Development of climate change risk assessments in European regions and communities based on a transparent and harmonised Climate Risk Assessment approach

The proposal should address two distinctive actions, in a sequence indicated below.

1st Action- Development and beta testing of the climate risk and vulnerability assessment framework tool

This topic relates to the Mission's first objective[[Please consult the Mission's Implementation Plan for more information on this]]: preparing and planning for climate resilience and the need for a better understanding of climate change related risks and their interactions with other types of risks.

The total budget for the first action should be 20% of the total requested EU contribution. The multi-risk and multi sector assessment framework tool should be developed for broad application to all European regions and communities. The harmonised framework and the methodology and guidelines to assess the climate change risks and impacts should be designed to be accessed by non-experts users and the relevant stakeholders, with user-friendly features.

The approach proposed should make an efficient use of the currently available high-resolution data and services, in particular, envisaging an exploitation of those provided by Copernicus[[More specifically, Copernicus Climate Services, C3S , which already provides free of charge quality controlled data about the past, present and future climate for Europe and the whole planet to its nearly 100.000 users. The recently signed contribution agreement between ECMWF and the European Commission ensures that such an operational climate data provision will remain free and open for at least the next 7 years.]], initiatives within the Group on Earth observation (GEO) and EuroGEO, and the ones of Destination Earth[[https://digital-

strategy.ec.europa.eu/en/policies/destination-earth]], particularly its climate change adaptation digital twin and its way how to involve non-experts. Big data and artificial intelligence should be also integrated in the tool in an innovative way to better quantify and assess climate risks. All developments should take advantage of and where possible align with the JRC Risk Data Hub[[https://drmkc.jrc.ec.europa.eu/risk-data-hub#/]] terminology, indicators, data structure so that newly generated risk, vulnerability and loss data can be integrated in its GIS web platform, as well can be integrated with Destination Earth. The proposal should also work closely with national authorities to ensure the integration of the information, knowledge and experience existing at national and regional level.

While a large amount of data and information is available, there are still significant knowledge gaps when it comes to mid-and long term projections of frequency and severity of extreme events at regional and local level, specific impacts within various types of territories (urban, rural, geographic specificities) and land use, cascading and spill-over effects, and the integration of socio-economic (including vulnerability and the impacts/effectiveness of the adaptation solutions) and in-situ data.

The proposal should provide a benchmark and comparison of the already ongoing climate risk assessment frameworks and identify common ground and gaps to be filled. Basing the results on reputable, quality controlled data such as the one made available by C3S on the Climate ADAPT portal of the European Environment Agency, will be a way to ensure that a common data layer is used by all risk assessment frameworks.

The development of the climate risks and impacts assessment framework tool should be based on the state-of-the-art multi-sector risk framework[[Recommendations for National Risk Assessments of the JRC: https://publications.jrc.ec.europa.eu/repository/handle/JRC114650]], with its three components (hazard, exposure, vulnerability), considering the rich available experience in the private sector (e.g. insurance) and public institutions (e.g. UNDRR Global Risk Assessment Framework, GRAF[[see https://unfccc.int/wim-excom/areas-of-work/crm-approaches]]) and building upon existing risk assessment frameworks, such as PESETA studies and EEA assessment reports and the Climate-ADAPT's climate data explorer, relevant CEN/ISO technical standards (e.g. the Eurocodes), and take also into account ongoing work on standardisation of climate and disaster loss data.

The proposed harmonised framework should clearly tap into the wealth of existing national and regional risk assessment strategies and methodologies and should be defined after some consultation and validation with the relevant national and regional stakeholders who are normally in charge of the climate risk assessment processes. The proposal should also identify and support ways by which the framework may be widely applied, supporting the implementation of the EU Adaptation Strategy and

possibly also by incorporating it in the guidance and procedures of the Union Civil Protection Mechanism (UCPM), or a combination of both, and exploring the role of the data and knowledge services embedded in the Climate ADAPT platform.

2nd Action- Using the climate risk assessments framework tool in regions and communities, to conduct climate risks, vulnerabilities and impacts assessments as a basis for development or revision of local emergency and risk management plans

The proposal should provide direct financial support in the form of grants to at least 50 regions and communities in conducting multi-hazard/ risk assessment profiles or upgrading and refining existing ones, making use of climate services, using the framework tool developed under Step I. This action should start no later than 12 months after the project kick-off. A close cooperation with pre-established regional networks should be pursued to ensure maximum dissemination and use of the climate risk assessment tool. 60% of the total amount of the EU requested contribution must be made available to provide direct support to regions and communities. To implement the support to financial support to third parties, the consortium should include partners with relevant operational and financial experience and viability.

