EU-CIRCLE

A pan-European framework for strengthening Critical Infrastructure resilience to climate change

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this issue

About EU-CIRCLE

It is presently scientifically proven that climate change has the potential to substantially affect the lifespan, effectiveness or even destroy of Critical Infrastructures (CI), with devastating impacts in EU appraising the social and economic losses. According to the European Academies' Science Advisory Council, a 60 % rise in the cost of damage from extreme weather events across Europe has been estimated over a 30 year period. Europe's infrastructures have the largest merit in terms of monetary damages[1]. As infrastructures have lifetime that span in the decades, EU-CIRCLE aspires to generate scientifically truthful and validated knowledge on the potential impacts of climate, as a viable pathway for making infrastructures resilient.

< Read more on EU-CIRCLE Website >

EU-CIRCLE Scope

EU-CIRCLE's scope is to derive an innovative framework for supporting the interconnected European Infrastructure's resilience to climate pressures. This will be based on the development of a validated Climate Infrastructure Resilience Platform (CIRP) that will: 1) assess potential impacts due to climate hazards, 2) provide monitoring through new resilience indicators and 3) support cost-efficient adaptation measures. The EU-CIRCLE framework, leveraging upon the vast amount of existing knowledge generated thus in the climate research, will provide CIRP as an open -source web-based solution customizable to addressing community requirements, either in responding to short-term hazards and extreme weather events or in deriving the most effective long term adaptation measures.

< Read more on EU-CIRCLE Website >

Climate Change, Critical Infrastructure

Climate change is perceived as a threat multiplier for critical infrastructure, and has the potential to cause cascading effects across interdependent assets, systems and functions. In addition to well-acknowledged and partially quantified direct impacts to infrastructures, climate change may also induce indirect effects to the safety, security and structural integrity of the infrastructures.

According to the recently published IPCC AR5 report[4] , climate change-related risks to infrastructures are increasing (including rising sea levels and storm surges, heat stress, extreme precipitation, inland and coastal flooding, landslides, drought, increased aridity, water scarcity and air pollution) with widespread negative impacts on people (and their health, livelihoods and assets) and on local and national economies and ecosystems (WGII AR5 - Chap8, summary).

< Read more on CC & CI on EU-CIRCLE Website>

1. European Policy Center (2012), "The climate is changing – is Europe ready? Building a common approach to adaptation", EPC Issue paper No. 70, Brussels

PROJECT DETAILS

Start date : 01/06/2015
End date : 31/05/2018
Duration : 36 months
Reference : GA no 653824
Call : H2020-DRS-2014

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 653824

Link to EU Policies

EU-CIRCLE lies on the intersection of several European policies and initiatives spanning across different domains. These include:

The EU Internal Security Strategy, and more importantly the 5th Objective to Increase Europe's resilience to crises and disasters.

The EU Climate Adaptation Strategy (SWD (2013) 299), acknowledges that climate related hazards will have a defining impact on the status and operational capacity of European critical infrastructures, and society as a whole.

The European Programme for Critical Infrastructure Protection (Directive 2008/114/EC), on the identification and designation of European Critical Infrastructures and the assessment of the need to improve their protection.

< Read more on policies on EU-CIRCLE Website >

EU-CIRCLE Deliverables

The EU_CIRCLE project will produce deliverables, scientifc publications and dissemination activities.

< Read more on Deliverables on Website >
< Read more on Scientific publications on Website >

Upcoming Events

- Critical Infrastructure Protection & Resilience Europe, The Hague, Netherlands, 2-3 March 2016.
- Adaptation futures 2016: 4th International climate change adaptation conference, Rotterdam, Netherlands, 10-13 May 2016.
- 10th Jubilee Summer Safety & Reliability Seminars SSARS 2016, Gdansk/Sopot-Jelitkowo, Poland, 19- 25 of June 2016.
- 6th International Disaster and Risk Conference IDRC Davos 2016, Switzerland, 28 August - 01 September.
- National Conference on Sustainable Infrastructure 2016, in Shenzen China, 17-19 October 2016

http://www.eu-circle.eu/

Case Studies

EU-CIRCLE has 5 case studies. Find more details of each of the case studies on the EU-CIRCLE website.

***Case Study 1:* Extreme Dryness and forest fires on electricity and transport networks**
Lead Partner: **CEREN**

***Case Study 2:* Storm and Sea Surge at a Baltic Sea Port , Gdynia Poland**
Lead Partner: **GMU**
Scenario 1: Oil and Natural Gas Transport in port.
Scenario 2: Chemical Spill due to extreme sea surges.

