Interreg CENTRAL EUROPE

Co-funded by the European Union

Clim4Cast

D3.1.2 Report on transnational scheme

Existing status of response in the face of DHF events

Version 1

01/2024

TRANSNATIONAL RECOMMENDATIONS ON IMPLEMENTATION OF PROACTIVITY & PREPAREDNESS

— in the face of drought, heatwave and forest fire weather (DHF)

A. Context of this report

In parallel with the review of existing national response regarding DHF (D3.1.1 Country profile reports), transnational ground is reviewed in search of recommendations in place on how DHF proactivity and preparedness can be implemented both in national operational practice as well as in national regulations. Recommendations found were categorised by their form, as either document proposals, initiatives, tools, project results or other, with further short description of the implementation into practice or regulation.

B. Transnational recommendations - a review

The information gathered in this Report were sourced via / with the help of:

National reports of partner countries

Recommendations in place

We found the following recommendations in place at the transnational level (by regional, global bodies) regarding implementation of DHF proactivity and preparedness into national operational practice and regulations. Each of them is described in more detail below the table.

1. Drought

	Drought
Documents	- Stock-taking analysis and outlook of drought policies, planning and management in EU Member States[1] - Climate adaptation actions against drought in different sectors[2] - Overview of natural and man-made disaster risks the European Union may face[3] - GAR Special Report on Drought 2021[4] - The UNCCD Land-Drought Nexus[5] - EU Civil Protection Mechanism[6] - Sendai Framework for Disaster Risk Reduction 2015-2030
Initiatives	- IDMP programme[7] - IDMP Community of Practice[8] - UNCCD Drought Initiative[9] - National Reporting Networks (NRN) - International Drought Resilience Alliance (IDRA)[10]
Existing tools	- IDMP Drought Toolbox[11] - WWF Risk Filter Suite (Water Risk Filter[12]
Project results	- Danube Drought Strategy[13] - EDORA project[14]
Other	- CIS EU Ad hoc Task Group on Water Scarcity and Droughts[15] - Intergovernmental Working Group (IWG) on Drought[16] - The UN Office for Disaster Risk Reduction[17] - Nature-based solutions in Europe: Policy, knowledge and practice for climate change adaptation and disaster risk reduction[18]

[1] https://circabc.europa.eu/ui/group/9ab5926d-bed4-4322-9aa7-9964bbe8312d/library/0ff6a74a-e466-48b0-9282-b42d2aa8d7f2/details
[2] https://circabc.europa.eu/ui/group/9ab5926d-bed4-4322-9aa7-9964bbe8312d/library/478e4d18-06d4-4d01-a278-8948592599b7/details
[3] https://data.europa.eu/doi/10.2795/1521 (chapter 2)
[4] https://www.undrr.org/publication/gar-special-report-drought-2021 (chapter 3.4 and Summary for Policy makers)
[5] https://www.unccd.int/resources/reports/land-drought-nexus-enhancing-role-land-based-interventions-drought-mitigation-and
[6] https://civil-protection-humanitarian-aid.ec.europa.eu/what/civil-protection/eu-civil-protection-mechanism_en
[7] https://www.droughtmanagement.info/
[8] https://www.droughtmanagement.info/news/new-idmp-community-of-practice-cop/
[9] https://www.unccd.int/land-and-life/drought/drought-initiative
[10] https://idralliance.global/
[11] https://www.unccd.int/land-and-life/drought/toolbox
[12] https://riskfilter.org/
[13] https://www.interreg-danube.eu/uploads/media/approved_project_output/0001/44/92e3269145b45f82df9c8ab2ce5a685fdc2f77c1.pdf
[14] https://edo.jrc.ec.europa.eu/edora/php/index.php?id=201
[15] https://circabc.europa.eu/ui/group/9ab5926d-bed4-4322-9aa7-9964bbe8312d/library/561e8b77-e75d-42d6-86a9-16405547735f/details (chapters 2.1. and 2.10.)
[16] https://www.unccd.int/convention/governance/intergovernmental-working-group-drought-2
[17] https://www.undrr.org/
[18] https://op.europa.eu/en/publication-detail/-/publication/da65d478-a24d-11eb-b85c-01aa75ed71a1/language-en

	- "Hydrology" team of experts of the International Commission for the Protection of the Elbe River (ICPER)[19] - WMO Expert Team on Drought[20]

[19] https://www.ikse-mkol.org/en

[20] https://community.wmo.int/en/activity-areas/agmp/SC-AGR/ET-DRG

Short descriptions of recommendations found on implementation into operational practice:

1. **(document) Climate adaptation actions against drought in different sectors:** Prepared in the frame of EDORA project, this report presents the results for the classification and cataloguing of actions addressing droughts to improve the adaptation of economic sectors, ecosystems and the water resources management system as a whole. Overall, 33 relevant adaptation options have been identified and, for this study, initially coded and classified according to the sector targeted; resulting in 6 agriculture options, 3 urban options, 2 energy options and 8 options aiming at ecosystems protection and enhancement, 9 are cross-cutting options specifically addressing multi-sectoral water use, while the remaining 5 options are supportive or governance options. No specific drought adaptation options are included in Climate-ADAPT for the industrial sector, riverine transport or other water-using sectors. Moreover, no Climate-ADAPT adaptation option targets the construction of major regulation works, interbasin transfer or new groundwater pumping. This bookmark is also relevant for fires.

2. **(document) The UNCCD Land-Drought Nexus:** This UNCCD-SPI technical report provides well-established scientific evidence for understanding the strong linkages between land use and drought and how management of both is connected through water use. It introduces a new concept of Drought-Smart Land Management (D-SLM) and organizes relevant approaches and practices in fourteen groups across four major classes of land use. The objective is to guide decision makers and land managers working on "proactive drought risk management" towards interventions designed to improve community and ecosystem resilience to drought.

3. **(initiative) Integrated Drought Management Programme:** The IDMP supports governments and other stakeholders at all levels on implementing Integrated Drought Management by providing policy, technical and management guidance and by sharing scientific knowledge and best practices. Its integrated approach is based on establishing and strengthening three Drought Pillars: *Pillar 1 - Monitoring and Early Warning, Pillar 2 - Risk and Impact Assessment, and Pillar 3 - Risk Mitigation, Preparedness and Response*.

4. **(project result) Danube Drought Strategy:** The main aim of the Strategy is to build the capacity of the Danube region to overcome common deficiencies in coping with drought, and thus help switch from reactive to proactive drought management approach. The core part of the Strategy is the Optimal drought management model, a conceptual scheme demonstrating how national institutions, organisations and other stakeholders subjected to drought can work together prior to, during and after drought, in order to minimise the damage to the environment and to secure essential water supply across the country. In the model, the outcomes of national drought monitoring are connected with cooperative national response, thus corresponding to changing drought conditions: preventive actions during no-drought conditions, early response upon the occurrence of drought first signals and its further development, mitigating the effects when drought is present, and drought recovery afterwards. The model serves as a tool for institutional capacity building in terms of strengthened cooperation and support in decision-making process.

