Green infrastructure and mitigation and adaptation to climate change

Rationale/Challenge:

That the Earth's climate is changing is beyond doubt and given the uncertain international response, the impacts remain uncertain. Different European climatic regions are predicted to have varying impacts, for example, more heat and drought on the Iberian peninsula, higher mountain and arctic temperatures, and an increase in winter precipitation in north-west Europe.

New techniques and methods are required to both adapt the infrastructure and surrounding areas to the worst impacts of climate change and extreme weather events. At the same time, significant reconstruction of pavements, embankments and drainage is both unfordable and could be resource and carbon-intensive. Methods are required to use natural processes and green infrastructure to lower embodied carbon and to protect and upgrade the infrastructure.

Of particular concern is the impact of varying precipitation on soils and the potential for an increase in the likelihood of landslips and landslides and subsidence.

Scope Proposals should address one or more of the following:

The scope will include drainage, slope stability and measures to mitigate extreme heat. As some of the measures may be best undertaken adjacent to the infrastructure envelope, the actors involved will include infrastructure owners, environmental agencies, water and drainage companies as well as designers, consultants and contractors.

The following R&I activities are proposed:

CSA

1. Undertake cost-benefit on whole life basis of selection of green infrastructure solutions.
2. Develop a catalogue of solutions and a maintenance handbook.

RIA

1. Develop and demonstrate new and green processes at lab and field scale for a range of climate hazards.

IA

1. Live trial of a selection of green infrastructure in new build and retrofit situations.

Expected Impact

- Develop and demonstrate new green infrastructure to adapt to extreme weather events.
- Understand cost-benefit of green vs. grey infrastructure on a whole-life basis.
- Understand the whole-life carbon cost of grey vs. green infrastructure.
- Develop a manual for the maintenance of green and new infrastructure
- Design guide and case studies of successful implementation and lessons learnt.
- Assessment of benefits and co-benefits of green infrastructure.

Relevant Clusters: Cluster 5

Project Type: CSA (€2 million) + RIA (€5 million) + IA €10 million	**Budget:** €17 million