***Case Study 3:* Coastal Flooding (surface water, highway, sewer and watercourse flooding) across Torbay, UK**
Lead Partner: **UNEXE and Torbay Council**

***Case Study 4:* International Event (Bangladesh)**
Lead Partner: **USAL and NCSRD**

***Case Study 5:* Rapid Winter Flooding (melting ice, narrow mountain streams, flooding) around Dresden, Germany**
Lead Partner: **Fraunhofer IVI**

< Read more on Case studies on website >

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EU-CIRCLE meetings

Kick-off Meeting

The Kick off meeting of the EU-CIRCLE project held during the 9th and 10th of June in Athens (organised by DEMOKRITOS); EU-CIRCLE officially started on June 1st, 2015. During the meeting the project objectives were analysed and an initial plan of actions was designed.

2nd Partner's Meeting in Cyprus

The **2nd EU-CIRCLE meeting** was hosted by the **European University Cyprus on 26 and 27 of November 2015.**

The meeting provided the partners an opportunity to discuss the first 6 months of EU-CIRCLE implementation and arrive at a common understanding of what the project aims to achieve. The strategic framework was discussed and refined and initial thoughts on the Climate Infrastructure Resilience Platform (CIRP) were presented. The first day of the meeting included a social event in the old part of Nicosia.

< Read more on Meetings on EU-CIRCLE Website >

Joint EU-CIRCLE – NIST CORE – ERGO Users Workshop

EU-CIRCLE organized a **joint workshop** with the **NIST** funded **Community Resilience Center of Excellence** and the **European and Middle East Users of the ERGO** modelling platform. The workshop provided an opportunity for scientists from both sides of the Atlantic to exchange ideas on how to model societal disaster resilience and the interdisciplinarity required to systematically model how physical, economic and social infrastructure systems within a real community interact and affect recovery efforts.

NIST-CORE is a $20 million cooperative agreement funded by the U.S. Department of Commerce's National Institute of Standards and Technology (NIST) awarded a to **Colorado State University (CSU).**

More information on NIST-CORE on:

http://resilience.colostate.edu.

EU-CIRCLE presentation in Zagreb, Croatia

On October 21st 2015, the EU CIRCLE project was jointly presented in Zagreb by the National Protection and Rescue Directorate (NPRD), the University of Applied Sciences Velika Gorica (VVG) and the Croatian Meteorological and Hydrological Service (DHMZ). The role and involvement of the three organizations in context of EU-CIRCLE was presented to the Croatian press and mass media. NPRD is directly involved in the creation and development of the final technological solution, as well as for building the network of critical infrastructure stakeholders, exchange of experience in the development of security operations plan of critical infrastructures from the climate change viewpoint, the elaboration of criticality and resilience indicators and case studies, etc. DHMZ has a leading role in the preparation and analysis of climate information and forecast models for extreme weather events, in which task it will be supported by the Norwegian and Greek meteorological service. VVG shall contribute its expertise in the field of critical infrastructure protection for the development of resilience indicators related to the risk assessment and monitoring the performance of critical infrastructures.

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Partners and Data

EU-CIRCLE is funded by the HORIZON 2020 programme of the European Commission, under the call: H2020-DRS-2014: "Disaster-resilience: Safeguarding And Securing Society, Including Adapting To Climate Change".

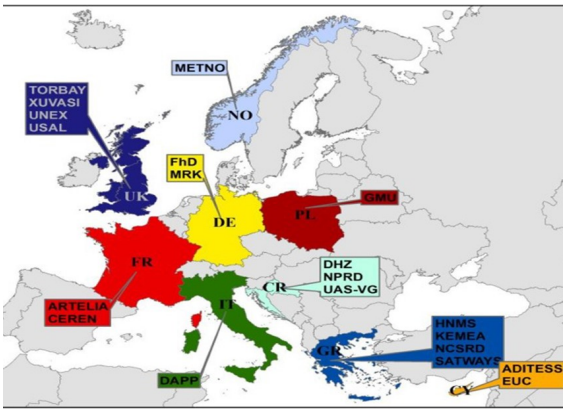
The topic addressed by the project relates to Disaster Resilience & Climate Change. Its duration is 36 months from 1st June 2015 until 30 May 2018. The allocated budget is 7,283,525.00 €. In total 20 partners from 9 EU-countries participate in EU -CIRCLE. An International Stakeholder's Advisory Group has been set up which currently consists of 13 members, from countries across the globe. A workshop will be held in May 2016 in Italy where the Advisory group and other stakeholders will be able to review the first work of EU-CIRCLE. Further details related to the workshop are available on the EU-CIRCLE website February 2016.

Topic: Disaster Resilience & Climate Change topic 1:

Science and innovation for adaptation to climate change: from assessing costs, risks and opportunities to demonstration of options and practices

- **Project Number: 653824**
- **Total Budget: 7,283,525.00 €**

< Read about Partners on EU-CIRCLE Website >



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