

PROTECT's 1st Open Market Consultation – FLOODS Challenge

Unveiling opportunities: Connecting the public demand with market providers

PROTECT consortium

15 November 2023, 10:00 - 11:30



FLOODS Challenge – 15 Nov. 10:00 - 11:30

Time	Topic	Notes
10:00 – 10:10	Introducing PROTECT & objectives of the OMC	Mélissa Campagno, GAC
10:10 – 10:30	Presentation of the State-Of-The-Art analysis for the FLOODS challenge, insights from providers, OMC report	Ana Lucia Jaramillo, Corvers
10:30 – 11:00	Presentation of the FLOODS challenge and possible use cases	Antonia Matthies, EIT Climate-KIC
11:00 – 11:20	Open discussion with providers	All
11:20 – 11-30	Next steps and closure	Mélissa Campagno, GAC

Introducing PROTECT & objectives of the OMC

Mélissa CAMPAGNO

GAC, project coordinator



What is PROTECT about and who is it for?

An Horizon Europe (HE) CSA project aimed at **raising public and private buyers' awareness, building their capacity, and preparing them** for undertaking a joint cross-border Pre-Commercial Procurement (PCP) fully funded under another HE [PCP call](#).

Key actors:

- **Buyers** – public authorities (regions, cities, national and regional agencies, etc.) that may be interested in exploring innovative procurement for tackling adaptation and mitigation issues.
- **EO-based climate services providers** willing to collaborate with the public demand to overcome pressing challenges in the area of climate adaptation by co-designing a new solution 'climate service' based on EO data **NOT YET AVAILABLE** on the market.

An innovative and strategic public governance and procurement approach to climate change adaptation and mitigation

What is the PCP call about?

The Pre-Commercial Procurement (PCP) call “*Customisation/pre-operationalisation of prototypes end-user services in the area Climate Change Adaptation and Mitigation*” is open and available on the Funding and Tenders Portal: [here](#).



19M EUR FULLY funded by Horizon Europe programme



Opened on **17 October 2023**

Close on **28 February 2024 at 17:00 CET**

Estimate start of the PCP: **Sep 2024**

The PCP should deliver successful innovative and fully tested product(s) and/or service(s) that meet the common needs of a buyers' group (consortium of procurers) to *procure research, develop innovative marketable solutions, speed up the time-to-market, and provide best value for money.*



PROTECT supports the preparation of future candidate applications to the PCP call by working both with the demand (**buyers**) and supply side (**providers**) of Earth Observation (EO)-based climate services.

Key expected outcomes of the PCP

- Build on the **Copernicus Services** & respond to the common needs and **beyond state-of-the-art performance targets** of the buyers group;
- **Reduce the fragmentation** of demand for innovative solutions by enabling public procurers to collectively implement a Pre-Commercial Procurement (PCP) in the area of climate adaptation and mitigation, which, due to their nature, are **better addressed jointly**, or which they would not have been able to tackle independently;
- **Create new opportunities** for wide market uptake and economies of scale for the supply side through the use of joint specifications, wide publication of results and – where relevant – contribution to standardization, regulation or certification to remove barriers for introduction of innovations into the market and creation of new products, processes and/or services ready for market uptake, leading to viable new businesses, jobs and sustainable economic growth.



PCP call requirements & eligibility criteria

- The PCP must be executed by:
 - **One or more public buyer(s)** plus possibly one or more private and/or NGO procurer(s) that provide similar services of public interest
 - Entities with a **mandate** from one or more of these procurers to act on their behalf in the procurement (public utilities companies, central purchasing bodies, etc.)
- The **‘lead procurer’** is a public procurer and is the beneficiary appointed by the buyers’ group to coordinate and **lead the procurement activities**. They can be either one of the procurers in the buyers’ group or another beneficiary in the action who is established or designated by the procurers.
- The PCP must address **one concrete procurement need** identified as a **common challenge**, which requires new R&D and is described in the common specifications of the joint PCP call for tender.
- Addressing the common challenge in different countries may require the development and testing of **additional local functionality or adaption of solutions** by each procurer due to differences in the **local context**.
- A PCP that addresses a challenge consisting of **several facets** (sub-challenges or building blocks) is considered one joint PCP, as long as all procurers in the buyers’ group share the need for it.