5. **(document) Nature-based solutions in Europe policy, knowledge and practice for climate change adaptation and disaster risk reduction:** This document can be considered an 'umbrella concept' encompassing a range of established nature-based approaches, which aim to increase resilience to climate change. The authors of this document also conducted a scientific literature review to analyse key options for nature-based solutions and their multiple benefits, as well as their potential trade-offs and limitations for relevant sectors in Europe (water, forests and forestry, agriculture, urban and coastal areas).

6. **(initiative) "Hydrology" team of experts of the International Commission for the Protection of the Elbe River (ICPER):** at its core, the principal objectives of ICPER are: i) making the use of water possible, especially promoting the retrieval of drinking water via river bank infiltration and enabling the agriculture to utilise the water and the sediments; ii) achieving the most natural ecosystem possible; one that can provide for healthy species population; iii) permanent strategy to decrease the burden imposed on the North Sea by the Elbe River basin; which the ICPER is achieving through activities of working groups and their sub-unit teams of experts. These are "Surface waters", "Groundwater" and "Data management" teams of experts of the working group addressing the implementation of WFD", and "Hydrology" team of experts of the working group addressing flood management, which performs continuous evaluation of the consequences of drought and water shortage in dry and low-water periods.

7. **(initiative) World Meteorological Organisation Expert Team on Drought (ET-Drought):** objectives of ET-Drought are: preparing framework and standards for a Global Drought Classification, to be included in GMAS, ensuring Integration of Drought Risk Management in WMO Activities; report on the status of drought-monitoring systems, outlooks, impacts, assessment of agricultural yield losses due to drought and preparedness in the WMO Regions, preparing guidance on how to clearly communicate the existing definitions of drought, drought triggers, and the various components of the lifecycle of drought, in cooperation with WMO bodies like SC-HYD and the IDMP, updating Handbook of Drought Indicators and Indices in conjunction with the IDMP and in cooperation with SC-CLI, SC-HYD, and SC-DRR.

8. **(tool): The WWF's Risk Filter Suite (The Water Risk Filter):** is a leading, free online tool that enables companies and investors to Explore, Assess, and Respond to water risks and strengthen resilience. With a recent upgrade, the WRF now includes a new module for identifying risk mitigation measures. Additionally, the WRF will soon be expanded to include two other important functions: an instrument for expressing water risks in monetary terms and integration of climate change scenarios.

9. **(initiative) National Reporting Network on drought impacts (NRN):** The initiative to engage local community in early drought impacts reporting to help to deliver early awareness of drought damage in place was first established in the Czech Republic and in the scope of DriDanube project expanded over numerous countries in the Danube River Basin. It is based on the idea that a country can establish their own NRN consisting of engaged individuals on the field, mostly farmers and technicians with knowledge in agriculture and forestry, who weekly report their observations on the state of soil, vegetation or even loss of yield on their specific location, throughout the season or the

year. The reporting process runs through a template questionnaire with a few single-choice questions for easier and synchronised reporting of observation (for the countries involved in DriDanube, the questionnaire was prepared separate for agriculture and forestry). Collected data on drought impacts are aggregated on administrative unis. More about NRN is available in Danube Drought Strategy, p.44 and example maps on reported drought impacts are currently available for Czech Republic)

Short descriptions of recommendations found on implementation into regulations:

1. **(document) GAR Special Report on Drought 2021:** This document explores the systemic nature of drought and its impacts on achievement of the Sendai Framework for Disaster Risk Reduction, the SDGs and human and ecosystems health and wellbeing. Especially interesting may be *Chapter 3.4 Adaptive drought risk management and governance*.

2. **(initiative) Integrated Drought Management Programme:** as described above.

3. **(tool) The UNCCD Drought Toolbox:** It is a central part of the UNCCD Drought Initiative (described below), which countries can use to develop and strengthen their national drought plans, and to assess drought vulnerability and risk, and prioritize feasible drought mitigation intervention measures. It contains case studies and other resources, such as 14 validated national drought plans, that stakeholders can use to design and implement their own national drought plans with the aim of boosting the resilience of people and ecosystems to drought.

4. **(document) The Sendai Framework for Disaster Risk Reduction 2015-2030 (Sendai Framework):** It is a global non-binding agreement outlining seven targets and four priorities for action to prevent and reduce existing and new disaster risk. Key priorities of the Sendai Framework include understanding disaster risk, strengthening disaster risk governance, investing in disaster risk reduction for resilience, enhancing disaster preparedness for effective response, and building back better in the aftermath of disasters.

Short description of other documents at EU level found addressing drought:

1. **(document) Stock-taking analysis and outlook of drought policies, planning and management in EU Member States:** This report presents a stock-taking analysis of drought policies, planning and management in EU Member States (MS) and an outlook of planned work within the Member States and EU levels. It has been developed based on individual Member State assessments of the corresponding legislation, planning and management, including the latest available versions of (draft) River Basin Management Plans in spring 2022, using a common questionnaire, as well as more than 70 interviews with Member State administrations and stakeholders and a wide review process.

2. **(document) Overview of natural and man-made disaster risks the European Union may face:** This Commission staff working document is the second edition of an overview of the natural and man-made disaster risks that the EU may face, prepared under EU legislation on civil protection. The aim of the overview is to capture the trends in the ever-evolving disaster risk landscape, discuss the major drivers shaping it, and take a closer look at 12 selected disaster risks of particular relevance for Europe, and to assess the implications of developments in disaster risks for risk management.

One of the important sources that fed into the overview are the national disaster risk assessments sent to the Commission by the EU Member States and the participating states to the Union Civil Protection Mechanism during the 2018 reporting cycle. Especially interesting may be *Chapter 2 Protecting the European public from disasters: the EU policy landscape*.

3. **(tool) EU Civil Protection Mechanism:** This Mechanism aims to strengthen cooperation between the EU countries and 10 participating states on civil protection to improve prevention, preparedness, and response to disasters by pooling together civil protection capacities and capabilities, which allows for a stronger and more coherent collective response. When an emergency overwhelms the response capabilities of a country in Europe and beyond, it can request assistance through the Mechanism. The Commission plays a key role in coordinating the disaster response worldwide, contributing to at least 75% of the transport and/or operational costs of deployments.

