City Blueprints and Porto in Perspective

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Megatrends in cities

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

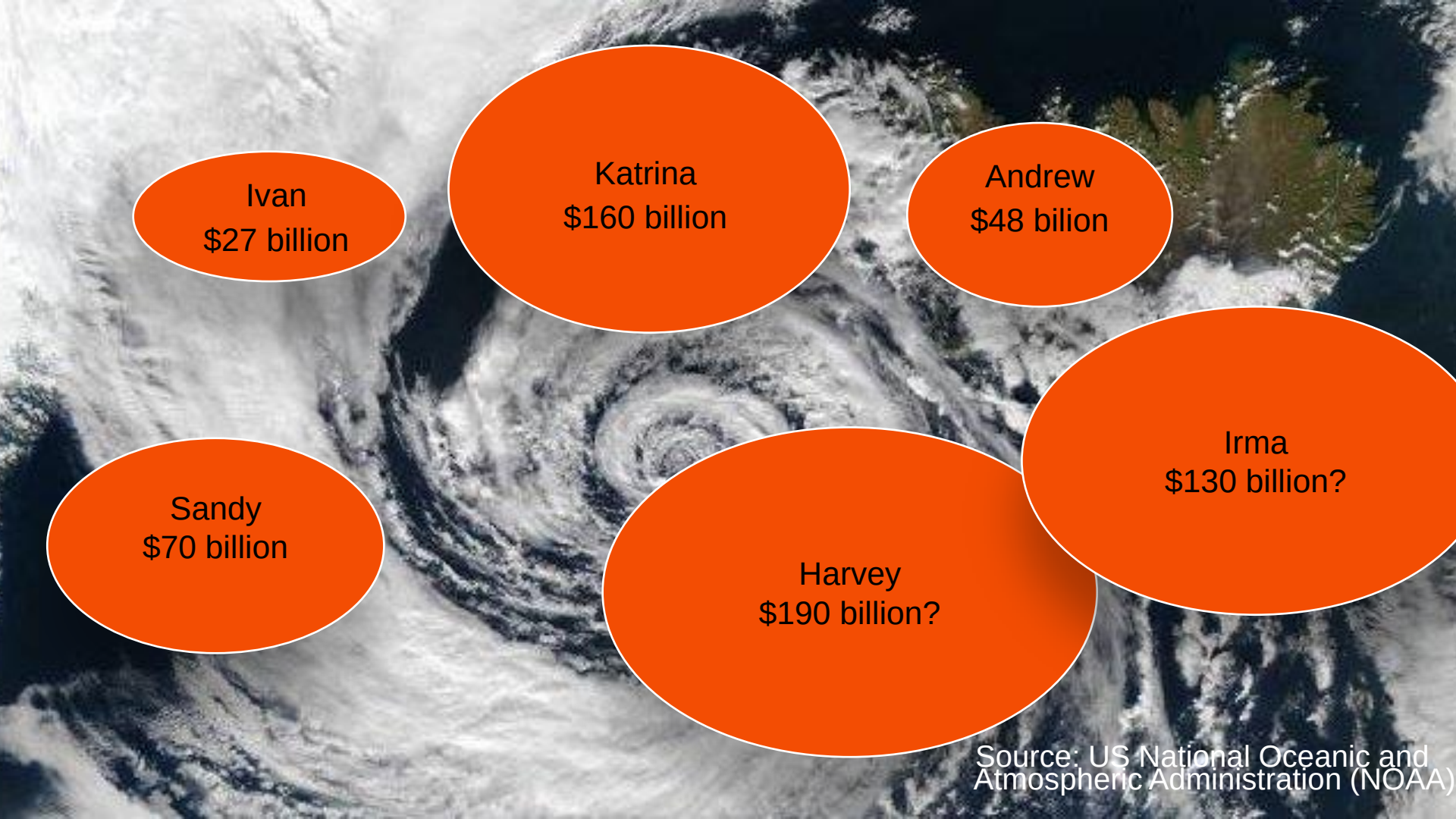
Currently, 2.5 billion people are without improved sanitation facilities.

