PROCURING INNOVATIVE CLIMATE CHANGE SERVICES

Policy Brief: Civil Security and Protection

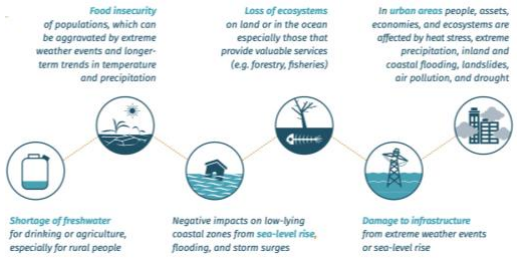
The PROTECT Project

PROTECT supports urgent action for **climate adaptation, mitigation, and resilience**. It enables public authorities to use state-of-the-art public procurement approaches in order to identify solutions – **Climate Services (CS) based on Earth Observation** – that best fit the specific and systemic needs of the public demand. The focus is on five application domains, namely: Energy & Utilities, Sustainable Urban Communities, Agriculture, Forestry and other Land use, Marine and Coastal Environments and Civil Security and Protection. PROTECT will source and assess existing and high-potential CS solutions and technologies that use Earth Observation data. It will engage with an extensive and varied community of procurers, facilitate the definition and aggregation of their needs and functional requirements for climate services, explaining, fostering and supporting a 'buying with impact' approach. PROTECT will **prepare the operational ground for one or more joint, cross border or coordinated pre-commercial procurement (PCP) processes**. At policy level, it will provide decision-makers for procurement, climate and policy, at EU, national, regional and local levels, with practical recommendations and guidelines to boost the use of innovation procurement for climate action.

Summary

- Climate changes **exposes the Civil Security and Protection sector to several challenges and risks** (Fig. 1), in rural and urban areas both in Member States and beyond, where the EU supports civil protection efforts.
- Extreme weather events, storms, floods, wildfires, and other climate-related hazards, such as air pollution or heat stress, can all **cause damage to critical infrastructure** and endanger human health and security [1].
- These challenges are reflected in the EU's civil protection policies, which highlights **climate change as a megatrend rapidly altering the work of civil protection** [1].
- Climate change is further seen as a **risk-multiplier**, as one climate-related security risk can trigger another, causing a cascading effect of multiplying effects [2].
- Climate Services using Earth Observation data can **support emergency response in Europe and abroad** and the monitoring of vulnerable infrastructure, extreme events, and weather patterns.

Fig 1. Climate-related security risks [2].



Recommendations

- The EU's Civil Protection Mechanism recognises that to tackle the increasing threat of climate change for civil security, critical infrastructure, and human health, **innovative solutions are required**.
- Climate Services utilising Earth Observation data can **support emergency response**, **predict extreme events** as well as increase the resilience of critical infrastructure to the multifaceted risks posed by climate change.
- A PCP call enables stakeholders to trigger the development of innovative solutions that can **address the main challenges** the Civil Security and Protection sector is facing.

Box 1: Pre-commercial procurement

Pre-commercial Procurement (PCP) is a specific approach to procure R&D services that involves competitive development in phases, risk-benefit sharing under market conditions, and where there is a clear separation between the PCP and the deployment of commercial volumes of end-products (potential follow-up **Public Procurement of Innovative solutions - PPI**). PCP identifies the best possible solutions the market can develop, by comparing alternative solution approaches from different technology vendors in parallel. By steering the development of innovative solutions towards concrete public sector needs, PCP may trigger industry to initiate R&D that was previously unthought-of. In PCP, procurers are thus demanding customers, who are articulating advanced solution requirements as potential future early adopters of the developed solutions (which will be selected in a separate PPI procurement that follows the completion of the PCP).

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Introduction

The **risks and challenges posed by climate change for The Civil Security and Protection sector are complex**, including extreme temperatures, fires, and air pollution, which damage critical infrastructure and endanger human health and security [1]. Additionally, climate change is set to **increase the likelihood and frequency of disasters**, such as floods and storms, as well as expanding the areas exposed to them [1].

Effective Civil Security and Protection **depends on timely and accurate forecasts and early warnings** of extreme events to enable rapid assistance to affected regions and countries [3]. Communicating this information in a clear and effective manner is crucial to **increase public awareness of and preparedness f**or disasters [3].

Climate Services (Box 2), especially those utilising Earth Observation (EO) data (Box 3), are increasingly used for precise forecasting of weather patterns, extreme events, and natural disasters. **Pre-commercial procurement of these services is a key driver** in the development of innovative Climate Services that aim to address the risks and challenges posed by climate change.

Box 2: Climate Services

Climate services describe the transformation of **climate-related data** — together with other relevant information — into customized products such as projections, forecasts, information, trends, economic analysis, assessments (including technology assessment), counselling on best practices, development and evaluation of solutions and any other service in relation to climate that may be of use for the society at large. As such, these services include data, information and knowledge that support adaptation, mitigation, and disaster risk management (DRM) [1].

Policy developments

The EU's Civil Protection Mechanism, established in 2001, coordinates the EU-level response to natural and man-made disasters, operated by the EU **emergency response coordination centre** (ERCC) [3, 4]. Satellite maps, produced by the EU's **Copernicus Emergency Management Service**, are already used frequently to support civil protection efforts in the EU and abroad [4].

In 2022, the European Council adopted **a new conclusion that specifically integrates climate change in the EU's civil protection work**. The conclusion highlights the need for investments in research and innovation, as well as the development of better climate data and information to increase citizen preparedness in the face of climate-related security risks [3].

Opportunities

The EU's Civil Security and Protection sector **face risks and challenges** from climate change that can multiply each other's effects (Fig. 1) and cause severe harm to human health and security, as well as damage to critical infrastructure, which necessitates **innovative solutions and better climate information** [3].

Climate Services procured through a PCP call offer such solutions that **support the prediction of extreme events**, increase infrastructure resilience to climate impacts, and facilitate the planning and coordination disaster response activities, all **tailored to specific stakeholder needs**.

Box 3: Earth Observation

Environmental observation involves collecting and monitoring information and data regarding changes and trends in industrial, economic, and global environments. These pieces of data help researchers understand changing environments to inform potential changes in things like climate change policies and disaster relief plans [2]. **Earth Observation (EO)** is defined as the process of acquiring observations of the Earth's surface and atmosphere via remote sensing instruments. The acquired data is usually in the form of digital imagery [3]. EO satellites have been essential to identifying and monitoring climate change and it supports mitigation and adaption measures by providing vast amount of EO data.

Conclusions

To **ensure the security and health of Europe's population**, as well as support the EU's disaster response activities in Member States and abroad, the Civil Security and Protection sector depends on timely, high-quality, and accurate climate data.

Innovative and sustainable Climate Services, procured through a PCP call, can **provide key insights to support the sector,** increasing the resilience of critical infrastructure and ensuring effective early warning about threats to the health and safety of European citizens.

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References:

[1] European Parliament (2020)

[2] United Nations Environment Programme (2022)

[3] European Council (2022)

[4] European Commission (n.d.)

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