AMANAC CLUSTER

AMANAC WORKSHOP

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WHAT KIND OF BUILT ENVIRONMENT FOR FUTURE GENERATIONS?

Future cities: the impact of infrastructures on local communities

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endurcrete

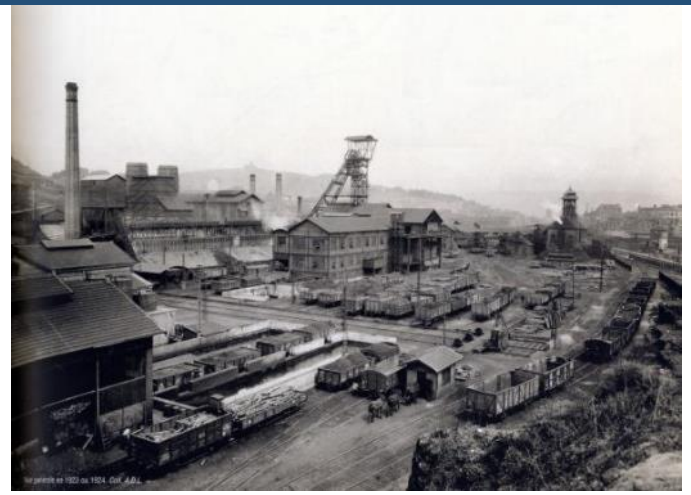
DACOMAT

RESHEALIENCE
Ultra High Durability Concrete

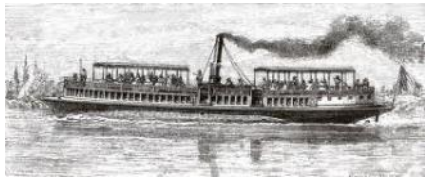
The projects have received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 760639 (EnDurCrete), 760824 (ReSHEALience) and 761072 (DACOMAT)

The evolution of cities

Small scale (hundred habs),
self sufficient
Local production and consumption
Agriculture, proximity services
Closed walls for protection
Transportation



Larger scale (thousands hab),
segmentation
Industrial places, trade development
Agriculture is outside
People live and work at the same place
Paternalism
Transportation



Megalopolis
Administration and service place
Entertainment
People live outside the city
Transportation and mobility

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What’s next?

Extrapolation of what we know today?

?

Complete new concepts

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What's next?

Probably a **combination of the two**:

- New concepts for brand new cities
  - In some countries, most cities and associated infrastructure needs to be built yet
- An extrapolation of what we already know for existing cities (expansion)
  - In some parts of the cities need rehabilitation, hopefully new concepts will prevail

In both cases, imperative elements are:

- Build **efficient and resilient cities** (energy and mobility needs)
  - **Anticipate** future possible technologies (avoid to build a city designed for the use of individual cars
  - Consider a **full life-cycle approach** in urban planning, architecture and materials

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Make cities livable and resilient

More than half of the global population lives in cities, and it is projected that **over the next two decades over 1 million people will move to cities every week**.*

Reaching the Sustainable Development Goals (SDGs) in cities provides a significant **business opportunity estimated at 3.7tn USD by 2030**, in the areas of housing, building efficiency, mobility, water and sanitation.*

The built environment, **consuming almost half of the world's resources extracted** every year and responsible for a **massive environmental footprint**, is a fundamental sector in the **transition from a linear to a circular**, more sustainable world.

*WBCSD Cities and Mobility

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Make cities livable and resilient

Final energy demand in buildings has **risen by 5% since 2010**, with the impact from the growth in floor area and population outpacing the impact of energy efficiency improvements*.

Buildings construction and operations accounted for **36% of global final energy use** and ne arly **40% of energy-related carbon dioxide (CO_2) emissions in 2017***.

- Energy efficiency spending for buildings appears to be slowing down
- Energy intensity for space-cooling is increasing
- Even if 194 Parties out of 197 have submitted NDCs, only a part of them mention actions related to energy efficiency, renewables, energy codes or energy certifications in buildings

*GABC 2018 Status Report

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Make cities livable and resilient

Mobility is a driving force for economic activity:

- traffic congestion is diminishing economic development,
- 80% of cities exceed World Health Organization's air quality standards, and
- on average transport contributes to 23% CO2 emissions.

Infrastructure needs to anticipate the future needs for mobility (Digital opportunities)

- Intelligent infrastructure,
- Share of information

Materials are key for enabling cities to be more resilient: less CO_2-emitting manufacturing techniques for new products, durability, resilience and damage tolerance products are essential

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Thank you for your attention

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