4. **(initiative) Integrated Drought Management Programme Community of Practice (IDMP CoP):** IDMP already has a very active and growing community of practice, but in the past few years has been recognised that the interaction was mostly limited to meetings, emails and online exchanges. The newly launched IDMP CoP is therefore a great opportunity to give the existing IDMP community a "home" and bring it to the next level. It will serve as a virtual space for drought experts, practitioners and other stakeholders from different sectors and levels to discuss, exchange knowledge and experiences, establish synergizes with other organizations and learn about integrated approaches for drought management. The Community will host different activities, articles, blogs, current events, discussions, interviews, webinars, opportunities, and other interactive activities

5. **(initiative) The UNCCD Drought Initiative:** The goal of this initiative is to promote a decisive shift in drought management, one that moves from being reactive and crisis-based to a proactive approach; one that prioritizes prevention and preparedness and is rooted in a green recovery. The Drought Initiative focuses on setting up drought preparedness systems, particularly national drought plans; working together at the regional level to reduce drought vulnerability and risk; and providing a toolbox that stakeholders can use to boost the drought resilience of both people and ecosystems. Another key component of the Drought Initiative are the regional strategic frameworks, which the UNCCD is helping countries to put in place. The frameworks will guide long-term objectives in developing technical and institutional capacity to manage drought. This includes data sharing, early warning, monitoring, vulnerability and impact mapping, as well as drought risk mitigation measures.

6. **(project results) The EDORA project:** The EDORA project aims at strengthening the European Drought Observatory (EDO), hosted by the Joint Research Centre (JRC), by enhancing drought risk assessment at different scales, aggregating data on impacts in different sectors, and fostering connections and establishment of drought observatories in the Member States. These actions will ultimately enhance the resilience and adaptation to drought across the EU, by offering a common core of operational data and knowledge about droughts. EDORA means to extend in both scope and number of partners the existing network of the European Drought Observatory, to facilitate the

exchange of knowledge, methods and best practices for drought monitoring and for the assessment of sectoral risk and impacts. This bookmark is also relevant for fires.

7. **(other) The UNCCD Intergovernmental Working Group on Drought:** The most recent UNCCD Conference of Parties at its fifteenth session UNCCD COP 15 decided to establish an Intergovernmental Working Group (IWG) on Drought for the triennium 2022–2024, with the purpose of identifying and evaluating global policy instruments and regional policy frameworks and linking them to national plans to effectively manage drought under the Convention and supporting a shift from reactive to proactive drought management. The IWG consists of 27 members: three representatives from each of the seven (regional) groups based on nominations by national governments (21 members), two observers from civil society organizations, two representatives from international organizations working on drought and two independent experts.

8. **(other) CIS EU Ad hoc Task Group on Water Scarcity and Droughts:** Concerning the emerging need for an enhanced focus on water quantity management, water efficiency and in particular water scarcity and droughts, also in light of climate change adaptation, Water Directors and the Strategic Coordination Group discussed how to best accommodate the need for enhanced exchanges within the existing CIS structures. While several relevant issues can be integrated into the work of existing Working Groups, it was also noted that a new Ad hoc Task Group on Water Scarcity and Droughts could best deal with a number of emerging issues. A detailed listing of possible actions in this area is included in *Annex II* of the *Common Implementation Strategy – EU Water Law*, while relevant tasks of this Task Group are wrapped up in *Chapter 2.10.*

9. **(initiative) International Drought Resilience Alliance (IDRA):** Intended as a global collaborative platform, the International Drought Resilience Alliance was first announced by Spain at the 77th session of the UN General Assembly in September 2022 and was officially launched at the UNFCCC COP27 in November 2022. Interested members of the Alliance see the urgent need to pivot from emergency response to increasing drought resilience through a more coordinated and effective response.

10. **(other) UN Office for Disaster Risk Reduction (UNDRR):** As the lead agency within the United Nations system for the coordination of disaster risk reduction, it works globally towards the prevention of new disaster risks and the reduction of existing risk, and promotes the strengthening of resilience through multi-hazard disaster risk management. It uses it authoritative expertise and presence in five regional offices to build and nurture relationships with national and local governments, intergovernmental organisations, civil society and the private sector. It produces a number of publications and policy briefs on various disasters risks including drought, to accelerate global efforts in disaster risk reduction to achieve inclusive sustainable development and the goal of the Sendai Framework.

2. Heatwaves

	Heatwave
Documents	• Heat at work – guidance for workplaces (European Agency for Safety and Health at Work)[21] • The 2022 Europe report of the Lancet Countdown on health and climate change: towards a climate resilient future[22] • Criteria for a Recommended Standard - Occupational Exposure to Heat and Hot Environments (NIOSH)[23] • Heat-health Action plans (WHO Europe)[24] • Scientific paper "Governing heatwaves in Europe: comparing health policy and practices to better understand roles, responsibilities and collaboration"[25] • Scientific paper "Excess mortality attributed to heat and cold: a health impact assessment study in 854 cities in Europe"[26] • Scientific paper "Overview of Existing Heat-Health Warning Systems in Europe"[27]
Initiatives	/
Existing tools	• European warning system MeteoAlarm[28] • Sendai Framework for Disaster Risk Reduction 2015-2030[29]
Project results	• HeatShield project [30]
Other	• COP28 hosts first-ever Health Day, and other health stories you need to know this week[31]

[21] https://osha.europa.eu/sites/default/files/Heat-at-work-Guidance-for-workplaces_EN.pdf https://osha.europa.eu/en/legislation/directives/the-osh-framework-directive/the-osh-framework-directive-introduction

[22] https://www.thelancet.com/action/showPdf?pii=S2468-2667%2822%2900197-9

[23] https://www.cdc.gov/niosh/docs/2016-106/pdfs/2016-106.pdf

[24] https://iris.who.int/bitstream/handle/10665/107888/9789289071918-eng.pdf?sequence=1

[25] https://health-policy-systems.biomedcentral.com/articles/10.1186/s12961-020-00645-2

[26] https://www.thelancet.com/journals/lanplh/article/piis2542-5196(23)00023-2/fulltext

[27] https://www.mdpi.com/1660-4601/16/15/2657

[28] https://www.meteoalarm.org/en/live/

[29] https://www.preventionweb.net/files/43291_sendaiframeworkfordrren.pdf

[30] https://www.heat-shield.eu/

[31] https://www.who.int/teams/environment-climate-change-and-health/climate-change-and-health/advocacy-partnerships/talks/health-at-cop28

Short descriptions of recommendations found on implementation in operational practice:

1. **(tool) European warning system Meteoalarm:** this operational tool for distribution of meteorological warnings contains also warnings for "high temperatures". Criteria for issuing this warning are left to member states, as the warnings themselves are sole responsibility of national meteorological and hydrological services.