Human health

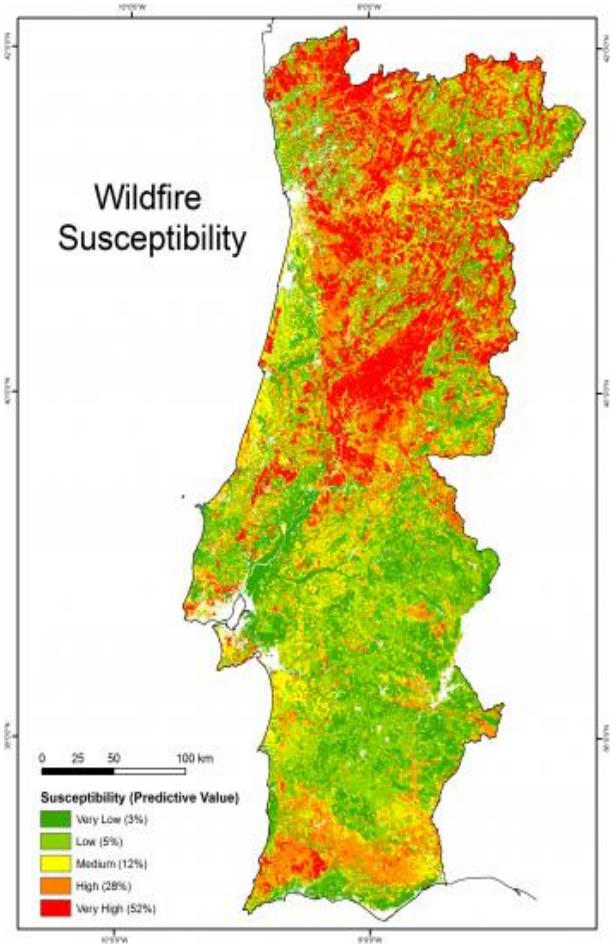
Currently, 3.4 million people - mostly children – die from water-borne diseases every year.

Hazards

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

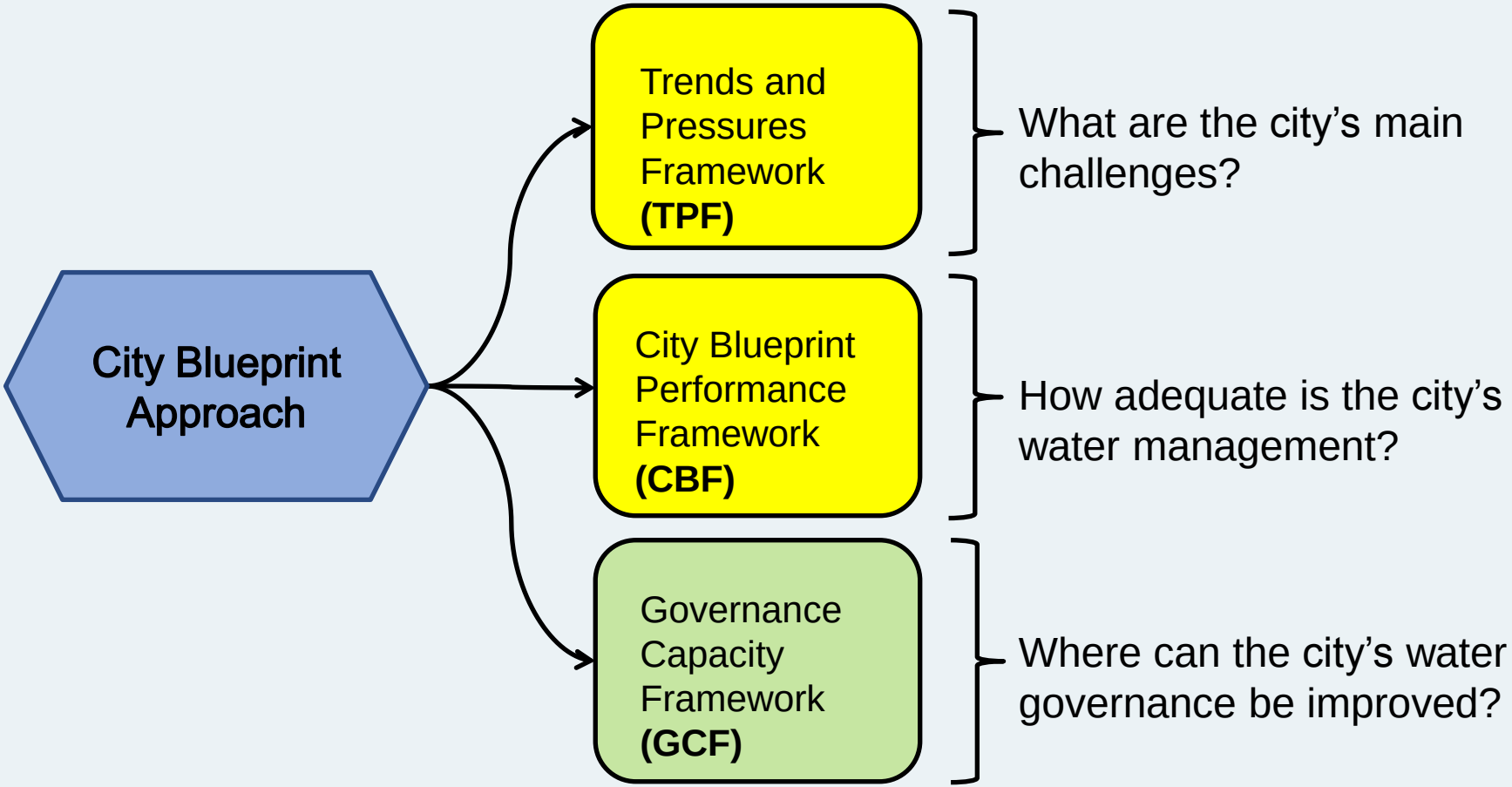


Source: US National Oceanic and Atmospheric Administration (NOAA)