Reach out to info-protect@group-gac.com for more info!

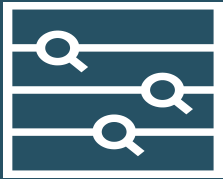


Process towards the 4 OMCs and the PCP call

Mapping of climate challenges at EU regional level



Mapping of EO climate service providers at EU level



Consultations with buyers to identify 4 pressing challenges and finetune their needs



E-pitching sessions with EO climate service providers to complement the SOTA analysis



4 Open Market Consultations on key challenges to inform market providers



Identifying *lead buyer* to build 4 consortia of buyers willing to prepare a joint cross-border PCP application



4 key challenges identified



Lead buyer identified

1



Mapping and predicting **FLOODS** (marine, riverine and other sources)

2



Prediction and prevention of **FIRES** and tracing and tracking responsible sources (waste, forest/nature, other)

3



Climate resilient **WATER** solutions (prediction, connecting data, planning, supply-demand)

4



Sustainable & resilient **INFRASTRUCTURE** (sustainable re-development, buildings restoring & adaptation).



Open Market Consultation Objectives



Validate the findings of the State-Of-The-Art (SOTA) analysis and discuss the viability of possible technical and financial provisions/ functionalities.



Raise awareness of the industry and relevant stakeholders (including other users) regarding the upcoming PCP.



Collect insights from the industry and relevant stakeholders (including users) to finetune the tender specifications.

State-Of-The-Art analysis for the FLOODS challenge, insights from providers, and OMC report

CORVERS
COMMERCIAL & LEGAL AFFAIRS

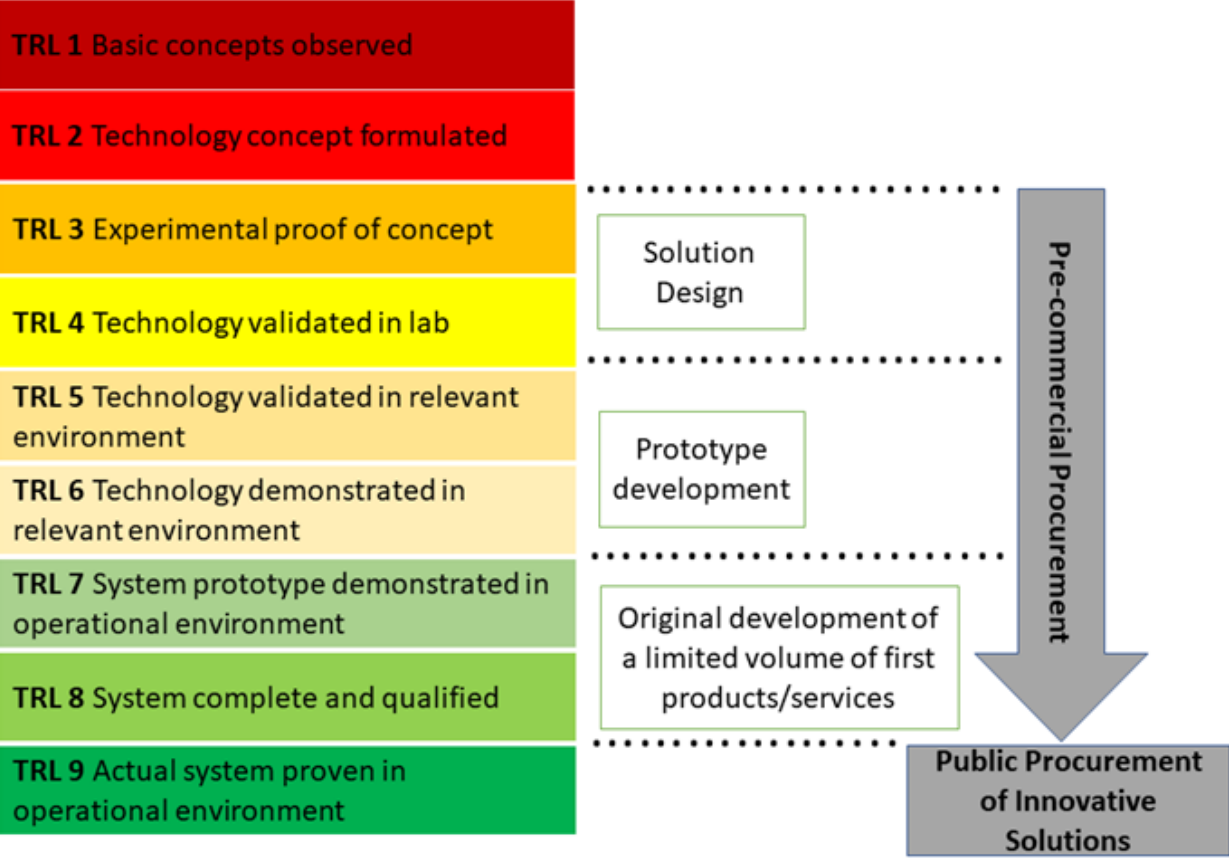
Corvers Procurement Services B.V.
project partner



