

De City Blueprint Scan: waarom eerst een diagnose van onze steden?

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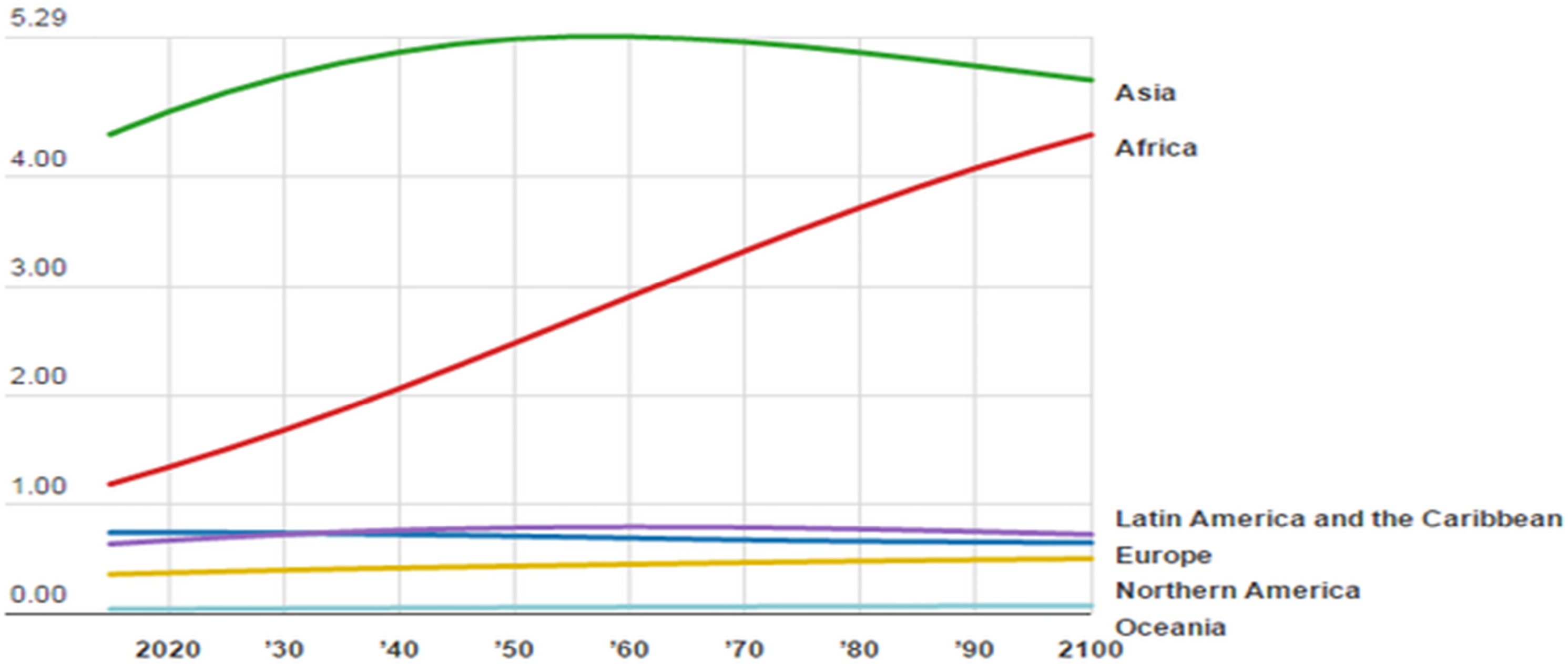
Utrecht University Copernicus Institute (The Netherlands)

Content

1. Our global challenges
2. The City Blueprint Approach
3. Results
4. Co-benefits in city planning
5. Conclusions
6. Further info



UN Regional Population Projections (Billions, 2015 - 2100)

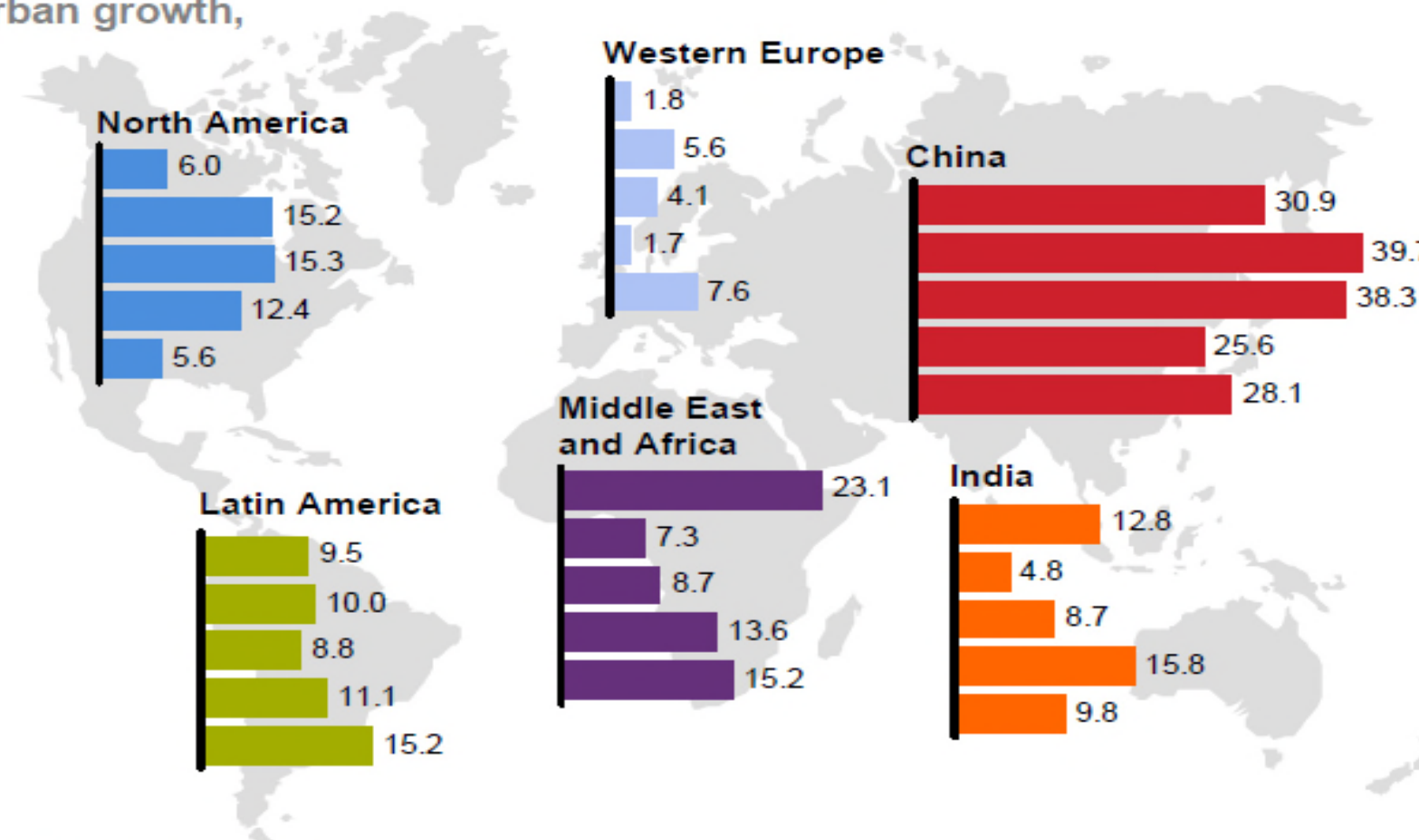


Source: [UN Medium-Variant Projection, 2015](#) [Get the data](#)

Growth predictions (%) in cities for 2010-2025

Contribution to urban growth, 2010-25
%

Population
GDP ¹
Floor space
Municipal water
Containers



¹ GDP measured at expected real exchange rate.

NOTE: Other developed and emerging regions account for 16.0, 17.4, 16.0, 19.8, and 18.6 percent of growth in population, GDP, floor space, municipal water, and container-demand growth, respectively; floor space growth includes replacement.

SOURCE: McKinsey Global Institute Cityscope 2.0

Source: Dobbs et al., 2012

Megatrends in cities

A nighttime cityscape with illuminated buildings and streets, serving as the background for the slide.

Urbanization

Urban areas of the world are expected to absorb all the population growth expected over the next four decades. By 2050, urban dwellers will likely account for 86 % of the population in the more developed regions and for 64 % of that in the less developed regions.

Climate change

Climate change may worsen water services and quality of life in cities.

Water use & water scarcity

Water withdrawals have tripled over the last 50 years. In 2030, there will be a 40% supply shortage of water.

Sanitation

Currently, 2.5 billion people are without improved sanitation facilities.

