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SparkleFire

Project Deliverable D1.5

**Mapping of UCPM initiatives relevant to
the SparkleFire project**

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List of acronyms

CBRN – Chemical Biological Radiological Nuclear Threat

CPET -- Civil Protection Emergency Teams

CRA – Climate Risk Assessment

CTFC – Forest Science and Technology Centre of Catalonia

DG ECHO -- Directorate-General for European Civil Protection and Humanitarian Aid Operations

EMS – Emergency Management System

PCF – Pau Costa Foundation

UCPM – Union Civil Protection Mechanisms

UXO -- unexploded ordnance

WU – Wageningen University and Research

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Executive summary

This deliverable maps and analyses previous and ongoing UCPM initiatives relevant to the SparkleFire project. It identifies 50 initiatives, organized by key features of the SparkleFire project, namely projects and initiatives focusing on (1) wildfires, (2) education and training, (3) the use of games, plays, and art, and lastly, (4) initiatives undertaken by member organizations of the SparkleFire project. The analysis provides a solid foundation for the SparkleFire project that can inform the design of project activities, avoid duplication of work, and foster strategic synergies between UCPM initiatives. This overview will facilitate actively seeking collaboration opportunities with ongoing efforts within UCPM. This knowledge base supports SparkleFire's ambition to create immersive, scenario-based, and interactive games and play that empower and bring together diverse stakeholders and strengthen wildfire resilience in a changing climate and across European bioregions.

1. Introduction

Wildfires in the usual fire countries are increasingly burning beyond control, while wildfires are burning in the 'wrong' countries amidst high population density, low awareness, and preparedness. To bolster disaster risk reduction efforts, there is a pressing need for integrated fire management strategies that encompass the entire wildfire management cycle, shifting a primary focus of fire suppression to prevention of impacts and adaptation, and acknowledging the valuable role of fire in the landscape. Within this context, wildfire education is key. In a prepared society, people understand the value of fire, know that wildfire exists and understand preventive measures to mitigate fire causes, are equipped to minimize fire impacts on residential properties, and are familiar with appropriate actions in the event of a wildfire, such as timely evacuation or sheltering in place.

(Serious) games and interactive play represent potent tools for engaging diverse audiences, increasing awareness, and fostering a culture of prevention and preparedness across various sectors, from individuals to organizations and schoolchildren to professional stakeholders. The use of games and playful approaches for wildfire education constitutes an emerging discipline with considerable potential.

The main objective of SparkleFire is to explore, design and implement games and plays aimed at enhancing awareness of wildfire risk, applicable in the four European bioregions.

The European Union Civil Protection Mechanism (UCPM) funds a wide range of projects to improve disaster prevention and preparedness, develop shared knowledge and expertise, exchange good practices and facilitate networking. This deliverable D1.5 is an analysis of UCPM and DG ECHO-funded initiatives that are relevant to the SparkleFire project and contributes to WP1. Below, we highlight the UCPM and DG ECHO-funded projects that are relevant to SparkleFire by focusing on: 1) wildfires, 2) education and training, 3) the use of games and play, or creativity (arts), and 4) initiatives conducted at SparkleFire partner organizations.

2. Objectives

The main objective of the current document is to identify and characterize previous or ongoing UCPM and DG ECHO-supported initiatives that align with SparkleFire's focus on wildfires, risk awareness and education, as well as on the use of art and creativity in creating educational games and plays for a broad audience, across all relevant phases of integrated wildfire management. The specific goals are as follows:

- To identify relevant tools, frameworks, methodologies, and insights developed in prior and ongoing projects, to establish a robust knowledge baseline for SparkleFire. This will ensure that the project builds upon and complements existing knowledge rather than duplicating efforts.

These identified results and outputs will serve to enhance the methodological and practical approach adopted in SparkleFire.

- To analyze ongoing and recently concluded initiatives to show potential for synergies, hopeful potential outcomes, collaborative opportunities, and knowledge sharing, both internally among project partners and externally with other relevant stakeholders by for instance organizing shared events.

