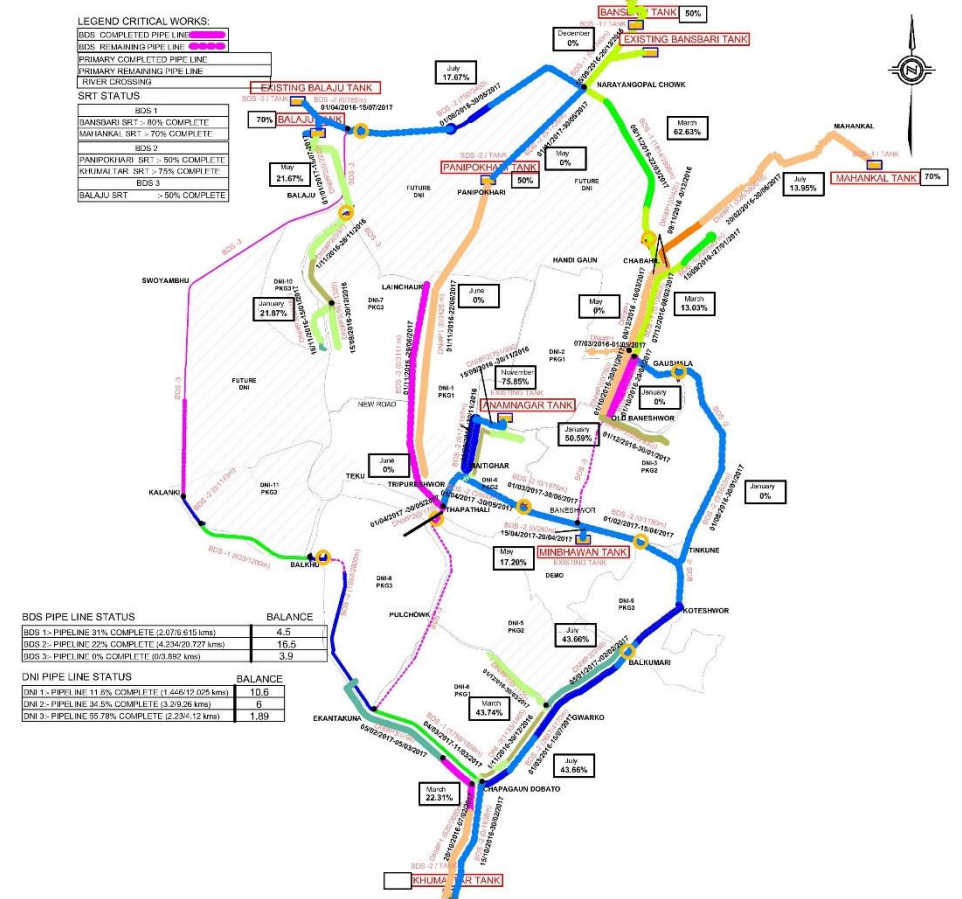




# 1. Water resources management

ADB support for:

- Source development, transmisson and storage systems
- Integrated water resource management following a River basin management approach



