



# World Bank Water Secure Cities Program

1 Shona Fitzgerald, Lala Fabella, Irma Setiono

2 Olivia Jensen

1 World Bank

2 National University Singapore - Institute for the Public Understanding of Risk

Global with case studies from Indonesia, Bangladesh



**THE WORLD BANK**  
IBRD • IDA | WORLD BANK GROUP

**WATER**  
&  
**WASH** 2023  
FUTURES

Achieving SDG6 in a Changing Climate



#WaWF23

# Threats to Water Security in Cities



**1.6 billion exposed to floods by 2050**

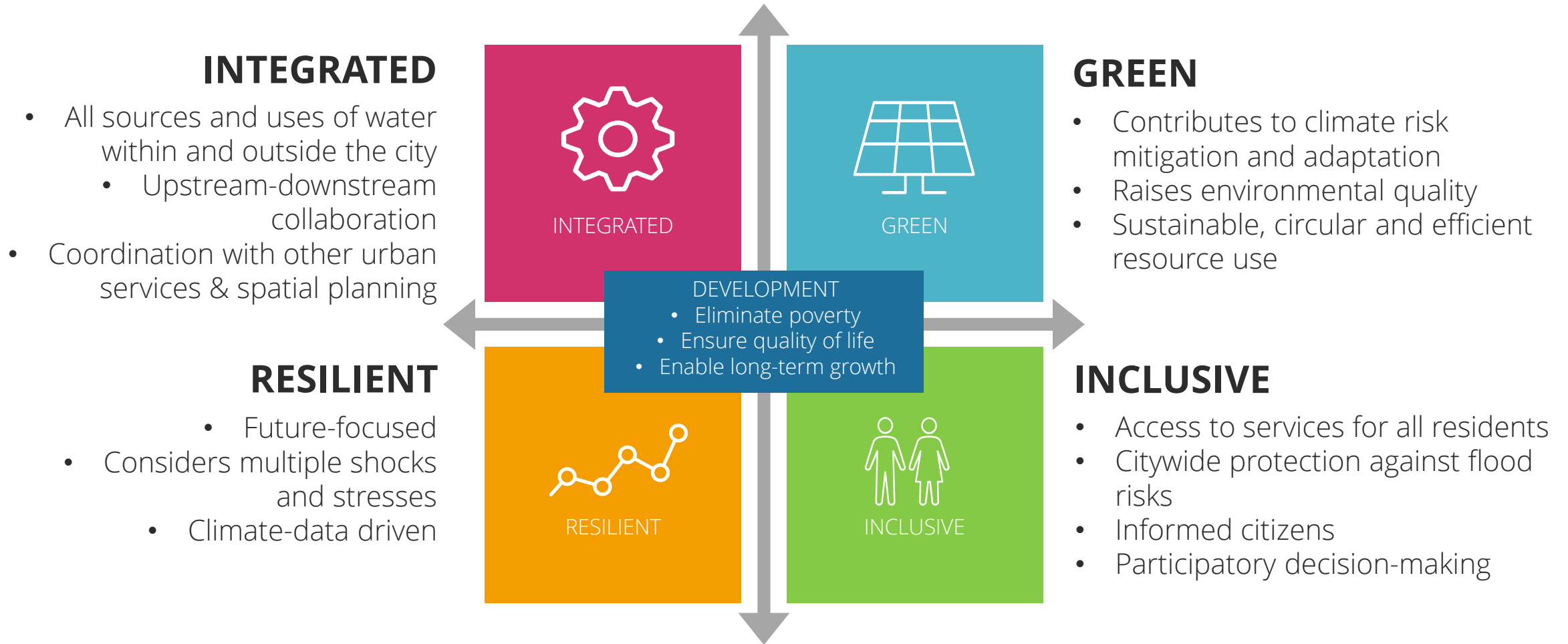


**4 billion people living in water stressed areas in 2050**



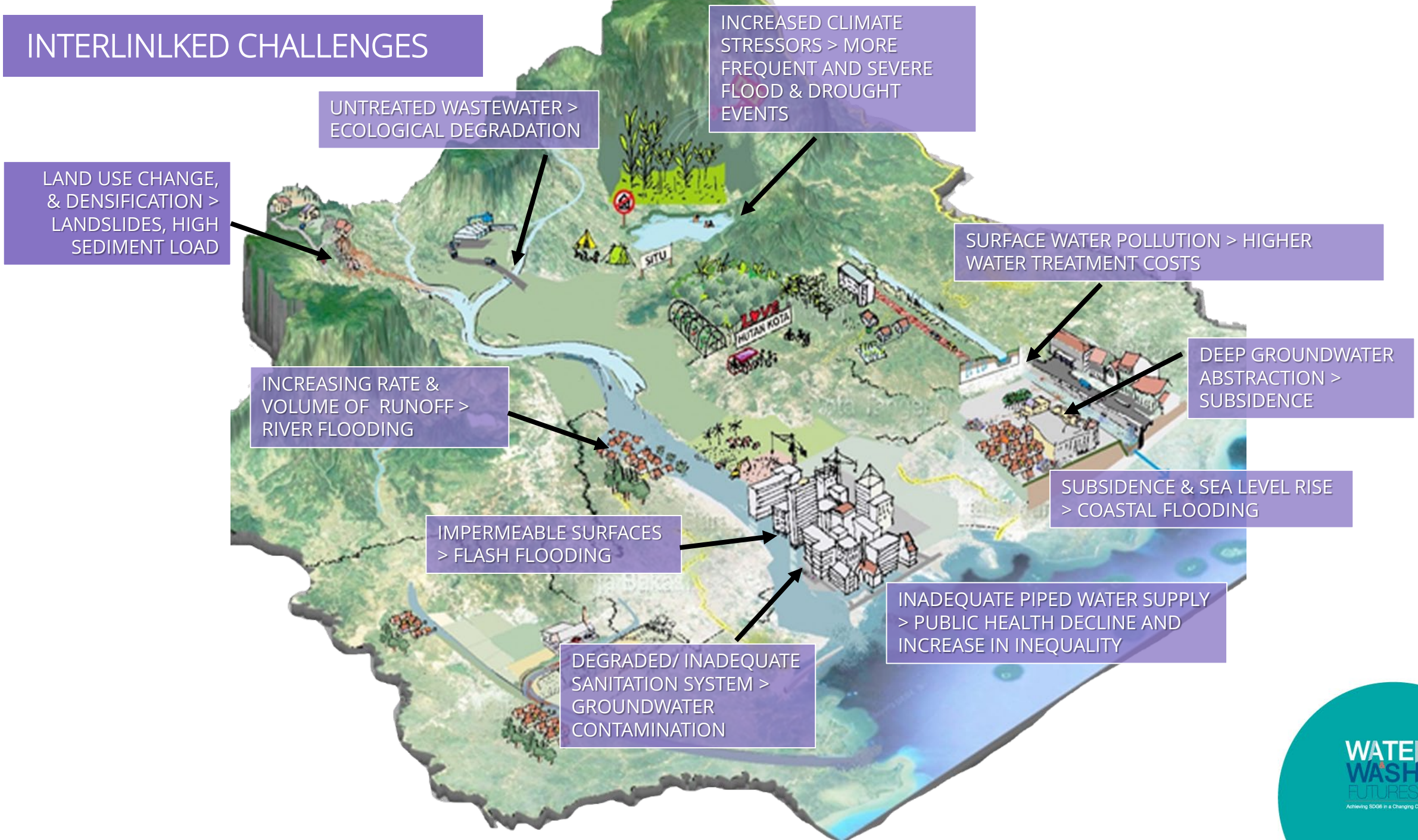
**80% of wastewater discharged untreated**