3. Methodology

To conduct a comparative analysis and ensure a strong knowledge foundation, we systematically identified and reviewed relevant initiatives under the European Union Civil Protection Mechanism (EUCPM), using the official UCP Knowledge Network “Projects and Exercises” platform ([link](#)). This platform contains 196 UCPM projects and exercises funded between 2018 and 2025. The purpose of this review was to identify those projects that may provide synergy with SparkleFire, based on four core thematic areas:

1. Wildfire,
2. Education and training, regardless of hazard type,
3. Games, play, and creative/artistic engagement, regardless of hazard type,
4. Any UCPM initiatives that SparkleFire partner organizations are involved in.

The search focused on UCPM projects identified on the Knowledge Network Platform, by filtering the total of 196 projects by hazard type (wildfires) and sector (education and training), and by doing a keyword search for the remaining two thematic areas (Table 3. and 4). As an exploratory search for projects carried out across the European bioregions was too broad to yield succinctly relevant information, we focused on initiatives carried out at the SparkleFire partner institutes instead as the fourth theme, to highlight potential cross-linkages between projects.

In addition to this search on the UCPM Knowledge Network Platform four projects funded by DG ECHO that SparkleFire partner CTFC added and coordinated, were also included, but that are not present on the Knowledge Platform, namely EFIRECOM, FIREFFICIENT, NETRISKWORK, and the DG ECHO contract ‘Wildfire Risk Awareness and Communication: Analysis of Good Practices’.

Table 1 below outlines the different search methodologies used to identify the relevant UCPM initiatives to the SparkleFire project.

Table 1 UCPM funded projects relevant to SparkleFire were extracted from the knowledge platform by filtering and using keyword searches.

Category	Search Methodology
Wildfire	Wildfire projects were extracted by selecting 'wildfire' in the filter function labeled 'hazard type'. Four additional DG ECHO wildfire projects coordinated by CTFC were also included.
Education and Training	Education and training projects were extracted by selecting 'education and training' in the filter function labeled 'sector'. This approach enabled the selection of projects focusing on all hazard types (including wildfire) with a strong emphasis on learning, capacity-building, skills development, and public awareness. One additional DG ECHO wildfire projects coordinated by CTFC was also included.
Games and Creativity	Projects using games and creative approaches were extracted through a keyword search: game, games, serious game, play, art, artistic, creativity. This includes projects focusing on any hazard type, including wildfire.
UCPM initiatives at SparkleFire partner organizations	Projects at SparkleFire partner organizations were extracted through a keyword search: - Wageningen University (WU), Netherlands - Forest Science and Technology Centre of Catalonia (CTFC), Spain - Pau Costa Foundation (PCF), Spain - Municipality of Paredes de Coura, Portugal - VOST PT, Portugal Four additional DG ECHO wildfire projects coordinated by CTFC were also included.

For each initiative identified, the following information was identified:

- project (including its name, its expected timeline, its geographical reach, and a direct link to its project description webpage),
- project focus, summarized from the information,
- potential synergy, and
- project outcomes that may be relevant for SparkleFire.

Below, these projects are presented and analyzed according to the four thematic dimensions of SparkleFire. Each thematic section includes the completed table listing relevant initiatives, as well as a brief summary highlighting potential synergies and project outcomes relevant to SparkleFire.

4. Overview of UCPM initiatives relevant for SparkleFire

4.1. Wildfires

A total of 24 UCPM initiatives listed on the UCPM Knowledge Platform focus on the hazard type of wildfires, with four additional initiatives coordinated by CTFC that we also include in this list, making a total of 28 wildfire projects highlighted in Table 2. The geographic scope of these projects ranges from individual countries (e.g., Türkiye, Czech Republic, Greece, Portugal) to bilateral agreements between two countries, Southern Europe, Mediterranean countries and EU-wide. Thirteen of these projects are currently ongoing (July 2025), the remaining fifteen have been concluded.

Potential synergies between these wildfire-related UCPM and DG ECHO initiatives and the SparkleFire project include possibilities to connect and to reach diverse stakeholders including schools in countries across Europe for potential participation and dissemination of SparkleFire outcomes, as well as knowledge and information to tailor SparkleFire outcomes to the diverse bioregions of Europe.

