



NATIONAL CENTER FOR SCIENTIFIC RESEARCH "DEMOKRITOS"

*Institute of Nuclear & Radiological Sciences & Technology, Energy & Safety
(I.N.R.A.S.T.E.S.) - Environmental Research Laboratory*

**A PAN - EUROPEAN FRAMEWORK FOR
STRENGTHENING CRITICAL INFRASTRUCTURE
RESILIENCE TO CLIMATE CHANGE**

EU-CIRCLE

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NCSR Demokritos**

***'European Climate Change Adaptation Conference'
12th - 14th May 2015, Copenhagen - Denmark***



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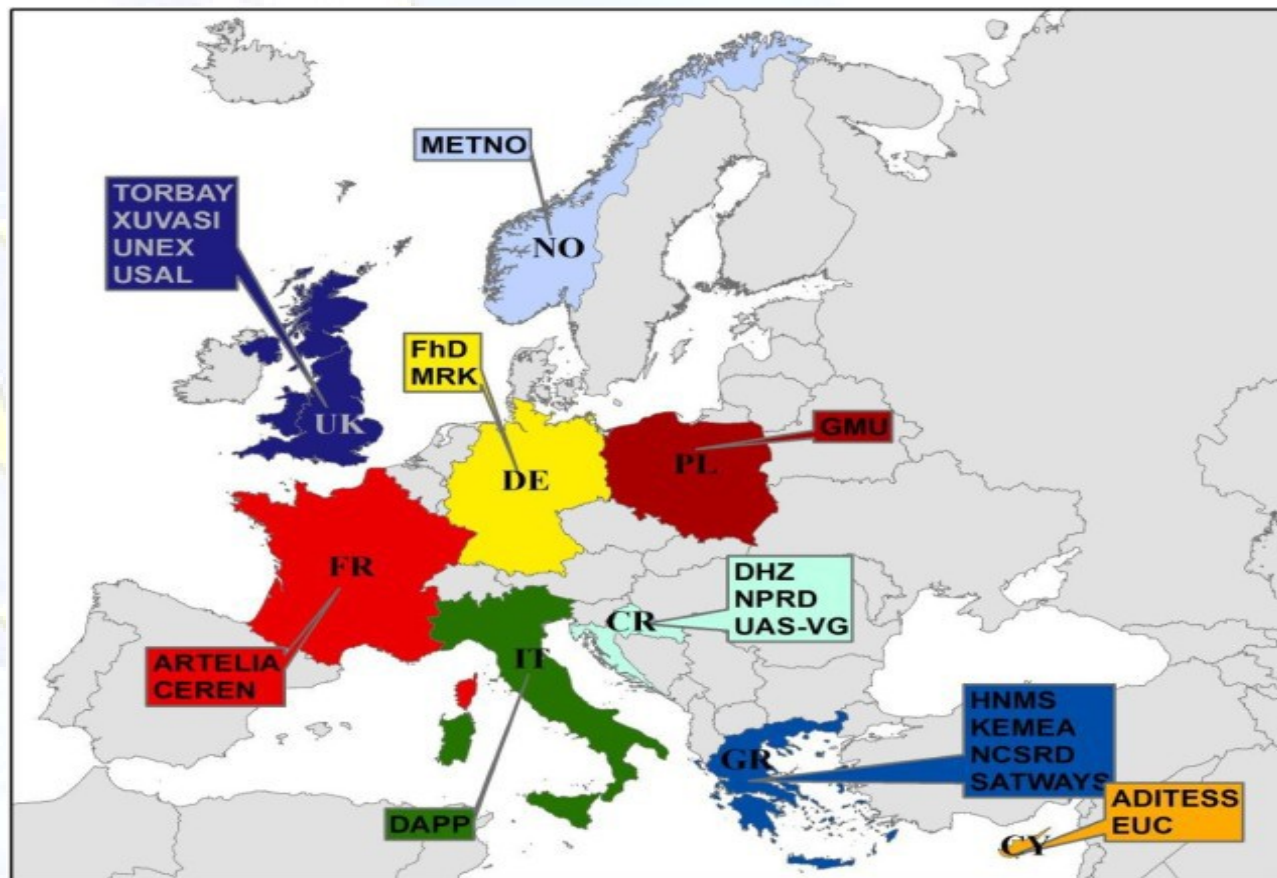


