

eMag on Adaptation in Europe

#5 Water Resilience and Climate
Adaptation in Europe

Thursday, July 18th 2024



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The Observatory's Lens: Water resilience and climate adaptation in European cities and regions

Joffrey Lapius, French Water Partnership



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Joffrey Lapius, Water and Climate Officer at the French Water Partnership, presents the analysis note 'Water resilience and climate adaptation in European cities and regions'.

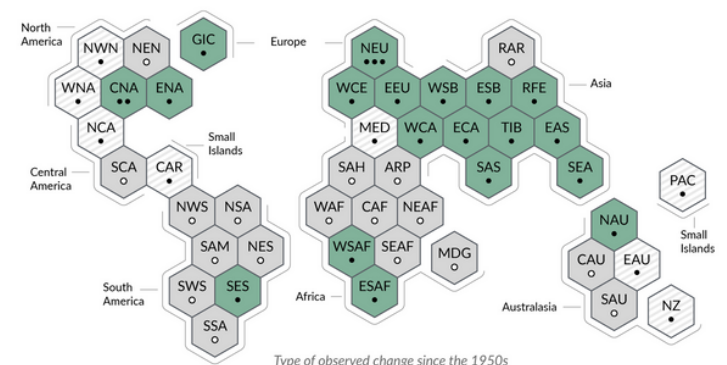
What is the link between climate change and water?

Increased warming intensifies the global water cycle and its variability, and increases the severity of seasons and very wet or very dry events.

Why is water becoming an increasingly important concern, according to the IPCC?

- Each additional degree increases atmospheric evaporation and humidity, the intensity of precipitation and droughts.
- Since the 1970s, 44% of natural disasters have been related to floods.
- More than half of the world's population suffers from periodic droughts, which will become more widespread with warming of 2 °C (150-200%) and 4 °C (more than 200%).
- Between 1.5 °C and 4.5 °C, impacts on the 5 main risks of concern (ecological targets, natural disasters, induced impacts from human activities, cumulative effects, geographical dispersion) will be widespread.

In Europe, precipitation will become more frequent and intense in the coming years:



Solutions in the city:

- Putting the water cycle back at the heart of urban planning, as part of a wider watershed.
- Sponge cities, removing waterproofing from urban centres.
- Management at source, management at plot level.
- Strengthening synergies between essential services as part of a sustainable development approach: water, sanitation, waste and energy management.



Read the analysis note: "[Water resilience and climate adaptation in European cities and regions.](#)"



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Nature-based Solutions (NbS):

IUCN definition: Actions to protect, sustainably manage and restore natural or modified ecosystems in order to respond directly, effectively and adaptively to societal challenges, while ensuring human well-being and providing benefits for biodiversity.

- Included in the multilateral definition adopted at the fifth session of the United Nations Environment Assembly in March 2022.
- Emphasises the important role of Nature-based Solutions in the global response to climate change and its social, economic and environmental impacts.

Some recommendations from French water stakeholders to meet these challenges:

- Principle of subsidiarity: local and regional authorities as drivers of democratic urban governance;

- Better integration of services into the strategic planning of the city: Synergies between water, sanitation, waste and energy services that can be developed within a framework that promotes the circular economy;
- A change of scale in the financing of sustainable infrastructure: moving from a project-based approach to the establishment of structural, long-term funds that do not rely solely on user financing.

Some examples in the city:

From a project run by the 4D association in the Paris region



Watch the [video](#): Imagine a world at +4°C above pre-industrial levels... What would happen to fresh water? Available at: www.partenariat-français-eau.fr



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Press Review

Léon Perret, Construction21

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Léon Perret is a journalist and head of sustainable cities at Construction21, bringing us the latest international news on urban resilience to water.

The green and blue corridor on the Promenade du Paillon in Nice

The first article, written by Actierra, a consultancy specialising in ecological transition, is entitled "Promenade du Paillon à Nice: la coulée verte et bleue". The author, Alexandre Chemetoff, is the project manager of this project supported by the Conurbation of Nice Côte d'Azur and the City of Nice.

He presents the management of rainwater as part of the 'Paillon II' project, which aims to create a 'hanging garden' over the Paillon River to meet the challenges of rainwater drainage and promote urban greening.

In this park, rainwater is collected in enriched soil substrates and channelled into storage pipes, enabling it to be reused for watering and cooling the city. The system also includes separate stormwater management on the boulevards surrounding the park. This project provides an interesting response to two contemporary urban challenges: urban greening and stormwater management.

