

ReSHEALience is a project with a duration of 48 months, starting in January 2018, and a budget of 5,557,595.50 €.

> GENERAL OBJECTIVES

1 Increase significantly the durability of concrete to decrease maintenance and reduce consumption of resources.
This innovative and sustainable material is defined as Ultra High Durability Concrete (UHDC).

2 Quantify and predict the durability of UHDC structures in different service conditions when subjected to Extremely Aggressive Exposures (EAE).

3 Validate the capacity of the UHDC and the new developments, through 6 pilots (TRL6-TRL7) covering two strategic sectors where the material is expected to add high value and generate large impacts.

The project is oriented to support two EU strategic priorities (SP):

BLUE GROWTH

The development of the high blue economy potential is promoted with pilot 3 (Offshore energy, embracing wind, wave and tidal), pilot 4 (aquaculture infrastructures) and pilot 6 (coastal protection).

GREEN GROWTH

Move towards an energy efficient economy is faced through applications for geothermal and biomass power plants (pilots 1, 2), and efficient use of resources retrofitting of existing structures (pilot 5).

> 13 PARTNERS

COORDINATOR



THIRD PARTIES

> WORK PACKAGES

1 Ethics (Leader: PoliMi)	2 Project management (Leader: PoliMi)	3 Rethinking structures in XS/XA (Leader: RMW)
4 Concept and development of UHDC (Leader: UPV)	5 Quantification of UHDC improved long-term durability performance (Leader: CSIC)	6 Modelling long-term durability of UHDC materials and structures (Leader: TUD)
7 Business opportunities of the developed UHDC materials and structural solutions (Leader: STRESS)	8 Validation and proof of concepts in real-site durability conditions (Leader: EGP) (pilots)	9 Dissemination and exploitation of results (Leader: RDC)



Rethinking coastal defence
and green Energy Service infrastructures
through enHancEd durAbiLity high-performance
fiber reinforced cement based materials

760824. H2020-NMBP- 2016-2017, RIA

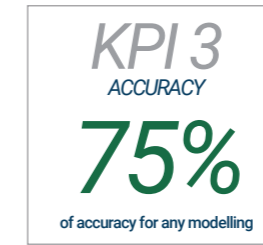
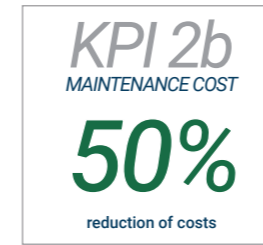
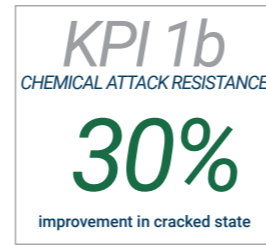
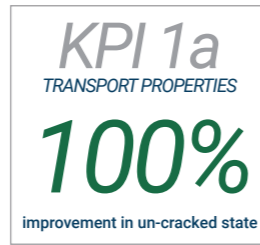
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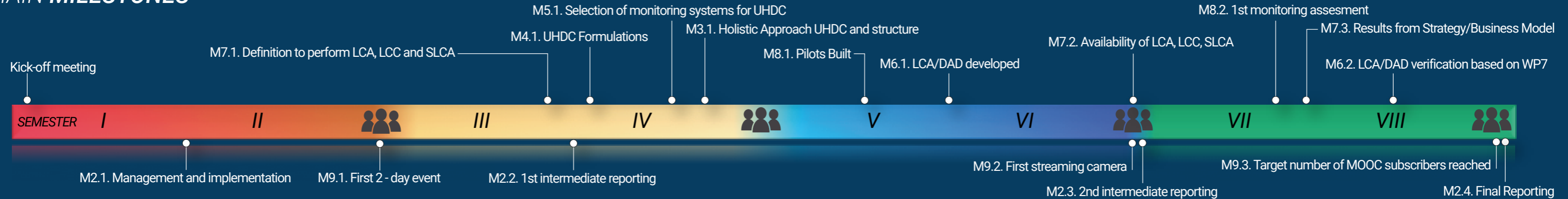
This project has received funding from the European Union's Horizon H2020 research and innovation programme under grant agreement N° 760824

> 5 KEY PERFORMANCE INDICATORS

FOR EACH SPECIFIC OBJECTIVE AND ITS TARGET VALUE



> MAIN MILESTONES



> 6 PILOTS



Chiusdino (Italy)
Geothermal power plant tower basin (EGP)

ACID ATTACK

Cooling tower fluid collection basins are critical due to the fluid aggressiveness and environmental risks

Reduced size basin (7x20m) close to an operating basin and fed with a side stream



Chiusdino (Italy)
Drilling platform Mud collection basin (EGP)

ACID ATTACK

In drilling sites a residue basin is used during the mud recycling. Basins are chemically and mechanically stressed due to frequent cleaning

A full scale mud basin will be built to service an operating geothermal drilling site



Valencia coast
Offshore wind floater (RMG+EO)

CL INDUCED ATTACK MEDITERRANEAN SEA

UHDC reduced size floater for off-shore wind towers in the Mediterranean coast to reach TRL6

Reduced size floater for offshore wind turbines. The pilot will be done with a scale 1:5



Valencia coast
Aquaculture mussel raft (RDC+ PREFFOR)

CL INDUCED ATTACK MEDITERRANEAN SEA

UHDC mussel farming raft. Durable substitute of traditional wooden rafts

Full-scale farming raft with a length of 27m in Valencia Port: UHDC precast pre-stressed beams



Malta Public abattoir
Damaged water tower (UM)

CL INDUCED ATTACK

Concrete water tower from 1st half of the XX century with severe degradation

Repair of Water Tower close to the sea, using UHDC and Textile Reinforced UHDC



Galway bay
Floating pontoon (BaPreC)

NORTHERN ATLANTIC CL and LOW TEMPERATURE ATTACK

Precast floating pontoons along the British Isles coast. Current design foresees HPC and high covers

9m long and 3m wide precast floating pontoon low-thickness textile reinforced UHDC and lower costs