Smart Control of the Climate Resilience in European Coastal Cities

The approach to Ecosystem-based adaptation by the SCORE project

Luís Campos Rodrigues | ENT Environment and Management

Work package 7: Socio-economic assessment of adaptation strategies and policy recommendations

SCORE WEBINAR #1 | 24 November 2022

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101007142

Context

CLIMATE CHANGE IMPACT AND ADAPTATION

Credits: Climate Lab Book (Ed Hawkins): CC BY-SA 4.0.

- **Coastal areas are highly vulnerable to climate change** hazards such as sea-level rise, flooding, erosion, saltwater intrusion, or storms.
- **Adaptation** seeks to enhance adaptive capacity, strengthen resilience, and reduce vulnerability in both natural and human systems (IPCC, UNFCCC).

What do we understand by ecosystem-based adaptation (EbA)?

*"**Ecosystem-based approaches** focus on ecosystem restoration and enhancement of ecosystem services to protect society against negative impacts of climate change."*
(European Climate Adaptation Platform Climate-ADAPT)

*"Ecosystem-based Adaptation is a **nature-based solution** that harnesses biodiversity and ecosystem services to reduce vulnerability and build resilience to climate change."* (IUCN)

Categories and examples of EBA measures

Urban green

Credits: Elena Saldi @ MBI group.

Green roofs

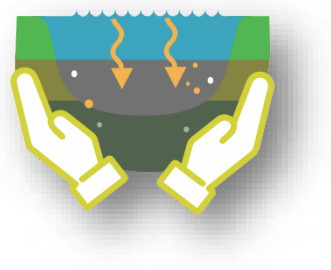
Urban farming

Urban parks

Green corridors

Categories and examples of EBA measures

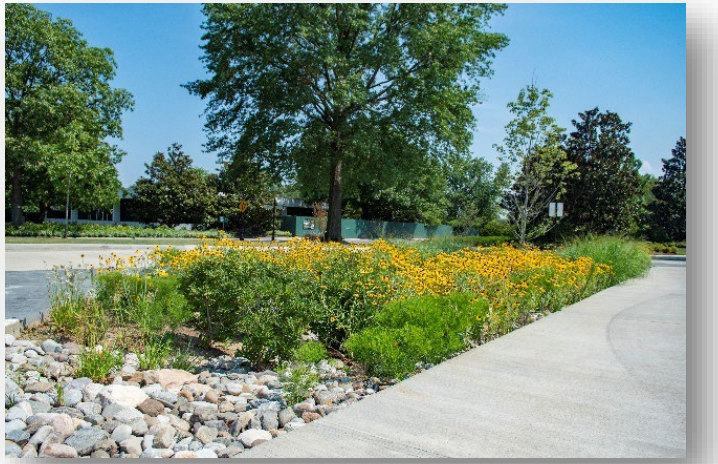
Permeable surfaces



Credits: Elena Saldi @ MBI group.

Retention ponds

Rainwater gardens



Categories and examples of EBA measures

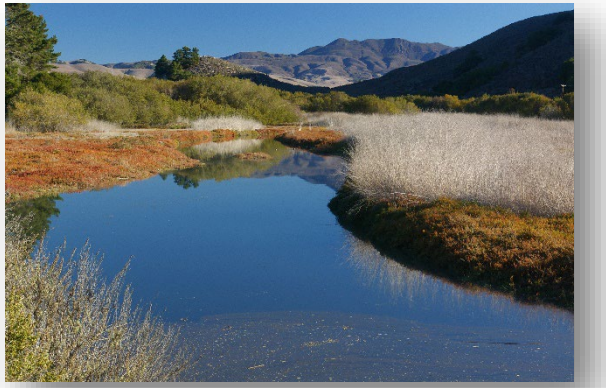
Wetlands

Credits: Elena Saldi @ MBI group.

Wetland restoration

Saltmarsh restoration

Estuaries protection and restoration



Categories and examples of EBA measures

River floodplains

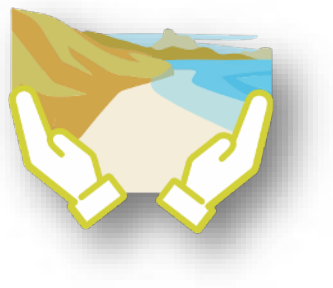
Credits: Elena Saldi @ MBI group.