EU-CIRCLE CONSORTIUM

20 partners

9 EU countries

11 Global members
of Stakeholder's
Advisory Group



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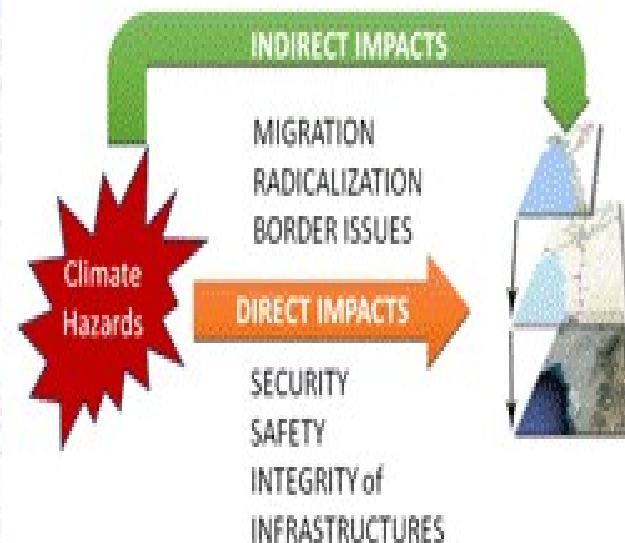
EU-CIRCLE MAIN SCOPE

EU-CIRCLE's scope: to derive an innovative framework for supporting the interconnected European Infrastructure's resilience to climate pressures.

Development of a validated Climate Infrastructure Resilience Platform (**CIRP**) that will:

- ✓ assess potential impacts due to climate hazards,
- ✓ provide monitoring through new resilience indicators and
- ✓ support cost-efficient adaptation measures.

Addressing community requirements, either in responding to **short-term hazards and extreme weather** events or in **deriving the most effective long term adaptation measures**.



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CLIMATE INFRASTRUCTURE RESILIENCE PLATFORM

End-to-end modelling environment

- Add new analysis **anywhere along the analysis workflow**

- Introduce CI interdependencies, validate results, and present findings in a unified manner providing

- An efficient "Best of Breeds" solution integrating existing modelling tools and data into a holistic resilience model in a standardised fashion.

Efficient synchronization framework

- Managing data, developed services, systems and models and information flow between them.

SimICI a unique reference test-bed

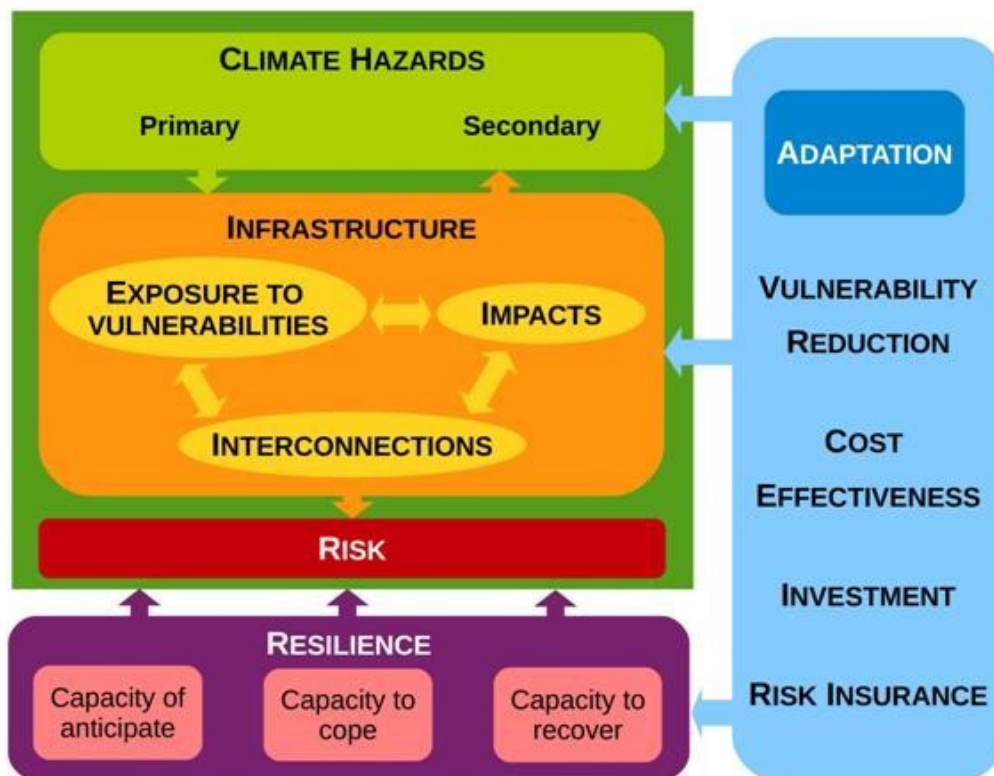
- Reference virtual & controlled environment for Simulating Interconnected CI

- Serve as a testbed and provide a reference environment for further exploitation.