Outcomes from the wildfire initiatives that may be relevant for SparkleFire include web-based platforms or hubs, training and awareness materials, key scientific output, best practices to connect diverse knowledge and involve people from diverse backgrounds, and more. Please refer to Table 2 for an overview of the individual projects, their potential synergies, and their relevant outcomes.

Table 2 Overview of UCPM and DG ECHO initiatives that focus on wildfires.

Project	Project focus	Potential synergy	Relevant outcomes
AFAN (Advanced Fire Analysis Network) 2021-22 EU link	European expert network focused on wildfire risk analysis and response. Aim: foster knowledge sharing and mutual learning to strengthen trust and support among fire response systems. Focus: build on regional and national expertise to enhance Europe's wildfire response.	Access to diverse stakeholders across Europe for participation in our events and dissemination of our results.	Establishment of a trusted expert wildfire knowledge-sharing network in Europe. Integration of national and regional wildfire knowledge into a shared European framework. Development of a replicable model for expert knowledge exchange in other risk domains.
B-FIREPREP 2024-26 Portugal link	Aim: improve prediction and preparedness of civil protection teams for the rising number and intensity of wildfires in Portugal. Develops an interactive fire simulation system to forecast rural settlements at higher risk and areas where a fire could quickly grow beyond suppression capacity. Focus: support fuel management and raise awareness; improve early warnings, planning, and communication; guide real-time decisions for protecting people and property.	Connect with this ongoing project to explore collaboration in dissemination. Consider this project's focus to inspire our games and other products.	Web-based map platform to improve wildfire preparedness and response. Training and awareness for Portuguese civil protection authorities.

Development of a Long-term Wildfire Prevention Framework for Istanbul Forest Region 2020-21 Türkiye link	Aim: boost stakeholder collaboration and fire prevention efforts, through: - Creation of forest fire prevention strategy for Istanbul (2021-2030), - Building capacity in prevention and fire investigation, - Analyzing environmental changes like climate change and urban sprawl, and - Development of action plan for the Prince Islands.	Provides information and context about the fire regime and fire management in Türkiye, useful information for adapting SparkleFire materials to the European bioregions. Potentially valuable information on diverse stakeholders (previously or currently) active in Türkiye.	Two short films to raise public awareness are of particular interest.
EFIRECOM 2015-16 Mediterranean Region link	Aim: enhancing the resilience of citizens to wildfires in interface areas from the Mediterranean region. Focus: promoting and increasing awareness and participation on the culture of risk with updated knowledge and best practices.	Can use the different communication strategies adapted to different actors to improve the effectiveness at capturing the attention of a diverse audience by SparkleFire games. Can incorporate good risk communication practices into SparkleFire games.	Development of a communication toolkit for the capacity building of citizens and communities towards wildfire risk prevention, adapted to three target audiences: i) Communities and municipalities (inhabitants and managers of wildland urban interface), ii) Scholars, youths and their teachers, and iii) Journalists and media professionals. Edition and dissemination of operational and strategic recommendations for the improvement of the communication on risk and reduction of social vulnerability to wildfires in Mediterranean areas, transferred to the relevant authorities.
EWED 2024-25 EU link	Aim: better understanding of fire-atmosphere interactions during Extreme Wildfire Events (EWEs). Focus: build an open testbed and data platform to advance research and improve European wildfire response and	Knowledge of extreme wildfire events can be used to develop game materials. Project focus on diverse European regions including emerging fire regions can support	Real-time analysis tools, training, and guidelines for diverse European regions, including those newly exposed to wildfire risks. Lasting digital hub may provide a place