State-Of-The-Art analysis

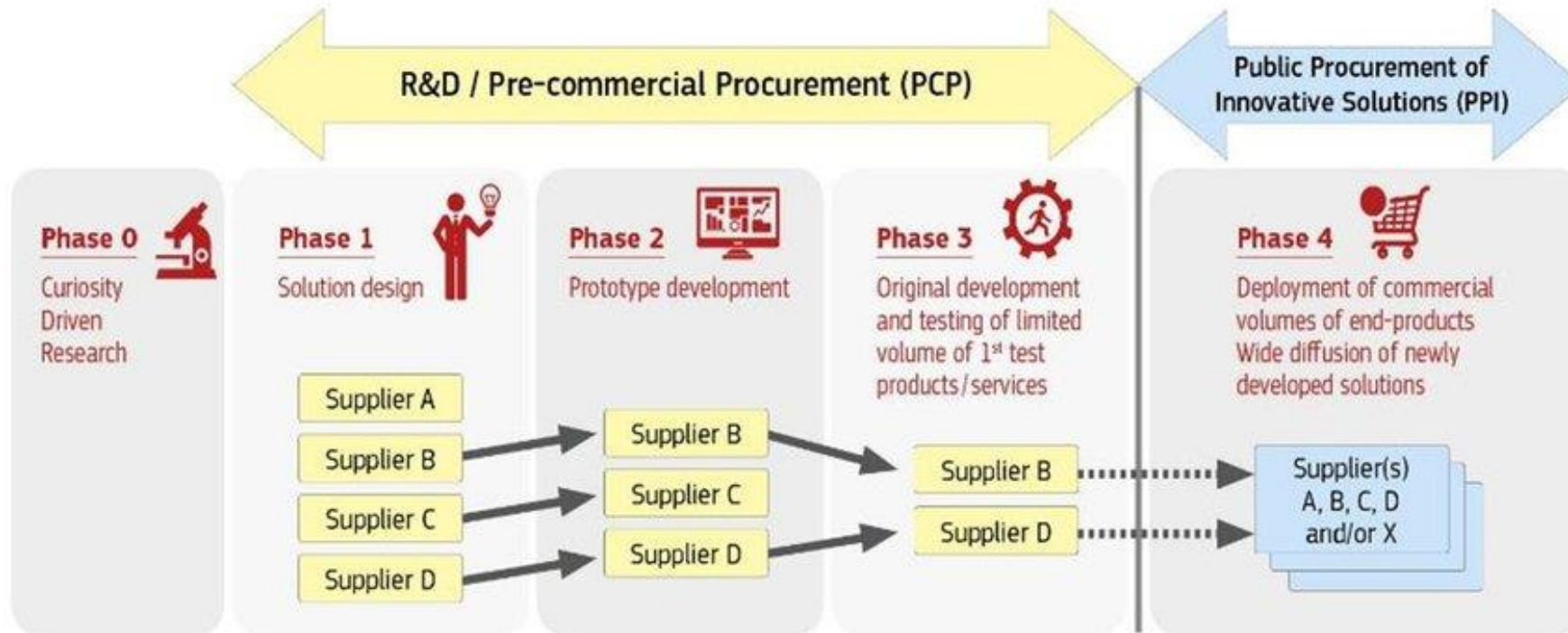
SOTA analysis

Pre-Commercial Procurement (PCP): TRL 3 - 8

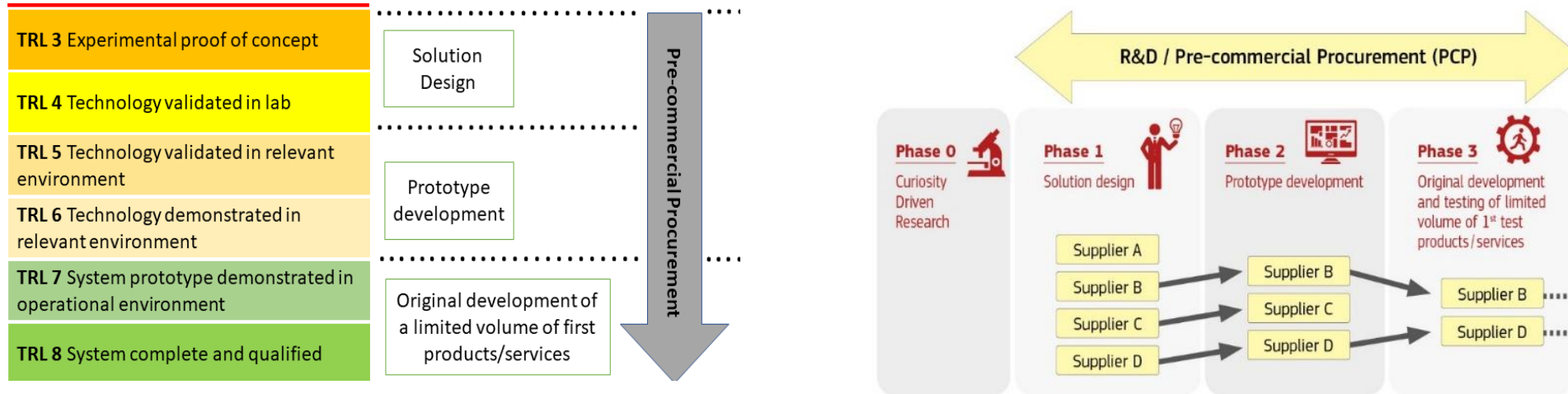


Pre-Commercial Procurement (PCP)

*Innovation Procurement happens when **public buyers** acquire the **development or deployment of pioneering innovative solutions** to address specific mid-to-long term public sector needs.*



PCP competitive approach



PCP is a public procurement of Research and Development (**R&D**) **services** characterized by:

- ✓ **competitive** development in **phases**
- ✓ **risk-benefit sharing** under market conditions → Public procurer does not pay the full cost of the R&D performed under the contract
- ✓ a clear **separation** between the procurement of the R&D from the deployment of **commercial volumes of end-products**

PCP of R&D

- R&D is needed to identify an **innovative solution** to satisfy public procurers' needs.
- **No solutions exist yet on the market** that meet public procurers' needs and based on a search conducted by the procurers, it does not seem that such a solution will be available on a short-term notice.



- (1) Improvements are needed but don't require new and significant R&D (only integration, incremental adaptations and improvement, customization...), so authority can act as early adopter of innovative commercial end-solutions newly arriving on the market
- (2) There isn't any solution or the problem is so technologically demanding that a radical and breakthrough new solution and significant R&D is needed.

Challenge 1 FLOODS - SOTA preliminary results

- The analysis revealed research on the
 - Methods for identifying the probability of occurrence of a flood event (risk indicators)
 - Flood measuring and trigger system (usually by making grids of the regions)
 - After event evaluation of the affected area
 - Flood map production
 - Systems and methods are provided for processing observation data.
- Technologies & tools: satellite imagery, computer vision, artificial intelligence, multi sensor input (drones etc), image analysis, statistical analysis, and mathematical analysis, kernel algorithm, visible-infrared band images of a region, water based network devices.

List of keywords used

- flood
- earth observation
- rapid prediction
- coastal
- river
- detect
- risk
- sea level rise
- Satellites
- internet of things
- drones

Insights from providers

From the e-pitching & EU Survey questionnaire

Insights from providers – e-pitching

- No one solution tackles all the functionalities.
- Possible combination of technologies.
- Potential solutions would be in TRL 5-6
- Potential synergies between providers for the PCP.