Through the provision of financial support to third parties, the proposal should provide a number of selected local and regional administrations with access to development of their climate risk profiles, guidance for the development of comprehensive risk management, based on the designed framework and other service oriented initiatives such as Copernicus Climate Change Service C3S, the Copernicus Emergency Management Service and GEO/EuroGEO.

Priority should be given to regions or locations with high vulnerability[[Vulnerability is the propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt (IPCC, 2018 – SR Global Warming of 1.5 ºC).]], limited resources and/or low adaptive capacity[[Adaptive capacity is the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or to respond to consequences (IPCC, 2018 – SR Global Warming of 1.5 ºC).]] to climate change impacts. Demand could be higher than what can be supplied within the limits of this action, therefore proposals to this call should include a process and criteria for how to identify the regions and communities most in need of these services. These criteria will ensure that a variety of locations are represented, in as many countries as possible, reflecting the diversity in climatic risks in Europe, as well as differences in socio-economic and demographic conditions, and in approaches to mitigating such risks. Such criteria should also take into account the characteristics of the populations concerned and the vulnerability of the locations. Respective national governments should be consulted in this process selecting the regions and communities.

The proposal should also highlight opportunities for adjustments of existing community early warning systems, where they exist, to consider changing patterns of climate extreme events and ensure rapid responses and the protection of the concerned people, in particular those at high risk such as children, senior citizens, people with chronic diseases and socially disadvantaged groups. It should support local administrations and local businesses (in particular SMEs) to develop or revise community-based emergency and risk management plans to ensure critical infrastructure is safe and essential services operable and accessible under critical conditions and to prepare resilience strategies to minimise the economic impact (e.g. temporary or permanent shutdown) from climate events resulting in further negative impacts for the wider community through loss of income, employment and livelihoods. Citizens and civil society organisations will be encouraged to provide inputs towards the risk assessments.

The proposal should contribute to filling pre-defined knowledge gaps through harmonisation and integration of existing data allowing for generating of trends and effective predictive modelling of extreme events affecting local communities. Furthermore, data enabling characterising vulnerability (population, infrastructure), disaster loss data, adverse impacts of extreme events, or effectiveness of the adaptation solutions shall be integrated in the risk assessment at local level. 20% of the total requested EU contribution should be allocated to the consortium, for maintenance and update of the risk assessment framework tool, back office support to the regions and communities that aim to develop their risk assessment plans and are using the tool, and developing a proposal for scaling up and improving the risk assessment framework tool. During its duration, the project should include an open support line or help desk for all interested European regions and communities, beyond those that will be selected for direct support in conducting their risk assessments through the cascading funds.

The knowledge generated in the course of the project should be broadly disseminated, made open source, and shall be made public (including eventually developed IT tools), free and open licensed, helping citizens, public institutions and businesses to understand and appreciate their risk exposure, possible implications of climate disruptions on social, economic and environmental processes and key community systems, possible business opportunities. Future actions under the Climate Adaptation Mission should leverage the knowledge generated from this action, in providing support to more regions and communities. The generated knowledge and outcomes should also feed into the improved design and development of this harmonised risk assessment framework.

The possible participation of the JRC in the project will consist of making the JRC Risk Data Hub available and adapting it as needed for hosting and publishing the disaster loss, vulnerability and risk data that is collected under the mission, as far as it is aligned with its terminology, indicators, and data structure.

The European Commission intends to establish a network and coordination activities amongst all the projects funded for the implementation of the Climate adaptation Mission, and also those funded under the Horizon 2020 European Green Deal call[[This refers to projects granted under call H2020-LC-GD-2020, topic LC-GD-1-3-2020. The projects are still in grant preparation at the time of writing. They will be operational right at the official planned start of the Mission. In addition to the development of innovation packages improving climate resilience, a Coordination and Support Action will foster their adoption and wide reapplication in at least 10 vulnerable and low-capacity regions. A Coordination and Support Action is already included in the Horizon Europe work programme 2021 to provide additional support to regional and local authorities]] and under Horizon Europe when particularly relevant to climate adaptation knowledge and solutions, that will be coordinated by the soon to be established Mission Implementation Platform. The project that will be selected under this topic will be requested to contribute to this effort. Applicants should acknowledge this request and already account for these obligations in their proposal, making adequate provisions in terms of resources and budget to engage and collaborate with the Mission governance.

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