2. **(tool) Sendai Framework for Disaster Risk Reduction 2015-2030 (Sendai Framework):** (Sendai framework is the main tool of the UN Office for Disaster Risk Reduction (UNDRR) It serves as "… a roadmap for how we make our communities safer and more resilient", i.e. to protect development achievements from impacts of disasters. The Sendai Framework outlines seven global targets and four priorities for action to be achieved over the course of 15 years (2015-2030). The four priorities for action are: 1.) Understanding disaster risk (in all its dimensions - vulnerability, capacity, exposure of persons and assets, hazard characteristics, and the environment). 2.) Strengthening governance to manage disaster risk (in all aspects, including through coordination across sectors and stakeholders, as well as involvement of communities). 3.) Investing in disaster risk reduction for resilience (i.e. to invest in the development and strengthening of disaster risk reduction capacities for resilience in individuals, communities, and countries). 4.) Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation, and reconstruction (development and implementation of policies, plans, and programs for effective response and recovery, rehabilitation, and reconstruction).
   Original document does not explicitly mention disasters connected to heat stress, however during implementation it has become obvious that in certain regions of the world heat stress is among most important disasters (https://www.preventionweb.net/news/heatwave-india-lessons-implementing-sendai-framework-disaster-risk-reduction-asia-qa-mihir-r)

3. **(document/scientific paper) Scientific paper ''Overview of Existing Heat-Health Warning Systems in Europe'':** This paper constitutes a review of 16 European heat-health warning systems and heat-health action plans, based on the existing literature, web search (over the National Meteorological Services websites) and interviews of experts using questionnaires. The aim was to pave the way for future heat-health warning systems. The study concluded that the ways in which HHWSs in Europe deal with heat warnings are very diverse. They use different variables and thresholds to trigger the warnings. The majority of the systems are based on daily mean or maximum temperature, only a few systems consider other relevant variables, such as minimum temperature or humidity. The intervention strategies implemented against heat waves are similar in the considered countries. The diversity of European warning systems makes it difficult to warn on European scales, which might be of interest for some stakeholders. The heat shield platform is a good example of European-wide and user-tailored warning system with a specific objective, namely, to protect workers' health and productivity.
   The paper provides few recommendations for the design of future heat-health warning systems and for the improvement of present systems can be deduced:

- The experience from previous extreme heat situations shows that a significant proportion of excess summer deaths occurs before the health heat wave alert is triggered, which emphasizes the

importance of long-term planning actions as well as pre-alert levels by local authorities and the health sector.

- The variables that trigger the warnings should present a clear link with the impact under consideration (i.e., mortality rate, productivity losses). Therefore, the effect of all relevant meteorological variables for heat stress (including minimum and maximum temperature, humidity, wind speed, solar radiation) should be taken into account
- The optimal index to use strongly depends on the purpose of the warning. The combination of several indices and/or different user-tailored thresholds needs to be considered to ensure an effective warning system
- The thresholds of the warning indicator should allow for short-term (throughout the year) and long-term (under a warmer climate) adaptation to heat.
- The thresholds should be based on a probability (risk) approach, i.e., they are set by considering the probability of exceeding certain mortality thresholds rather than an absolute number of deaths
- Good coordination between the meteorological agency and health ministry or agency is necessary. Heat health warning systems should speak with "one voice"
- Educational and communication strategies are very important to raise the awareness of the hazard, so that the population is prepared when a heat-wave occurs.
- The regular evaluation of the effectiveness of heat health warning system and associated interventions is advisable. The revision might include, in the long-term, the effect of changes in city architecture, such as including building passive systems and more green spaces.
- Information should not be limited to the local language. This is particularly relevant in countries receiving many (potentially unacclimatized) tourists in the summer season.

4. **(document) Heat at work – guidance for workplaces (European Agency for Safety and Health at Work):** this document is written in form of guidelines for workers that are exposed to heat stress in their work places both indoors and outdoors (with heat stress originating from external factors – heat waves – and internal ones – heat release in industrial production). Good practices for managing heat stress are summarized (taken from EU countries as well as from US, UK, Canada and Australia) .EU-OSHA also maintains a wiki portal containing information and articles containing information on safe and health working environment. There were 82 items found with keyword "heat" (February 20249.
   There is also legislative part that references Directive 89/391 - Framework Directive on Safety and Health on Work ("OSF directive"). The Directive aims to establish an equal level of safety and health for the benefit of all workers and obliges employers to take appropriate preventive measures to make work safer and healthier. It introduces as a key element the principle of risk assessment and defines its main elements (e.g. hazard identification, worker participation, introduction of adequate measures with the priority of eliminating risk at source, documentation and periodical re-assessment of workplace hazards).
   This directive has been implemented in legislation of all EU member countries.

5. **(document) Heat-health action plans (WHO Europe):** This document has been published by WHO Regional Office for Europe and is based on results from the EuroHEAT project on improving public health responses to extreme weather/heat-waves, co-funded by the European Commission. It explains the importance of the development of heat–health action plans, their characteristics and core elements, with examples from several European countries that have begun their

implementation and evaluation.

6. **(project) Heat-shield:** Heat-shield is project, funded by EU. It addresses the negative impacts of workplace heat stress on the health and productivity of the EU workforce. It analyses the impact of increasing heat levels in certain work situations due to climate change during this century and the effects of climate change mitigation on occupational health and productivity.
   It has produced scientific technical reports with recommended solutions and short action plan for major EU industries: manufacturing, construction, transportation, tourism and agriculture.
7. **(document) Scientific paper ''Excess mortality attributed to heat and cold - a health impact assessment study in 854 cities in Europe'':** This paper analyses mortality impact assessment due to heat and cold in European urban areas, considering geographical differences and age-specific risks. Analysis uses the data extracted from the Urban Audit dataset of Eurostat, the Multi-country Multi-city Collaborative Research Network, Moderate Resolution Imaging Spectroradiometer, and Copernicus. Results have shown that there were 20 173 (17 261–22 934) deaths attributed to heat in the period under consideration (2000 – 2029). These numbers correspond to age-standardised rates of 13 (11–14) deaths per 100 000 person-years attributed to heat. Results differed across Europe and age groups, with the highest effects in eastern European cities. There is also noted north–south gradient along with increased vulnerability in eastern Europe, as well as local variations due to urban characteristics. The modelling framework and results are crucial for the design of national and local health and climate policies and for projecting the effects of cold and heat under future climatic and socioeconomic scenarios.

Short descriptions of recommendations found on implementation in regulations:

8. **(document) Criteria for Recommended Standard – Occupational Exposure to Heat and Hot Environments (NIOSH):** This comprehensive document has been published by U.S. based National Institute for Occupational Safety and Health (NIOSH). This document is revision of previously published documents (in 1972 and 1986) and takes into account recent developments as well as climate change. The document contains description of heat stress related conditions and hazards and recommends measures and monitoring. Finally, it outlines recommended standard for heat stress related exposure limits, risk assessment and physiologic monitoring of heat strain.

Short description of other documents at EU level found addressing heat stress:

1. **(initiative) COP28 hosts first-ever Healthy Day, and other health stories you need to know this week:** The event was good opportunity to promote WHO's Alliance for Transformative Action on Climate Change and Health (ATACH) commitments to building climate resilient and sustainable low carbon health systems.
   Alliance for Transformative Action on Climate Change and Health (ATACH - https://www.atachcommunity.com/) is organized as community of practice. WHO serves as the Secretariat of the ATACH. It contains 30 partner organizations and 82 committed countries. Its mission is to realize the climate change and health ambition set at COP26 using the collective power of countries, partners and other stakeholders to drive this agenda forward at pace and scale; and promote the integration of climate change and health nexus into respective national, regional, and global plans.
   ATACH supports countries in making and delivering COP commitments for climate resilience and

health sector decarbonization through a range of activities, including advocacy, technical support, knowledge sharing, monitoring, and access to financing.