Wildfire susceptibility for mainland Portugal, adapted from Verde and Zêzere, 2010

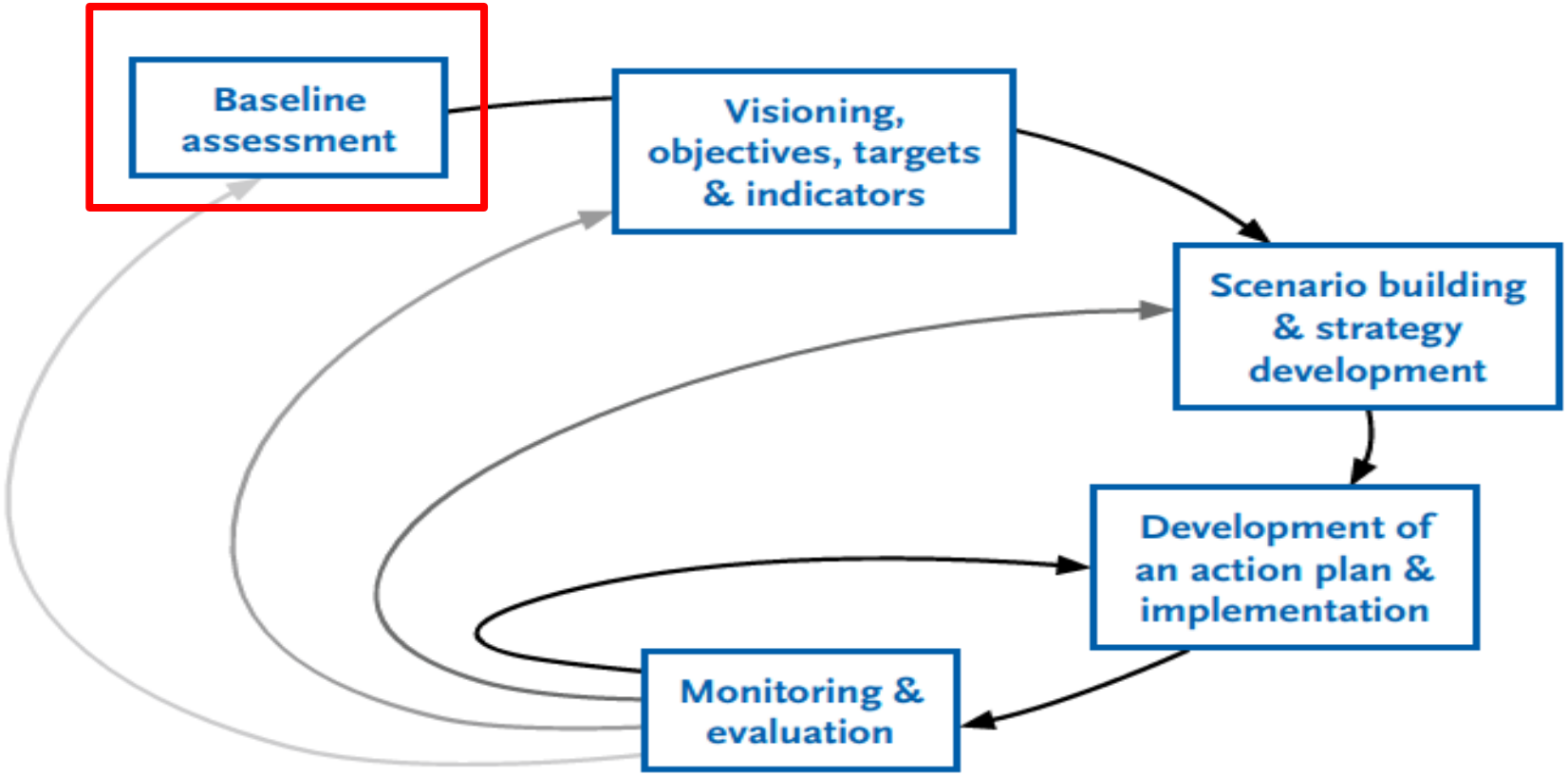
Potential damage from climate hazards to critical infrastructures in the energy, transport, industrial and social sector could triple by the 2020s, multiply six-fold by mid-century, and surpass 10 times today's total of 3.4 billion €/year by the end of the 21st century, according to a new JRC study.