River restoration

Riparian reforestation

Categories and examples of EBA measures

Coastal shoreline

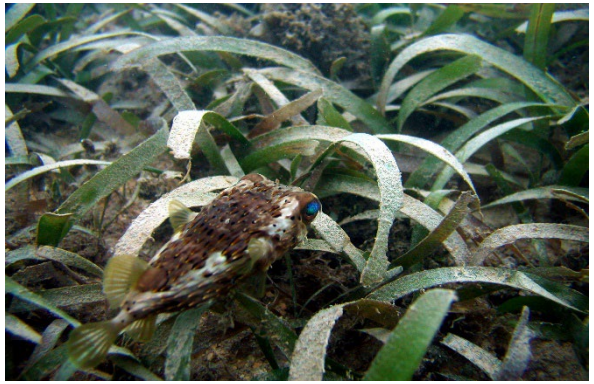


Credits: Elena Saldi @ MBI group.

Dune restoration

Cliff stabilisation

Seagrass meadow restoration



Green dikes

What types of adaptation strategies are available to cope with climate change?

EBA

...also linked with concepts such as nature-based solution or green infrastructure.

Dunes, green roofs, flodable parks, etc.

Hard

...also known as grey infrastructure or engineering-based solutions.

Dykes, seawalls, water pipes, etc.

Soft

...initiatives aimed at encouraging adaptative behaviour, often involving non-material interventions.

Early warning systems, adaptation plans, etc.

What types of adaptation strategies are available to cope with climate change?

Hybrid adaptation strategy

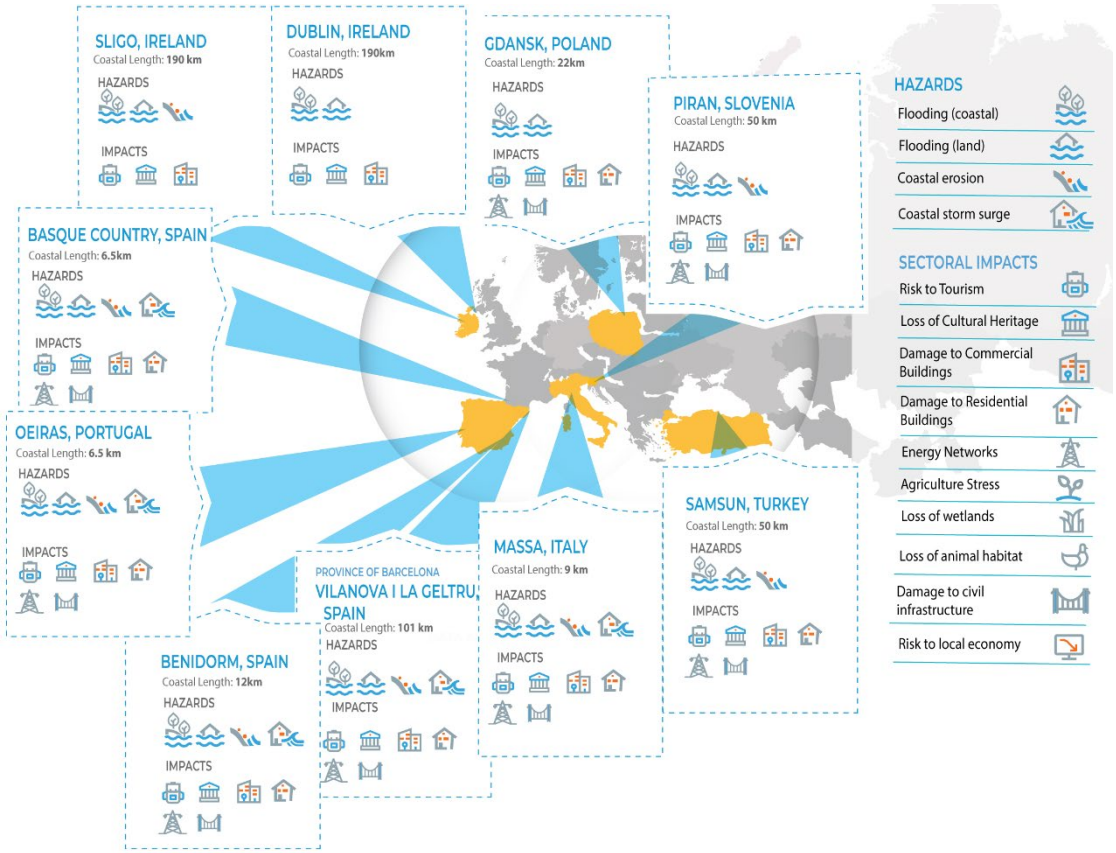
Different combinations of EBA, hard and soft solutions.

