EUROPE’S NEED FOR SMARTER CITIES AND REGIONS
CITY BLUEPRINTS

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WHY CITIES?

Cities are concentrated centers of production, consumption, and waste disposal that drive land change and a host of global environmental problems and are highly dependent on other cities and hinterlands to supply materials (including water), energy, and to dispose waste.


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.
Contribution to urban growth, 2010–25

<table>
<thead>
<tr>
<th>Region</th>
<th>Population</th>
<th>GDP(^1)</th>
<th>Floor space</th>
<th>Municipal water</th>
<th>Containers</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>6.0</td>
<td>15.2</td>
<td>15.3</td>
<td>12.4</td>
<td>5.6</td>
</tr>
<tr>
<td>Latin America</td>
<td>9.5</td>
<td>10.0</td>
<td>8.8</td>
<td>11.1</td>
<td>15.2</td>
</tr>
<tr>
<td>Middle East and Africa</td>
<td>7.3</td>
<td>8.7</td>
<td>13.6</td>
<td>15.2</td>
<td></td>
</tr>
<tr>
<td>Western Europe</td>
<td>1.8</td>
<td>5.6</td>
<td>4.1</td>
<td>1.7</td>
<td>7.6</td>
</tr>
<tr>
<td>China</td>
<td>30.9</td>
<td>39.7</td>
<td>25.6</td>
<td>28.1</td>
<td>38.3</td>
</tr>
<tr>
<td>India</td>
<td>12.8</td>
<td>8.7</td>
<td>4.8</td>
<td>9.8</td>
<td>15.8</td>
</tr>
</tbody>
</table>

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

EIP Water Action Group
Pooling resources – Innovating water

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# Global Risks (World Economic Forum, 2014)

## Table 1: Ten Global Risks of Highest Concern in 2014

<table>
<thead>
<tr>
<th>No.</th>
<th>Global Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fiscal crises in key economies</td>
</tr>
<tr>
<td>2</td>
<td>Structurally high unemployment/underemployment</td>
</tr>
<tr>
<td>3</td>
<td>Water crises</td>
</tr>
<tr>
<td>4</td>
<td>Severe income disparity</td>
</tr>
<tr>
<td>5</td>
<td>Failure of climate change mitigation and adaptation</td>
</tr>
<tr>
<td>6</td>
<td>Greater incidence of extreme weather events (e.g. floods, storms, fires)</td>
</tr>
<tr>
<td>7</td>
<td>Global governance failure</td>
</tr>
<tr>
<td>8</td>
<td>Food crises</td>
</tr>
<tr>
<td>9</td>
<td>Failure of a major financial mechanism/institution</td>
</tr>
<tr>
<td>10</td>
<td>Profound political and social instability</td>
</tr>
</tbody>
</table>


Note: From a list of 31 risks, survey respondents were asked to identify the five they are most concerned about.
An estimated US$ 41 trillion is required to refurbish the old and build new urban infrastructures over the period 2005–2030:

- $22.6 trillion for water systems
- $9 trillion for energy
- $7.8 trillion for road and rail infrastructure
- $1.6 trillion for air- and sea-ports

1 trillion means 1 thousand billions ($10^{12}$)

Source: UNEP City-level decoupling, 2013
CLIMATE CHANGE MITIGATION & ADAPTATION

Cost of Floods in EU (IIASA 2014):
- € 4.9 billion a year on average from 2000-2012
- € 23.5 billion by 2050
- Frequency of larger events increase from once in 16y to once in 10 y

Cost of Copenhagen stormwater events (2011)
- 2010 economic damage: € 47 million
- 2050 economic damage: € 76 million
- 2100 economic damage: € 141 million

Cost of Katrina (USA): † 1,836 and US$ 81 billion

Benefits of Climate Change Mitigation and Adaptation will probably exceed the property damage and economic cost
‘Technology is important to implement an intelligent city concept, to create new business opportunities, to attract investments and to generate employment. But technology alone would not bring about any wonders. Good governance and the active involvement of citizens in the development of new organization models for a new generation of services and a greener and healthier lifestyle are also important.’

Hahn, EU Commissioner for Regional Policy
Climate adaptation

Waste water

Green & blue space

People

Solid waste

ICT

Energy

Transport

Water supply

CITIES
Waste
water
Climate
adaptation
Green &
blue space
People
Solid waste
Transport
Energy
ICT
Water supply
CITIES
People
Solid waste
ICT
Energy
Transport
Water supply
CITIES
Green &
blue space
Waste
water
Climate
adaptation
INTERACTIONS ARE OPPORTUNITIES

Number of interactions in ‘Smart’ cities
n=3 (energy, transport and ICT)
Total number of interactions = 3

Number of interactions in ‘Smarter’ cities
n = 9 (number of topics in cities):
Total interactions: \( \frac{1}{2}n \times (n-1) = (\frac{9}{2}) \times (9-1) = 36 \)

Result: currently 33 interactions (potential win-win’s) are not explored. This is >90%!!!