City Blueprint Approach
Trends and Pressures Framework (TPF)
What are the city's main challenges?
City Blueprint Performance Framework (CBF)
How adequate is the city's water management?
Governance Capacity Framework (GCF)
Where can the city's water governance be improved?

Why City Blueprint Framework Indicators?

The indicators are introduced in order to:

1. **evaluate current state of the sustainability in the cities;**
2. **identify best practices and share them with other municipalities;**
3. **find direct links and explore co-benefits (win-win's) for all aspects of a smart city: water, waste water, solid waste, energy, transport, ICT, housing, biodiversity and climate adaptation;**
4. **inform decision makers and politicians about the current situation in the city;**
5. **facilitate public engagement for long-term plans and their implementation.**



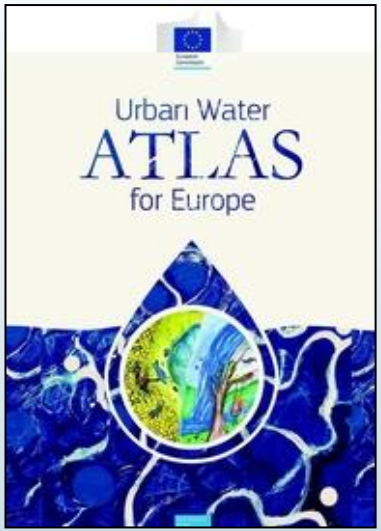
Philip *et al.*, 2011

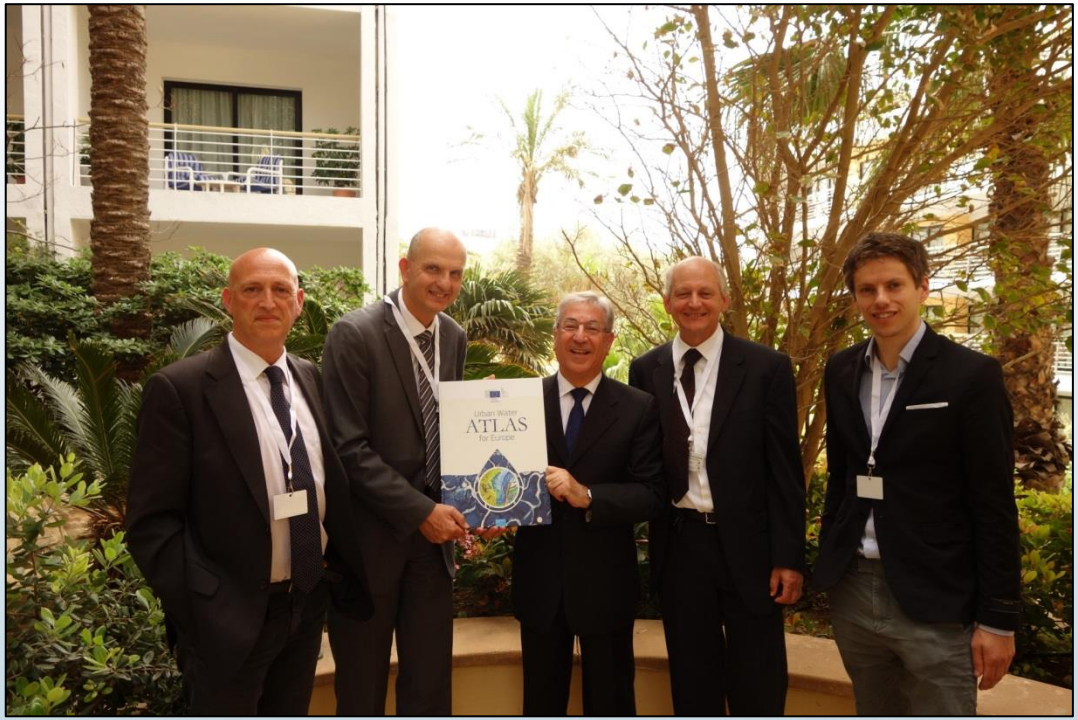
City Blueprint performance Framework

Goal	**Baseline assessment** of the sustainability of Urban Water Resources Management
Indicators	Twenty-five indicators divided over seven categories: 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