If successful, this model could inspire other Mediterranean cities facing similar water management challenges.



Managing resources and networks

The second article, written by Suez Consulting, focuses on water networks: "Managing resources, looking after networks". With its 'Water Plan', France has set itself the target of reducing freshwater abstraction by 10% by 2030, and must provide itself with the means to achieve this.

The issue of water networks is more topical than ever, given that responsibility for water is due to be transferred from local authorities, which are very attached to it, to inter-municipal authorities in 2026.

Recent floods and droughts are likely to damage infrastructure and disrupt water supplies. The familiar triptych of sobriety, efficiency and alternative solutions will have to be implemented.

The challenge is therefore to reduce unnecessary consumption through regulatory incentives and changes in usage, recognising that behavioural change takes time. Another lever to consider is improving the efficiency of existing networks. Leakage is a key challenge that is specific to each city or region. The city of Paris has an efficiency of 89%, compared to less than 50% in some rural regions. Finally, the challenge is to find new solutions.

These solutions include saving water, improving the efficiency of systems and using alternative resources such as treated wastewater and rainwater. Initiatives such as the water efficiency contract in Brive are showing significant savings. Improving infrastructure and security of supply are also key to making water systems more resilient to extreme weather events.



Discover the [complete file on water management on the Construction 21 website](#)



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Freshwater and Mediterranean cities: planning and governance

Alice Tort & Ginevra Figini, SciencesPo

SciencesPo

Alice Tort and Ginevra Figini are students on the SciencesPo Masters course, Governing the ecological transitions of EU cities. They recently contributed to a study commissioned by the Fédération nationale des agences d'urbanisme (FNAU) and present their findings.

What is the subject of the study?

Faced with the growing challenges of freshwater management in urban environments, what can we learn from Mediterranean cities in terms of urban planning, development and governance?

Areas of intervention and map of best practice identified in the study:



1. Water scarcity
2. Climate uncertainty
3. Access to water for all

Example 1 of Arborea in Italy

Nature-based solutions, digital solutions and stakeholder participation must be combined to restore freshwater cycles.

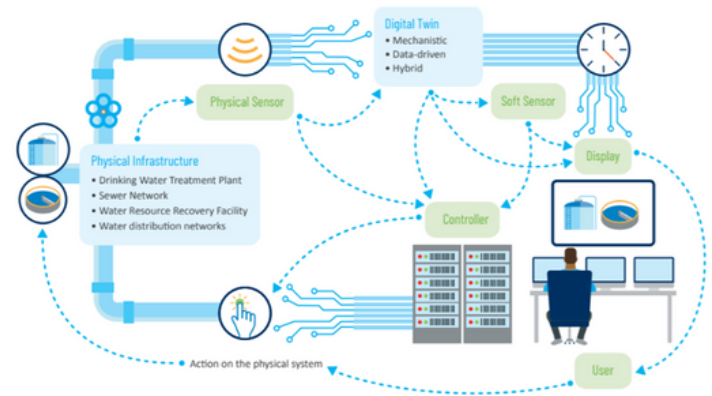
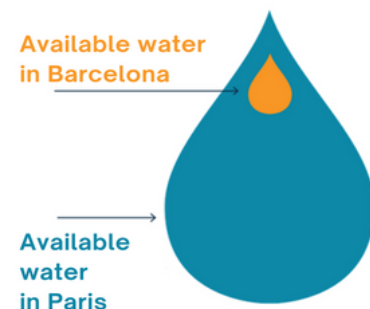


Image: Basic structure of a digital twin application, © IWA 2020

Example 2 of Barcelona in Spain:

Barcelona is facing a water shortage and must adapt in anticipation.



The city is focusing on ecosystem services and ensuring that available water is properly allocated.



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Rebuilding the city of Eupen after the floods of 2021

Claudia Niessen, Mayor of Eupen

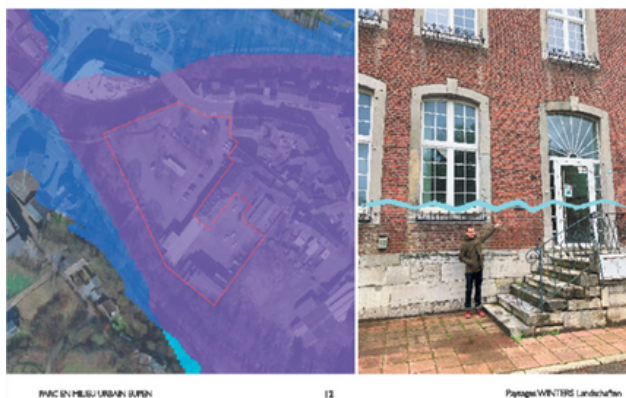


Claudia Niessen is the mayor of the Belgian city of Eupen. She shows us how the city was rebuilt and adapted after the floods of 2021.