# Water Secure Cities Vision

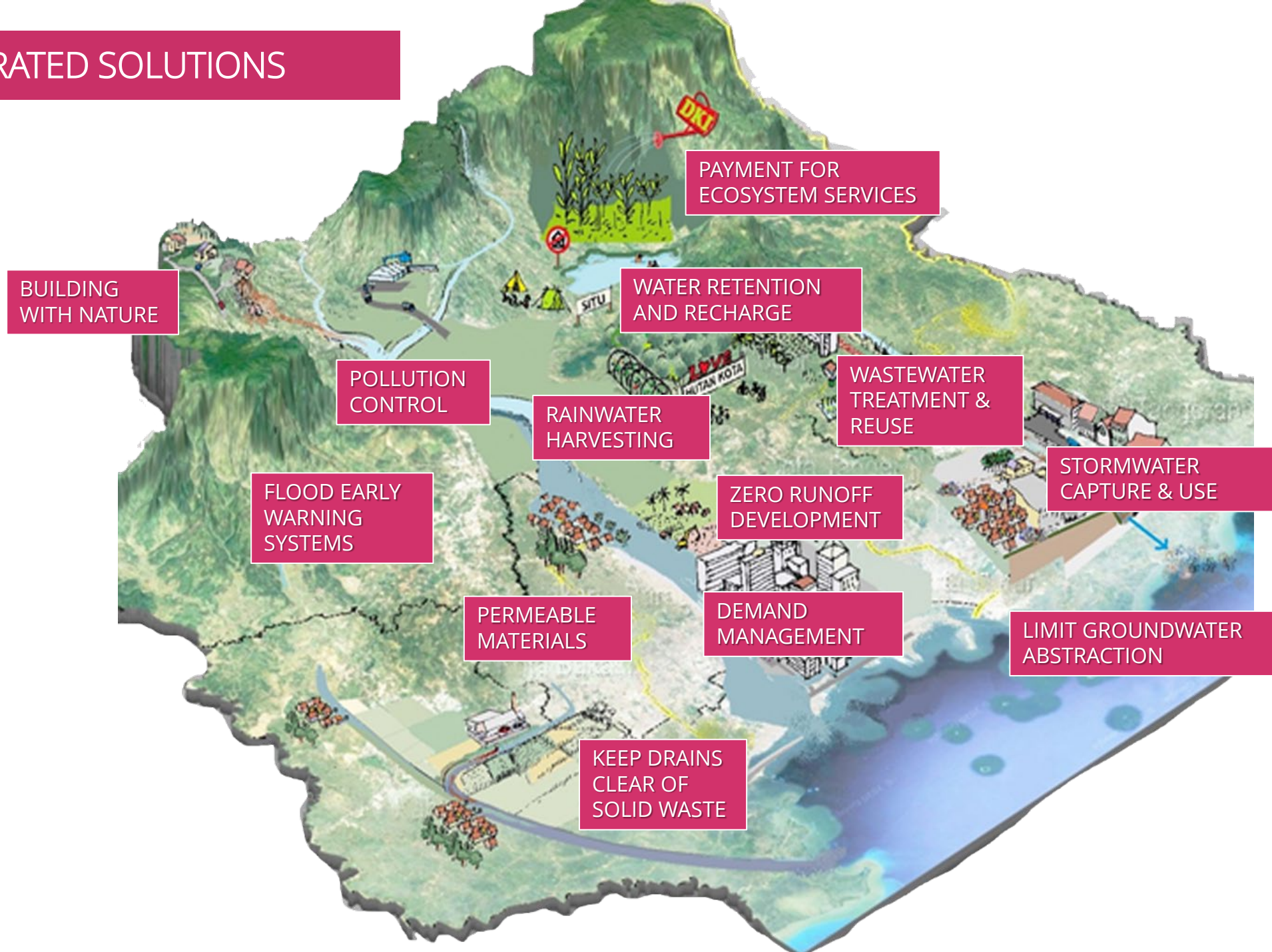


*The WSC Program aims to help cities of all sizes which face a broad range of challenges to achieve water security.*

# INTERLINKED CHALLENGES



# INTEGRATED SOLUTIONS



# World Bank Water Secure Cities Program

**OBJECTIVE :** To support project teams and government clients to build water security at the city level by developing solutions that recognize the interrelated nature of water issues and urban planning and development.