New transmission system in Katmandu Valley



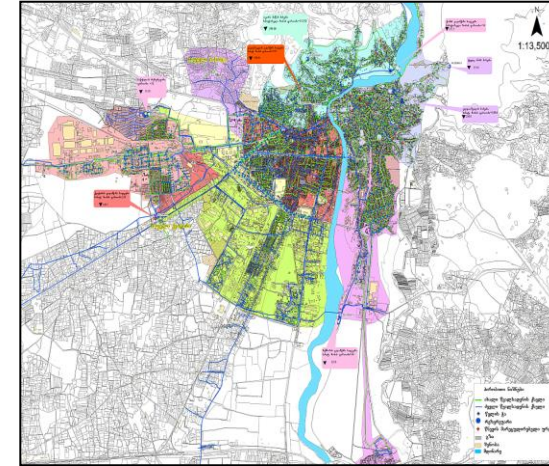


# Water distribution management

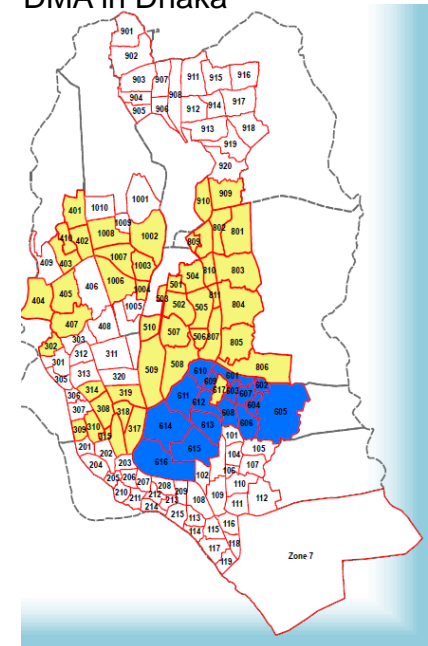
## ADB support

- Rehabilitation of distribution mains for NRW management
- 100% metering
- Macro-Sectorization
  - Design of hydraulic zones and DMAs
  - Operation of pressure zones and DMA
- Centralized and optimized management of water mains, reservoirs, pumping
  - GIS, Maps, Hydraulic modelling
  - SCADA system
  - Leak detection and control
  - Regular NRW monitoring in DMAs/Zones

Network rehabilitation in Georgia



DMA in Dhaka







## 2. Capacity building and Utility transformation

### A key challenge and opportunity for ADB

- ADB Support includes
  - capital investment
  - Internal governance improvement
  - knowledge transfer
  - operations improvement and technologies
- Tariff Reforms (at least O&M cost recovery)
- Twinning and WOPs
- Strong engagement of all stakeholders
- Employees motivation, empowerment and training
- Communication with media and civil society







### 3. New technologies and digital transformation

ADB encourages smart systems and digital solutions to support continuous supply actions.

This includes:

- Dedicated funds to promote and introduce high level technologies in projects
- Knowledge sharing to promote digital solutions in DMCs
- Innovation and transformation as a driver of change (pilots projects for AI, blockchain, etc.)







## 4. New contractual and financing modalities

ADB develops:

- Innovative contractual modalities, e.g., incentives-based contracts, Performance-based contracts, DBO, operations and maintenance-embedded capital investments contracts
- Innovative financing modalities (PPP, PBMC, DBFOT, blended finance) to promote private sector participation
- Innovative lending modalities, e.g., project loans, policy loans and combinations