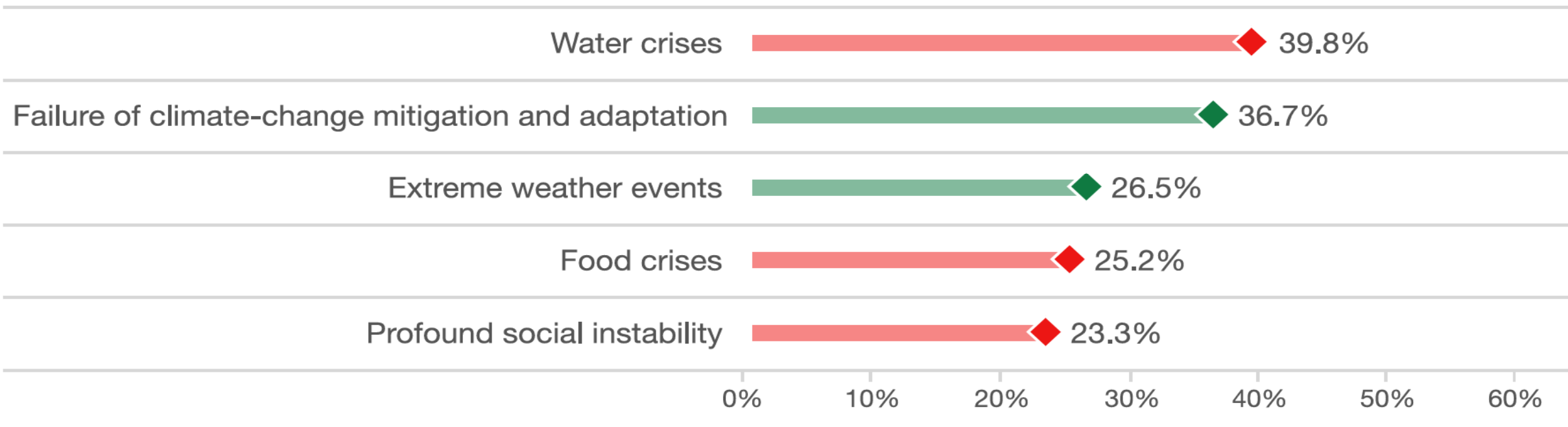
Human health

Currently, 3.4 million people - mostly children – die from water-borne diseases every year.

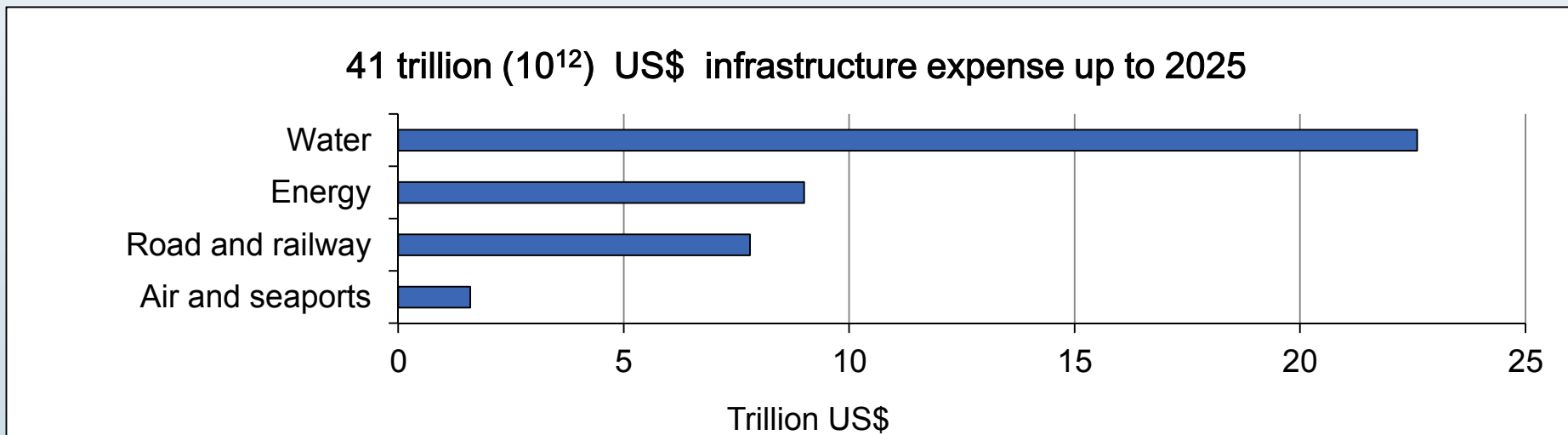
Hazards

Water-related hazards account for 90% of all natural hazards.

For the next 10 years



World Economic Forum, 2015



UNEP, 2013

UNEP (2013). City-level decoupling

PLAN or WASTE YOUR MONEY

“Sooner or later, the money needed to modernise and expand the world’s urban infrastructure will have to be spent. The demand and need are too great to ignore. The solutions may be applied in a reactive, ad hoc, and ineffective fashion, as they have been in the past, and in that case the price tag will probably be higher than US\$40 trillion. After all, infrastructure projects are notorious for cost overruns. But perhaps the money can be spent proactively and innovatively, with a pragmatic hand, a responsive ear, and a visionary eye. The potential payoff is not simply the survival of urban populations, but the next generation of great cities.”

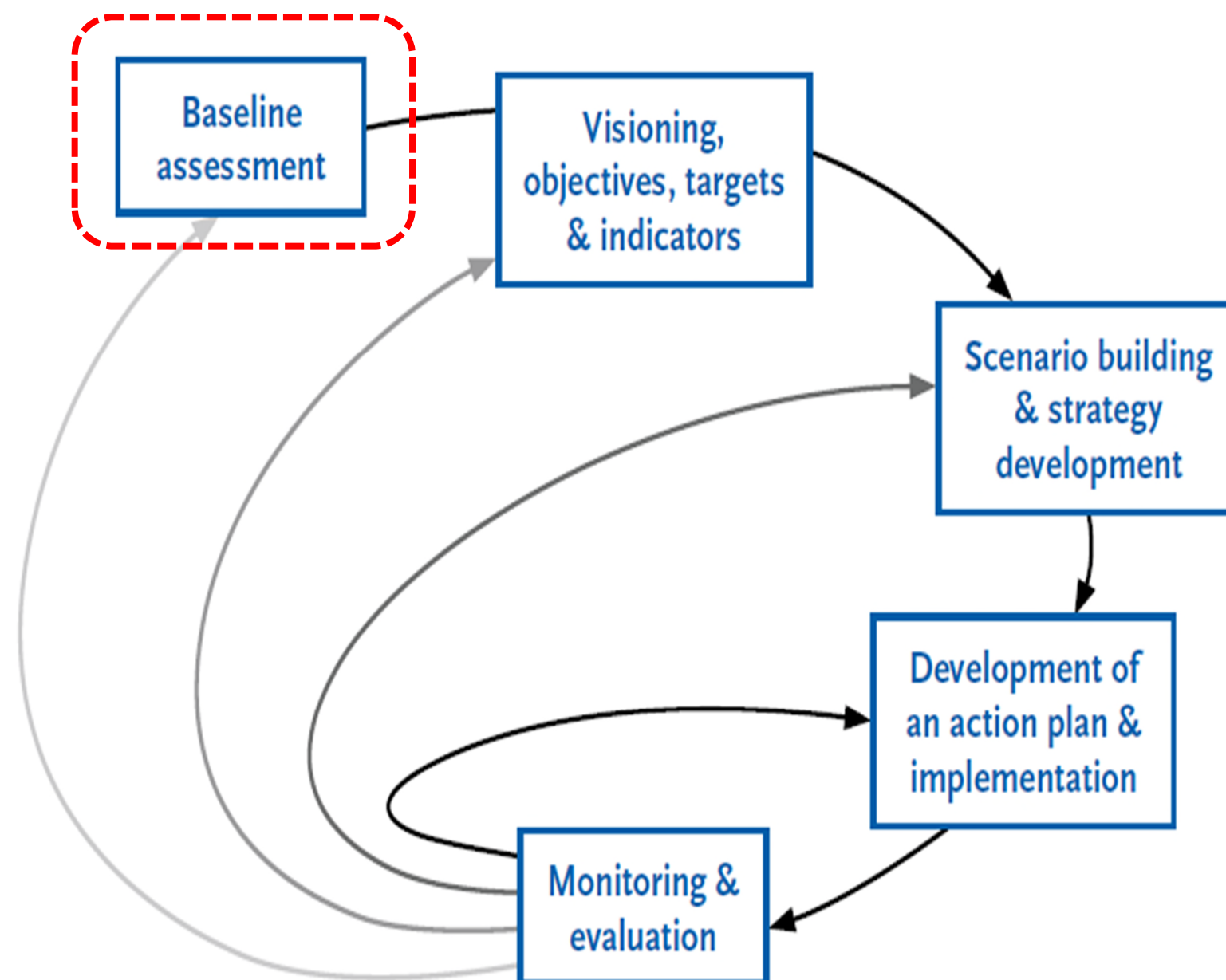
REGRETTABLE TRANSITIONS

“Cities in developing countries may be able to engage in large-scale investments in alternative urban infrastructure technologies to leap frog towards more sustainable solutions rather than wasting valuable resources to implement what must later on be dismantled”

