New stress tests will reveal whether critical infrastructure in Europe is prepared to withstand extreme natural hazards

- The INFRARISK European project has developed stress tests to establish the resilience of European Critical Infrastructures to rare low frequency extreme events and to aid decision making in the long term, contributing to robust infrastructure development and protection of existing infrastructures

- The **INFRARISK Consortium** consists of 11 members from seven different countries, a well balanced and strong partnership among universities, research institutions, SME's, and Large Enterprise (LE)

- The INFRARISK Decision Support Tool (IDST) integrates an operational framework considering cascading hazards, impacts and dependent geospatial vulnerabilities, as well as practical software tools and guidelines to provide greater support to the next generation of European infrastructure managers. The project results and the decision support tool will be presented on September 29th, in the INFRARISK Final Dissemination Conference, to be held in Madrid

12th September, 2016

In the last decade, 80,000 people have died in Europe and there have been economic losses of 95 billion euro as a result of natural disasters. Such damage could be mitigated if the most vulnerable points are known and risks to infrastructure and population can be anticipated. This has been the objective of the European project INFRARISK, to develop new indicators for identifying critical infrastructures at risk from natural hazards.

For three years, a multidisciplinary team of scientists and engineers from 11 European organisations has developed new stress tests and an analysis tool for decision-making to assess the resilience of European critical infrastructure to extreme natural hazards. While these events are rare in Europe, one such incident can have a devastating impact on the system of European critical infrastructures.

INFRARISK 'what-if' scenarios will help us to establish the infrastructure related risks due to natural hazards, and help those who need to deal with these situations understand the possibilities to reduce these risks.

The analysis is based on models that consider the impact of natural hazards on interconnected critical infrastructure systems, and their interdependence. Researchers involved in INFRARISK contemplate cascading effects that a natural disaster can have on an infrastructure, from the impact on the infrastructure itself to the impacts on the population or the economic activity in the area.

Therefore, the INFRARISK analysis and models will provide information to help stakeholders in the decision process taking into account the risks on transport networks.

The research has been developed through case studies in different parts (road and rail) of the TEN-T Network (European Transport Network) in which the following aspects were taken into account:

- **Identification of rare natural disasters** which can have severe impacts.

- The development of a **methodology of stress tests** for specific natural hazards in critical infrastructure networks and a working framework applicable to any other system of interconnected linear infrastructures (eg. power transmission lines.).
- An **integrated approach to risk assessment**, taking into account the interdependence between infrastructure networks and the cascading effects of the risks.
- Facilitate the implementation of **algorithms for complex network infrastructure**.
- **Demonstration of the tools provided** by application of case studies.
- Develop strategies to **share and disseminate the knowledge** gained in the project.

In order to allow engineers, risk managers, operators, and decision-makers to know the Infrarisk decision support tool in depth, INFRARISK has designed training activities around problem identification, decision-making, the use of developed technical methods, and the analysis of results.

About the project

INFRARISK is a project that has been developed by a consortium of several groups of experts in risk identification and analysis, infrastructure management, engineering and operations analysis. The consortium consists of 11 organizations: Roughan & O'Donovan (Ireland), Eidgenössische Technische Hochschule Zürich (Switzerland), Dragados (Spain), Gavin Doherty Geosolutions Limited (Ireland), National Research Council, CSIC (Spain), Probabilistic Consult Solutions and Training (Netherlands), University College London (UK), Stiftelsen (Norway), Ritchey Consulting AB (Sweden) and the University of Southampton (UK).

It coordinates with other European projects in development (RAIN, STREST and INTACT), for protection against extreme risks.

INFRARISK ends on September 29th with a conference to be held in Madrid in which the project results and analysis tool that will determine the potential risks chain derived from natural disasters will be presented.

Web: http://www.infrarisk-fp7.eu/
Watch the video, *The Project in 3'*.

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