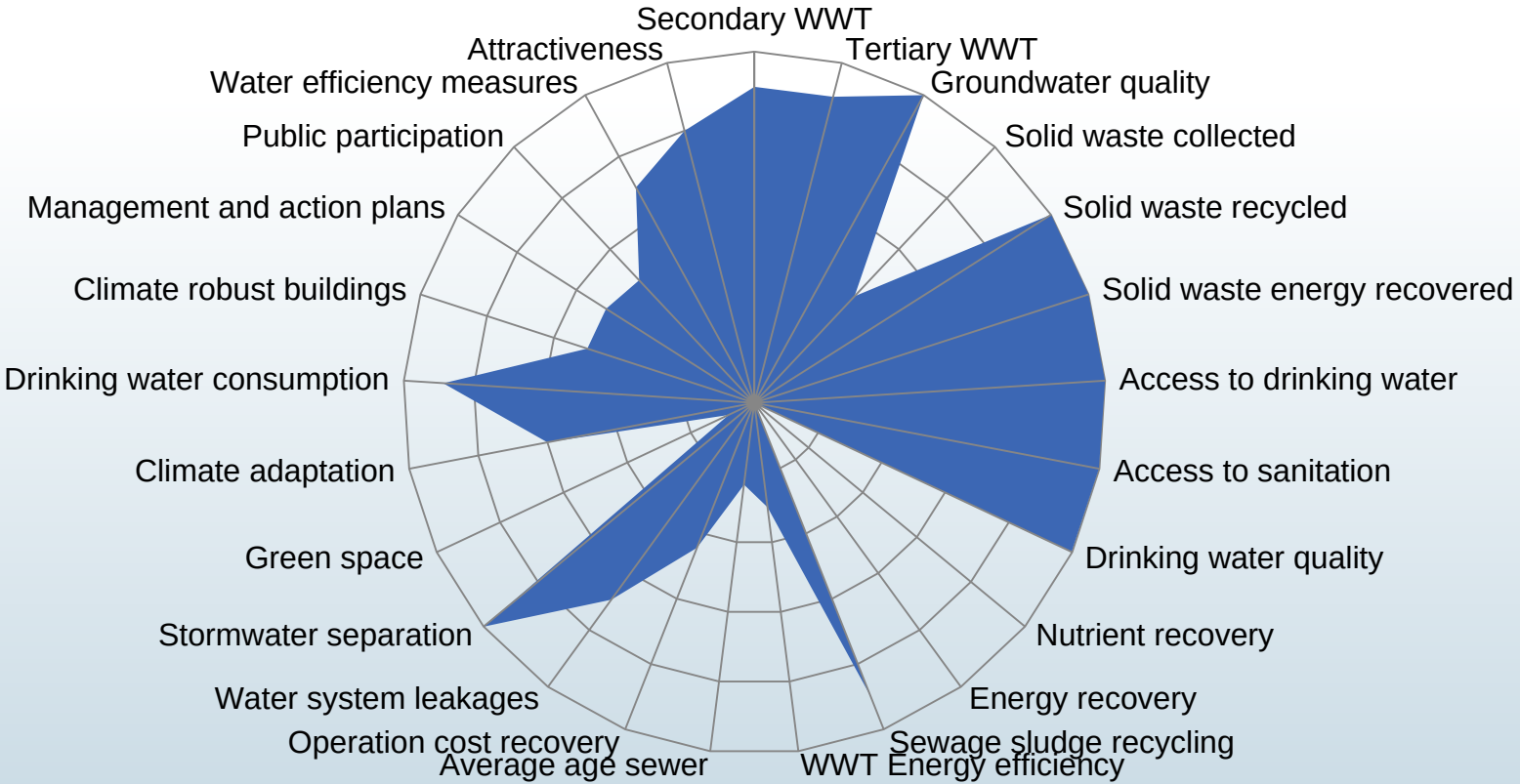
The Urban Water Atlas for Europe

Awareness for water!