	collect fire and atmospheric data, with participating countries including Norway, Spain, Greece, and the Netherlands.	adapting game materials to the European bioregions.	to disseminate/ link to SparkleFire output(s).
Feasibility study for forest fire protection – Latvia 2023-24 Latvia link	Aim: assessed how to improve forest fire protection and firefighting in Latvia's public and private forests. Focus: examined best practices from Estonia, Sweden, Poland, and Germany.	Focus on Estonia, Sweden, Poland, Germany can help adapt SparkleFire materials to European bioregions.	Broad analysis of material and technical provisions, financial resources, and human resources in the field of fire protection and firefighting of public and private forests and bogs.
FIREFFICIENT 2014-15 EU link	Aim: establish a sustainable platform for efficient exchange of available knowledge in which "lessons-learned" can be made available to relevant stakeholders and public agencies at EU level, dealing with innovative operational tools and means to integrate the prediction of potential fire events into emergency strategies and land-use planning. Focus: build capacity for planning developers to enhance the transfer of best practices and lessons-learned in wildfires to planning practices and processes.	Use of the platform to disseminate and advertise the SparkleFire games. Integrate fire events prediction into the game design and elements.	EU context adaptation of operational transfer tools for prior fire assessment and actor participatory processes. Development of a knowledge base and "lessons-learned" platform of innovative tools and means for wildfire hazard assessment.
FIRE-SCENE 2025-26 Southern Europe link	Aim: improve wildfire risk management in the Mediterranean by developing new tools and approaches for better planning, assessment, and coordination. Focus: wildfires near cities, tourist areas, and protected natural sites.	Work across Spain, Italy, Greece can help adapt SparkleFire materials to European bioregions. Connection with local stakeholders can be valuable for involving them in project, or dissemination of results.	The creation of practical tools strengthens key areas of governance such as policy alignment, participation, and coordination. Training and knowledge exchange.
Firelogue 2021-25 EU link	Aim: Green Deal Coordination and Support Action connecting three funded Innovation Actions (SILVANUS, TREEADS, FIRE-RES).	Close connection with EU fire projects, research, and key policy makers. Valuable connections with	Seminal papers on fire and environmental justice, wildfire governance, integrated fire management vision.

	Focus: three main focal points include: i) Creation of synergies and collaboration to achieve maximum impact, ii) Coordinated discussions on the integration of wildfire risk management measures and sectoral approaches taking justice considerations into account, and iii) Synergies and trade-offs of different measures, approaches, and use of (new) technologies along the risk management cycle.	important and diverse stakeholders. Key publications and vision papers to inform SparkleFire output.	
FIREPRIME 2024-26 EU link	Aim: create an EU-wide initiative to boost fire resilience among households, communities, and infrastructure. Focus: Wildland-Urban Interface (WUI) areas, with increasing risks and low awareness and preparedness, with participating countries including Spain, Austria, and Sweden.	The close collaboration with local stakeholders adopted in FIREPRIME can inspire SparkleFire how to co-produce parts of the game in a bottom-up manner, as well as use the FIREPRIME network to disseminate its games. Work in Spain, Austria, Sweden can inform adaptation of SparkleFire materials to European bioregions.	Practical toolkit including a mobile app, guidelines, and educational resources. Long-term strategy to apply the approach in other fire-prone areas across Europe.
Long term Wildfire Prevention Framework 2023-24 Türkiye link	Aim: operationalize the 2020 Wildfire management strategy. Focus: include greenhouse gas emission mitigation options in wildfire prevention to support the Long-Term Climate Strategy of Türkiye and assess the link between forest fire management and emission reduction objectives.	The connection between fire prevention and emission reduction can be interesting to build upon in SparkleFire games. The project's connection with primary schools may be a potential way to disseminate SparkleFire results in Türkiye.	Action plan, capacity building. Awareness and dissemination activities in primary schools.
MedEWSa 2023-26 EU link	Aim: develop an integrated, impact-based early warning system (EWS) for multiple natural hazards in Europe, the	Wildfire EWS innovation as well as forecasting models from pilot sites (1) and (4) can inform gaming elements	Access to interdisciplinary expertise (climate science, impact modelling, operational planning)

