

How to identify and structure your demand for climate services: **Prediction and prevention of fires**

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Objectives

- What are climate services and why does defining them matter?
- What is the role of PCP in climate services?
- How do local authorities prioritize prediction and prevention of fires?
- How do prediction and prevention of fires relate to other climate hazards?
- How is the awareness around prediction and prevention of fires distributed within the organization?
- How to improve the analyses of needs and structure the demand in view of a PCP?

What is PROTECT?

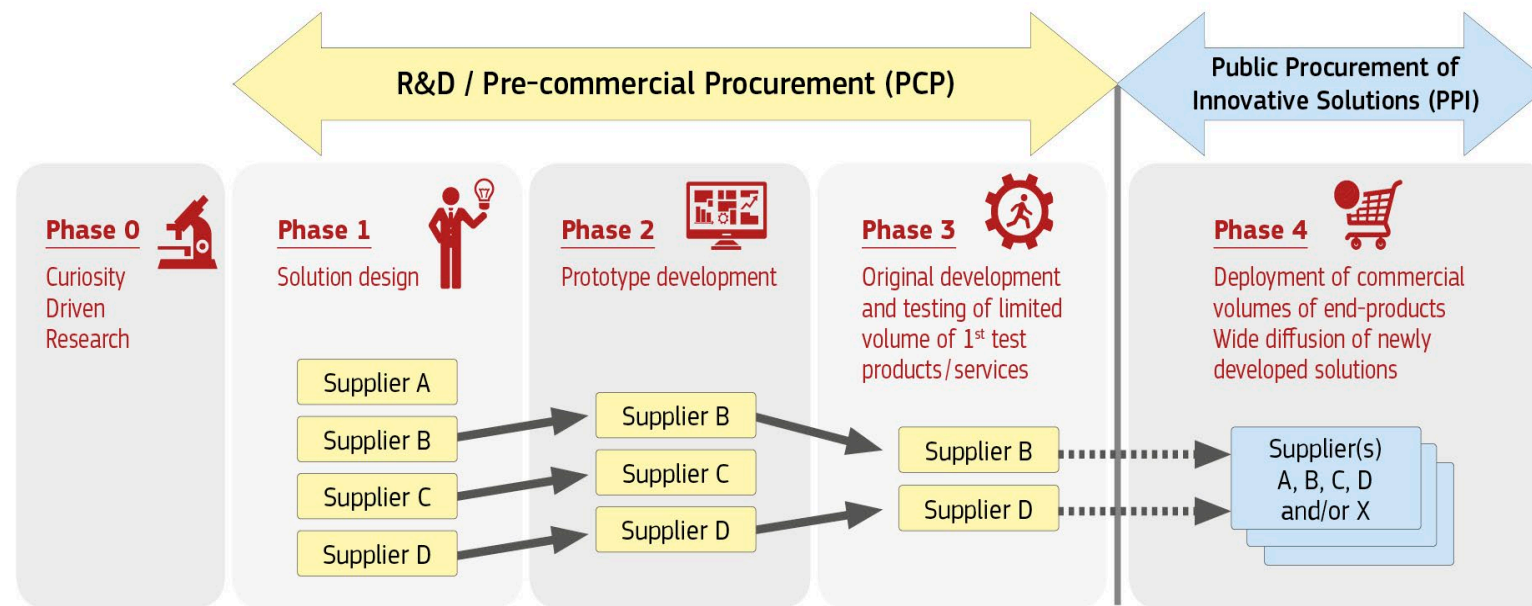
HEurope project aiming at **raising awareness** and **building capacity** for the use of pre-commercial procurement schemes in the co-development of climate services.

This is in preparation of a now open Pre-Commercial Procurement (PCP) fully funded by the European Commission to be launched in 2024 with a funding amount of up to EUR 19 million: **HORIZON-CL6-2024-GOVERNANCE-01-5: Customisation/pre-operationalisation of prototypes end-user services in the area Climate Change Adaptation and Mitigation**

We look for service developers and public procurers – public authorities (regions, cities, national and regional agencies, etc.) that may be interested in exploring innovative procurement for tackling adaptation and mitigation issues in one of the 4 challenges below, in order to stimulate the market of (EO-based) climate services:

- **Flood mapping and prediction**
- **Climate resilient water solutions** (predicting, collecting data, planning)
- **Sustainable & resilient infrastructure in vulnerable urban & regional areas** (integrated sustainable re-development, restoring & adaptation of old and existing buildings)
- **Fires prediction & prevention** (tracing, identifying – e.g. illegal waste dump fires)

The main principles of a PCP: Competitive development in phases, risk-benefit sharing, separation from market entry



- **Competitive development in phases**
- **Risk-benefit sharing under market conditions**
- **Separation from the deployment of commercial volumes of end-products / services**

Source: EC



Training Curriculum

Structure your demand for climate services (PCP & beyond)



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Structuring and optimising the demand for climate services

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.