Cities need a long-term vision and strategy

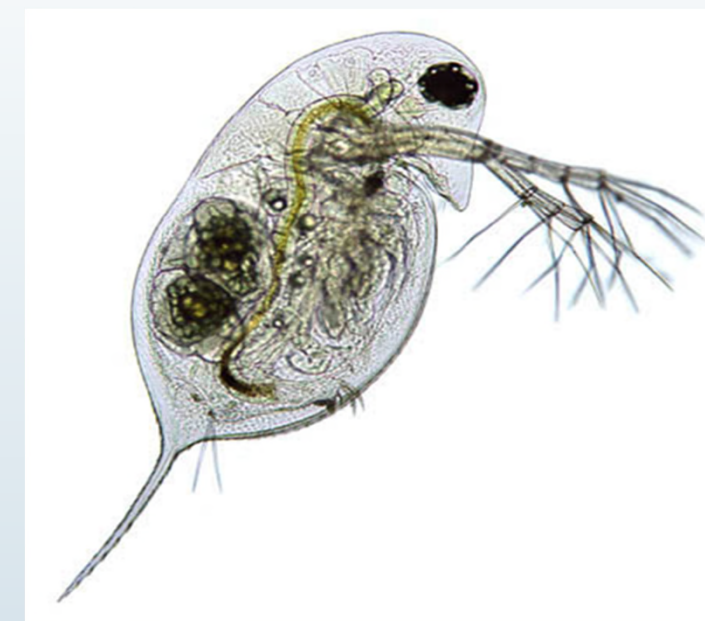
Cities need to start investing in adaptation measures based on a long-term vision and strategy and by sharing best practices (*Van Leeuwen, 2014*).

The longer political leaders wait, the more expensive adaptation will become and the danger to citizens and the economy will increase (*Jacqueline McGlade, former EEA Executive Director*).



GENERATION TIMES OF SOME 'SPECIES'

Species	Generation time
Bacteria	≈ 0.1 d
Algae (<i>Chlorella sp.</i>)	≈ 1 d
Waterfleas (<i>Daphnia sp.</i>)	≈ 10 d
Snails (<i>Lymnaea sp.</i>)	≈ 100 d
Rats	≈ 1 y
Politicians	≈ 5 y
Man	≈ 25 y
Cities	>100 y

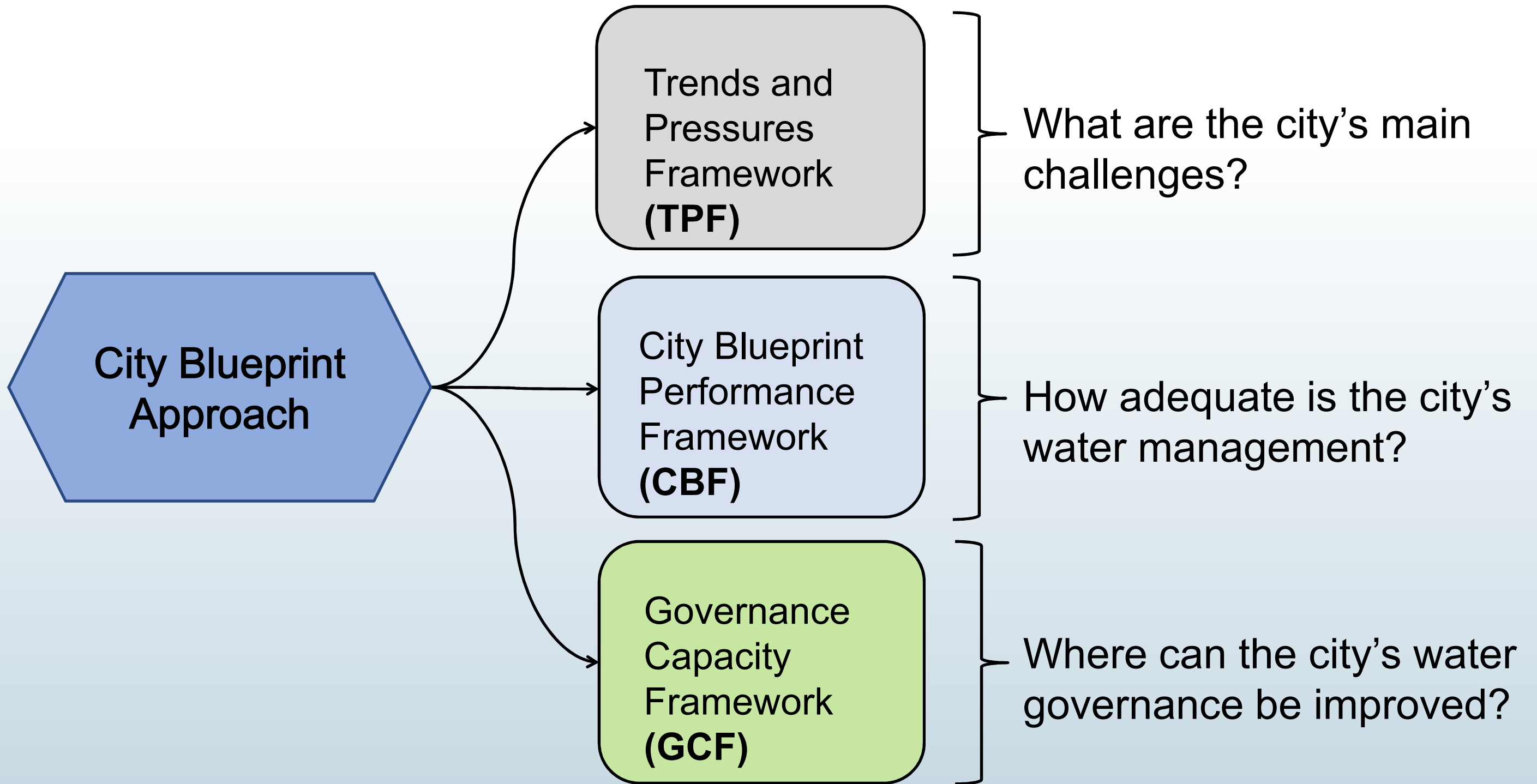


Modified after Van Leeuwen en Vermeire (2007)

Content

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- 2. The City Blueprint Approach**
3. Results
4. Co-benefits in city planning
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6. Further info





Trends and pressures framework

city blueprints	Social	1 Urbanization rate
		2 Burden of disease
		3 Education rate
		4 Political stability
	Environmental	5 Flood risk
		6 Water scarcity
		7 Water pollution
		8 Heat risk
	Financial	9 Economic pressure
		10 Unemployment rate
		11 Poverty rate
		12 Inflation rate

5 Flood risk	Urban drainage flood
	River peak discharges
	Sea level rise
	Land subsidence
6 Water scarcity	Freshwater scarcity
	Groundwater scarcity
	Salinization and/or seawater intrusion
7 Water pollution	Surface water quality
	Biodiversity
8 Heat risk	Heat island effect