‘Smart cities’ lead to many missed opportunities and do not serve the needs of the European citizen!
THE EUROPEAN URBAN AGENDA 2050
Cities4Europe and Europe4Cities

1. Coherent long-term agenda: EUA-2050
2. Integration of all nine topics in cities
3. With vision, ambition and early involvement of cities
4. City-Focused: for, with and between Cities
5. **PRACTICAL**: Platforms of best practices in Cities
6. Good governance and implementation matters
7. Progress should be monitored transparently
Smarter cities are cities with a coherent long-term social, economic and ecological agenda.

Smarter cities are water-wise cities that integrate water, waste water, energy, solid waste, transport, ICT, climate adaptation, nature (blue-green infrastructure), and governance (people) to create an attractive place to live.

Smarter cities implement a circular economy, focus on social innovation and, last but not least, greatly improve on governance
POLITICAL NEEDS

Cities play a prominent role in economic development. They are centers of communication, innovation and creativity, and play a large part in social and cultural matters (European Commission, 2011; BAUM 2013).

Cities are the major problem holders on sustainable development.

Cities can also provide local solutions to the global and urgent challenges we face.

Europe’s focus must be on cities and regions.

Time window to solve this is rapidly closing
“The water crisis is a crisis in governance. We will promote better water governance arrangements and transparency, building on stronger partnerships between governments, civil society and the private sector.”

Former EU Commission President Romano Prodi
at the Johannesburg World Summit on Sustainable Development
Commissioner Hahn’s initiative on smart cities needs a strong follow-up in the (next) Commission.

His initiative needs to be reframed, refocused and radically.

An EUA-2050 with a focus on SMARTER cities will lead to a better visibility and better image of Europe for the European citizens.

This is a political priority for Europe after the 2014 elections for the European Parliament.
PLANNING CYCLE ACCORDING TO ICLEI/SWITCH
(MANAGING WATER IN THE CITY OF THE FUTURE)

Collection and analysis of information on water uses, users, issues and outside influences.

Baseline assessment

Visioning, objectives, targets & indicators

Development of a long-term vision for the city’s water system and the objectives and targets necessary for achieving it. Indicators need to accompany the objectives to allow successes and failures to be evaluated.

Scenario building & strategy development

The development of a strategy that will meet the objectives and achieve the vision under a range of future scenarios.

Development of an action plan & implementation

The definition and implementation of actions that put the strategy into practice within a timeframe and the availability of financial and other resources.

Monitoring & evaluation

Measuring and assessing the outcomes of implementation to make sure that the intended results are being achieved and to change the course of action if needed.

Source: ICLEI/SWITCH

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Pooling resources – Innovating water

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Source: UNDP 2013 (User’s guide on Water Governance)
The OECD multi-level governance framework: key co-ordination gaps in (water) policy.

<table>
<thead>
<tr>
<th>Administrative gap</th>
<th>Geographical ‘mismatch’ between hydrological and administrative boundaries.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information gap</td>
<td>Asymmetries of information (quantity, quality, type) between different stakeholders.</td>
</tr>
<tr>
<td>Policy gap</td>
<td>Sectoral fragmentation of water-related tasks across ministries and agencies.</td>
</tr>
<tr>
<td>Capacity gap</td>
<td>Insufficient scientific, technical, infrastructural capacity of local actors</td>
</tr>
<tr>
<td>Funding gap</td>
<td>Unstable or insufficient revenues undermining effective implementation of water responsibilities</td>
</tr>
<tr>
<td>Objective gap</td>
<td>Different rationales creating obstacles for adopting convergent targets</td>
</tr>
<tr>
<td>Accountability gap</td>
<td>Difficulty in ensuring the transparency of practices across the different constituencies, mainly due to insufficient users’ commitment, lack of concern, awareness and participation.</td>
</tr>
</tbody>
</table>
## GENERATION TIMES OF SOME 'SPECIES'

<table>
<thead>
<tr>
<th>Species</th>
<th>Generation time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bacteria</td>
<td>≈ 0.1 d</td>
</tr>
<tr>
<td>Algae (Chlorella sp.)</td>
<td>≈ 1 d</td>
</tr>
<tr>
<td>Water fleas (Daphnia sp.)</td>
<td>≈ 10 d</td>
</tr>
<tr>
<td>Snails (Lymnaea sp.)</td>
<td>≈ 100 d</td>
</tr>
<tr>
<td>Rats</td>
<td>≈ 1 y</td>
</tr>
<tr>
<td>Politicians</td>
<td>≈ 5 y</td>
</tr>
<tr>
<td>Man</td>
<td>≈ 25 y</td>
</tr>
<tr>
<td>Cities</td>
<td>&gt;100 y</td>
</tr>
</tbody>
</table>

Modified after Van Leeuwen en Vermeire, 2007