Insights from providers - questions

- Are there requirements on “financial stability” or “minimum revenue of the company to participate?”
 - → **Low thresholds of PCP to allow a start-up or SME to participate.**
- What are the associated countries able to participate?
- → [list-3rd-country-participation_horizon-euratom_en.pdf \(europa.eu\)](#)
- Can you make a list of the PCP requirements to make it easier to recognize them and address them?
 - → **The tender documents will include further specifications for a specific challenge**
- What kind of data do you use? Do you use raster data?
 - → **Differences between Public buyers**

Insights from providers - questions

- Are there any restrictions for each budget?
 - → **more than 50% should be allocated to R&D activities as defined by Frascati.**
[Concepts and definitions for identifying R&D | Frascati Manual 2015 : Guidelines for Collecting and Reporting Data on Research and Experimental Development | OECD iLibrary \(oecd-ilibrary.org\)](#)
- Is there any payment plan already envisioned?
 - → **initial % to start and payment based on milestones and at the end of each phase of the PCP, based on satisfactory completion. The tender documents will detail the payment scheme.**
- Is Critical Infrastructure considered?
 - → **It is relevant to all challenges. More details will be described in the tender documents.**
- What are preferred data sources, target users (non-expert, casual, expert), etc?.
 - → **Public buyers will provide more information.**

Insights from providers - questions

- Are you interested in offering INSPIRE-compliant raster data if this is possible straightforward?
- Are you interested in timeseries visualization and analysis services?
- Would you be interested in vendor presentations on the state of the art?



OMC Report

Follow up steps

OMC Report

- Summary of OMC activities conducted.
- Anonymized OMC report based on the feedback from providers and users.
- Information on the next steps.
- To be published on the website of PROTECT and in EU Survey.

<https://ec.europa.eu/eusurvey/runner/PROTECT-PCP-2023>



PROTECT OMC timetable

Date	Event
20 September 2023	Publication of the Prior Information Notice (PIN) on TED
25 September 2023	Publication of the OMC documents in the project's website and EU Survey: https://ec.europa.eu/eusurvey/runner/PROTECT-PCP-2023 Open registration for the events and submission of questions
10 November 2023	Deadline to submit questions (17:00 CET)
14 November 2023	Deadline to register for the webinars (17:00 CET)
15-16 November 2023	4 OMC webinars
17 November 2023	Publication of the Q&A document in the project's website
20 November 2023	Deadline to fill in the EU Survey (17:00 CET)
25 November 2023	Publication of the OMC report
30 November 2023	Closure of the OMC

[Services - 574857-2023](#)
[- TED Tenders](#)
[Electronic Daily](#)
[\(europa.eu\)](#)

[PROTECT-OMC-](#)
[document-2023-FINAL-](#)
[updated.pdf \(protect-](#)
[pcp.eu\)](#)

<https://ec.europa.eu/eusurvey/runner/PROTECT-PCP-2023>

Presentation of the FLOODS challenge and use cases by the group of buyers

Antonia Matthies, EIT Climate-KIC




Why is flood mapping a challenge and what shall we do about it?

- Currently, the mapping of flooded areas (marine, coastal areas and rivers) during severe events can take weeks, resulting in **delays in response** and prevention.
- Public organisations **lack reliable tools** for predicting, preventing and responding to such events in a timely manner.

US flood maps outdated thanks to climate change, Fema director says

Deanne Criswell makes admission as 'extremely dangerous and life-threatening situation' hits Georgia



 Pet owners rescue two cats and a dog from their home in East St Louis, Illinois, in July. Photograph: Derik Holtmann/AP

Flood maps used by the federal government are outdated, the director of the Federal Emergency Management Agency, or Fema, said on Sunday, considering a series of devastating floods caused by excessive rainfall induced by climate change.

Sep 2022

NOVEMBER 13, 2023 | 3 MIN READ

First-Ever Flood Forecasting Maps Show Houses and Roads at Risk

The National Weather Service has launched the first flood forecasting system with precise, real-time data showing spots that are at imminent risk of inundation

BY MINH KIM & E&E NEWS



Nov 2023

Why is flood mapping a challenge and what shall we do about it?