0	No concern	1	Low concern	2	Medium concern	3	Concern	4	Great concern
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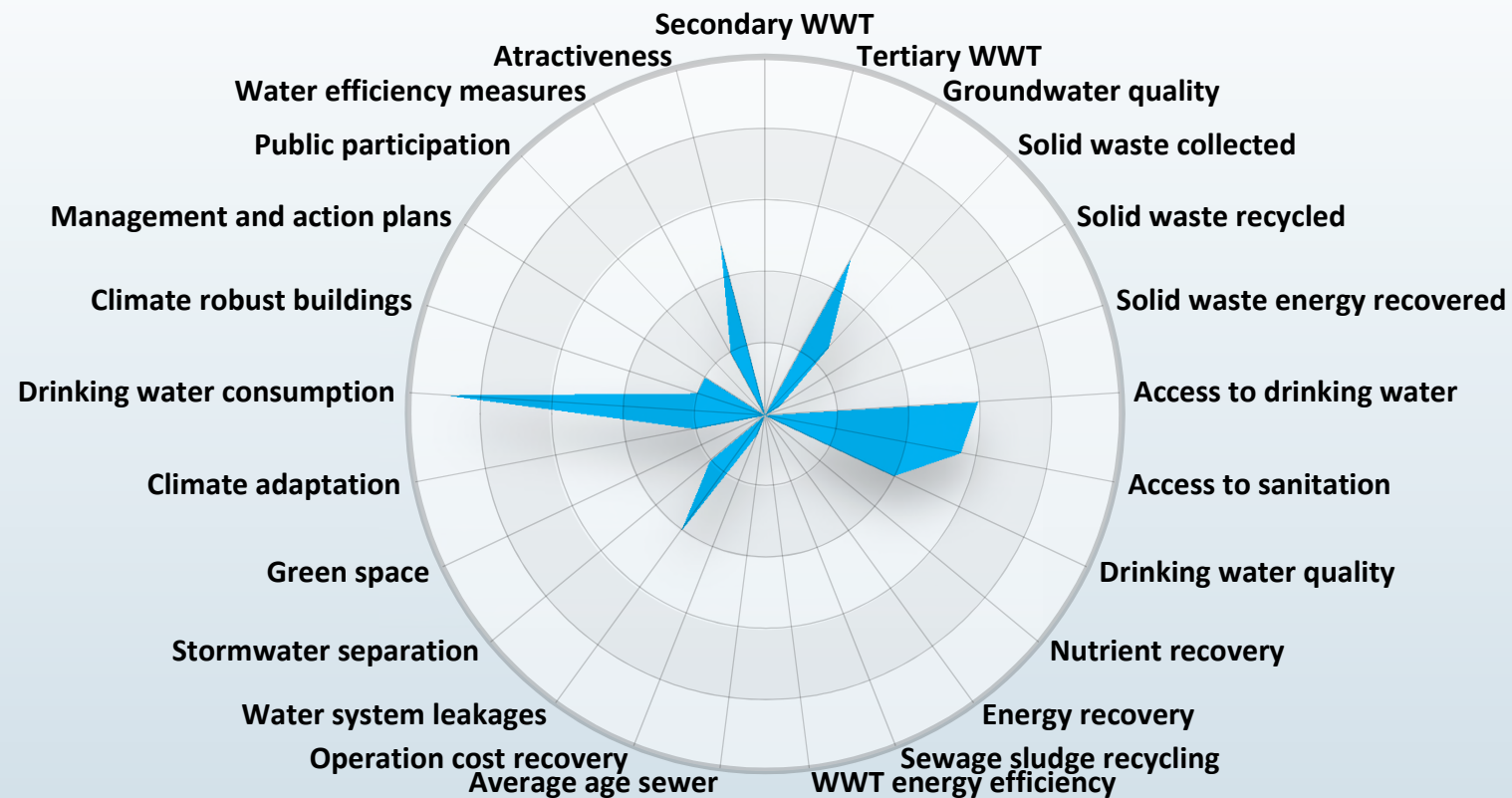
Three examples

		Dar es Salaam	Melbourne	Amsterdam	
Trends and pressures	Social	1. Urbanization rate	4	1	1
		2. Burden of disease	3	1	0
		3. Education rate	3	0	1
		4. Political instability	2	1	1
	Environmental	5. Water scarcity	2	1	1
		6. Flood risk	3	2	3
		7. Water quality	1	2	2
		8. Heat risk	3	4	1
	Financial	9. Economic pressure	4	0	1
		10. Unemployment rate	1	1	1
		11. Poverty rate	4	0	0
		12. Inflation rate	3	2	1

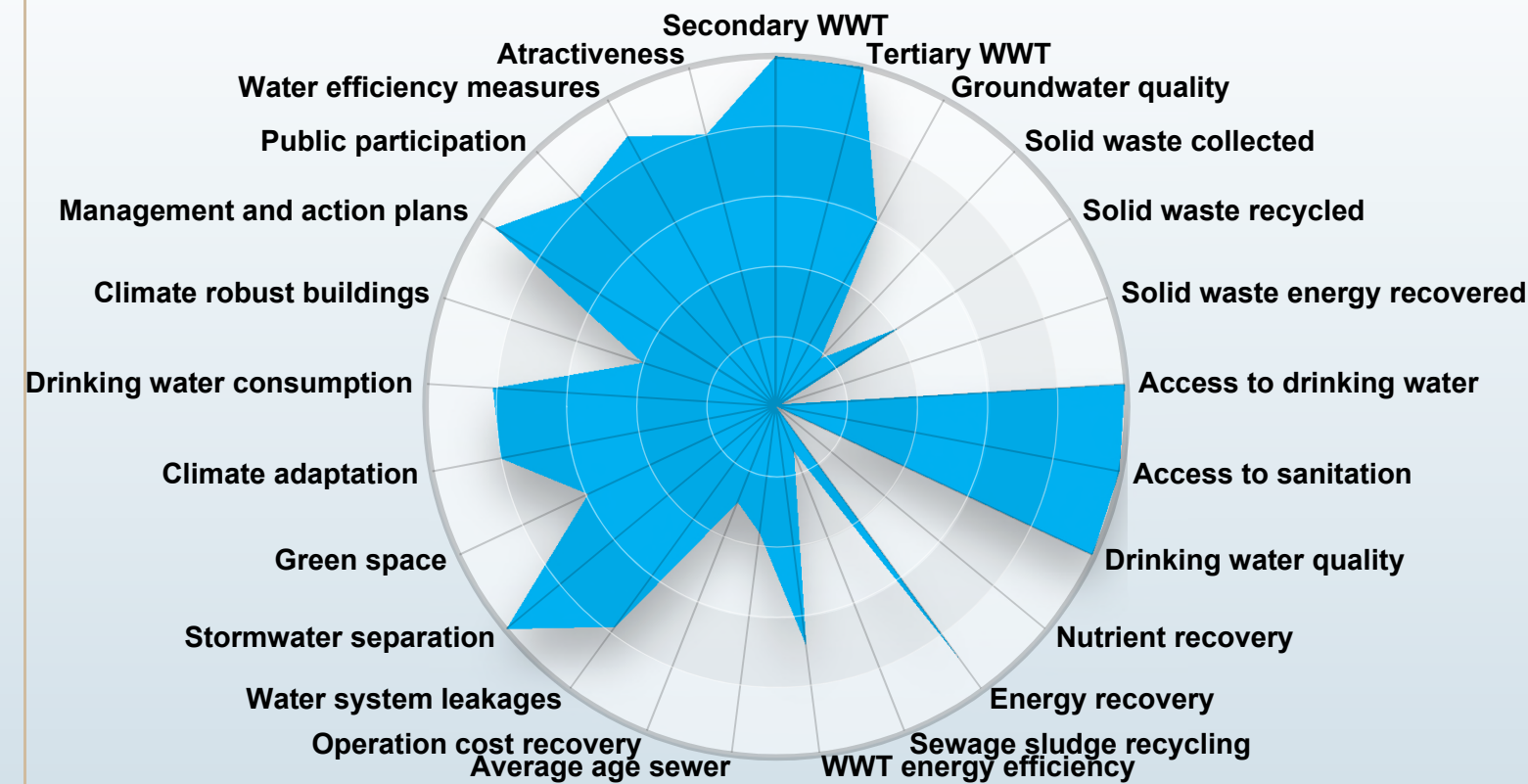
City Blueprint performance framework

Goal	Baseline assessment of the sustainability of Urban Water Resources Management
Indicators	<p>Twenty-five indicators divided over seven categories:</p> <ol style="list-style-type: none"> 1. Water quality 2. Solid waste treatment 3. Basic water services 4. Wastewater treatment 5. Infrastructure 6. Climate robustness 7. Governance
Data	Public data or data provided by the (waste) water utilities and cities based on a questionnaire
Scores	0 (concern) to 10 (no concern)
BCI	Blue City Index, the geometric mean of 25 indicators which varies from 0 to 10
Stakeholders	Water utility, water board, city council, companies, NGOs, etc.
Process	Interactive with all stakeholders involved early on in the process

Dar es Salaam (BCI 1.3)