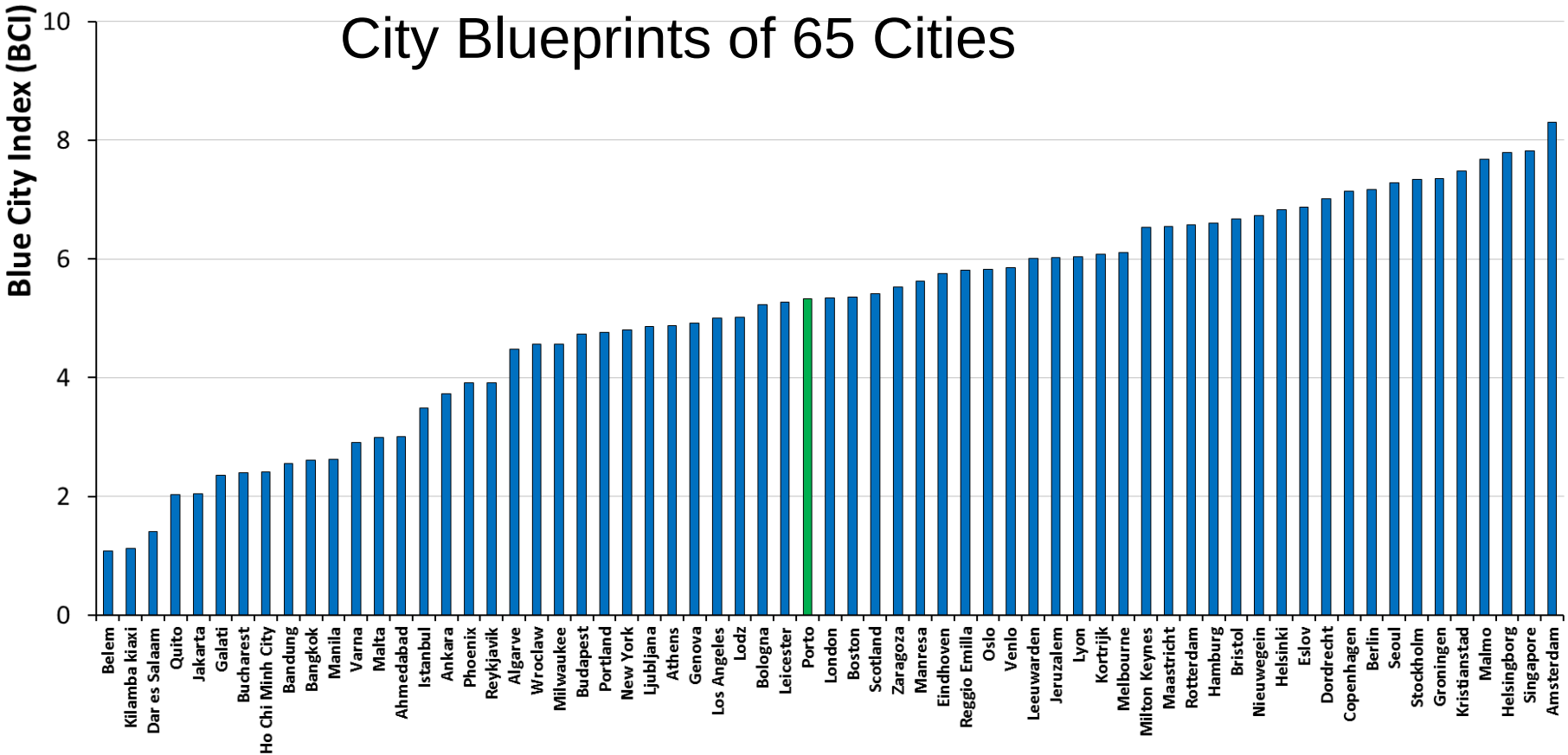




Porto (BCI 5.3)