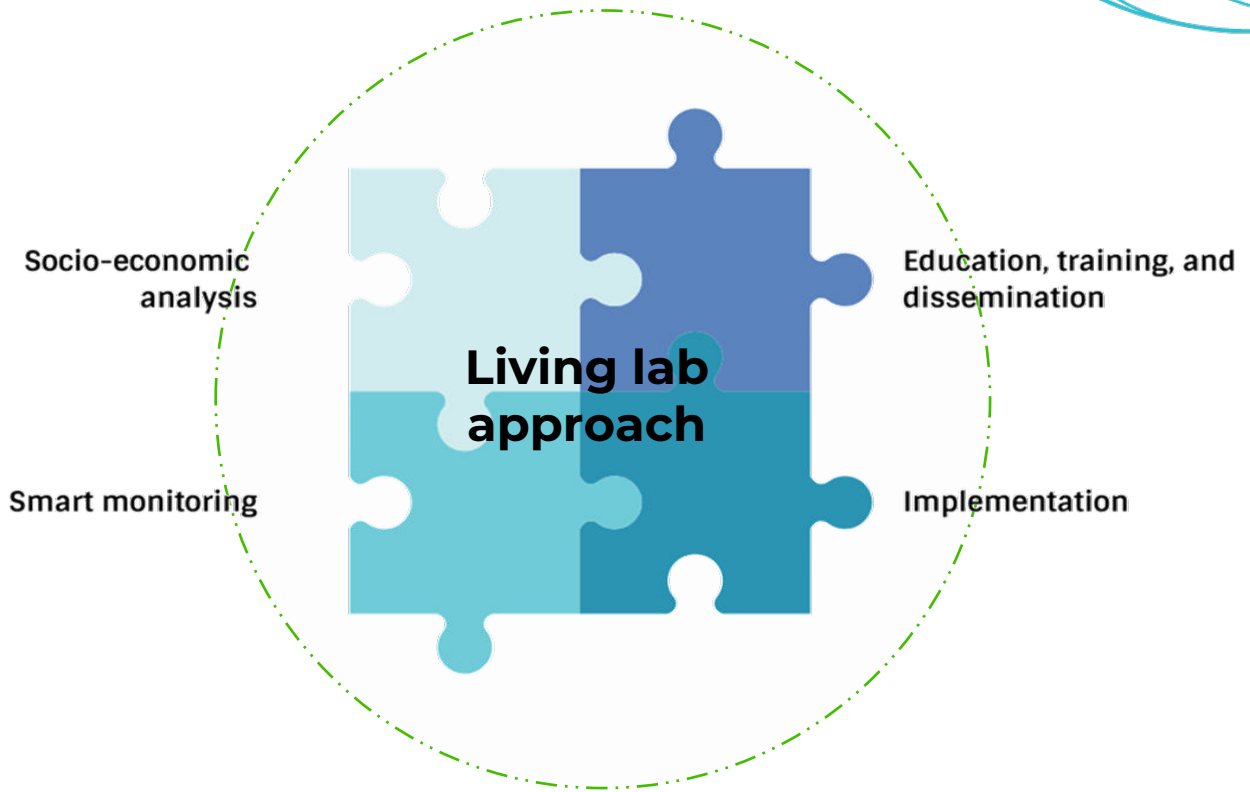
Some key aspects to consider about EBA solutions

- A **high number of measures** that can address various hazards.
- **Potential inadequacy to deal with large-scale hazards and extreme events**, justifying the need of its integration with other types of measures (hybrid strategy).
- Important to analyse **potential negative effects**, including green gentrification.
- Potential higher **flexibility** regarding structural changes than hard-based measures.
- Potential to deliver more **co-benefits** than traditional approaches to adaptation (promotion of different ecosystem services, climate change mitigation, biodiversity conservation and enhancement, etc.).

How the project SCORE will approach EBA measures?

Smart control of the climate resilience in European coastal cities





Smart Control of the Climate Resilience in European Coastal Cities

Thank you!

- Luís Campos Rodrigues
- lcampos@ent.cat
- ENT Environment and Management

- 24 November 2022

www.score-eu-project.eu

contact@score-eu-project.eu

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101007142