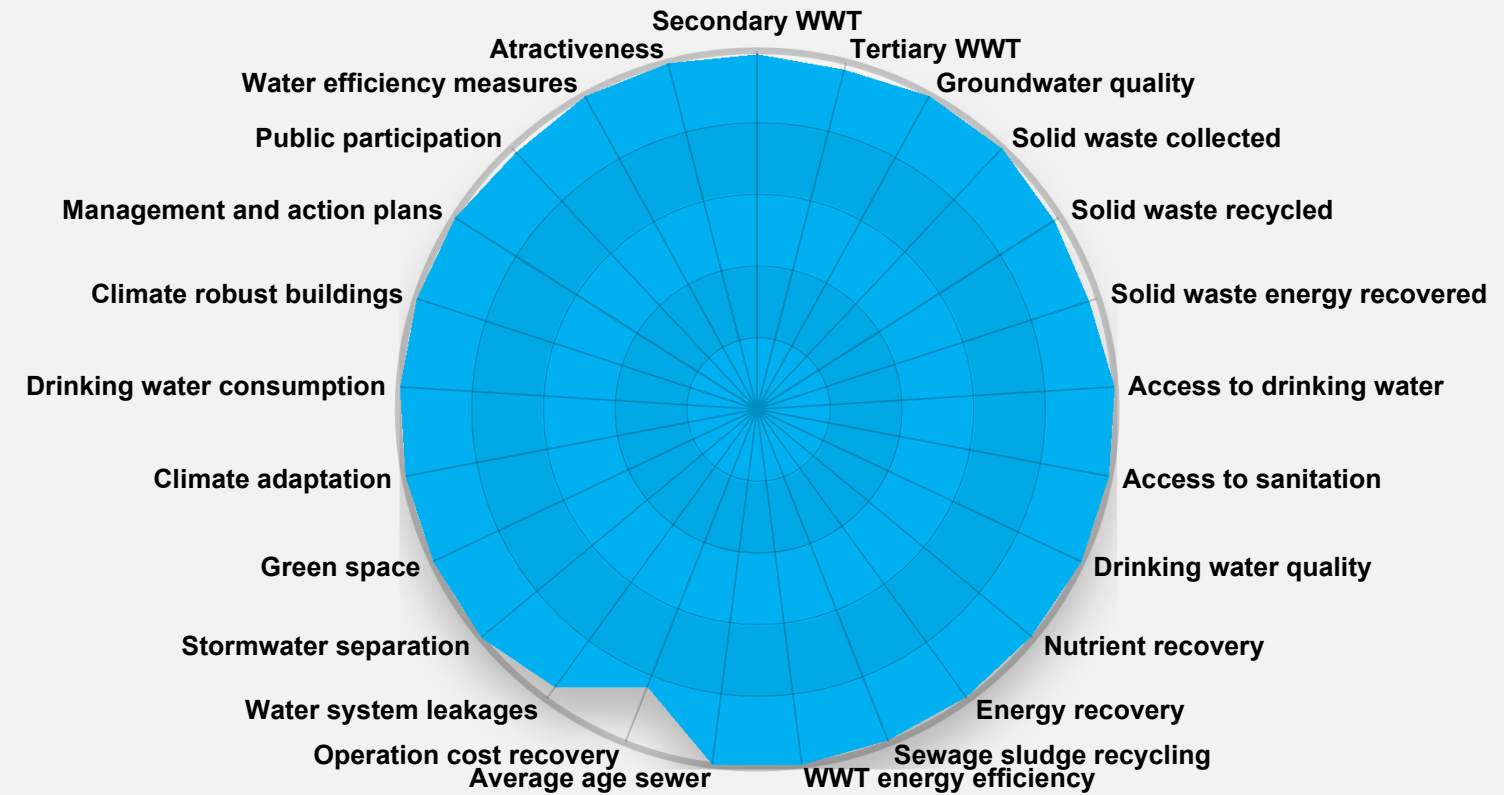
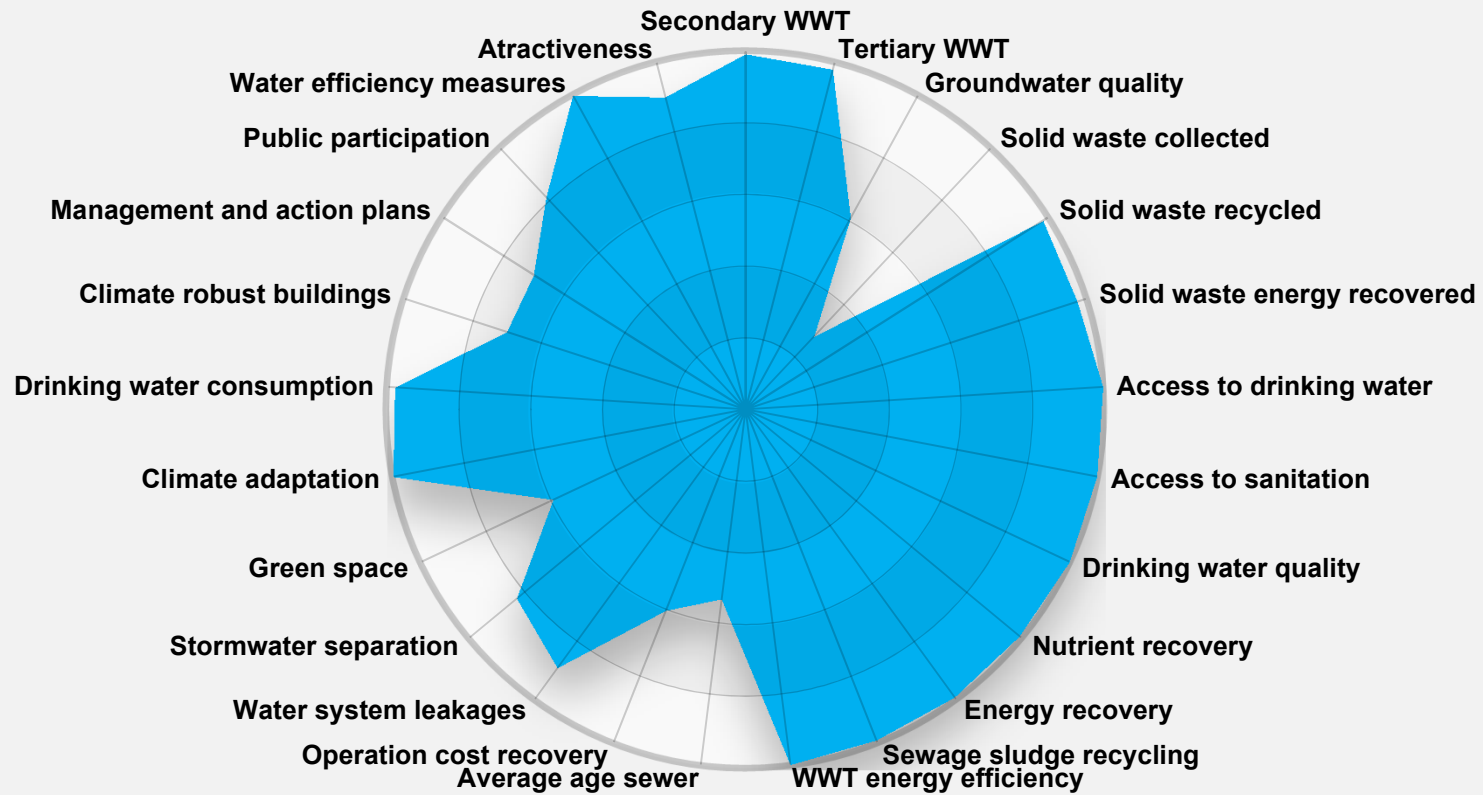


Melbourne (BCI 5.4)



Amsterdam (BCI 8.3)

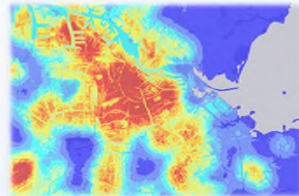
Best indicator score for each indicator based on 70 cities



