RESHEALIENCE

Ultra High Durability Concrete

This project has received funding from the European Union´s Horizon H2020 research and innovation programme under grant agreement Nº 760824

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

The goal of ReSHEALience is to make possible the use of strain-hardening cementitious materials in structures under service conditions and even in cracked state.

The project will develop a new concept named **Ultra-High Durability Concrete** (UHDC) by upgrading the HPFRC/UHPFRC concept through the incorporation of tailored nano-scale constituents, upgrade experimental methods to validate its durability in service conditions and develop a theoretical model **Durability Assesment Design** (DAD) to evaluate ageing and degradation of UHDC structures and predict their lifespan under Extremely Aggressive Exposures (EAE).

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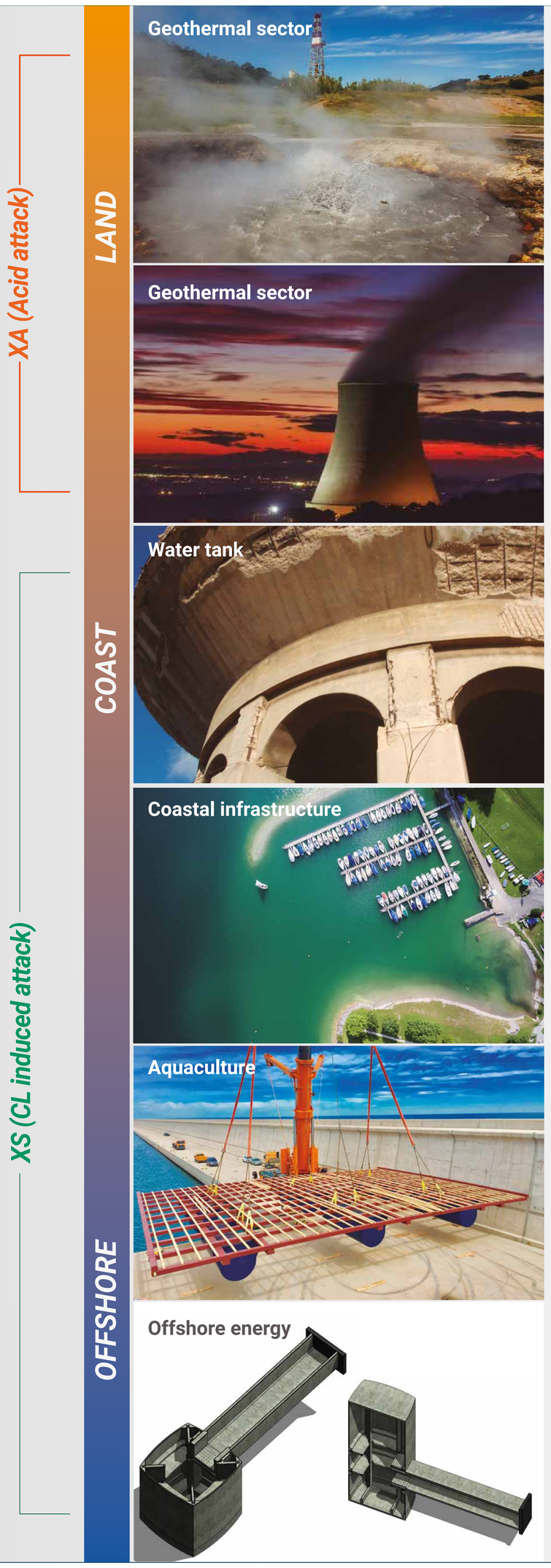
https://uhdc.eu

The specific objectives of this project are proposed in different levels:

MATERIAL	STRUCTURAL	RESILIENCE	COSTS	ACCURACY	BUSINESS PLANS	IMPACT
100%	30%	30%	50%	75%	8	300
of improvement in un-cracked state	of improvement in cracked state	of increase of service life	of reduction of maintenance costs	of accuracy of the modelling	One per industrial partner	subscribers per year to the newsletter