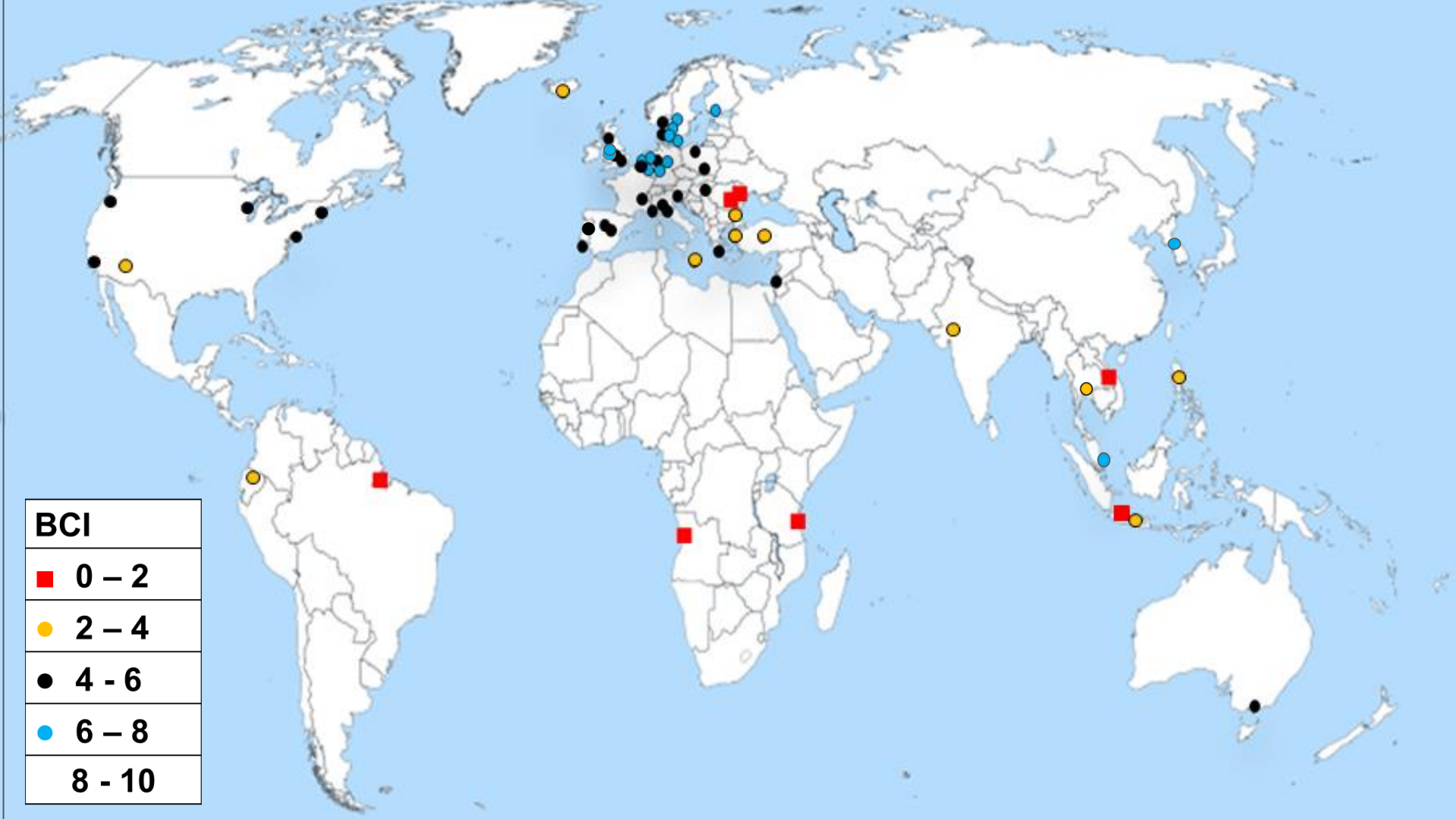

Secondary WWT
Tertiary WWT
Groundwater quality
Solid waste collected
Solid waste recycled
Solid waste energy recovered
Access to drinking water
Access to sanitation
Drinking water quality
Nutrient recovery
Energy recovery
Sewage sludge recycling
WWT Energy efficiency
Average age sewer
Operation cost recovery
Water system leakages
Stormwater separation
Green space
Climate adaptation
Drinking water consumption
Climate robust buildings
Management and action plans
Public participation
Water efficiency measures
Attractiveness

