



## **KFW's Experiences**

Session: Reducing Water Loss & Transforming Utilities Through Smart Non-Revenue Water Solutions

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### **Nikita Madan**

Sector Specialist – Sustainable Urban Development & Mobility

KFW Development Bank

[nikita.madan@kfw.de](mailto:nikita.madan@kfw.de)

KfW New Delhi Office

Bank aus Verantwortung



## ››› Indo-German Development Cooperation

- KfW channels the financial cooperation and its partnership with Government of India under the Indo-German Development Cooperation
- The Indo-German Development Cooperation has a **long history of over six decades**.
- Support to innovations and investments in urban development - supporting Sustainable Development Goals (SDGs).
- It is limited to three main development themes:
  - › **(Renewable) Energy**
  - › **Sustainable Urban Development**
  - › **Natural Resources Management**
- KfW has an **ongoing portfolio of over Euro 8 billion (INR 80,000 Crore)** and has crossed Euro 23 billion (INR 2 lakh crore) till date.
- The German Government in 2022 committed **over 10 Billion (INR 100,000 Crore) by 2030** to Government of India under the **Green and Sustainable Development Partnership**. This would translate to over 1.25 Billion (INR 12,500 Crore) annually



# Indo-German Financial Cooperation: Sustainable Urban Development Portfolio

## OBJECTIVES

Offering value added financing solutions for water, wastewater, solid waste management and other climate resilient measures.

Strengthen the resilience of cities and critical infrastructure of essential services to the impacts of climate change.

**Total as of September 2025:**

**Ongoing\*: EUR 1.465 million**

**Pipeline: EUR 720 million**

## SECTORS

### Wastewater disposal and waste management

- Wastewater systems
- Sewage sludge management
- Integrated municipal waste management

### Stormwater management and other measures to improve climate resilience

- Measures to protect against floods and droughts
- Creating increased climate resilience at the city level
- Policy reforms to improve climate resilience of cities

### Drinking water supply

- Integrated water management in the sense of circular economy
- Programs to improve urban water supply
- Technology-based efficient water supply systems

## ONGOING COOPERATION

### Through National Governments

- City Investments to Innovate Integrate and Sustain (CITIIS) 2.0 Program (€ 100 M)

### Through State Governments/ Agencies

- Environmentally Friendly Urban Development in Ganga States I&II (€ 150 M)
- Rishikesh Integrated Urban Infrastructure Development Programme I&II (€ 170 M)
- Madhya Pradesh Sanitation Programme (€ 50 M)
- Chennai Integrated Storm water Management (€ 150 M)
- Kerala Climate Resilient Roads I&II (€ 170 M)
- Mumbai Metropolitan Region Urban Infrastructure Improvement Programme (€ 100 M)

### Through Financial Intermediaries

- Odisha Urban Infrastructure Development Fund II, OUIDF (€ 55 M)
- Sustainable Municipal Infrastructure Financing Tamil Nadu Fund Phase III, TNUDF (€ 500 M)
- Municipal Infrastructure Development Grants, TNUDF (€ 20 M)

## GLIMPSES FROM PROJECT SITES



# Indo-German Financial Cooperation: Sustainable Urban Development Portfolio

## City Investments to Innovate Integrate and Sustain (CITIIS) 2.0 Program (€ 100 M) (co-fi with AFD)

Sector - Circular economy in waste management  
 Cities - Srinagar, Jaipur, Udaipur, Bareilly, Agra, Muzaffarpur, Ujjain, Jabalpur, Bilaspur, New Town Kolkata, Guwahati, Agartala, Rajkot, Panaji, Belagavi, Thanjavur, Madurai, Thiruvananthapuram



## Madhya Pradesh Urban Sanitation and Environment Programme (€ 50 M)

Sector - Wastewater infrastructure (sewer lines, HH connections, sewage pumping stations, sewage treatment plants)  
 Cities - Barwani, Sendhwa, Hoshangabad, Mandla, Narsinghpur



## Mumbai Metropolitan Region Urban Infrastructure Improvement Programme (€ 100 M)

Sector - Climate resilient urban infrastructure, waste management  
 Cities - multiple cities under the Mumbai Metropolitan Region



## Kerala Climate Resilient Roads I&II (€ 170 M)

Sector - Climate resilient road reconstruction



## Environmentally Friendly Urban Development in Ganga States I&II (€ 150 M)

Sector - Sewer networks & city-wide sanitation infrastructure  
 Cities - Haridwar, Rishikesh



## Rishikesh Integrated Urban Infrastructure Development Programme I&II (€ 170 M)

Sector - Water supply & wastewater infrastructure, climate resilient measures/ flood protection and urban mobility  
 Cities - Rishikesh, Muni-ki-reti, Tapovan, Swarashram