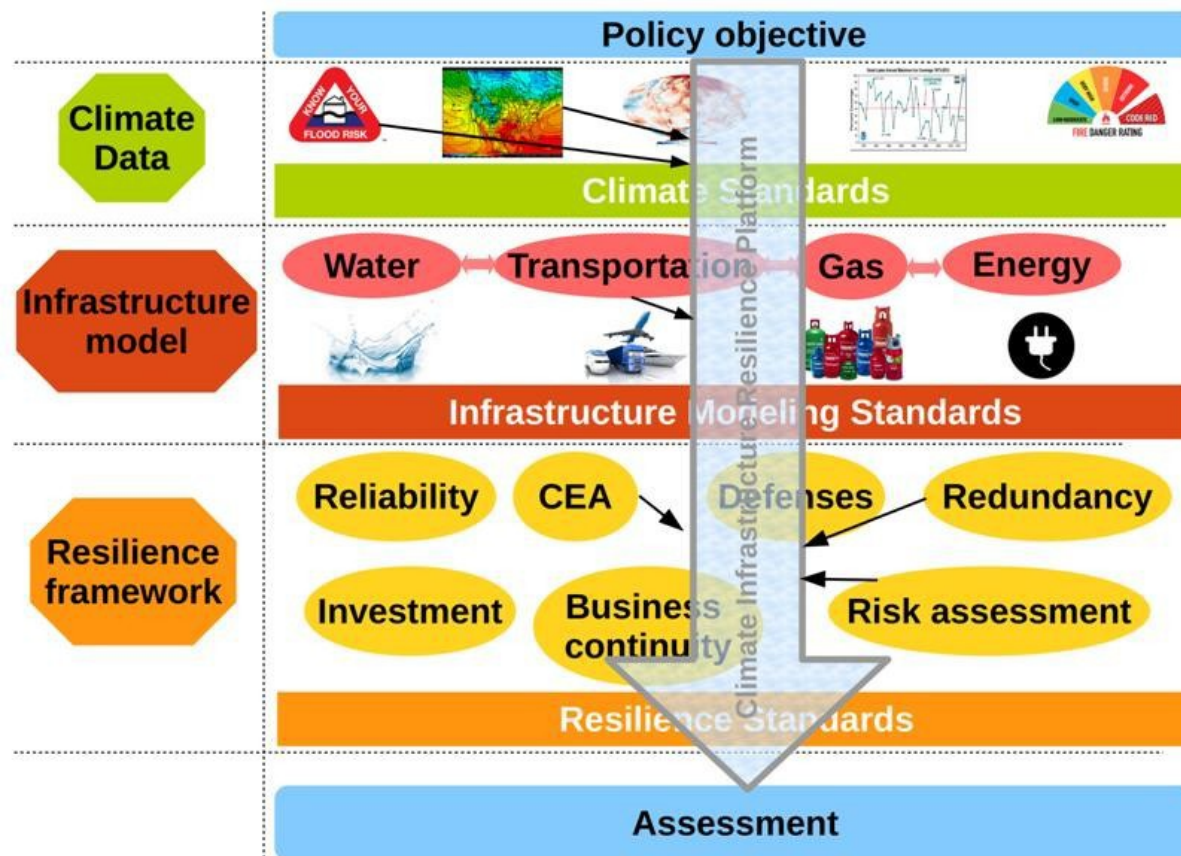


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EU-CIRCLE CONCEPT & APPROACH



EU-CIRCLE CONCEPT & APPROACH- CIRP



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EU-CIRCLE OBJECTIVES

- ✓ From response & prevention to resilience
- ✓ Balancing Priorities
- ✓ CIRP, Advanced Modelling and Simulation Environment for Assessing Climate Impacts to Infrastructures
- ✓ SimICI a unique reference test-bed
- ✓ Innovative local impact assessments
- ✓ Reduce uncertainties
- ✓ Contribute to Climate impact assessment standards
- ✓ Scientific Support to policies and CI stakeholders
- ✓ EU-CIRCLE as a vehicle to Industry Growth

