TOPIC : Large-scale demonstrators on nature-based solutions for hydro-meteorological risk reduction

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Topic Description

Specific Challenge:

Economic damage costs from extreme hydro-meteorological events (such as floods, droughts, storm surges, landslides) are increasing throughout Europe. Further investment in traditional, engineering solutions for risk prevention is no longer possible in several cases, due to the very high costs, and to the limited flexibility offered by such solutions to cope with extreme events for which changes in frequency, intensity and distribution may be expected due to climate change. Nature-based solutions can be flexible, multi-beneficial alternatives to traditional engineering, but adequate proof-of-concept for their upscaling and replication is lacking.

Scope:

Via large-scale demonstration, projects should aim to:

- develop, demonstrate and deploy innovative systemic and yet locally attuned nature-based solutions, including green and blue infrastructure and ecosystem-based management approaches, in rural and natural areas, including particularly sensitive ones such as mountainous and coastal areas, for hydro-meteorological risk reduction at watershed/landscape scale. Solutions should be incorporated in an integrated design concept for land management and planning and be co-designed and co-deployed in a trans-disciplinary multi-stakeholder and participatory context with due consideration to and integration of social and cultural aspects and climate change effects;
- develop a comprehensive framework for the comparison of green and blue/grey/hybrid hydro-meteorological risk prevention and reduction solutions, taking into account wider land use and adaptation to the effects of climate change, considering impacts on landscape, local communities and cultural acceptance as well as co-benefits such as biodiversity conservation/enhancement, more sustainable local livelihoods, human health and well-being, climate change mitigation, etc.;
- identify and assess barriers related to their social and cultural acceptance and policy regulatory frameworks and propose ways to overcome them;
- develop methodologies , tools and best practices enabling the replication and up-scaling of nature-based solutions in different contexts, including replication of innovative investment strategies, governance and business models, as well as performance assessment tools, protocols and standards for the design, operation and maintenance of these solutions;
- provide a consolidated evidence-base on co-development processes, performance standards, cost-effectiveness, operational requirements, life cycle costs and the multiple benefits of

nature-based solutions as economically, socially, culturally and environmentally viable alternatives for hydro-meteorological risk reduction and climate change adaptation at watershed/landscape level, also considering the potential and limits of the solutions under different circumstances and conditions;

- establish long-term sustainable data platforms considering existing initiatives and alternative options, such as pan-European web-based repositories, securing open, consistent data and performance measurements and interoperability of data infrastructures to ensure effective communication, public consultation, exchange of practices and sharing of experiences and a continuous building up of the 'knowledge portfolio' in the longer term (i.e. following project completion).

Proposals shall address **all** of the above points.

The contribution of social sciences and humanities to these processes is considered necessary.

Projects should envisage resources for clustering with other projects funded under this topic, under topic SC5-10-2016, and relevant topics on sustainable cities through nature-based solutions funded under the 'Smart and Sustainable Cities' call in part 17 of this Work Programme. Coordination with projects funded under topic MG-7.1-2017 ("Resilience to extreme – natural and man-made – events) is also encouraged.

Because of the substantial investments that might be necessary for implementing the nature-based solutions, additional or follow-up funding (private or public) should be sought, including from relevant regional/national schemes under the European Structural and Investment Funds (ESIF), in particular under the European Regional Development Fund (ERDF), or other relevant funds such as the Instrument for Pre-accession Assistance (IPA II). To this end, projects could seek contact with ERDF/IPA managing authorities and with the authorities who developed the Research and Innovation Smart Specialisation Strategies (RIS3). Please note, however, that reference to such additional or follow-up funding will not lead automatically to a higher score in the evaluation of the proposal.

In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), cooperation and synergies with similar international demonstration activities on nature-based solutions for hydro-meteorological risk reduction and climate change adaptation, funded under different financial arrangements or programmes, is encouraged to facilitate mutual learning, sharing of experience, networking and follow-up. The project proposals could already indicate which interested regions/countries or other partners have been pre-identified for contact during the project.

The Commission considers that proposals requesting a contribution from the EU of at least EUR 12 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact:

Projects are expected to contribute to:

- the EU being recognised as a leader in nature-based solutions for hydro-meteorological risk reduction and climate change adaptation and thus enhancement of territorial, socio-economic and ecological resilience and coherence;

- the mainstreaming of nature-based solutions in land use planning, landscaping and territorial policies due to the provision of appropriate tools and best practices to assist decision makers, designers, competent authorities, planners, practitioners, enterprises, citizens and other stakeholders in reducing hydro-meteorological risks and in climate change adaptation;
- development of an integrated EU-wide evidence base and a European reference framework on nature-based solutions and the stimulation of a new culture for 'land use planning' that links the reduction of risks with local and regional sustainable development objectives;
- enhanced market demand for nature-based solutions for hydro-meteorological risk reduction and climate change adaptation, due to the availability of protocols and standards for their design, operation, maintenance, performance monitoring and measuring of their broader economic, societal and environmental benefits;
- improved disaster risk management, due to enhanced capacity for providing quantitative assessments of nature-based solutions for disaster risk reduction and climate change adaptation;
- reduced human and financial costs due to better and more flexible disaster risk management with nature-based solutions;
- enhanced implementation of EU policies for disaster risk prevention and reduction, for climate change adaptation[1], for Green Infrastructure[2], and for water management (Water Framework Directive, Floods Directive, Blueprint to safeguard Europe's water resources), as well as of international frameworks, such as the Sendai Framework for Disaster Risk Reduction 2015-2030;
- contribution to the priorities of the EIP Water;
- implementing the Sustainable Development Goals (SDGs), in particular SDG 15 'Protection, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss' and SDG 13 'Take urgent action to combat climate change and its impacts', as well as the conclusions of the COP21 Paris Agreement[3].

Cross-cutting Priorities:

International cooperation
Socio-economic science and humanities

[1]An EU Strategy on adaptation to climate change, COM (2013) 216.

[2]An EU-wide strategy on Green Infrastructure: Enhancing Europe's Natural Capital, COM(2013)249

[3]The Paris Agreement was adopted at the 21st Conference of the Parties (COP) of the United Nations Framework Convention on Climate Change, in Paris on 12 December 2015.