The 2021 floods in Eupen:

- The confluence of two rivers (the Helle and the Vesdre) in the lower town of Eupen burst its banks.
- 1,800 families affected
- More than 2.5 metres of water in the city centre

Le niveau d'eau



Example of the urban park project at the confluence of the Helle and Vesdre rivers (in progress):

- Demolition of the buildings (with the exception of historic buildings) at the level of the car park to create an urban park.
- In partnership with the Walloon Region
- 2 million euros and 8,000 m² of urban parkland



The reconstruction of Eupen:

- Rebuild further away from the two rivers
- Remove buildings owned by the town

The city does not own all the buildings, which complicates the reconstruction work; the owners' consent is needed.

- Investment of over 5 million euros to rebuild bridges without piers (= remove obstacles)



A city's adaptation depends on funding, but also on political will and public acceptance.

Un-waterproofing and greening the rebuilt city:

- Rainwater systems to irrigate green areas
- Planting trees to remove sealing
- The importance of nature-based solutions



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Adaptation & Water Resilience in Denmark: a participatory approach

Sarah Lund, Klimatorium



Sarah Lund is Director of International Relations and Sustainability Initiatives at the Klimatorium in Denmark. She tells us about the Klimatorium centre and its main activities, which focus on the adaptation and resilience of cities to water.

The Klimatorium centre = a building by the water:

The Klimatorium is a centre for innovation in the fields of water, climate, environment, energy and circular economy. The centre disseminates a lot of information and aims to reach as wide an audience as possible (young people, the elderly, etc.).



The Klimatorium laboratory identifies challenges, develops technology programmes and tests and demonstrates new solutions.

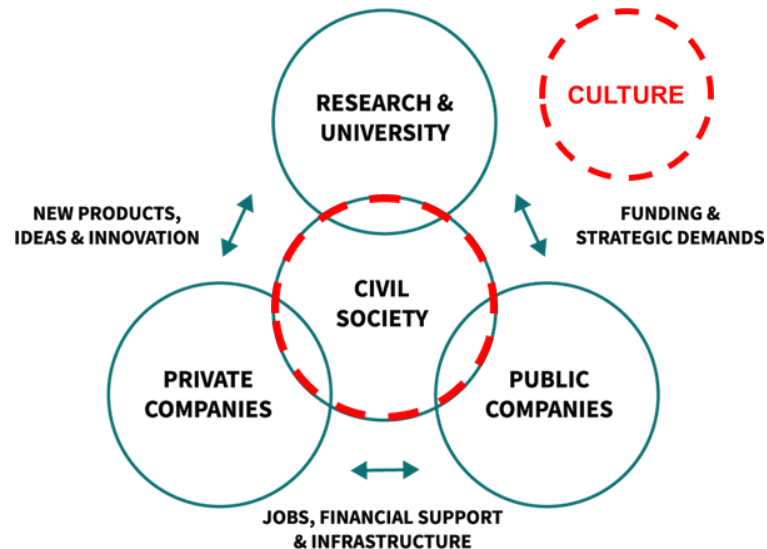
A lot of projects:

In Denmark, the Klimatorium coordinates more than 25 projects on sustainable development, including water. There are projects to make cities waterproof, nature-based solutions, etc.



Water should not be seen as a problem, but as an extraordinary resource that should be treated according to the different values it brings to us.

Quadruple Helix, the involvement of all actors:



The Klimatorium centre is all about sharing information:

- Across all sectors
- Across generations
- Across different interests
- Across all boundaries



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Next Events

eMag Climate Action in Africa

Join us on Thursday, September 26th, 2024 from 3PM to 4:15PM (CEST) for the eMag on renewable energy in Africa.

[Register Here](#)

Workshop at the European Energy Transition Conference

Join us on Wednesday 11 September from 14:00 to 15:00 (CEST) at the European Energy Transition Conference in Dunkirk for our workshop: "Building resilience through nature-based solutions: How are cities adapting to climate change?" (French only)

[More information here](#)



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