Why is it important to know about types of climate services and what is important to know about their taxonomies?

- **It helps to know the structure of the market** → knowing where to search for a service provider or for someone with similar needs as your own (e.g. for a PCP)
- **If the taxonomy categories do not match your needs, it probably means that there is a market gap** → and probably the service you are looking for does not exist off-the shelf (i.e. you may need a PCP)
→ Either way, you may need/benefit from PCP
- **And even if you are not doing a PCP, knowing the market can help formulate your demand, or assess if the climate services you are currently using correspond to your needs**

Introduction to fire prediction and prevention as a “challenge”

Taxonomy of (fire-related) climate services

PROTECT domain	Sub-domain	Category of climate services
Energy and utilities	Waste	Climate data and modelling for waste monitoring and management
Sustainable urban communities	Environmental monitoring	Air quality monitoring in urban environments
Sustainable urban communities	Environmental monitoring	Urban heat islands
Sustainable urban communities	Smart cities operations	Smart waste management
Sustainable urban communities	Urban planning and monitoring	Surveying and mapping of urban areas
Sustainable urban communities	Urban planning and monitoring	Urban modelling, 3D modelling, Digital Twins
Sustainable urban communities	Urban planning and monitoring	Urban planning
AFOLU	Environmental monitoring	Environmental impact monitoring
AFOLU	Environmental monitoring	Deforestation/degradation monitoring
AFOLU	Natural resources monitoring	Vegetation monitoring
AFOLU	Natural resources monitoring	Forest vegetation health monitoring
AFOLU	Operations management	Asset monitoring
Civil security and protection	Post-event analysis	Post-event analysis
Civil security and protection	Preparedness	Preparedness
Civil security and protection	Rapid mapping	Rapid mapping
Civil security and protection	Search and Rescue	Beacons for aviation
Civil security and protection	Search and Rescue	Beacons for land
Civil security and protection	Search and Rescue	Situational awareness supporting search and rescue
Civil security and protection	Infrastructure Planning	Vulnerability analysis
Civil security and protection	Insurance for natural disasters	Risk modelling
Civil security and protection	Critical infrastructure	Design of infrastructure
Civil security and protection	Critical infrastructure	Infrastructure monitoring
Civil security and protection	Critical infrastructure	Emergency assistance

Fire prediction and prevention: waste dump fires

- **Facilities where waste is stored** and prone to spontaneous fires
 - While data on previous fire events exist (temperature conditions, height of piles, heat waves, composition of garbage, location of storages or disposals) there is no automated solution available to predict fires and make informed decisions for prevention. As a result, environmental agency inspectors bear the responsibility of monitoring these facilities, placing a significant burden on staff resources.
- **Identifying, tracing, and tracking the cause (and the culprit) of the fire**
 - It is vital to be able to compare the site's condition before and after the fire. This comparison would enable us to determine the amount of waste that was burnt and, consequently, evaluate the environmental damage caused. Additionally, the same technology could be used to establish whether the amount of waste entities dump into the site matches the amount they report officially. Additionally, the absence of usable data hinders the ability to gather evidence for criminal proceedings.

Legal texts relevant to the Fire challenge (EU level)

The EU Waste Framework Directive

- Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste
- Basic principles include waste management to avoid endangering human health, harming the environment, creating risks for water, air, soil, plants, animals, causing a nuisance through noise or odours
- It is built on a 5-step waste hierarchy: prevention > preparing for re-use > recycling > recovery > disposal
- It sets targets to every EU country
- There is a strong emphasis on circular economy objectives, which is prominently reflected in several national laws
- However, very limited reference is made to fire risks and illegal dumping, and generally to climate dimensions