## Odisha Urban Infrastructure Development Fund II, OUIDF (€ 55 M)

Sector - Energy efficient Smart LED streetlighting, water supply, sewage, water body rejuvenation, Inter State Bus Terminal, markets/ commercial complexes, affordable housing  
 Cities - multiple cities under the state of Odisha



## Chennai Integrated Storm Water Management (€ 150 M)

Sector - Climate change and integrated storm water management system  
 Cities - Kovalam Basin watershed of South Chennai



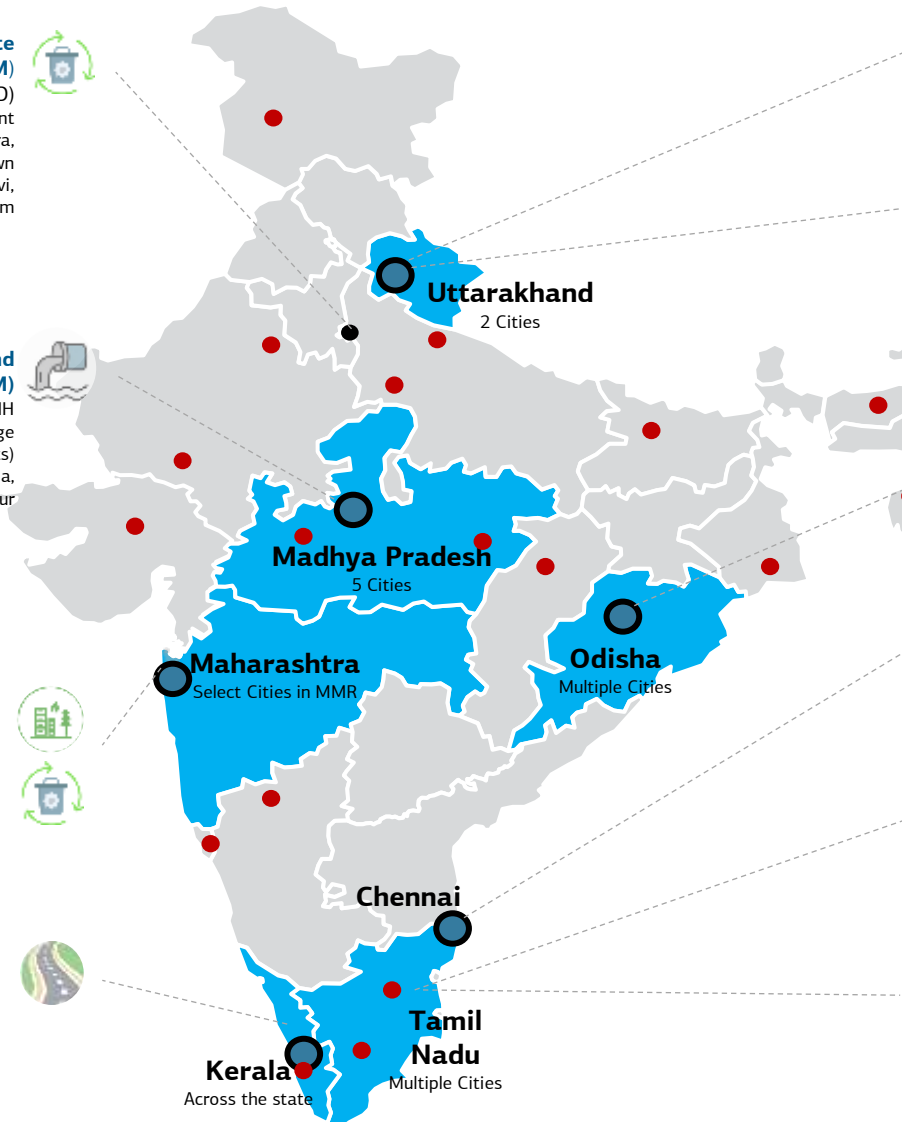
## Sustainable Municipal Infrastructure Financing Tamil Nadu Fund Phase III, TNUDF (€ 500 M)

Sector - Climate resilient urban infrastructure (water supply, sewage & sanitation, climate-resilient urban drainage)  
 Cities - multiple cities under the state of Tamil Nadu



## Municipal Infrastructure Development Grants, TNUDF (€ 20 M)

Sector - Innovative urban infrastructure (to promote environmental protection, enhance climate resilience and to mitigate impacts of Covid19 on cities and towns.  
 Cities: select cities under the state of Tamil Nadu



LEGEND



Ongoing Projects



18 cities under CITIIS 2.0

# Reducing Water Loss & Smart NRW Solutions

Examples and experiences from KfW's portfolio

## >>> Non-Revenue Water and Water Losses - Impacts

- **NRW reduction is central to resilient urban water systems**, especially in-light-of water stresses and the impacts of climate change.
- **India's NRW levels range from 30% to as high as 70% in many utilities**—representing systemic inefficiency and revenue leakage. (S. Shrivastava et.al., AMRUT 2.0: A Comprehensive Review of India's Urban Water Transformation Mission, International Journal of Research)