2. **(document) Scientific paper "Governing heatwaves in Europe: comparing health policy and practices to better understand roles, responsibilities and collaboration":** This scientific paper focuses on the governance structures of European heat health action plans (NHHAPs) and provides insights into key stakeholders, roles, responsibilities and collaboration. It provides a review of 15 NHHAPs with 68 interviews in nine countries with key informants involved in the development, implementation and/or evaluation of these NHHAPs. A thematic analysis was used to analyse the NHHAPs inductively. This analysis focused on three themes: identifying key stakeholders, defining and assigning roles and collaboration among stakeholders. The iteratively created codebook was then applied to the analysis of the key informant interviews.
   The paper concludes that the majority of the NHHAPs have governance as one of their main objectives, to support the coordination of actions and collaboration among involved stakeholders. There are, however, significant differences between plan and practice. On the basis of the available data, there is little insight into the process of stakeholder identification, however it was observed that most countries involve the same types of stakeholders. Roles are mainly defined and assigned in relation to the alert levels of the warning system, causing other role aspects and other roles to be vague and ambiguous. Collaboration is key to many NHHAP elements and is mainly experienced positively, though improvements and new collaborations are considered. The findings show a need for a more deliberate and structured approach to governance in the context of NHHAPs. A cross-sectoral approach to the identification of key stakeholders can facilitate a broader preparedness and response to heatwaves. Roles and responsibilities of stakeholders should be defined and assigned more clearly to avoid confusion and to improve effective implementation.

3. Fire

	Forest fire
Documents	• Land management strategies (LMS) for mitigation the risk of forest fires in Croatia[32] • Adaptation to Climate Change in Sustainable Forest Management in Europe[33] • The State of Europe's Forests 2020 report[34] • New EU Forest Strategy for 2030[35] • Land-based wildfire prevention - Principles and experiences on managing landscapes, forests and woodlands for safety and resilience in Europe[36] • Spreading like Wildfire: The Rising Threat of Extraordinary Landscape Fires[37] • EU Disaster Risk Management[38] • Wildfire Peer Review Assessment Framework (Wildfare PRAF)[39]
Initiatives	• The Center for Open Space Fire Research - CIPOP[40] • COST actions: European Network on Extreme fire bahaviOur – NERO[41] • Network of European Multihazard capacities hub of Scienerontifics understanding and sharing – NEMAUSUS[42] • Capacity building in Croatia, the Czech Republic, Saxony (Germany) and Slovenia for Wildfire Prevention and Risk Assessment • Civil Protection Knowledge Network • The Community Research and Development Information Service – CORDIS[43]
Existing tools	• EFFIS (European Forest Fire Information System)[44] • FoRISK (Forest Risk Knowledge Mechanism) = „ Reducing Wildfire Risk in Europe through Sustainable Forest Management".[45] • Climate-ADAPT • The Global Wildfire Information System - GWIS[46] • SAFERS[47] • IN4SAFTY
Project results	• EDORA • FirEUrisk[48] • HOLISTIC (Ipa Adriatic)[49]

[32] http://cipop.fesb.hr/images/stories/Fireurisk_CIPOP_report_LMS_strategies.pdf

[33] https://foresteurope.org/wp-content/uploads/2016/08/Adaptation_to_Climate_Change_in_SFM_in_Europe_compressed.pdf

[34] https://foresteurope.org/wp-content/uploads/2016/08/SoEF_2020.pdf (p.202)

[35] https://commission.europa.eu/document/cf3294e1-8358-4c93-8de4-3e1503b95201_en

[36] https://op.europa.eu/en/publication-detail/-/publication/4e6cc1f1-8b8a-11eb-b85c-01aa75ed71a1

[37] https://www.unep.org/resources/report/spreading-wildfire-rising-threat-extraordinary-landscape-fires

[38] https://civil-protection-humanitarian-aid.ec.europa.eu/what/civil-protection/european-disaster-risk-management_en

[39] https://civil-protection-humanitarian-aid.ec.europa.eu/system/files/2023-06/Wildfire_PRAF_V2.pdf

[40] http://cipop.fesb.hr/

[41] https://www.cost.eu/actions/CA22164/

[42] https://civil-protection-knowledge-network.europa.eu/projects/nemausus#inpage-section-description

[43] https://cordis.europa.eu/; https://cordis.europa.eu/search?q=(%2Farticle%2Frelations%2Fcategories%2Fcollection%2Fcode%3D%27resultsPack%27%2C%27projectsInfoPack%27%2C%27brief%27%2C%27news%27%2C%27video%27)%20AND%20(%2Farticle%2Frelations%2Fcategories%2FapplicationDomain%2Fcode%3D%27env%27)%20AND%20language%3D%27en%27&p=1&num=10&srt=/article/contentUpdateDate:decreasing

[44] https://effis.jrc.ec.europa.eu/

[45] https://forisk.com/about-forisk/

[46] https://gwis.jrc.ec.europa.eu/

[47] https://safers-project.eu/index.php/safers-platform-services/sub-seasonal-weather-forecast.html

[48] https://fireurisk.eu/approach/

[49] http://www.adriaholistic.eu/

	• Integrated Technological and Information Platform for Wildfire Management - SILVANUS[50] • Interreg project: Mosaic[51] • FORCIP +[52] • Alpine Forest Fire warning System (ALPF FIRS) [53] • Cheers (Cultural Heritage. Risks and Securing activities) [54] • Net4forests[55] • CROSSIT SAFER[56] • KARST SAFE[57] • Cross-sector dialogue for Wildfire Risk Management (FireLogue)[58] • TREEADS project[59] • FIRE-RES project[60]
Other	• EU Commission Expert Group on Forest Fires[61]

[50] https://silvanus-project.eu/

[51] https://www.alpine-space.eu/project/mosaic/

[52] https://civil-protection-humanitarian-aid.ec.europa.eu/funding-evaluations/financing-civil-protection/prevention-and-preparedness-projects-civil-protection/overview-past-track-i-and-track-ii-projects/forest-roads-civil-protection-forcip_en

[53] https://keep.eu/projects/11682/Alpine-Forest-FIre-waRning--EN/

[54] https://www.alpine-space.eu/project/cheers/

[55] https://www.gozdis.si/f/docs/projekti/IO5_Forest-management-in-the-Catalan-territory-FINAL.pdf ; https://www.gozdis.si/f/docs/projekti/IO2_Summary.pdf