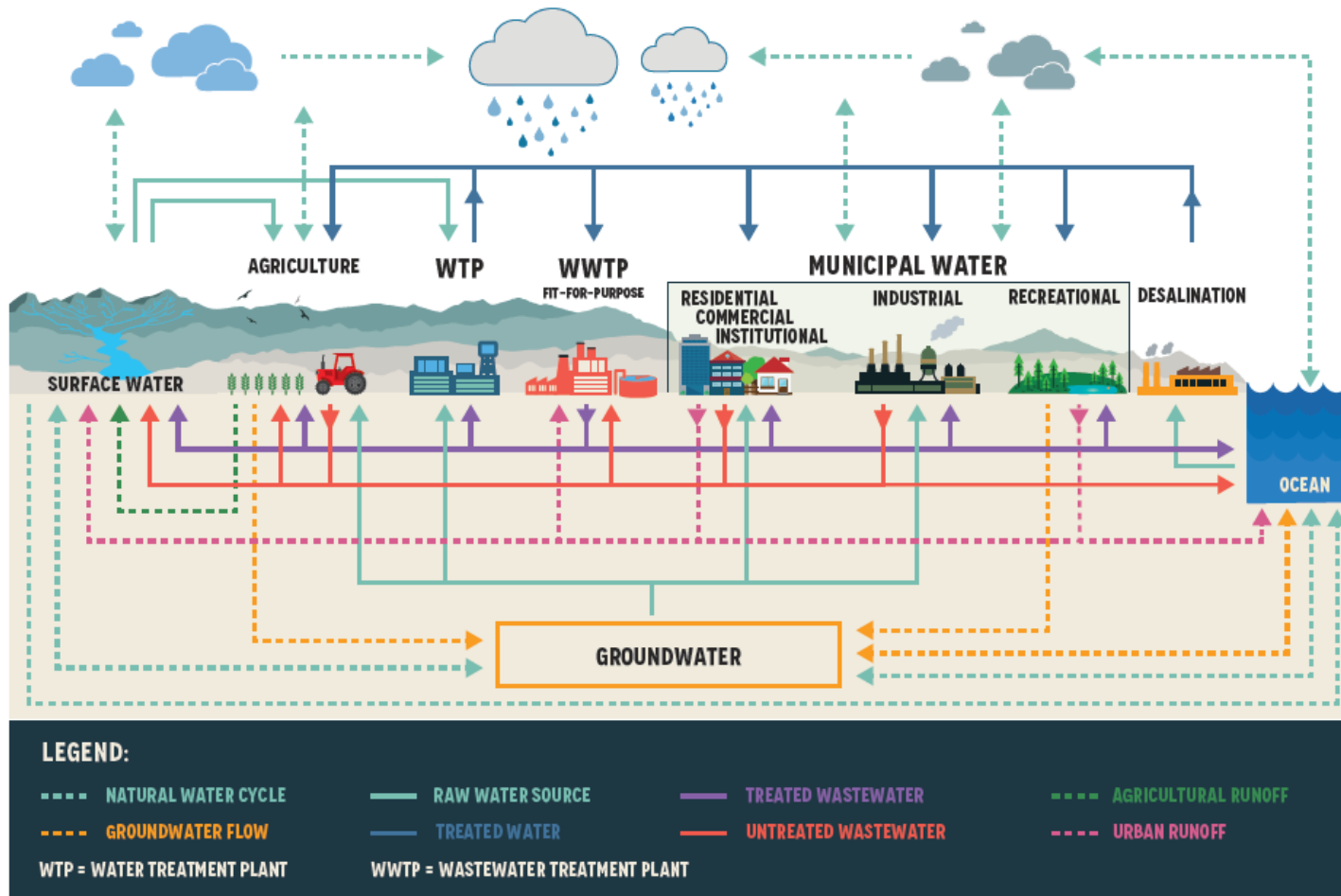






## 5. Wastewater management

Figure 1.1 Wastewater in the water cycle



City-wide inclusive Sanitation Systems for centralized sewerage, DEWATS, FSM, Community-based systems, etc.



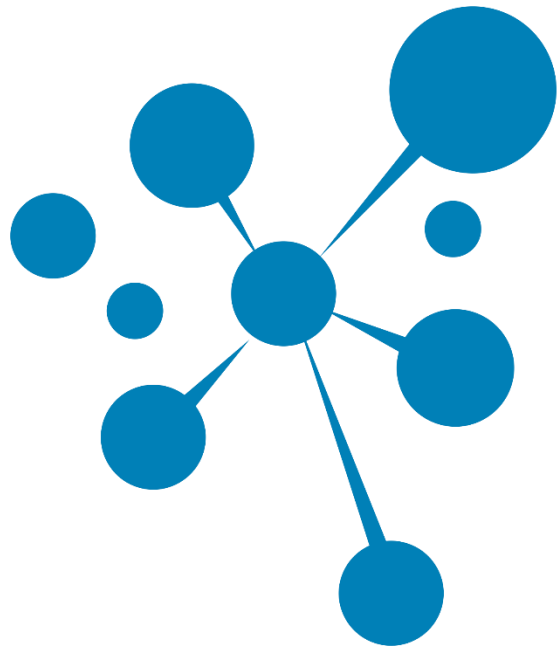


# ADB cases study

**IND: 24 X 7 Water Supply Scheme – The Ilkal Story**

**GEO : Georgia's experience**





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Asian Development Bank

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