River Basin Management Cycle Training Series

Case Study – Surat City

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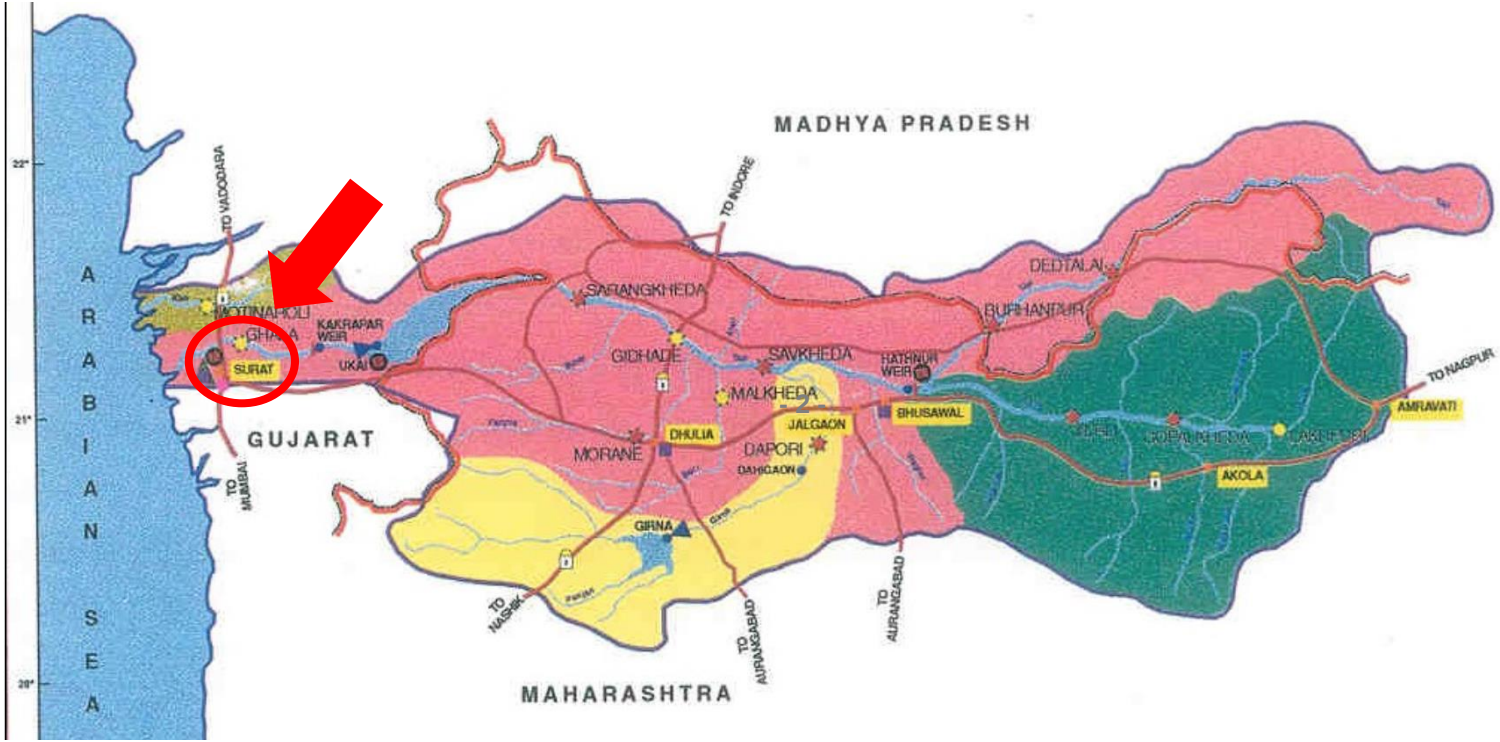
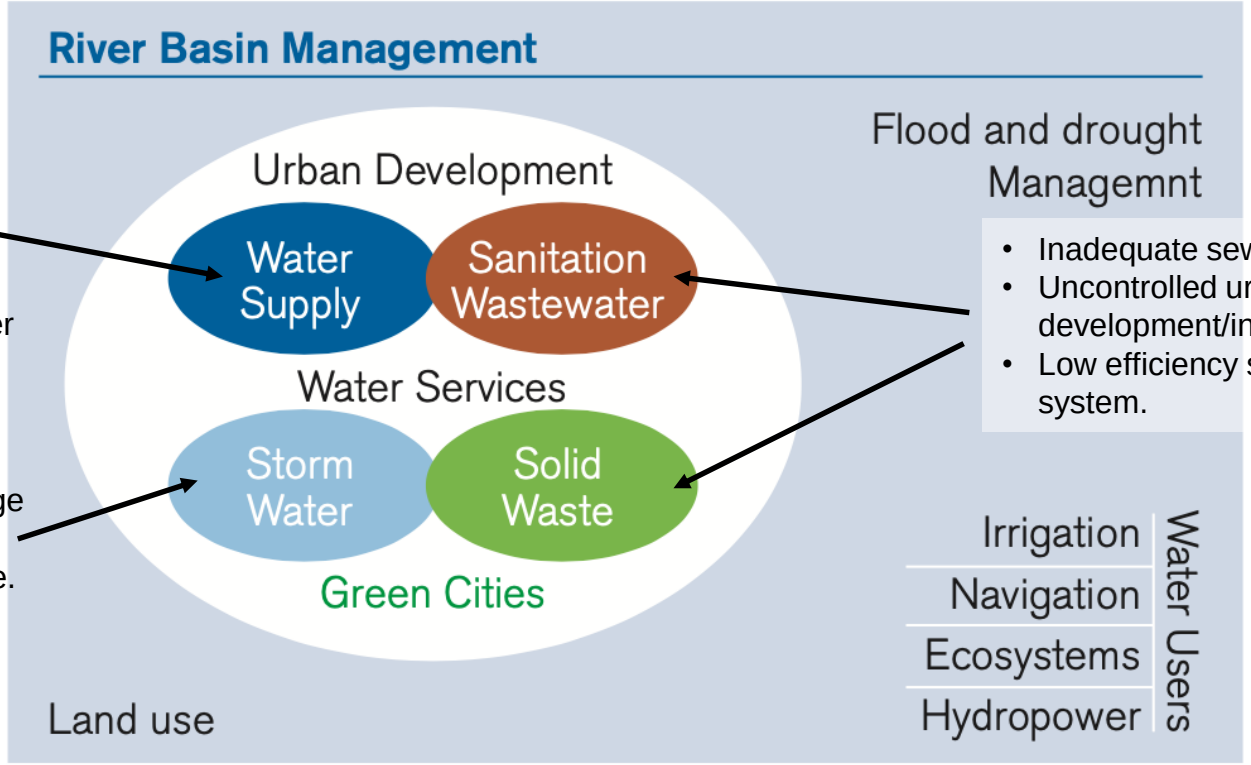
Case of Surat city and the Tapi basin