Source: NIUA report

- NRW is not a single problem; it sits at the intersection of **ageing infrastructure, limited data visibility, institutional fragmentation, and financing constraints**.
- The solution is multifold -
  - › **Policy & Institutional Enablers** for Scaling NRW Programs
  - › Balancing **High-Tech Solutions** with Foundational Improvements
  - › **Adequate financing/ investments** - in upgradation of existing systems, measurement of losses, capacity development

## »» KfW's role in promoting SDG 6 – Clean Water and Sanitation

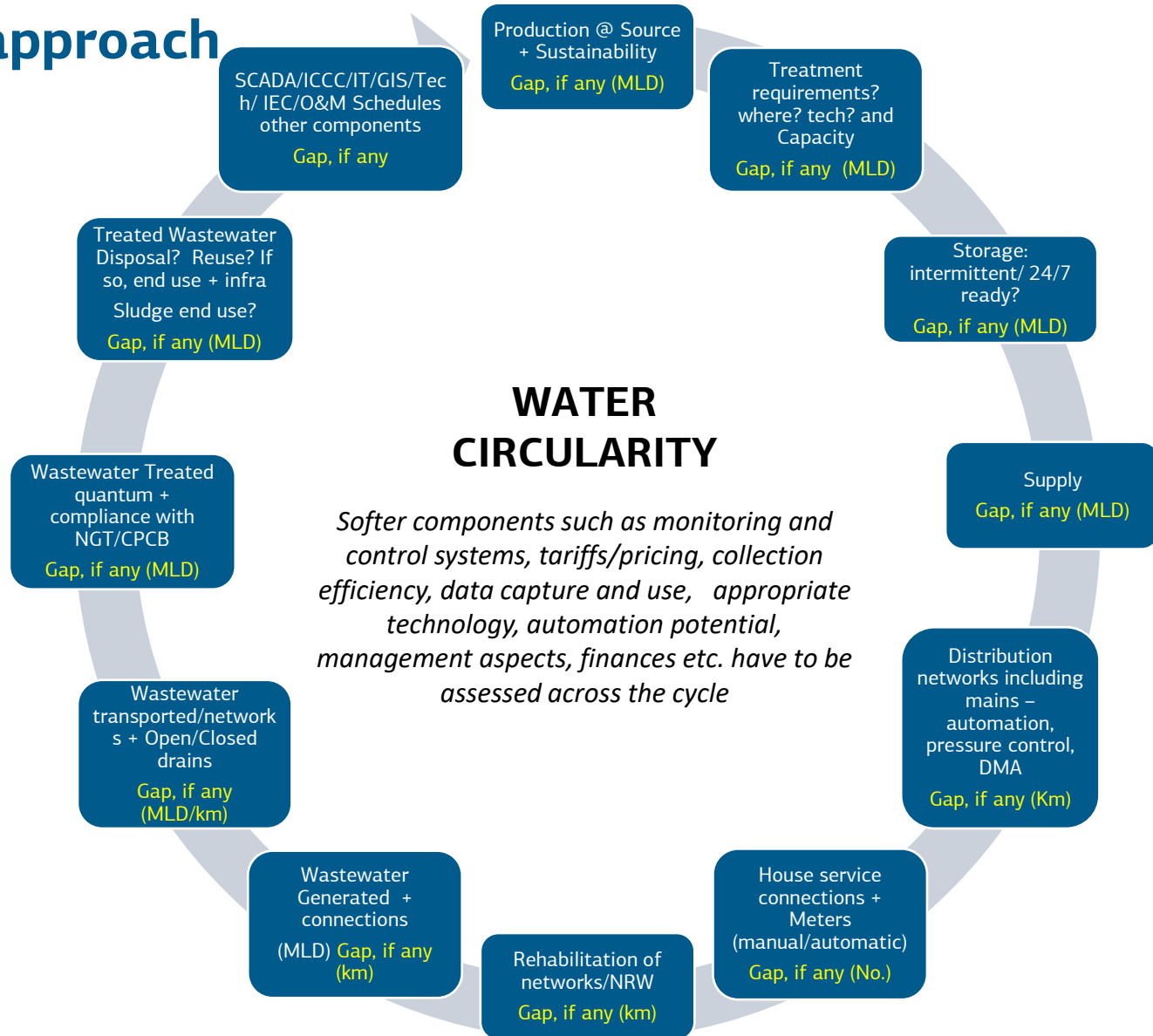
- For many years, KfW has been helping to ensure that people in developing countries and emerging economies have a safe supply of drinking water and access to good, safe sanitation.
- This includes funding for -
  - potabilization and drinking water distribution,
  - **programmes to reduce water loss and improve water use efficiency,**
  - measures to ensure safe sanitation and the treatment of sewage,
  - integrated water resource management projects,
  - sector reform programmes.