[56] https://2014-2020.ita-slo.eu/crossit-safer

[57] https://www.ita-slo.eu/sl/karst-safe

[58] https://firelogue.eu/

[59] https://treeads-project.eu/

[60] https://fire-res.eu/about-fire-res/

[61] https://ec.europa.eu/transparency/expert-groups-register/screen/expert-groups/consult?lang=en&do=groupDetail.groupDetail&groupID=416

Short descriptions of recommendations found on implementation in operational practice:

1. **(document) Land management strategies (LMS) for mitigation the risk of forest fires in Croatia:** Land management strategies (LMS) for mitigation the risk of forest fires in Croatia is a document prepared from the results of the research as part of the FireEU risk project and is based on analyzes of the strategies of different land management methods with the aim of reducing fires. It is flexible for the whole of Europe, but it needs to be adjusted separately for each country. It contains the methodology and appropriateness of the use of individual strategies for the area of the selected country. The added document is adaptable exclusively for the territory of the Republic of Croatia (Neidermeie A. et al., 2023)

2. **(Existing tools/projects) FIREeu RISK:** FIREeu RISKA is a project for creating an evidence-based strategy (upgrading current European strategies) to create resilience against wildfires. It is improving wildfire managment with integration of society, economy and policies into risk administration. It appraise the location, intensity, frequency and probability of fires. They evaluate fire danger, the exposure and vulnerability to fires in different areas, and the effects of fires on people, property, ecosystems and the environment, they study the cause of fire, how it spreads and create scenarios of how climate change can affect fire protection or preparedness. Strategy considers risk conditions within different temporal and spatial scales to ensure realistic risk assessment, reduction and adaptation.

3. **The Global Wildfire Information System - GWIS:** The Global Wildfire Information System (GWIS) is a joint initiative of the Group on earth observations and the Copernicus Work Programs. GWIS aims at bringing together existing information sources at regional and national levels in order to provide a comprehensive view and evaluation of fire regimes and fire effects at global level; the fires mapped in GWIS may include fires set intentially for the purpose of vegetation management. Additionally, GWIS provides tools to support operational wildfire management from national to global scales. GWIS builds on the ongoing activities of the European Forest Fire Information System (EFFIS), the Global Terrestrial Observing System (GTOS) Global Observation of Forest Cover- Global Observation of Land Dynamics (GOFC-GOLD) Fire Implementation Team (GOFC Fire IT), and the associated Regional Networks, complementing existing activities that are on-going around the world with respect to wildfire information gathering. Currently, GWIS is made of five applications: current situation viewer, current statistil portal, country profile, long-term fire weather forecast, data and services.

4. **(Existing tools/projects) SAFERS:** The SAFERS intelligent service "Sub-seasonal weather forecasts," is aimed primarily at the prevention, preparedness, and response phases of forest fire management. This service provides weather forecasts on different time scales to assess the risk of forest fires. It offers medium-range weather forecast and Fire Weather Indices (up to 15 days): This service provides twice a day ensemble mean and 80% prediction interval of the ensemble forecast of relevant weather variables as well as Fire Weather Index, moisture codes and their anomalies using 40-year historical mean values. It allows the visualization over map and timeseries. These indices give information for awareness and early warning potential risk. Sub-seasonal forecast (up to 42 days): This service provides probabilistic forecasts of relevant weather variables up to 42 days. The

product includes ensemble mean and 80% prediction interval and is updated twice per week. It allows the visualization over map and timeseries. These indices can be used in response-phase of forest fires which can be useful during the forest fire response phase. All this information is updated regularly and can be viewed on interactive maps, time series, with zoom and overlay options for greater awareness and early warning of potential forest fire risks. The service involves statistical post-processing methods utilizing real-time and historical EO data, covering the whole sub-seasonal forecast scale that relevant to SAFERS for selected two pilot data sets provided by the European Centre for Medium-Range Weather Forecasts- ECMWF.

5. **(project) Interreg project: Mosaic:** MOSAIC focuses on hazard-resilient and sustainable protective forest management coping with climate changes' multiple dimensions, which is essential for managing climate-related risks. In order to support regional and Alpine climate action plans, the project aims to collect, harmonize and share data, models on Alpine climate-related disasters and trends. The project partners strive to raise awareness among foresters, risk managers, decision makers and the public through an Alpine network of forest living labs. MOSAIC is an action-research project that relies on project partners recognized for their applied research activities and involvement in the science-decision-action. Main activities of project are: data mining and projection of climate change on the alpine.

6. **(initiatives/project) European Network on Extreme fiRe behaviOr – NERO:** NERO addresses wildfire challenges by bringing together wildfire researchers and practitioners to advance the current state of the science, thus making a crucial step in improving fire management, firefighter training and safety, and public safety planning. NERO establish and promote a new European culture that supports the effective transnational exchange of expert knowledge, including data and tools. More importantly, NERO contribute to narrowing the gap between science and practice, thereby promoting efficient science-based wildfire management and extreme wildfires.

7. **(project) Forest roads for civil protection (FORCIP+):** FORCIP+ aims at improving the use of the rural road network in case of emergency, especially forest fires. Through transnational cooperation a wide range of inventories of existing road infrastructure will be accessible, different requirements met and a homogeneous model established. Applications are developed to improve the efficiency in case of emergency; establish classifications and propose improvements on the maintenance of these facilities, all geared to issues of civil protection. Forest fire fighting vehicles are equipped with GNSS in order to improve time response and increase fuel savings. Fire specialists will be able to use network analysis for resources planning, locating most suitable places for ground means waiting areas or identifying forest surfaces where takes longer to access. Other actors involved in emergencies will be able to use web management applications and public information.

8. **(project) Alpine Forest FIre waRning System (ALPF FIRS):** ALPF FIRS aims to improve forest fire prevention with the creation of a shared warning system based on weather condition affecting fire potential. Main goal is the development of a decision support tool for actors involved in forest fire prevention and suppression, consisting in a daily fire danger level assessment and forecast to identify critical periods in advance of their potential occurrence. Major target is the univocal European Forest Fire Danger Scale definition and common danger level interpretation with resulting preparedness plans and operational procedures. Mutual aid in vigilance and extinction procedures will be defined. An Alpine network on forest fire impact mitigation will be assembled reflecting

common political strategy in prevention management, also in relation to climate change affecting fire potential. The project allows modulation and coordination of alerting process and means dislocation in different countries as well as mutual aid protocol adoption.

9. **(project) Net4Forest - Network of knowledge for efficient private forests:** The main purpose of this project is to educate trainers and forest owners. Private forest owners own the majority of forest land in most European countries and consequently a high proportion of harvested wood volume comes from private estates. Although literature about efficient forest products marketing and evaluation of forest services is available widely in EU, there is a big deficit in information, guidelines and training materials for forest owner´s practical education, training and use. The aim of this project is to make their decisions suitable and professionally crafted as much as possible and to give them knowledge to increase income from their forest with the respect of environmental aspect and participation of professionals from several countries. The goal of this project is to exchange experiences, knowledge, good practise examples and to form innovative and publicly available materials, which will enable trainers and forest owners to acquire adequate knowledge for efficient forest management. Main project outputs (handbook, hands-on guidelines, learning toolkit, best practice examples) will be presented to target groups through organized events, they will be published on project partners web pages and other communication channels.