Case of Surat city and the Tapi basin – RBM, an approach for city environment

- Pressure on water resources
- Inefficient water supply systems.
- High values of Non-Revenue Water

- Recurring floods and lacking drainage systems.
- Aging infrastructure.
- Low cost recovery.



Source: World Bank (2012) based on Porto and Tucci 2010

Case of Surat city and the Tapi basin – In context of the Tapi Basin Management Plan (IEWP/SGR)

Tapi Basin Management Plan

- Being developed

Basin characterization, identification of key water management issues

- Among other locations in the basin, the city of Surat identified as critical for water quality and quantity issues

For the city of Surat, design integrated programme of measures

WATER SUPPLY
- NRW-Leak detection programme
- Water supply metering
- Water distribution network GRID

WASTEWATER
- Extension of sewerage network
- Reuse treated wastewater

STORM WATER
- Flood management
- Climate proofing water system

WATER AVAILABILITY
- Water conservation practices
- Groundwater management

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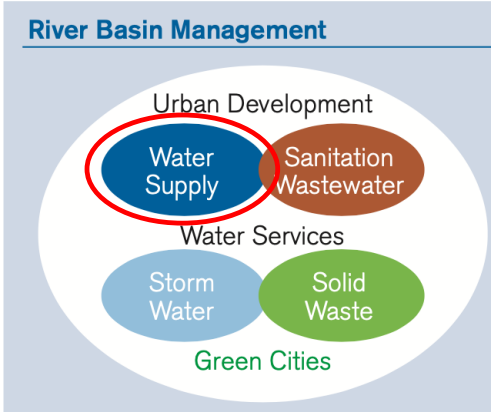
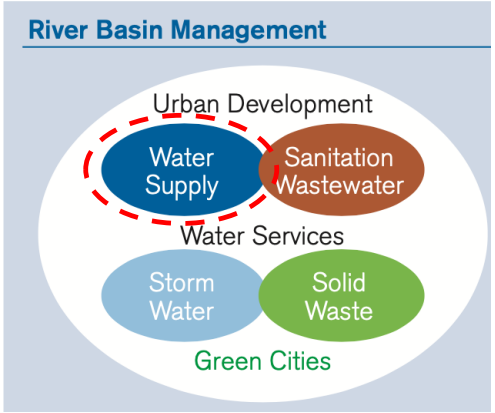
Case of Surat city and the Tapi basin - Achievements

