



LIFE BAETULO

**An Integrated Early Warning System
for multi-hazard and risk management
to ensure climate change adaptation**

Montse Martínez (AQUATEC)
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www.life-baetulo.eu



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1. The project



Full name: Badalona Integrated Early warning system for multi-hazard and risk management to ensure urban climate change adaptation

Project location: Badalona (Spain)

Acronym: LIFE BAETULO

Budget: 1.237.554€

EU contribution: 660.853€

Duration: 2,5 years (July 2020-December 2022)

Project partners:



Ajuntament de Badalona



Àrea Metropolitana de Barcelona



Aigües de Barcelona

2. Context and framework

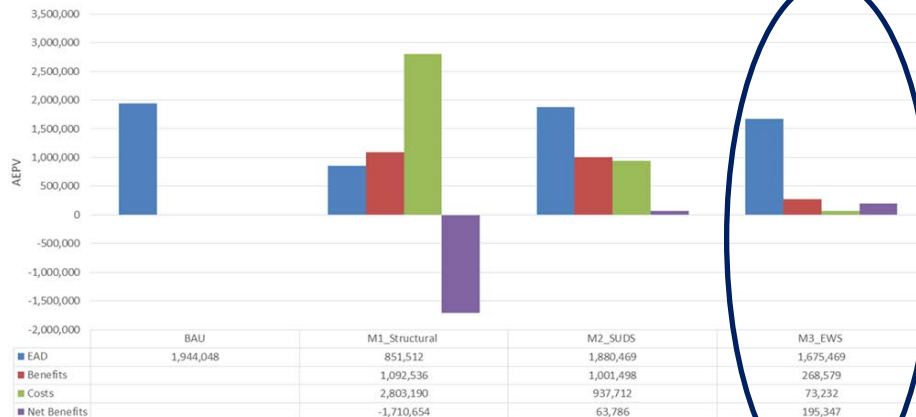
Towards de adaptation of urban areas to CC derived hazards

Climate change is happening and projected to continue. Our cities are constantly facing different impacts derived from climate change such as floods, heatwaves and storm surges among others, which not only cause significant economic and human losses but also pose challenges to urban living



Towards de adaptation of urban areas to CC derived hazards

Badalona, a Mediterranean city with more than 217.000 inhabitants, has been selected as the pilot site for LIFE BAETULO project in order to give continuity to the climate change adaptation pathway initiated with the previous H2020 BINGO project (2015-2019).



3. Objective of the project

Objective

To develop and implement an **integrated and multi-risk early warning system** as a technological and adaptation measure to decrease the exposure and vulnerability of citizens and urban assets to the climate change derived hazards including: flooding, combined sewer overflows, storm surges, heatwaves, cold waves, snowfalls, windstorms, episodes of high air pollution and forest fires.



4. LIFE BAETULO solution

LIFE BAETULO is a pilot project where a novel technology, an Integrated (and multi-hazard) Early Warning System, is applied for the first time in a city, with the objective of **reducing the exposure and vulnerability** of citizens and other urban assets to climate-related hazards by providing anticipated information and alarms that allows taking preventive actions (including operational actions) to minimize direct and indirect impacts and damages derived from climate change.



Structure of the IEWS (4 main blocks)

- **Data gathering:** to predict and identify climatic hazardous events
- **Risk assessment:** estimation of derived potential risks such as: water and velocity levels in streets due to flooding, approximate duration of bathing waters' pollution events (due to CSO), vulnerable areas of the city to windstorms, storm surges, etc.
- **Preparedness and response:** activation and automation of the (preventive and reactive) emergency protocols
- **Communication and dissemination:** launching timely, reliable and understandable warning messages and key information to authorities and public at risk

Data gathering (data sources)



Current system status

- Water level in sewer system
- Water flows in the streets
- Bathing water quality
- Air pollution
- Sea level



Current weather

Temperature, humidity, rainfall, wind speed and direction, snow accumulation



Weather forecast

- Temperature [6 hours-8 days]
- Rainfall [2 hours-3 days]
- Wind speed [6 hours-10 days]
- Snow accumulation [6 hours-10 days]
- Sea level [1-2 days]
- Air pollution [1-3 days]
- Fire hazard [1 day]

Preparedness and response



Emergency protocols for: heat waves, wind storms, air pollution, urban floods, CSOs, storm surges, cold waves, snowfalls and forest fires

Risk assessment (hazard and risk evaluation)



- Risk levels and alert thresholds
- Automatic hazard and risk maps

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Communication and dissemination



Warning levels based on trigger values



Vulnerable areas and elements to climate hazards (flood-prone streets, public facilities at risk, most vulnerable districts, etc.)



To local authorities: valuable information to support decision making processes, including complete emergency protocols of preventive and reactive actions, department in charge of the execution and action status.



To citizens: warnings, recommendations and relevant information to decrease exposure to climate hazards



Authorities and public at risk



Badalona City Council and all the action units involved in civil protection, public health, environment, local police, firefighters, etc.



Citizens (through app and other public communication channels)

5. Expected results

LIFE BAETULO contribution to climate change adaptation by:

- Anticipating the adverse effects of climate change, including forecasting and warning of all the climate hazards affecting urban areas
- Minimizing the exposure and vulnerability of inhabitants, urban assets and the surrounding environment to the impacts of climate change
- Taking appropriate response actions to prevent or minimise the damage that climate derived hazards can cause
- Raising general awareness and capacity building for citizens, administrations, politicians and businesses in the context of climate change



More info at
www.life-baetulo.eu



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