

## Inter-relations between climate change, biodiversity and ecosystem services

Actions should investigate at all relevant spatial and temporal scales the way that ecological processes, biodiversity (including terrestrial and/or marine ecosystems as appropriate) and ecosystem services are impacted, both directly and indirectly, by climate change. Actions should consider the interactions and feedbacks between climate change and biodiversity, ecosystem functions and services. The vulnerability of biodiversity and ecosystems functions and services to climate change should be investigated and modelled across a range of European (including other European territories) climatic and ecological regions; this includes human activities with relevance to climate change. They should account for social, ecological and economic aspects and climate change relevant stressors and sources of uncertainty. These should include tipping points and safe operating spaces. The role of nature-based solutions[[A definition is provided in the introductory text of this Work Programme]]in enhancing the efficiency and effectiveness of climate change adaptation and mitigation strategies should be assessed and synergies with other pollution-reducing environmental policies be explored. Work should build, as appropriate, on existing knowledge and activities such as relevant FP7/Horizon 2020 and LIFE projects, European climate adaptation platforms and Copernicus Services, in particular on climate change, land monitoring and marine environmental monitoring, and contribute to long-term monitoring initiatives.

Actions should envisage clustering activities with other relevant selected projects for cross-projects co-operation, consultations and joint activities on cross-cutting issues and share of results as well as participating in joint meetings and communication events. To this end, proposals should foresee a dedicated work package and/or task, and earmark the appropriate resources accordingly.

In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), international cooperation is encouraged, in particular with CELAC[[Community of Latin American and Caribbean States]] countries.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 5 million to 7 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

The Paris Agreement notes the importance of taking action to ensure the integrity of all ecosystems and the protection of biodiversity in the context of combatting climate change and adapting to its impacts. An improved understanding of the interactions and feedbacks between ecological processes and climate change, together with evidence-based guidance, is crucial for the development of appropriate solution-oriented strategies and measures for biodiversity conservation and cost-effective ecosystems-based climate change adaptation and mitigation. Furthermore, there are opportunities to let biodiversity and ecosystems benefit multidimensionally from climate change adaptation and mitigation, because intelligent climate policy can simultaneously reduce other environmental stresses, such as air pollution.

The project results are expected to contribute to:

- more effective, integrated and evidence-based biodiversity conservation strategies and ecosystem management in the face of climate change;
- pushing the EU to the forefront in climate-change predictive capacity through models better accounting for the interactions and feedbacks between biodiversity, ecosystems and the climate system;
- more effective ecosystem-based adaptation and mitigation, through evidence-based design and implementation of systemic nature-based solutions ;
- enhanced ecosystem integrity, functionality, resilience and delivery of services;
- increased investment in nature-based solutions, and ecosystem conservation, restoration and management, to support climate change adaptation and mitigation strategies;
- providing evidence on the impacts of biodiversity on climate mitigation and adaptation, including indicators/quantitative data;
- underpinning the EU Nature Directives, EU Biodiversity Strategy, 7th Environment Action Programme, and the EU Strategy on adaptation to climate change;
- informing major international scientific assessments such as the IPCC reports and the IPBES;
- the protection, restoration and enhancement of natural capital in line with the work of the Convention on Biological Diversity (CBD), the Intergovernmental science-policy Platform on Biodiversity and Ecosystem Services (IPBES), the Intergovernmental Panel on Climate Change (IPCC) and further relevant global processes and organisations.

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