10. **(project) CROSSIT SAFER:** CROSSIT SAFER project establish an institutional level capable of managing natural risks, i.e. to reduce the risks posed by the geomorphological characteristics of the area and by climate change, which dictate the need for greater coordination of prevention, preparedness and response measures. Goal of he project is to strengthen the capacity of institutional cooperation by encouraging public authorities and key civil protection actors to plan common solutions in the event of disasters through coordinated prevention, preparedness and response measures. The objective contributes to enhanced cooperation between civil protection institutions, to a more coordinated response to natural disasters, to improved capacity and equipment of civil protection units adn cross-border collaboration.

11. **(project) KARST SAFE:** The KARST SAFE project presents preventive measures for a safe Karst. In the pilot area they promote the implementation of preventive measures, targeting natural and legal persons for actions in various fields - agriculture, forestry, nature and cultural heritage protection, social entrepreneurship. In this area are carried out a case of fire prevention measures, training in preventive fire protection measures. The project also aims to contribute to the education and awareness raising of the population, communication activities that will contribute to raising the awareness of the target public and consequent changes in their behaviour. The project makes an important contribution to building on the impact of CROSSIT SAFER by improving its impact and consolidating its effects through transfer and replication to new partners and new audiences.

12. **(project) SILVANUS - Integrated Technological and Information Platform for Wildfire Management:** Silvanus is European green deal project for wildfire management and climate change, whose main objective is to create a climate resilient forest management platform to prevent and combat forest fire. The key output of the project is the release of a climate resilient forest management platform to prevent and suppress forest fire. SILVANUS relies on environmental, technical and social sciences experts to support regional and national authorities responsible for

wildfire management in their respective countries. SILVANUS scientists and research engineers will aid the civil protection authorities to efficiently monitor forest resources, to evaluate biodiversity, to generate more accurate fire risk indicators, and promote safety regulations among the local population affected by wildfire through awareness campaigns.

13. **(project) FIRE-RES:** FIRE-RES develops a holistic and integrated fire management strategy to efficiently and effectively address Extreme Wildfire Events in Europe. FIRE-RES developed 34 innovations related to the 4 pillars of the project that allowed to Integrated Fire Management measures for prevention and preparedness, detection and responses, and restoration and adaptation. FIRE-RES Innovation Actions include any tool, process or methodology intended to move toward an integrated model for Extreme Wildfire Events' management. FIRE-RES innovations implemented in 11 Living Labs and then upscaled at wider levels. Living Labs are open innovation ecosystems that demonstrate and deploy FIRE-RES innovations through collaboration among the public sector, scientific communities,private companies and citizen associations.

14. **(initiatives) Capacity building in Croatia, the Czech Republic, Saxony (Germany) and Slovenia for Wildfire Prevention and Risk Assessment (EU ITP):** EU ITP Initiative will analyse the current state of the art of wildfire management systems of Croatia, Czech Republic, Saxony (Germany), followed by proposal of changes or/and improvments based on international best practices. Initiative will also include the development of methodologies for the risk assessment of wildfires (including pilot implementations) and will also promote awareness to the risk from wildfires and to the benefits of implementing the project's proposals. Foster collaborative landscape planning, reduce fire risk and create fire-resilient communities contributed to enhancing the fire management systems.

15. **(project) TREEADS:** The EU-funded TREEADS project focused on the forests at risk of wildfire to develop new products and integrate them in a holistic Fire Management platform aimed at optimising and reusing the existing socio-technological resources. The project proposes the use of a real-time risk assessment tool that can receive multiple classification inputs and works with an innovative neutral network-powered risk factor indicator. TREEADS will use alkali-activated construction materials integrating post-wildfire wood ashes to create a model of fire-adapted communities and use advanced techniques empowered by AI and diverse toolsets for prevention and preparedness. TREEADS is tackling a number of major challenges that wildfires pose by building upon state-of-the-art high TRL products and unite them in a holistic Fire Management Ecosystem consisting of various innovative technologies and systems to optimize and reuse the available Socio-technological Resources in all three main phases of Wildfires. By adopting a multi-stakeholder, multi-actor approach at its core, the TREEADS solutions is contributing to sustainable development as an inclusive societal process and secure sustainability and resilience of natural environment, as well as local human societies.

16. **(project results) Cross-sector dialogue for Wildfire Risk Management - FIRELOGUE:** FIRELOGUE builds on an Integrated Systems Thinking approach to bind the IAs together while comprehensively addressing the different components of wildfire risk (hazard, exposure, vulnerability and capabilities) as well as the diverse natural and socioeconomic drivers of risk. Building on the concept of Just Transition, different notions of justice (distributive, procedural

and restorative justice) will form the basis for structuring the discussions within and across the working groups. Collaborative governance builded the conceptual underpinning for designing the dialogue workshops and to eventually co-develop integrated WFRM strategies.

17. **(project) IN4SAFETY:** The IN4SAFETY project represents the establishment of cooperation to prevent disaster risks and reduce vulnerability to climate change, which dictates the need for a more coordinated response to natural disasters in the programme area. The vulnerability of the area and the need for cooperation was particularly demonstrated by the fires in the cross-border area of the Karst (Slovenia) in the summer of 2022.

Short descriptions of recommendations found on implementation in regulations:

1. **(document) EU Disaster Risk Management:** European disaster risk management are developed policies that focus on prevention and the reduction of disaster risks as these actions will reduce the impact of adverse events. Increasing the resilience of infrastructure, ecosystems, society, and the economy of the EU is an important strand of disaster risk management work.

2. **(document) Adapration to Climate Change in Sustainable Forest Management in Europe:** Adapration to Climate Change in Sustainable Forest Management in Europe consists of policy recommendations, adaptation and implementation of measures for forest to climate change, needs and possible challenges, good examples of foreign practices and examples of countries that are already working and succeeding in all these areas. Past practices that have worked in the countries involved in the Clim4cast project are also listed.

3. **(document) State of Europe's Forests 2020 Report:** National Forest Programmes (NFPs) have been demonstrated as instruments for supporting forest policy and governance since FOREST EUROPE Vienna Resolution 1 in 2003. NFPs are key processes designed to provide guidance, cooperation and modalities for policy planning, implementation, monitoring and evaluation at national and/or subnational level, and a participatory forum for forest stakeholders. The information on the status of NFPs is based on 31 national responses to the enquiry on qualitative indicators.