Reducing NRW/  
water losses is one  
of the major focus  
areas in many of  
our water supply  
projects



# Some fundamentals of our approach in water supply projects

- **Water circularity**/ complete life cycle assessment – for enhancing reliability of water supply systems
- Investments in expansion of water supply networks, as well as **rehabilitation of existing pipelines**
- Finance of water supply projects focused on adequacy and quality of supply (as per SLBs) - through **HH level metering, DMAs**, etc.
- Investments in **24X7 and DFT ready systems**



## ›› Sustainable Municipal Infrastructure Financing (SMIF), Tamil Nadu, India

- The Government of Tamil Nadu has established the **Tamil Nadu Urban Development Fund (TNUDF)** to support urban infrastructure projects in the local authorities of Tamil Nadu.
- The **TNUDF receives grants from the state government as well as loans from bilateral and multilateral agencies**, including KfW. KfW funding in the TNUDF was introduced in 2008.
- In total, loans amounting to more than EUR 760 million have so far been made available to TNUDF in three phases.
- The sub-projects funded were in the sectors of
  - (i) Underground Sewerage Schemes (UGSS)
  - (ii) **Water Supply and Water Supply Improvement Schemes (WSIS)**
  - (iii) Restoration and Improvement of Tanks, Lakes, Rivers, Water Bodies
  - (iv) Improvement of Parks and Playfields
  - (v) Improvement of Roads and Storm Water Drains and
  - (vi) Streetlights in Chennai.



- **Water Supply and Water Supply Improvement Schemes (WSIS)**
  - › Expansion of networks + rehabilitation of existing pipelines
  - › HH level water meter installation
  - › Many water supply projects funded under this have resulted in achieving low Non-Revenue Water (NRW) levels of around 5-10 %
  - › The programme support capacity building/ training programmes in software applications, IOT, smart metering, NRW.

## ››› Rishikesh Integrated Urban Infrastructure Development Programme (RIUID), India

- The RIUID finances key interventions for sustainable urban development of the town of Rishikesh and its adjacent suburbs.
- The project focuses on 3 intervention areas, namely –
  - › **water supply & wastewater infrastructure,**
  - › **climate resilient measures/flood protection and**
  - › **urban mobility** with a focus on traffic decongestion.
- Key outputs envisaged:
  - › **Improved Water Supply & reduction in NRW**
  - › Management of stormwater & groundwater recharge
  - › Sanitation with treatment
  - › Smart urban spaces for better environment

- **Water Supply and Water Supply Improvement Schemes (WSIS)**
  - › All projects to have HH level metered water connections and DMA based implementation
  - › 24X7 water supply projects



## »» Water Loss Reduction Irbid/Jerash, Jordan

- Jordan is one of the most arid countries in the world. This is why managing the scarce water resources efficiently and sustainably is crucial for the sustainable supply and the economic development of the country.
- Targets -
  - › to ensure a minimum cost-effective supply of drinking water within the programme area (outcome level)
  - › to make a contribution to efficient and sustainable management of the country's scarce water resources (impact level)
- Total project cost: EUR 26.0 million;
  - FC share - EUR 18.1 million and counterpart contribution - EUR 7.9 million (FC share 69.7%)

- The project included reducing unaccounted for water in the governorates of Irbid, Jerash, Ajloun and Mafraq by -
  - › restructuring the distribution networks,
  - › rehabilitating the distribution networks by replacing defective main lines,
  - › replacing defective water meters,
  - › service connections and tertiary pipelines
  - › procuring equipment for leak detection and system maintenance
- Unaccounted for water probably declined from around 50% (in the governorates of Irbid and Jerash in 2000) to 37% (in all four governmental districts in 2020)



*Improvement in the water supply for one million people in Jordan*

# Lessons and messages from KfW experiences

- **Reducing water losses and NRW is highly relevant** – especially in the context of water scarcity and climate change
- High degree of complexity associated - **informality, administrative losses**
- **New institutional setups, robust monitoring, capacity building initiatives** can be helpful
- **Mainstream demand management and NRW considerations** as an integral part of water supply projects
- **Fund structures** (with financial resources that could be used flexibly) can be used to reduce technical water losses and unaccounted for water
- **Use of technological solutions** (using IOT and AI) **and innovative ideas** can be helpful to enhance efficiency in supply outcomes

# Thank you

**Nikita Madan**

**Sector Specialist – Sustainable Urban Development & Mobility**

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nikita.madan@kfw.de

KfW New Delhi Office