Governance Capacity Analysis



1. Flooding



2. Urban Heat Islands



3. Water Scarcity



4. Wastewater disposal and treatment

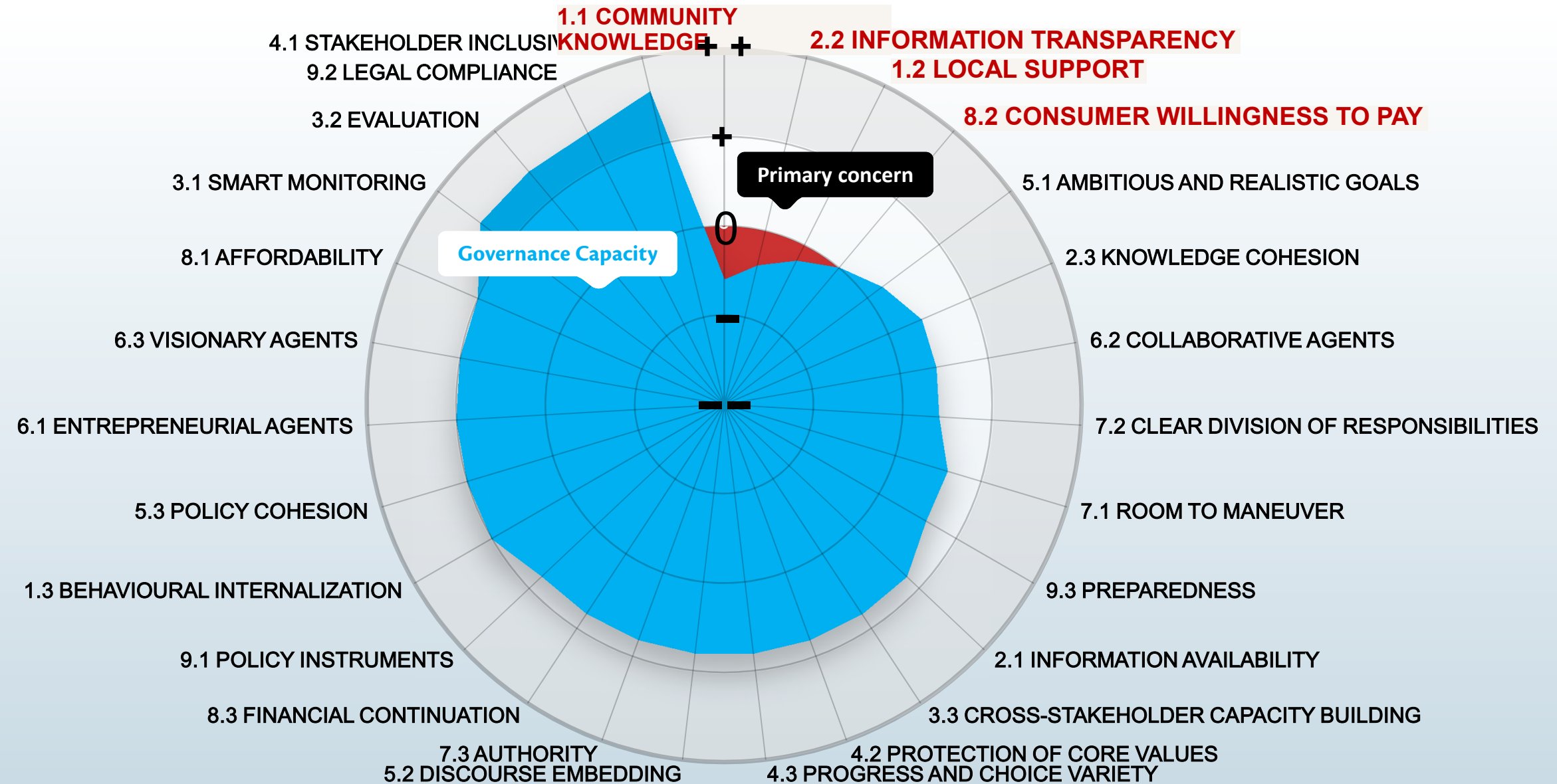


5. Solid Waste collection, disposal and treatment

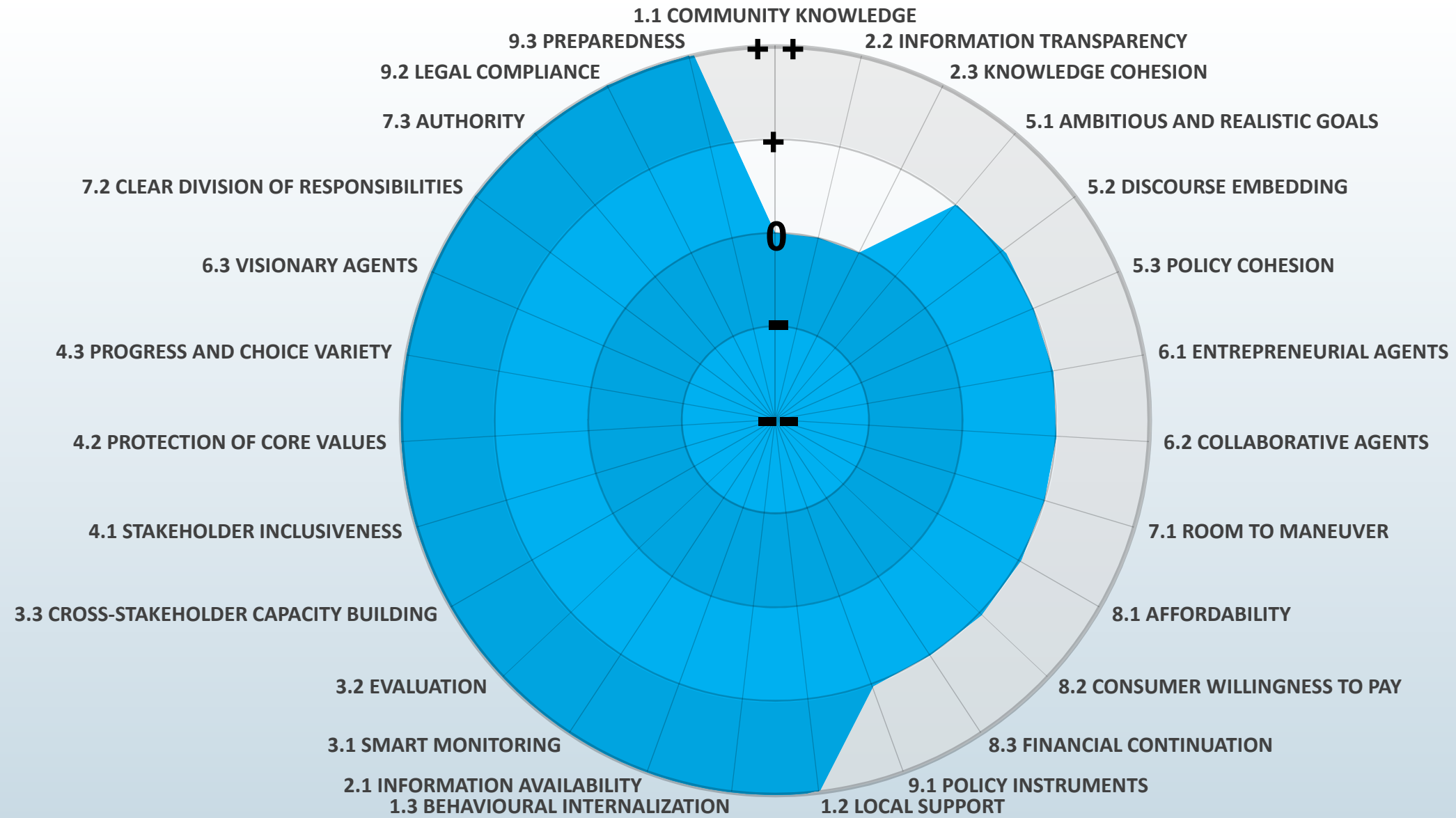
Water Governance Capacity Framework

Dimensions	Conditions	Indicators
Knowing	1 Awareness	1.1 Community knowledge 1.2 Local sense of urgency 1.3 Behavioral internalization
	2 Useful knowledge	2.1 Information availability 2.2 Information transparency 2.3 Knowledge cohesion
	3 Continuous learning	3.1 Smart monitoring 3.2 Evaluation 3.3 Cross-stakeholder learning
Wanting	4 Stakeholder engagement process	4.1 Stakeholder inclusiveness 4.2 Protection of core values 4.3 Progress and variety of options
	5 Policy ambition	5.1 Ambitious and realistic goals 5.2 Discourse embedding 5.3 Policy cohesion
	6 Agents of change	6.1 Entrepreneurial agents 6.2 Collaborative agents 6.3 Visionary agents
Enabling	7 Multi-level network potential	7.1 Room to maneuver 7.2 Clear division of responsibilities 7.3 Authority
	8 Financial viability	8.1 Affordability 8.2 Consumer willingness to pay 8.3 Financial continuation
	9 Implementing capacity	9.1 Policy instruments 9.2 Statutory compliance 9.3 Preparedness