WATER SUPPLY	Actions	Results
Non-Revenue-Water and Leak detection programme (NRW was 21%)	NRW cell established to to plan, develop, implement and monitor action plan for NRW reduction. Includes leakage mapping, identification of locations frequent leaks and remedial action decided at weekly meetings	• Decline in leakage per km of pipeline: in last 5 years, about 25000 meters of pipeline replaced. • Complaints associated with water supply leakages decreased of 33% • NRW 15%
Water supply metering	Meters installed in water works and distribution stations; industrial, commercial ad residential connections	• Number of meters from 1400 to 6000 (in 2012).
Water distribution network GRID	Redundancy built in the system: all water works and distribution interlinked, so that any water works can feed to any water distribution station	• Floods in 2006, water connections reestablished in 36 hours



Case of Surat city and the Tapi basin - Achievements

WATER AVAILABILITY	Actions	Results
Conservation practices	Rainwater harvesting (RWH): Metropolitan Areas have notified rules under which no new building plan is approved without corresponding rainwater harvesting structure.	• 90 RWH completed till date. • 500 RWH structures to be installed by SMC in next three years.
Groundwater management	Building of a weir to increase capacity and decrease salinity intrusions from the sea into the aquifers. Study carried out suggesting management measures such as groundwater recharge	• Increased groundwater rechange and protection from salinity intrusions
Monitoring and information system	Extensive water monitoring system in water works, wastewater system and river water	• Improved decision-making and emergency management processes

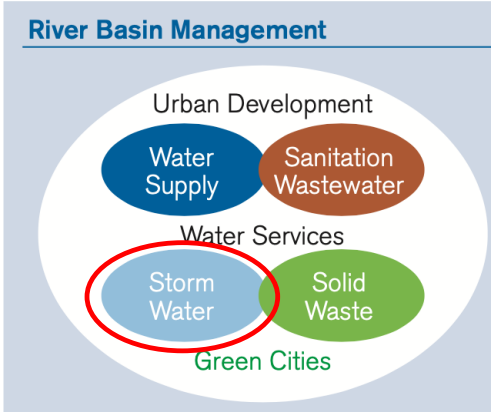


Case of Surat city and the Tapi basin - Achievements

WASTEWATER	Actions	Results
Extension of sewerage system	Building of 10 new STPs in last 25 years with latest technology and sludge dewatering systems	• Capacity treated: 925 MLD • Coverage: 91 % population • 1600 km sewer network
Reuse of treated wastewater	Reuse of 35 MLD treated wastewater from STP (tertiary treatment: ultrafiltration and RO) for textile use in Pandesara industrial park	• Cost fresh water to industry: Rs. 23/KL, cost treated wastewater Rs. 18,2/KL. • Separate network for drinking and reused water in industrial area with different color-codes. • Tertiary water blended with drinking water up to 50%.

Case of Surat city and the Tapi basin - Achievements

WASTEWATER	Actions	Results
Flood management	• Construction of gravity-flow underground drainage system after 1994 floods: drains constructed along every road, with manholes every 30 meters. • Cleaned on a regular basis, regular street cleaning, prevention of water-logging, improved garbage collection	• In 1994 there was an outbreak of pest in Surat. • Several floods hit the city in 1998, 2004 and 2006 , but there was never a pest outbreak again
Climate proofing on infrastructure	• Improved and sewer building especially in low-lying slums and organizational changes in municipal decision-making processes. • Energy improvements: installed 2 Wind Power Plants 1.5 MW (decentralized production), re-engineered water supply routes for energy saving, replaced low-efficiency equipment.	• Good drainage effect and no water standing within 22 hours after floods • Energy savings Rs. 6.36 Crores/ annum in water supply system



Case of Surat city and the Tapi basin - Achievements

Water Digest Award 2018-19

For Use of Solar Energy in water supply system of Surat Municipal Corporation

On 28th February 2019

The Water Digest Water Awards 2017-18

For "Usage of Wind power in water supply system of Surat Municipal Corporation" and "Aquifer Mapping Study for Tapti"

By The Times Group

On 21st March 2018

India Smart Cities Awards 2018 - "The City Award"

For showing great momentum in Implementation of Projects under Smart City Mission

By Ministry of Housing & Urban Affairs, Government of India

On 28th July 2018

Continued engagement pre and post webinar

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2. E-Learning platform - http://78.46.247.119/

(Temporarily hosted on AHT servers and will be transferred to the servers of training institutes.)

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