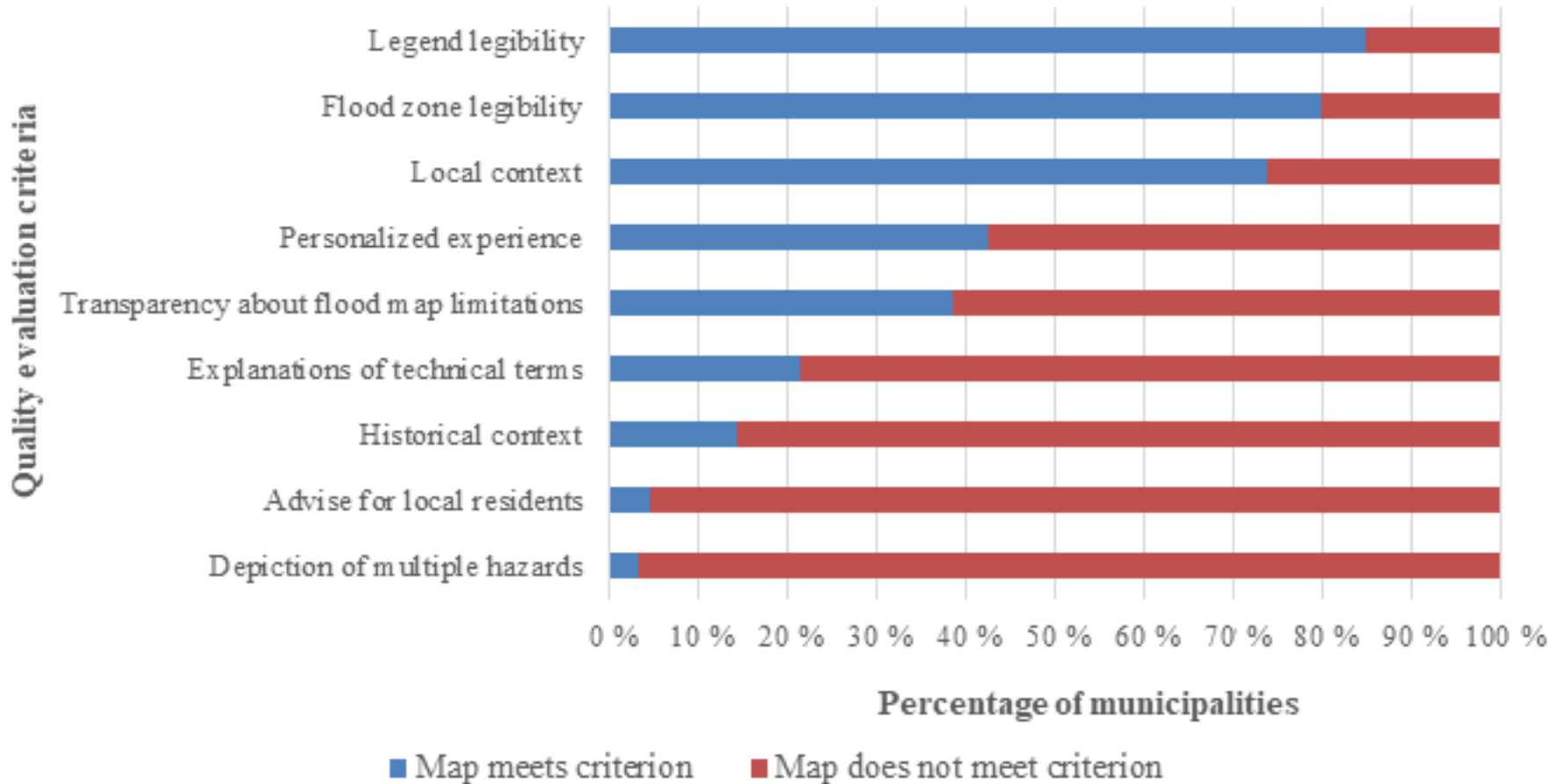
Some foreseen steps are:

1. Implementing a unified repository for historical data along with a single Application Programming Interface (API)
2. Connecting rapid mapping and climate services to the repository
3. Transforming mapping processes into algorithms for more efficient and automated analysis
4. Utilising efficient tools and systems to support the mapping and analysis tasks
5. Ensuring proper utilisation of the tools by a skilled team with the necessary expertise

The desired outcome is to **establish a system for rapid mapping** that enables predictions and projections to identify risks and define benchmarks.