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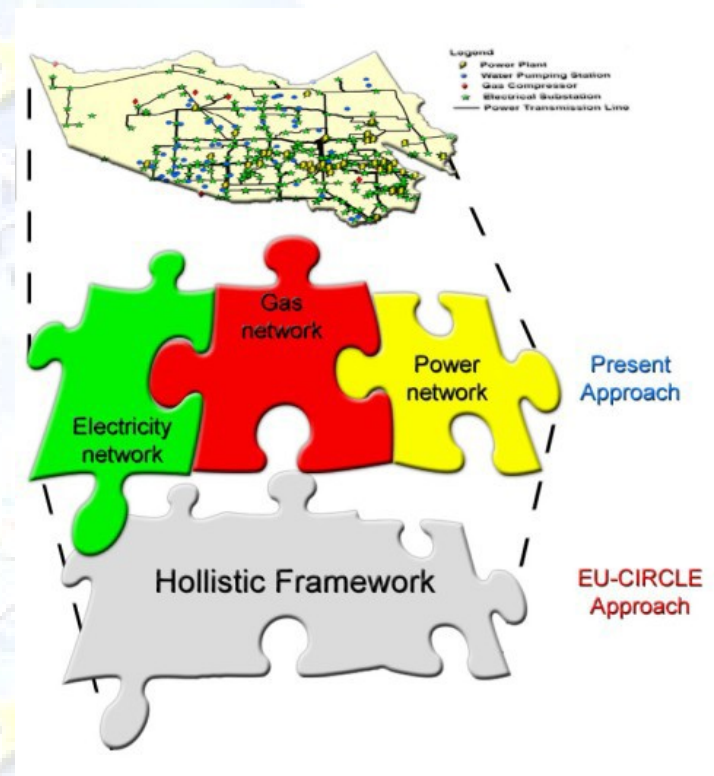




EU-CIRCLE IMPACT

✓ Support the establishment of climate resilient infrastructure by ensuring that an asset is located, designed, built and operated with both the current and future climate in mind and incorporates resilience to the impacts of climate change over the lifetime of that asset.

✓ Provide a coherent baseline for moving from sector-based climate resilience infrastructure frameworks, into holistic resilience plans for entire regions, introducing the interdependencies of heterogeneous infrastructures in the implementation process.



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EU-CIRCLE EXPECTED IMPACT

- ✓ Propose a new set of Resilience Indicators
- ✓ Understanding and Managing Interdependencies
- ✓ Impacts on CI community
- ✓ Link to EU Policies
- ✓ Scientific Support to Policies
- ✓ Holistic and interdisciplinary research
- ✓ CIRP: A ubiquitous collaborative environment
- ✓ Societal impacts
- ✓ Communication Impacts
- ✓ EU-CIRCLE Business Model: Support to growth



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EU-CIRCLE IMPLEMENTATION

WP1: Setting the Operational Environment

WP2: Climatic Data Capture and Processing

WP3: Critical Infrastructure Risk Model for Climate Hazards

WP4: CI Resilience and Adaptation to Climate Change

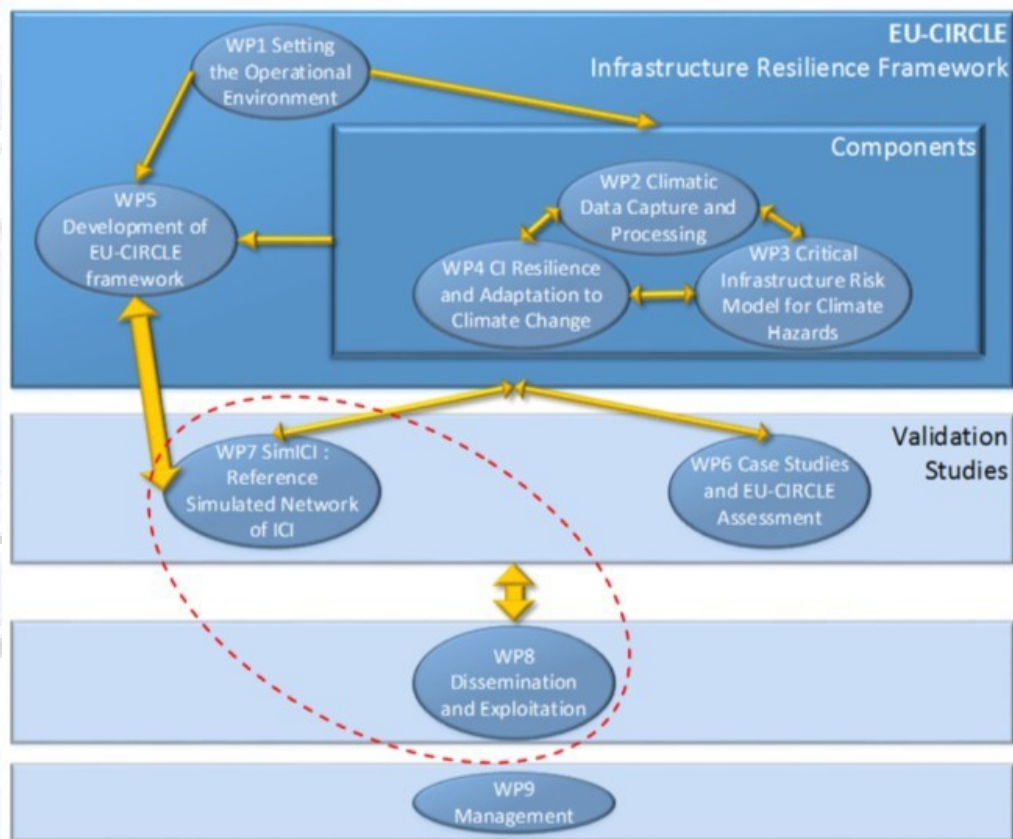
WP5: Climate Infrastructure Resilience Platform