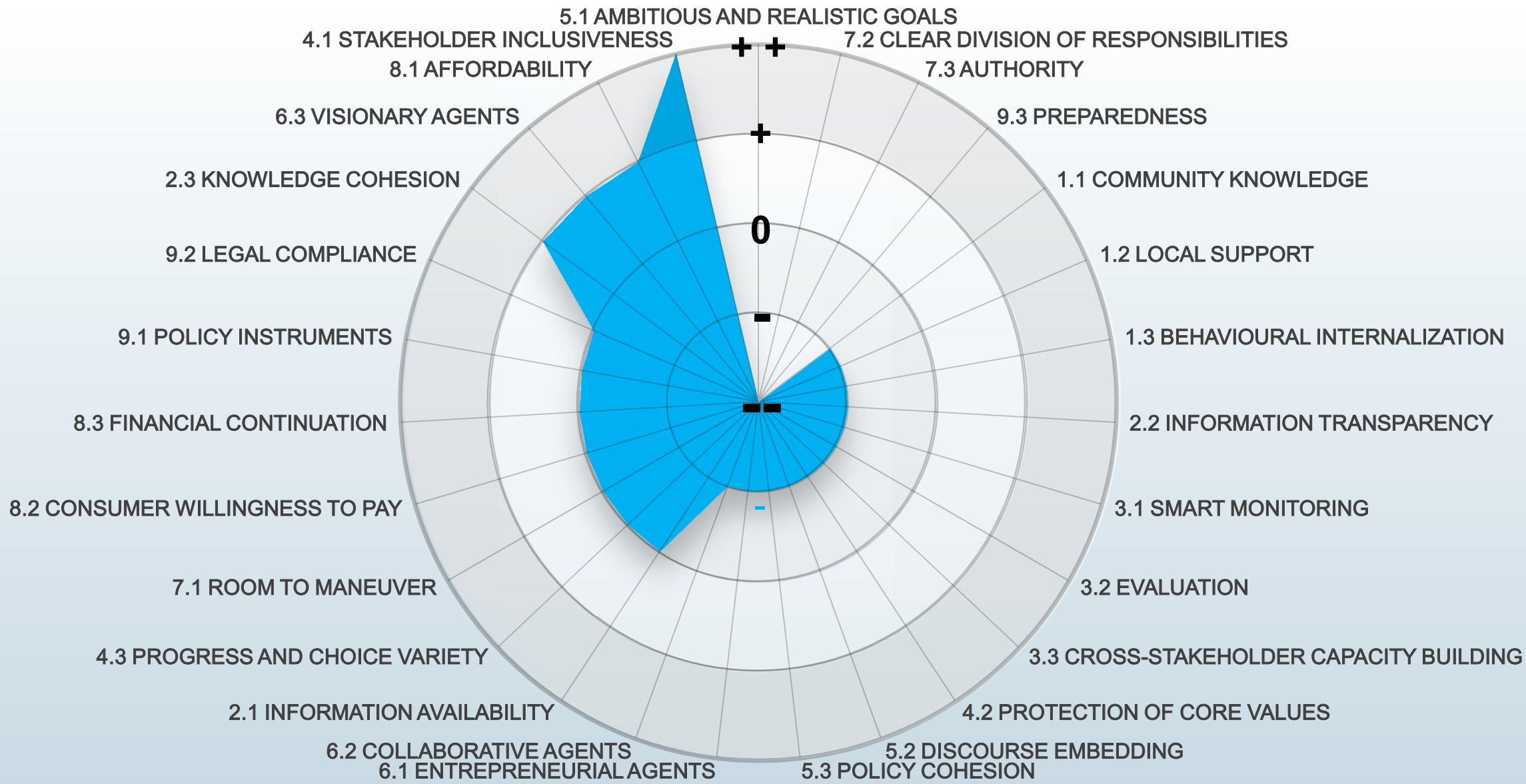
Governance Analysis Amsterdam



GCF Flood Risk Amsterdam



GCF Urban Heat Islands Amsterdam

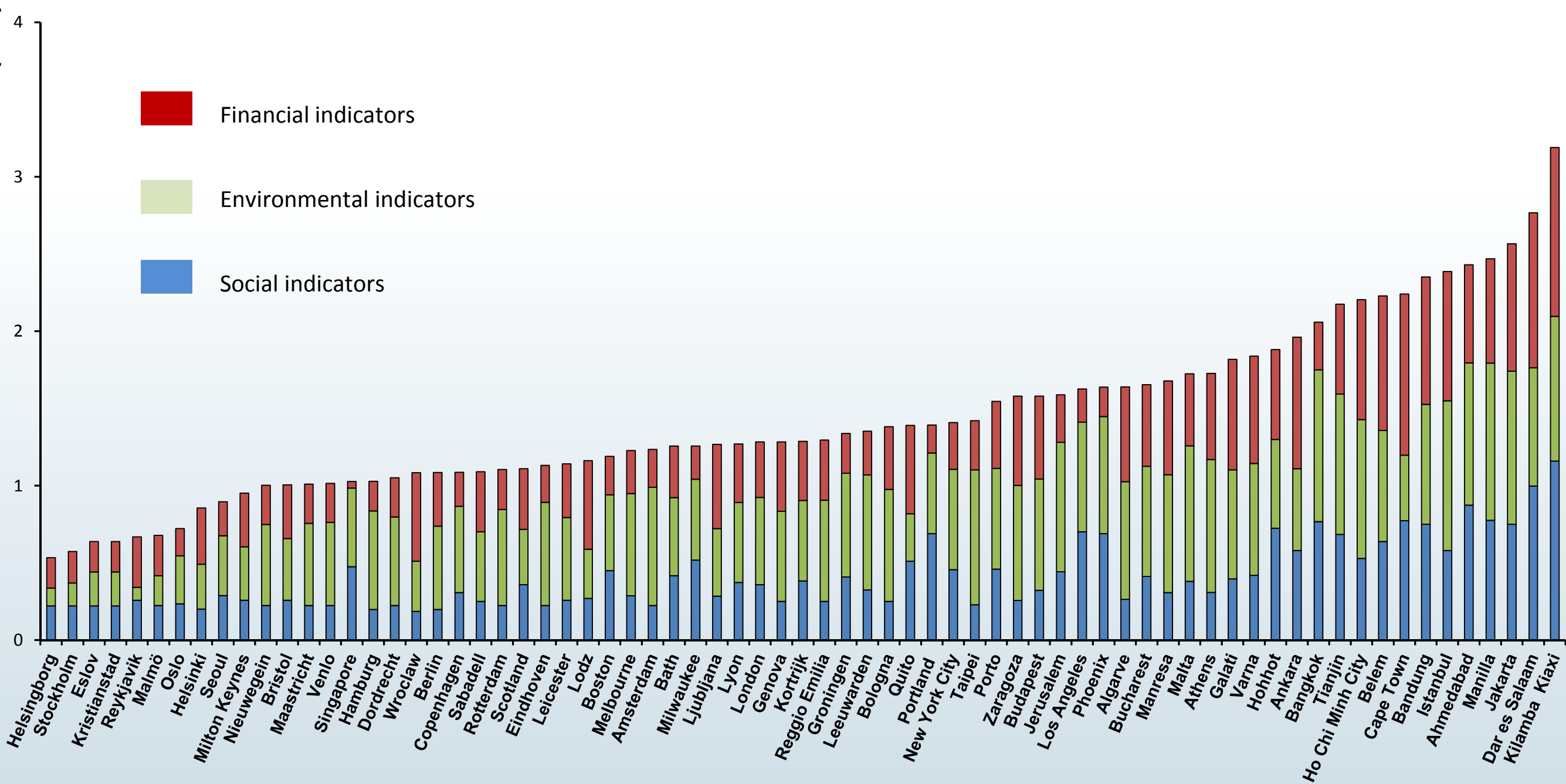


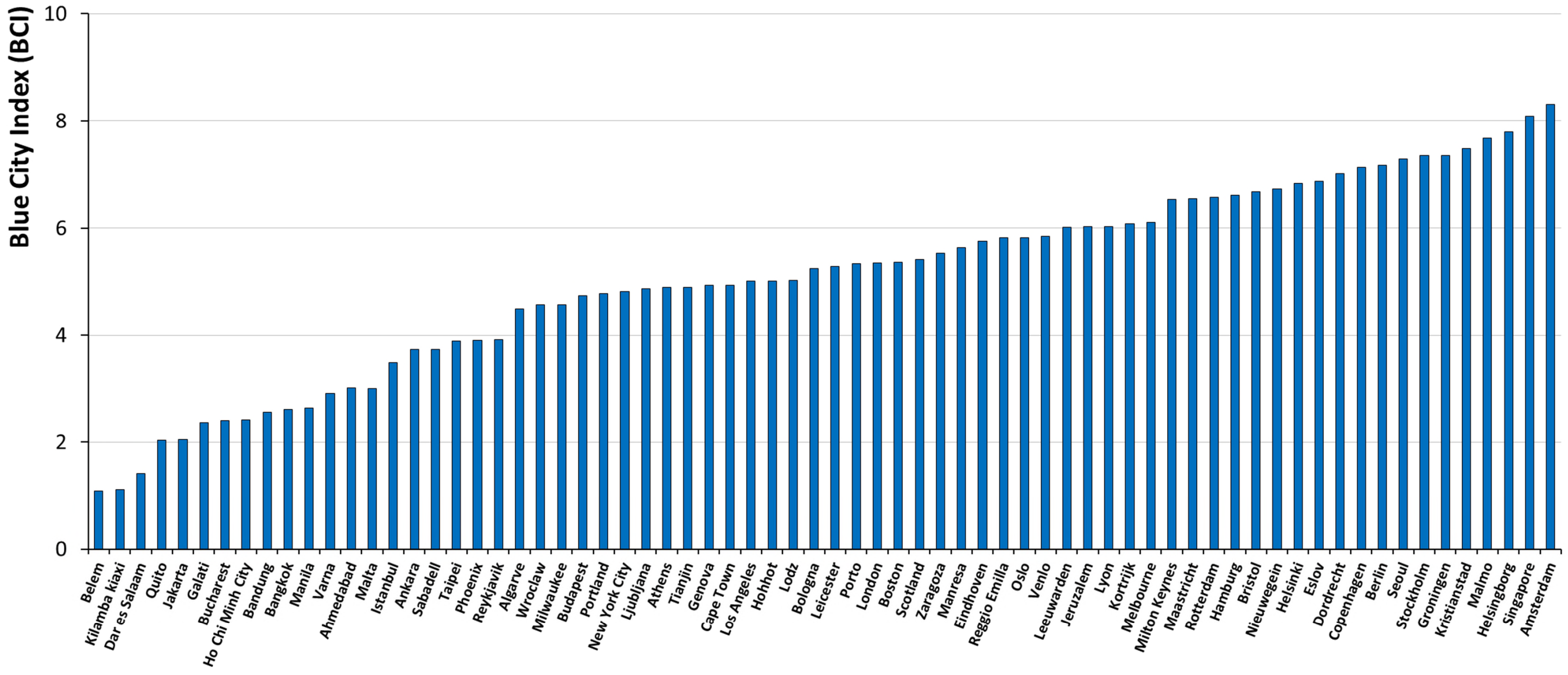
Content

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- 3. Results**
4. Co-benefits in city planning
5. Conclusions
6. Further info