This will involve the development and utilisation of software capable of higher resolution and timely acquisition of satellite information.

What makes a good flood map?



Henstra et al., (2019)

Floods in regional adaptation plans and strategies

- **Flood risks figure prominently in major risk assessments and adaptation strategies in regions across Europe:**
 - a) **Marine & coastal:** Flooding risks in almost all coastal regions: sea level rise [Med FR,ES,northern IT,northern DE,PL], marine submersion [North and Baltic seas,ES-n,IT-n,FR-se], extreme rainfall, thunderstorms and gales [PL,ES-n], combinations of those factors [DE-n,ES-n,NL,LT,FR-w]
 - b) **Sustainable urban communities:** Risk of flooding in urban areas (heavy rainfall, river overflow, marine submersion, sea level rise), aggravated by soil degradation, itself amplified by droughts [BE,NL, IT,PL,FR]
 - c) **Energy & utilities:** multiplication of flooding (extreme rainfall, sea level rise) to disrupt energy production [DE,LT,PL]; risk of landfill flooding [LT]
 - d) **Agriculture, forestry and other land use:** Negative impact on land use from floodings combined with droughts, heavy rains, storms [IT-n,ES-n,LT,PL]; increasing flooding risk in agricultural areas [FI,DE-e,IT-w/n,FR]



Climate Services

- **Climate services are customised solutions** that **transform climate-related data** together with other relevant information to help address a wide range of needs.
- They include for instance **projections, forecasts, economic analyses, assessments, counselling on best practices**, or any other solution or service in relation to climate that may be of use for the society at large.
- Because **CS allow all categories of end-users** to access and action relevant climate-related data, climate services are essential to support their needs related to climate mitigation and adaptation.
- The potential for new, innovative, connected climate services is untapped.



Scope of flood-related climate services: Climate services feeding into flood mapping and prediction [INPUTS]

Sub-domain	Category of climate services
Environmental monitoring	Urban greening
Urban planning and monitoring	Surveying and mapping of urban areas
Urban planning and monitoring	Urban modelling, 3D modelling, Digital Twins
Urban planning and monitoring	Urban planning
Environmental monitoring	Environmental impact monitoring
Environmental monitoring	Deforestation/degradation monitoring
Environmental monitoring	Inland water monitoring
Natural resources monitoring	Crop yield forecasting
Natural resources monitoring	Soil condition monitoring
Operations management	Asset monitoring
Weather services for agriculture	Snow and ice
Weather services for agriculture	Climate services for agriculture
Weather services for agriculture	Weather forecasting for agriculture

Sub-domain	Category of climate services
Ocean services	Metocean
Aquaculture	Climate data and modelling for aquaculture
Fisheries	Fish stock detection
Early warning	Forecast
Early warning	Monitoring and warning services
Post-event analysis	Post-event analysis
Preparedness	Preparedness
Rapid mapping	Rapid mapping
Search and Rescue	Situational awareness supporting search and rescue
Infrastructure Planning	Vulnerability analysis
Insurance for natural disasters	Risk modelling
Critical infrastructure	Design of infrastructure
Critical infrastructure	Infrastructure monitoring
Critical infrastructure	Emergency assistance

Scope of flood-related climate services: Climate services flood mapping and prediction feeds into [OUTPUTS]

Sub-domain	Category of climate services
Renewable energy	Site selection, planning and monitoring for renewable energy
Energy - other	Power plant design optimisation
Waste	Climate data and modelling for waste monitoring and management
Drinking water	Climate data and modelling for drinking water monitoring and management
Urban planning and monitoring	Cultural heritage monitoring
Urban planning and monitoring	Surveying and mapping of urban areas
Urban planning and monitoring	Urban modelling, 3D modelling, Digital Twins
Urban planning and monitoring	Urban planning
Environmental monitoring	Environmental impact monitoring
Environmental monitoring	Deforestation/degradation monitoring
Environmental monitoring	Inland water monitoring
Natural resources monitoring	Crop yield forecasting
Natural resources monitoring	Soil condition monitoring
Operations management	Asset monitoring
Operations management	Farm management systems