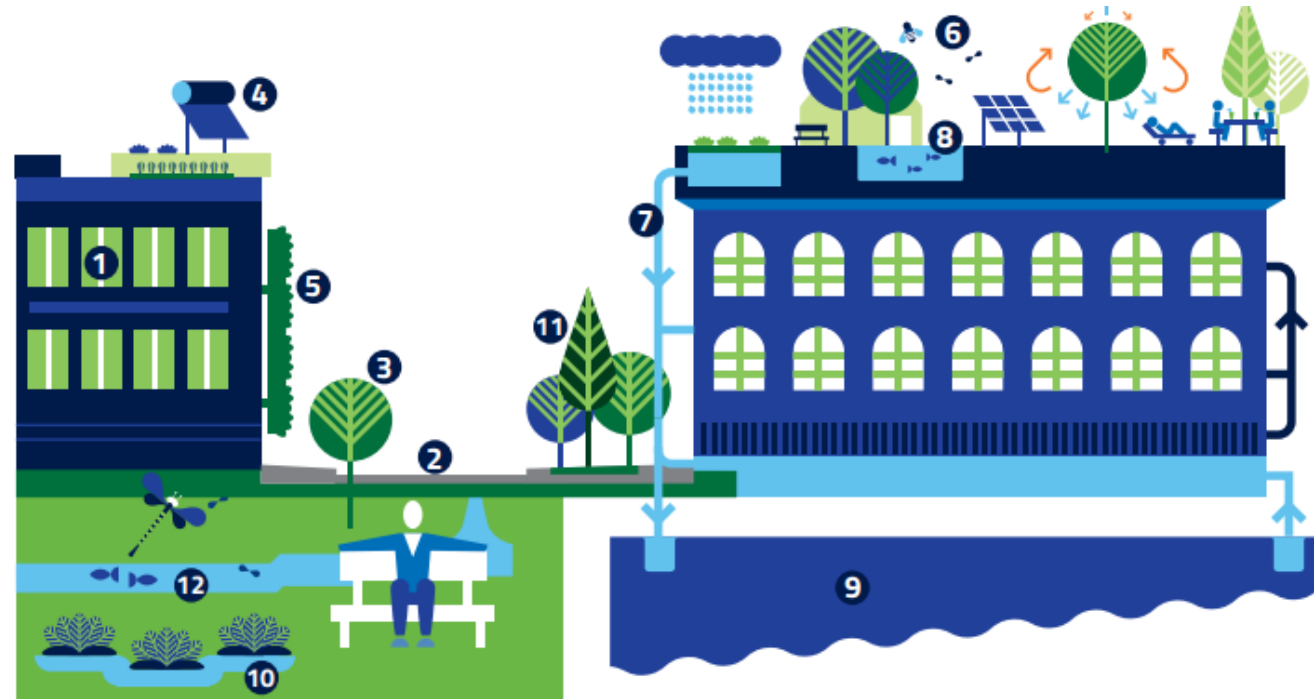
Legal texts relevant to the Fire challenge (nat'l level)



Waste related texts

- Almost all EU countries have a Law on Waste or on Waste Management
- In a few cases, waste regulations are part of a broader environmental conservation law (France, Greece, the Netherlands)
- In Belgium and in Italy for instance, the waste sector is regulated by a set of more specific texts; in some cases, most of the regulations are at regional level (e.g. Austria)
- General waste regulations tend to be explicit on the categories of waste, specific risks, technical requirements, prevention of pollution; in contrast, they say little or nothing explicit about fire risks, only a few mention illegal dumping, and the link with climate change issues is not mentioned

Space for multiple systemic interactions



- 1 Building
- 2 Street
- 3 Trees
- 4 Solar water heating
- 5 "Multi-functional" green wall
- 6 "Multi-functional" roof garden
- 7 Storm water harvesting and recycling
- 8 Food production
- 9 Ground water aquifer
- 10 Constructed wetland
- 11 Pocket park
- 12 Urban streams and ponds

Credits: Blue Green Solutions / Imperial College London, EIT Climate-KIC

Interactive session 1: Exploring processes & identifying externalities



Exploring processes & identifying externalities: guiding questions for discussion

- 1. Do you have enough data to identify the fire-prone areas in your city/area?
- 2. How are you made aware of the fire risk: from where/whom (source) and which format (data)?
- 3. How are these concerns addressed internally within your department and across different departments or organizations? Name your department and a few others that are involved.
- 4. How do different departments collaborate with each other to understand and address climate service needs in the field of prevention and reaction to fires (e.g. in order to write the terms for a procurement process)?
- 5. Which other domains/regulations influence the response (the definition of climate services that you need)?

Interactive session 2: Internalizing externalities: takeouts for PCP (and beyond)



Internalizing externalities - takeouts for PCP (and beyond): **guiding questions for discussion**

- 1. Could you improve the analysis and structuration of the needs for fire risk assessment, prevention and reaction across your organisation, and how best to describe them in view of a PCP? If so, how?
- 2. From what you have heard today from other participants, are there needs expressed by others that you would want to explore for your own organisation and ecosystem? If so, which ones?
- 3. How will you prioritise the needs for fire risk assessment, prevention and reaction that you want to bring to a PCP process?
- 4 What do you see as the potential barriers or challenges in implementing PCP for the co-development of fire-related solutions?



Training Curriculum

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