4. **New EU Forest Strategy for 2030:** This new EU Forest Strategy aims to overcome challenges in fire sector and to unlock the potential of forests for our future, in full respect for the principle of subsidiarity, best available scientific evidence and Better Regulation requirements. It is anchored in the European Green Deal and the EU 2030 Biodiversity Strategy and it recognises the central and multi-functional role of forests, and the contribution of foresters and the entire forest-based value chain for achieving by 2050 a sustainable and climate-neutral economy while ensuring that all of ecosystems are restored, resilient, and adequately protected. This Strategy replaces the EU Forest Strategy adopted in 2013 and evaluated in 2018.

5. **(document) Land-based wildfire prevention - Principles and experiences on managing landscapes, forests and woodlands for safety and resilience in Europe:** Document and recommendations based on it are intended to share the Group's expertise with all potentially interested stakeholders; and to raise awareness of the need to work on wildfire prevention even more intensively and in an increasingly coordinated manner. The document also serves as an aid to practitioners and policy makers in countries that are just starting trying to develop and improve their knowledge and experience in the field of wildfire risk or policymakers from countries new to wildfire threats, seeking to develop and adapt suitable policy responses. Rreferences in order to inventory the existing guidance at a national or regional level are written down. It provides complementary information on relevant EU-led mechanisms (e.g. European Union Civil Protection Mechanism) or EU-funded initiatives (e.g. LIFE projects) relevant for preventing and controlling wildfires.

6. **(document) Spreading like Wildfire: The Rising Threat of Extraordinary Landscape Fires:** A document describing the global aspect of dealing with fires, the changing pattern of wildfires, impacts of wildfires on people, impacts of wildfires on the environment, risk mitigation and wildfire management.

7. **(document) Wildfire Peer Review Assessment Framework (Wildfire PRAF):** The Wildfire Peer Review Assessment Framework (Wildfire PRAF) is a tool/document designed to support comprehensive reviews of disaster risk management and civil protection systems, with a focus on the risk associated with large-scale unplanned or uncontrolled firesaffecting natural, cultural, industrial, and residential landscapes. It is based on the Peer Review Assessment Framework (PRAF) developed under the Union Civil Protection Mechanism (UCPM) Peer review programme 2020-2024. The Wildfire PRAF is meant to guide sound reviews on wildfire risk management systems at the national and/or sub-national level in Member States, Participating States, enlargement and neighbourhood countries, under the EU's Civil Protection Mechanism legislation.

8. **(project) HOLISTIC (Ipa Adriatic):** HOLISTIC project focuses on the prevention and damages mitigation of the natural risks, with special focus on wildfire and earthquake risks, aiming at improvement, promotion and strengthening of institutional capabilities in implementing policies and actions to reducing the causes and potential start of natural breakdowns to improve reaction and intervention readiness, to reduce the damages in areas of regions facing the Adriatic. The project plans to develop common guidelines and standard procedures for policy and institutional enhancement, legislative and institutional regulations, prevention management codes and procedures in the domain of sustainable fire protection and prevention and public.

9. **(project) CHEERS (Cultural Heritage. Risks and Securing activities):** The project aims to enhance the protection of Alpine cultural resources and addresses neglected issues such as disaster management and damages caused by natural hazards. The activities and expected results are linked to 4 main objectives: 1. Dissemination of a concept of "know-how for the rescue of Alpine cultural heritage" by collecting and enhancing knowledge of operational rescue practices, past experiences and lessons learnt and decision-making processes developed around cultural heritage at risk both in peacetime and during field activities; 2. Reinforcement to the knowledge of the cultural heritage exposed to risks in the Alpine territory; 3. Increasing the awareness and participation of stakeholders

and communities through training activities, strengthening of knowledge and information and direct involvement in the planning of rescue operations of cultural heritage; 4. Integrating civil protection plans with indications relating to the protection and rescue of cultural heritage in order to make intervention in emergencies more effective and efficient.

Short description of other documents at EU level found addressing fires:

1. **(initiatives) The Center for Open Space Fire Research - CIPOP:** The Center for Open Space Fire Research (CIPOP) was established with the aim of multi-disciplinary scientific research into open space fires, especially plant fires; transfer of technology and knowledge related to open space fires and activities related to them; educational and promotional activities related to open space fires; domestic and international cooperation on scientific research and educational work related to open space fires.

2. **(initiatives) Network of European Multihazard capacities hub of scientifics understanding and sharing - NEMAUSUS:** NEMAUSUS' long-term objective is to transform the existing national civil protection centre in Nîmes-Garons to a fully-fledged European centre of expertise dedicated to forest fires and wildfires. In this regard, the project aims to complete the first phase of this process, effectively preparing groundwork for establishing a future centre of expertise. The main deliverable of the project is a comprehensive feasibility study on the establishment of the centre of expertise (governance, structure, management and operations, resources, financial forecast, activities, stakeholders etc.). It will also aim to serve as a "blueprint" for the establishment of similar centres of expertise in the future, enabling a regionalised approach to generating and disseminating knowledge in civil protection and disaster management. The pilot centre will implement capacity building and scientific activities, in line with the Knowledge Network pillars. It will be open to UCPM Member and Participating States as well as the interested European Neighbourhood Policy countries.

3. **(initiatives) The Community Research and Development Information Service - CORDIS:** The Community Research and Development Information Service (CORDIS) is the European Commission's primary source of results from the projects funded by the EU's framework programmes for research and innovation, from FP1 to Horizon Europe. Their mission is to bring research results to professionals in the field to foster open science, create innovative products and services and stimulate growth across Europe. Information related to wildfires is located in the climate change and environment category, where we can search for topics of interest by keyword.

4. **(other) EU Commission Expert Group on Forest Fires:** The Expert Group on Forest Fires (EGFF) is the network of country representatives supporting the activities of the European Commission and in particular those related to the European Forest Fire Information System (EFFIS). The EGFF generally meets before the forest fire season, to plan activities prior to the fire campaign regarding prevention, preparedness, awareness campaigns as well as to discuss and agree the annual report 'Forest Fires in Europe, Middle East and North Africa' drafted by the JRC (Joint Researche centre) in cooperation with DG Environment of the previous year and after the fire season, to review the forest fire occurrence of the year. The voluntary provision of data to the EFFIS Fire Database is also organized through the EGFF. The EGFF discusses forest fires prevention

measures and advises on other ad hoc reports on environmental issues related to forest fires (e.g. forest fire prevention, forest fires and Natura 2000, forest fire emissions, etc.), the update of the EFFIS Fire Database, as well as the setting up of common forest fire risk criteria. These activities are financed as part of the Copernicus annual work programme for EFFIS.

5. **(Existing tools) FoRISK (Forest Risk Knowledge Mechanism) = „ Reducing Wildfire Risk in Europe through Sustainable Forest Management“.:** ForRisk specializes in analyzing the supply and demand characteristics of local wood and timber markets and, from this analysis, developing forecasts and strategic guidance related to capital investment decisions, forest operations and the financial assessment of timberland investment vehicles.