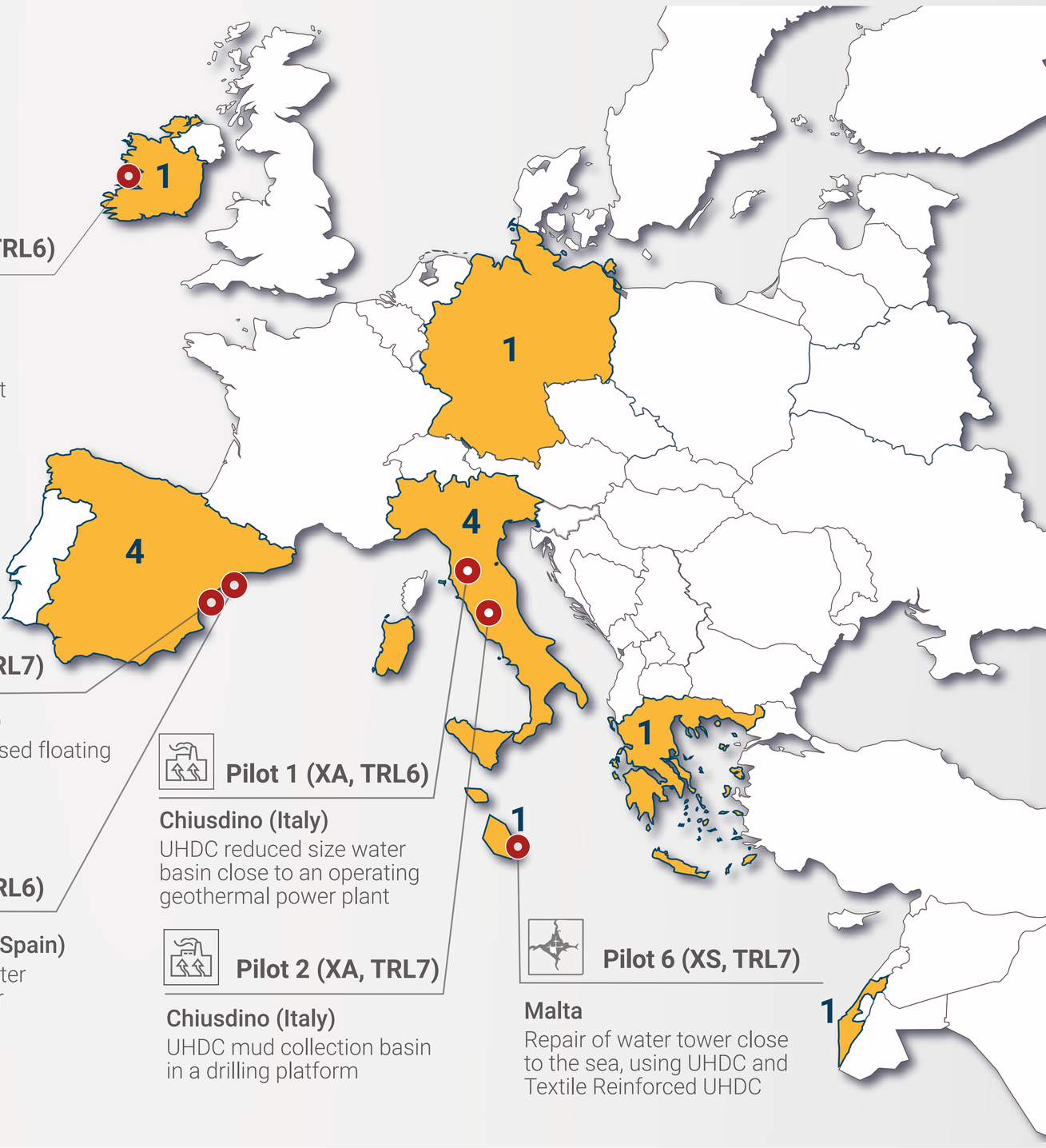


13 partners **7 countries** **6 Pilots** **48 months** **8 strategic sectors**

New design concepts will be proposed and validated through long-term monitoring in six full-scale pilots that pertain to the most relevant strategic sectors for the EU Sustainable Development Strategy in EAE conditions (XA and XS).

The pilots will be also used for on-site visits and as the first step of the industrial partners in the curve of experience with UHDC structures. These innovative designs are compared with the ordinary solutions in with LCA, SCCA and LCCA to show their cost-efficiency and greater sustainability.

The results of this project will help to design and produce structures with up to 60% less consumption of resources, lower maintenance costs and longer lifespan for strategic sectors of the EU economy, as coastal and port infrastructures, treatment plants, ocean energy, offshore wind, geothermal and biomass plants and aquaculture.



Pilot 4 (XS, TRL6)

Galway bay (Ireland)
Precast UHDC floating pontoons along the Northern Atlantic coast

Pilot 3 (XS, TRL7)

Valencia coast (Spain)
UHDC precast pre-stressed floating raft for mussel farming

Pilot 5 (XS, TRL6)

Mediterranean coast (Spain)
UHDC reduced size floater for off-shore wind tower

Pilot 1 (XA, TRL6)

Chiusdino (Italy)
UHDC reduced size water basin close to an operating geothermal power plant

Pilot 2 (XA, TRL7)

Chiusdino (Italy)
UHDC mud collection basin in a drilling platform

Pilot 6 (XS, TRL7)

Malta
Repair of water tower close to the sea, using UHDC and Textile Reinforced UHDC

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