**I. Planning, collaboration and project design support to World Bank teams & Clients**

**II. Knowledge and learning support**

**III. Stakeholder collaboration**

- **Builds on** previous internal and external initiatives
- **Water Secure Cities Rapid Assessment**
- **Additional analysis** as required
- **Stakeholder workshops** to discuss risks, solutions, trade-offs, co-benefits and prioritize integrated interventions
- **Planning** activities, e.g., benefit-cost analysis, strategic planning
- **Implementation**

# Water Secure Cities Rapid Assessment

Scope

- Spatial
- Temporal
- Equity
- Adaptable

Initial Assessment

- Relevance
- Qualitative Assessment
- Adequate Information

Priority Risk Assessment

- Timeframe
- Population or assets
- Probability
- Cost
- Intervention Benefits
- Barriers

## PRESSURE

- Water Resource Hazard
- Flood Hazard
- Demand Risk

## STATE

- Water Resource
- Water, Flood and Sanitation Infrastructure
- Water Environment

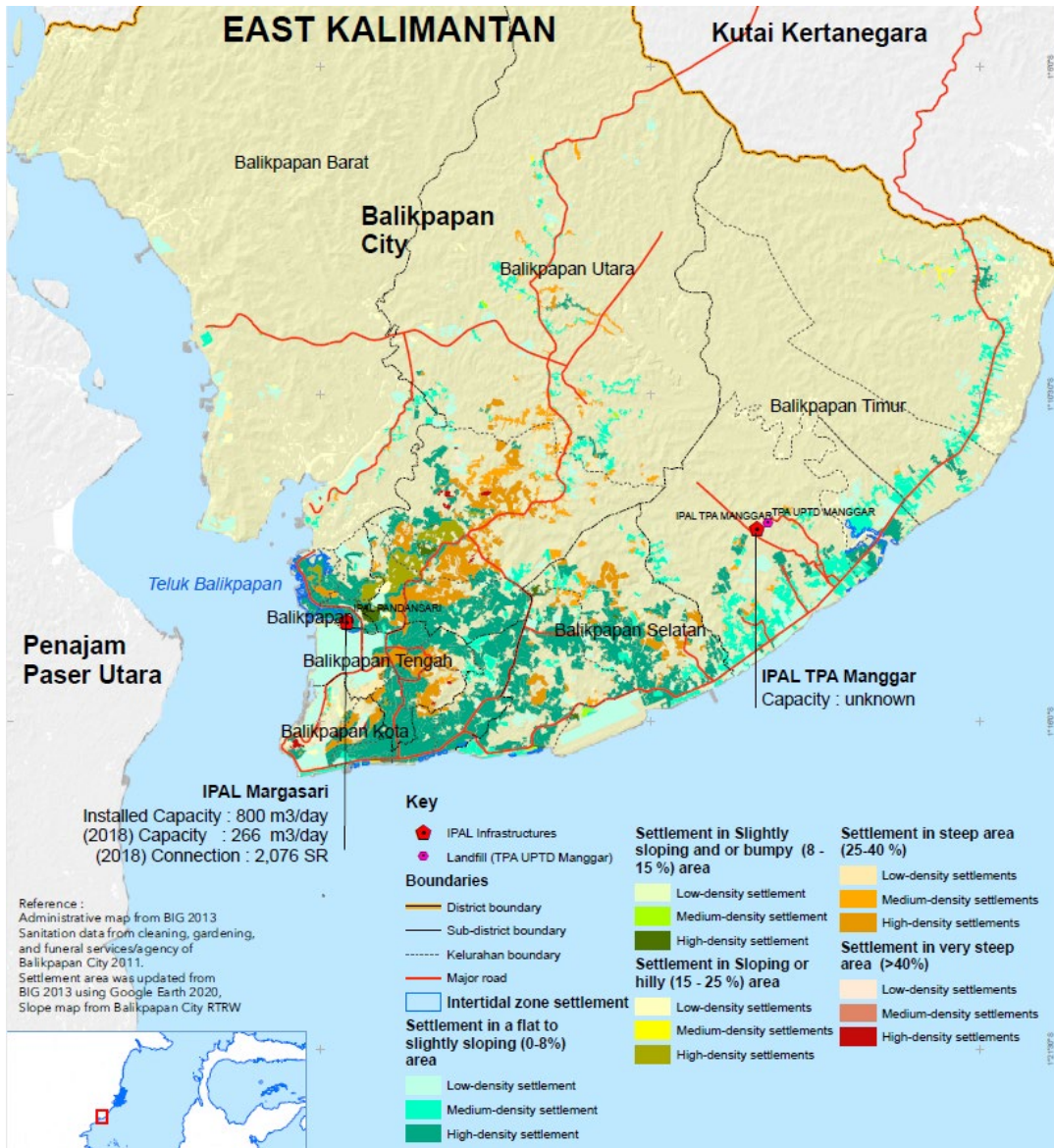
## IMPACT

- Water Allocation
- Water, Sanitation Access
- Flood
- Water Environment

## RESPONSE

- Governance
- Planning
- Implementation

# Case Study: Balikpapan, Indonesia

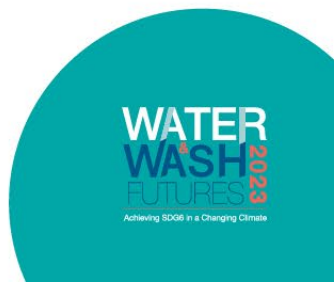


## Context

- Second city to new capital, mid-sized with 672,000 people
- Coastal city with an equatorial climate
- Good planning processes with 52% of land preserved for environment, 48% for construction and 20% of this for green space

## Challenges

- Uncertainty on scale and speed of population growth
- Localized flooding
- Access to and state of water supply & sanitation systems





# Balikpapan Risk Assessment

PRESSURE					
Water Resource Hazard	3	Flood Hazard	5	Water Demand	7
	3		7		6
	3		2		7
	4		5		6
	4		2		4
	3		6		4
	6				

STATE									
Water Resource Risk	7	Water Supply Infrastructure Risk	7	Flood Infrastructure	5	Sanitation Infrastructure Risk	8	Water Environment Risk	6
	4		7		6		8		6
	5		7		6		5		7
	3		6	3	3		3		

IMPACT									