WP6: Case Studies and EU-CIRCLE Assessment

WP7: SimICI : Reference Simulated Network of Interconnected Critical Infrastructures

WP8: Dissemination and Exploitation

WP9: Management



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EU-CIRCLE IMPLEMENTATION

Case Study 1: Extreme Dryness and forest fires on electricity and transport networks

Lead Partner: ENTENTE POUR LA FORÊT MÉDITERRANÉENNE

Case Study 2: Storm and Sea Surge at a Baltic Sea Port , Gdynia Poland

Lead Partner: AKADEMIA MORSKA W GDYNI

Case Study 3: Coastal Flooding (surface water, highway, sewer and watercourse flooding) across Torbay, UK

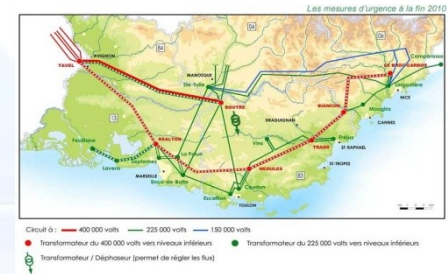
Lead Partner: UNEXE and Torbay Council

Case Study 4: International Event

Lead Partner: USAL and NCSR

Case Study 5: Rapid Winter Flooding (melting ice, narrow mountain streams, flooding) around Dresden, Germany

Lead Partner: Fraunhofer IVI



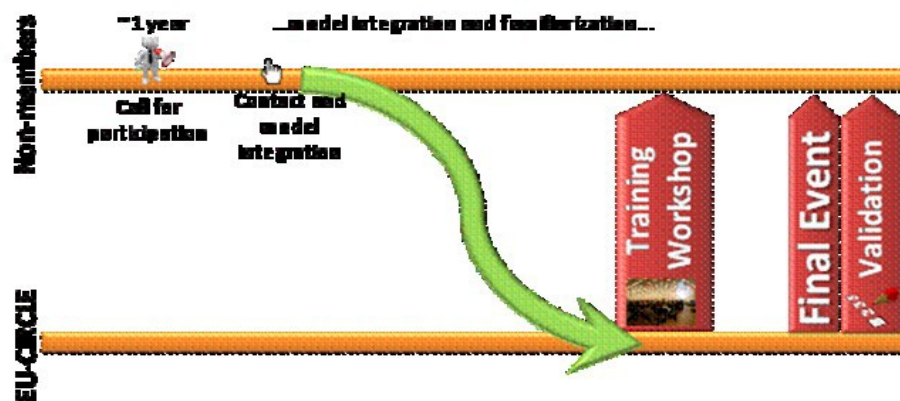
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EU-CIRCLE OPEN PARTICIPATION

Access to the CIRP and SimICI will be facilitated to non-consortium members.

Approximately, one year before the Final Workshop, there will be an announcement through the EU-CIRCLE project website, through the national NCP and related scientific societies with an open invitation to participate in the final demonstration.

During period of expression of interest until the actual event, there will be continuous support from the consortium members for external partners on how to optimally i



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EU-CIRCLE DATA

HORIZON 2020

CALL: H2020-DRS-2014: "DISASTER-RESILIENCE: SAFEGUARDING AND SECURING SOCIETY, INCLUDING ADAPTING TO CLIMATE CHANGE"

PROJECT NUMBER: 653824

TOTAL BUDGET: 7,283,525.00 €



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Thank you for your attention !!!

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