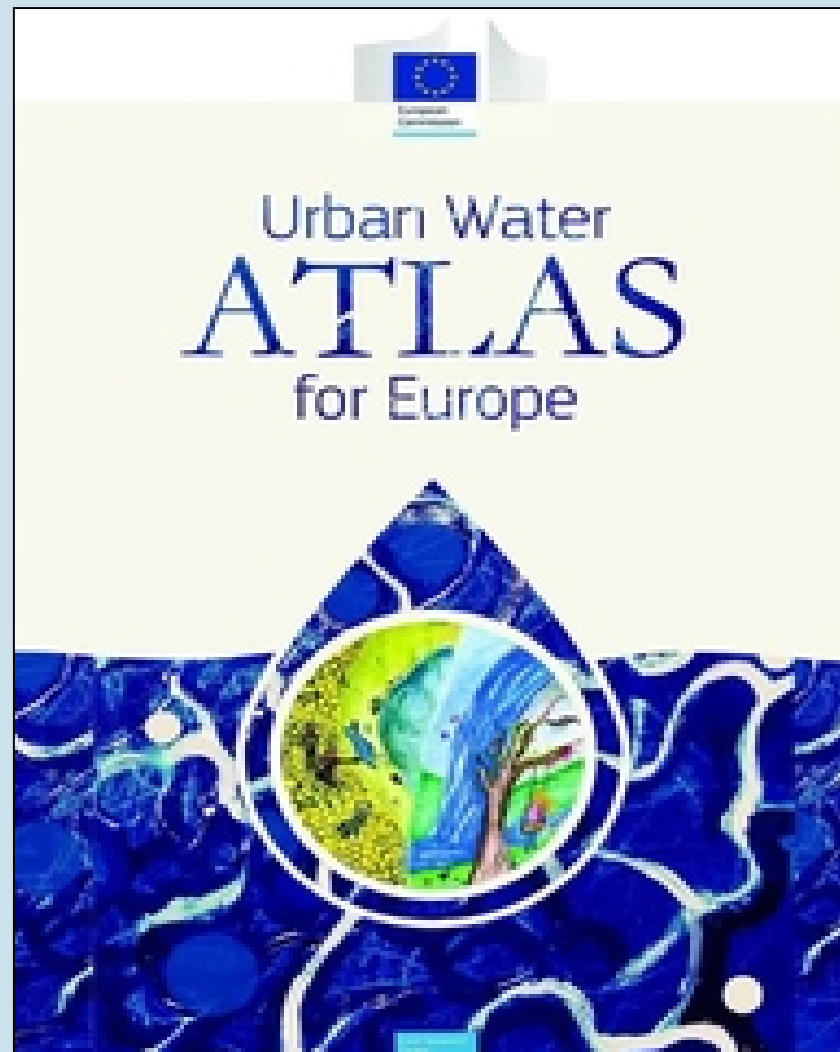
Trends and Pressures Index (TPI)





The Urban Water Atlas for Europe

Awareness for water!



Categorization of cities

BCI	
■ 0 – 2	Cities lacking basic water services
● 2 – 4	Wasteful cities
● 4 - 6	Water efficient cities
● 6 – 8	Resource efficient and adaptive cities
▲ 8 - 10	Water wise cities

BLUE CITY INDEX



Content

1. Our global challenges
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6. Further info



Solid waste

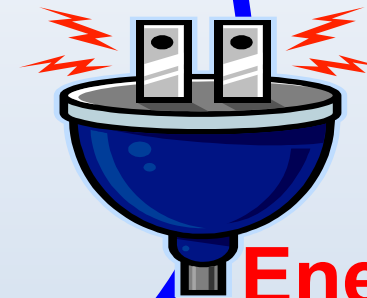


ICT



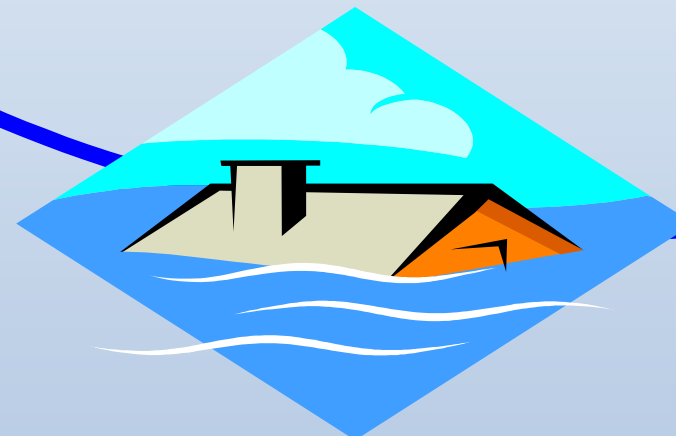
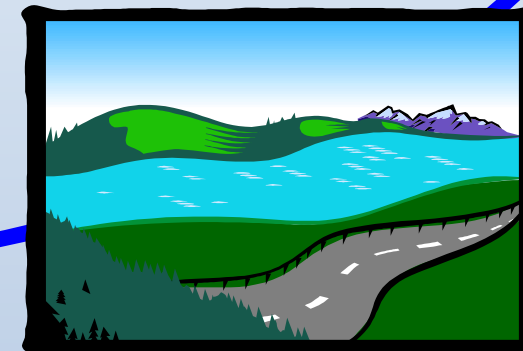
Governance

Houses, shops,
offices & factories



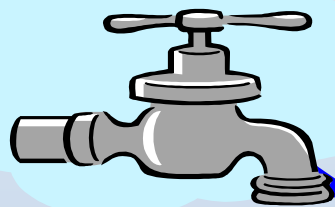
Energy

Transport



Climate adaptation

Water supply



Waste water



Biodiversity (green & blue space)

Intermezzo: interactions are win-win's (co-benefits is cash)

Example: In a family with 2 persons ($n=2$), the number of interactions is only 1. If you increase the family size to 3, 4, 5, or 9 persons in total, the number of interactions increases to 3, 6, 10, and 36, respectively.

Formula: Number of Interactions = $\frac{1}{2}n(n-1)$

Moral: Combining infrastructural activities (city planning) by focussing on long-term integral planning provides many co-benefits (win-win's) and enormous cost-saving!

Co-benefits of measures in long-term city planning

Policies	Number of issues (n)	Number of P.I.^a	Issues addressed	Interactions addressed	Missed P.I.	Missed P.I. (%)
Smart cities ^b	9	36	3	3	33	92
Smart cities ^c	9	36	6	15	21	58
Smarter cities^d	9	36	9	36	0	0 (!)

a) P.I.= Potential Interactions; b) EU smart city policy 2012 (ICT, Transport; Energy; c) Idem plus water & waste; d) all topics addressed



Example Bilthoven (NL)

The past:

- Safety (highschools; >2 people/yr)
- Traffic jams because of main north-south train connection with UTRECHT CS





The present:

- Safety!
- Separation of traffic
- No traffic jams
- New bicycle path to UU
- Attractive centre with restaurants/shops
- New water mains
- Renewed sewer pipeline
- Less air pollution/noise
- Ownership of citizens
- Improved quality of life in general

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Conclusions: the **seven** C's of Water-Wise Cities:

- **C**itizen-centered: create healthy and liveable cities for people
- **C**hildren and grandchildren first: focus on anticipatory long-term strategies
- **C**o-creation: involve stakeholders right from the start
- **C**o-design: comprehensive & coherent planning by: integrating water and other sectoral agenda's
- **C**o-benefits or win-win's must be explored. This leads to:
- **C**ost-effective & efficient solutions. Share them by:
- **C**ollaborative learning: enhance city-to-city learning



6. Further information:

1. City Blueprint website of EIP Water: http://www.eip-water.eu/City_Blueprints
2. City Blueprint website of Watershare®: <http://www.watershare.eu/>
3. Netwerch2o: <http://www.netwerch2o.eu/>
4. BlueSCities: <http://www.bluescities.eu/>
5. Power: <http://www.power-h2020.eu/>
6. OECD: <http://www.oecd.org/env/watergovernanceprogramme.htm>
7. Wetskills: <http://wetskills.com/>