

New project to protect critical European transport infrastructure from extreme events

The INFRARISK project will develop 'toolkits' to manage the risk to critical infrastructure from natural hazards, funded by a €2.8M grant from the European 7<sup>th</sup> Framework Programme. Engineers, mathematicians, physicists, and social anthropologists will develop methods to identify risks from earthquakes, landslides, and flooding, harmonise how systems are tested and inform future decisions leading to safer building choices.

While extreme natural hazards such as earthquakes and floods are rare in Europe, just one such incident can have a devastating impact on critical infrastructure systems, causing a cascade down through their complicated interrelationships – for example, floods may damage roads and prevent rescue operations. Already this year, the Balkan region suffered flooding affecting more than 3million people.

INFRARISK will focus on the impact of earthquakes, landslides, and flooding on critical road and rail infrastructure: specifically, the Trans-European Transport Network (Ten-T network). It will feature physical modeling of systems in context – such as a bridge vulnerable to flooding which forms part of a wider transport network – and will produce visualisations to help specialist transport managers understand situations which may be beyond their experience.

The three-year project also aims to harmonize the stress testing methodologies used by individual countries to identify the parts of systems which may fail. Through this collaborative platform, managers in key roles will be able to assess the hazards that may affect their areas and take appropriate decisions.

INFRARISK brings together a well-balanced and strong partnership between large, small and medium enterprises, research centres and universities. 11 partners exist across seven European countries:

- ROUGHAN & O'DONOVAN LIMITED, Ireland (Coordinator)
- ETH Zurich, Switzerland
- DRAGADOS SA, Spain
- GAVIN AND DOHERTY GEOSOLUTIONS LTD, Ireland
- PROBABILISTIC SOLUTIONS CONSULT AND TRAINING, The Netherlands
- AGENCIA ESTATAL CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS, Spain (Dissemination partner)
- UCL, United Kingdom
- PRAK PETER LEONARD, The Netherlands

- STIFTELSEN SINTEF, Norway
- RITCHEY CONSULTING AB, Sweden
- UNIVERSITY OF SOUTHAMPTON, IT Innovation, United Kingdom

Bryan T. Adey, Professor of Infrastructure Management at ETH Zurich, describes the aim of the project:

*“Using our methodologies, we will be able to model, and to show on a screen, for example, both the landscape surrounding a road network including the slopes of the land and the type of vegetation, and the objects in the road network, such as the open road sections and the bridges. Then, by simulating rainfall, we will be able to model how the water moves across the land into rivers, how the water levels will rise in the rivers around bridges and the forces to which the bridges or the soil around the bridges will be subjected. Using this information, we will then be able to predict what will happen to the infrastructure, which parts will fail, and any knock-on effects, such as those related to traffic disruption, until the infrastructure is restored.*

*Such ‘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.”*

More information:

<http://www.infrarisk-fp7.eu/>

Video for media (3 minutes)

<http://we.tl/YsucE1otDC>

<http://goo.gl/HRzgNd>

Notes to editors:

- Critical infrastructure items are defined, according to EU terminology, as *“the asset, system or part thereof located in Member States which is essential for the maintenance of vital societal functions, health, physical integrity, security, and social and economic well-being of the population and the disruption or destruction of which would seriously affect a Member State as a result of the failure to maintain those functions”*.

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TEN-T Network  
TransEuropean Transportation Network

# INFRARISK LOGO



# INFRARISK CONSORTIUM