Water Allocation Risk	2	Water Supply Access	7	Flood Risk	3	Sanitation Access Risk	7	Water Environment Risk	5
	3		7		7		7		7
			3						

RESPONSE					
Governance Risk	4	Planning Risk	4	Implementation Risk	4
	3		6		3
	3		5		3
	3		5		6
	3		5		7
	5		5		
	5				

# Opportunities to boost Balikpapan's water security



## Water Source Security

- Planned: Additional reservoir capacity
- Opportunities:
  - Reduce NRW
  - Demand management
  - Diversification of supply



## Water-Smart Planning

- Planned: 2045 development for existing growth projections
- Opportunities:
  - Adaptive medium-term plans
  - Distributed infrastructure for water and electricity
  - Reuse of wastewater and greywater
  - Composting of organic waste
  - Update building regulations



# Case study insights

- Methodology adaptable to different contexts and challenges
- Benefits of risk-based approach
  - Highlight and communicate interlinkages in water and urban planning challenges
  - Quick means to compare gaps in planned investments and alignment with risks
  - Informs conversation with stakeholders
- Stakeholder workshops
  - Essential for stakeholder engagement, collaboration and shared learning and decision-making
  - Focused on select risks

# Water Secure Cities Program

- Program will expand to different cities to:
  - Identify the critical interlinkages between aspects of the water system in cities and their regions which can amplify risks
  - Find synergies between actions to manage water risks which can also bring benefits outside the water sector
  - Introduce comprehensive and integrated approaches, supported by cooperation and coordination across jurisdictions and levels of government
  - Work with stakeholders to understand alignment of spatial planning with investment needs
  - Engage in ongoing and diagnostic-informed dialogue to identify and prioritize investment needs

For more information, please contact:

[sfitzgerald1@worldbank.org](mailto:sfitzgerald1@worldbank.org)

**WATER**  
**WASH** **2023**  
**FUTURES**

Achieving SDG6 in a Changing Climate