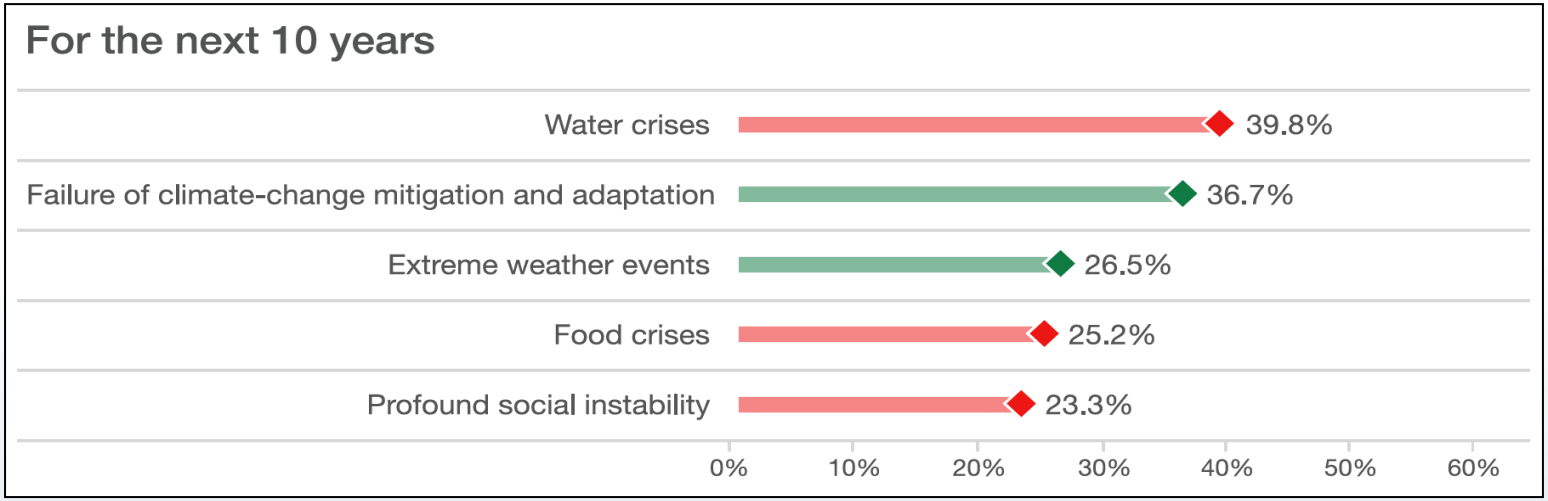
City Blueprints of 65 Cities



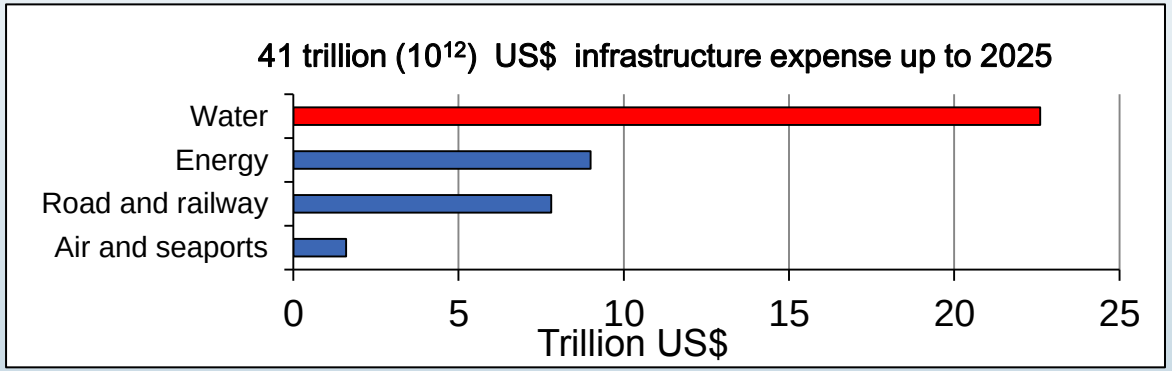
Categorization of cities

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


BCI
0 – 2
2 – 4
4 - 6
6 – 8
8 - 10



World Economic Forum 2015



UNEP 2013

Cities provide local solutions for our global challenges

1. **Cities are the major problem holders**

2. **Active civil societies incl. the private sector with visionary local government can cope with water challenges**

3. **It requires a baseline assessment (where are we?), a long-term strategy (where do we want to go?), a bottom-up approach and collaboration among cities and regions by sharing best practices (implementation)**

4. **Cost of Inaction is high and time window for action is narrow and rapidly closing**

Conclusions: the 7 C's of Water-Wise Cities:

1. **C**itizen-centered: healthy and liveable cities for people
2. **C**hildren and grandchildren: focus on anticipatory long-term strategies

3. **C**ollaboration: involve stakeholders right from the start
4. **C**omprehensive & coherent planning: integrate water and other sectoral agenda's

5. **C**o-benefits or win-win's must be explored. This leads to:
6. **C**ost-effective & efficient solutions. Share them by:
7. **C**ollaborative learning: enhance city-to-city learning

Trends and Pressures concerns of Porto

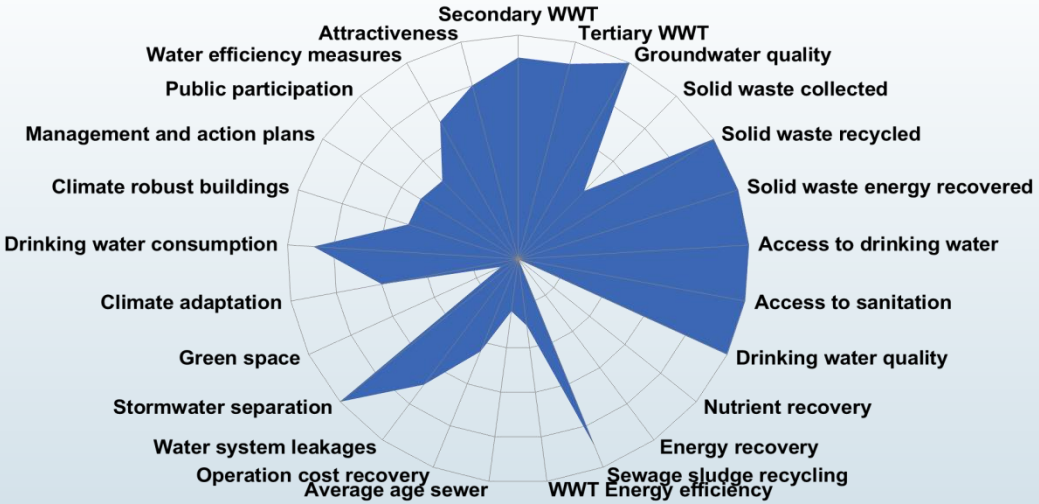
- Heat risk
- Economic Pressure
- Unemployment rate
- Salinization
- Urban drainage flooding

NB Green space in inner city is 18.6 %

Porto: performance and next steps

Porto performs well for almost all water management indicators.
The city can improve on:

- Reducing solid-waste production*
- Nutrient recovery
- Energy recovery
- WWT Energy efficiency
- Average age of the sewer
- Green space
- Operation cost recovery



NB. Water consumption and waste production includes non-resident population of 500.000 (tourists)


DAX
Deutsche Börse