Sub-domain	Category of climate services
Environmental monitoring	Marine pollution monitoring
Ports	Climate data and modelling for ports
Aquaculture	Climate data and modelling for aquaculture
Early warning	Forecast
Early warning	Monitoring and warning services
	Forecasting of climate drivers for migration
Migration and settlement	Post-event analysis
Post-event analysis	Post-event analysis
Rapid mapping	Rapid mapping
	Situational awareness supporting search and rescue
Search and Rescue	Permitting
Infrastructure Planning	Vulnerability analysis
Infrastructure Planning	Risk modelling
Insurance for natural disasters	Design of infrastructure
Critical infrastructure	Infrastructure monitoring
Critical infrastructure	Emergency assistance
Critical infrastructure	

Flooding and PROTECT domains – marine and coastal environment

Showcase title (cross-analysis)	Flooding in coastal areas
Domain (cross-analysis)	Marine and coastal environment (also: Sustainable urban communities, Civil security and protection, Energy and utilities)
Explanation (cross-analysis)	<p>Floods pose risks to the cities in coastal areas leading to potential disaster. More insights into the phenomena are needed, overcoming data gaps and combining data in a timely manner.</p> <p>Reliable mapping of flooded areas is needed for planning, preventing, predicting and for post event intervention, as well as for cooperation towards a positive end result.</p>

Where is there a need for flood mapping?

Concerned climate challenges (T1.1.2)

With the exception of Slovakia, all countries addressed by this mapping have coastal regions.

Flooding risks are mentioned in almost all coastal regions, associated with sea level rise (French Mediterranean coastline, Liguria, Andalucia, Balears, but also northern Germany and Poland, Asturias, Friuli Venezia Giulia), marine submersion (North and Baltic seas, Cantabria, Liguria, Provence Côte d'Azur), extreme rainfall, thunderstorms and gales (Poland, Cantabria), combinations of those factors (e.g. northern Germany, northern Spain, Netherlands, Lithuania, French Atlantic coast), general hydrogeological instability (western and eastern Italy) combined with more frequent droughts and change in rainfall regime (e.g. Liguria).

It may be relevant also to feed in elements related to flooding from other application domains: energy and utilities, sustainable urban communities, AFOLU.

The multiplication of extreme events – flooding, either extreme rainfall or sea level rise, threatens to disrupt energy production in Germany, Lithuania, Poland. Increase in other more specific risks ranges from water pollution, landfill flooding and fires (Lithuania) to peak flood discharges (northern Germany) or consequences of ocean acidification on infrastructures (western France).

One other frequently recurring challenge is the growing risk of flooding in urban areas, coming from heavy rainfall or from river overflow, marine submersion or sea level rise, often aggravated by soil degradation, itself amplified by droughts. Almost every province in Belgium and in the Netherlands is affected, as are some Italian, Polish and inland French regions.

More frequent or intense extreme events shall also impact land use, often in combinations (floodings, droughts, heavy rains, storms) from southwestern (Emilia Romagna, Lombardy, Aragon) to north-eastern Europe (Lithuania, Poland). Flooding risk will increase notably in agricultural areas (e.g. Åland, Lappi, Île-de-France, Thuringia, Sardinia, Veneto, Canary Islands...), amplified by destructive storms (e.g. east of France), more intense rainfall episodes (Friuli-Venezia Giulia, Tuscany) and globally increased precipitation

Example: GECCO – SaferPlaces



Thank you!



Open discussion



Wrap-up and next steps

Mélissa CAMPAGNO

GAC, project coordinator



Next steps



OMC – FIRES Challenges

15th of November

14h30 – 16h00



OMC – WATER challenge

16th of November

11h30 – 13h00



OMC – SUSTAINABLE INFRASTRUCTURES

16th of November

14h30 – 16h00

- Publication of the OMC report – 25 Nov 2023
- Final webinar with providers – Jan 2024
- Building consortium/a of buyers & aggregation of needs – up to Feb 2024
- Final event – March 2024



How to get involved?



Sign up for the **Community Platform** to get access to its ever-expanding Knowledge Hub on Innovation Procurement, Climate Services and Earth Observation (EO) data, get invited to all PROTECT webinars, and stay up to date through our newsletter.



Join a PROTECT Buyers Group each targeting one of the identified and selected common challenges.



Access to the relevant material and documentation to best prepare for the PCP call, please visit: <https://www.protect-pcp.eu/relevant-resources/>