	Mediterranean, and Africa, enhancing rapid response capabilities in vulnerable regions affected by extreme climate-related events. Focus: prioritize education, forecasting, and innovation through the creation of multi-hazard early warning tools, supported by knowledge exchange between European and African partners. It emphasizes capacity building and preparedness across eight pilot regions, tackling wildfires, floods, heatwaves, and coastal events, especially in the context of climate-exacerbated disasters. The 4 pilot sites include (1) Greece-Ethiopia, (2) Italy-Egypt, (3) Slovakia-Georgia, and (4) Spain-Sweden.	and design of bioregions.	that could inform SparkleFire's game designs and elements. Training methodologies and scenarios co-developed in Mediterranean contexts that inform SparkleFire's educational goals and design of bioregions. Transferable wildfire EWS tools and information adoptable in SparkleFire's bioregions of interest.
NEMAUSUS 2021-23 EU link	Aim: transform national civil protection center in Nîmes-Garons into a European center of expertise for forest and wildfires. Focus: feasibility study covering governance, management, resources, and activities, and a model for similar centers across Europe.	Potential connection to support dissemination in France. French go-to point to support adaption of SparkleFire materials to European bioregions.	The pilot center will build capacity and conduct scientific work, involving UCPM members and neighboring countries, with strong stakeholder support to establish it as a leading wildfire expertise hub.
NETRISKWORK 2017-18 EU link	Aim: enhance disaster risk reduction across Europe by fostering knowledge exchange and delivering operational guidelines on forest-related hazards. Focus: capitalize best practices in the planning and management of wildfires, storms, avalanches, and floods. It also examined the interactions between these hazards under climate change and builds regional and	NET RISK WORK's multi-actor knowledge exchange platform complements SparkleFire's interactive educational format, enabling integration of expert insights into the game. The focus on interactions between multiple hazards aligns with SparkleFire's wildfire education and offers potential to	SparkleFire can enhance its educational content by incorporating NET RISK WORK's operational guidelines and best practices. Regional networks may improve SparkleFire Dissemination. Insights on hazard interactions could help SparkleFire raise awareness about the combined effects of

	thematic networks supported by European-level coordination.	expand awareness to other natural risks.	different natural disasters.
OVERWATCH 2022-25 EU link	Aim: improve collaboration among first responders, disaster managers, scientists, and decision-makers. Focus: develop advanced holographic system to support wildfire and flood emergency management using Earth observation, drones, AI, and augmented reality. Participating countries are Poland, Germany, Italy, Portugal, and Denmark.	Focus on Poland, Germany, Italy, Portugal, and Denmark can support adaption of SparkleFire materials to European bioregions. Online platform which may provide an opportunity to disseminate/link to SparkleFire outputs.	Platform for real-time 2D/3D situational awareness, drone-based terrain analysis, optimized rescue asset deployment, and AR-enabled responder coordination.
PREVAIL 2019-2021 Mediterranean countries link	Aim: improve the effectiveness of the Union Civil Protection Mechanism in managing fire disasters by integrating prevention and preparedness strategies into existing suppression methods. Focus: develop practical tools, data analysis, and decision support systems to optimize fuel management; simulation of large fire events; and promotion of cross-border training and awareness-raising materials for citizens, land managers, and fire operators.	The way that this project develops understandable and accessible materials can inform SparkleFire regarding how to easily communicate specific knowledge to broader audiences. Inspiration for cross-border creative workshops.	Multi-audience training and awareness raising materials. Storytelling or game content from local prevention strategies. Concepts for immersive, simulation-based learning. Narrative links between fire prevention and community resilience.
RECIPE 2020-21 EU link	Aim: develop operational recommendations and tools to reinforce civil protection, emergency management, and risk planning for different natural hazards across Europe, simultaneously addressing the impacts of climate change. Focus: develop integrated tools and guidelines to reinforce civil protection systems and risk management practices, for multiple natural hazards,	Integrate RECIPE's climate-adapted hazard data as well as cross-border insights into SparkleFire game scenarios and bioregions. Joint development of interactive multi-hazard learning modules. Incorporate findings into a decision-maker and civil protection actors	Guidelines for civil protection decision-making applicable in wildfire contexts. Use of pilot site insights to inspire realistic regional wildfire scenarios. Datasets and frameworks are useful for educational or planning modules in SparkleFire.

	including wildfires, in the context of climate change. Emphasizes prevention, preparedness, risk planning, and response adaptation through scenario-based learning and cross-sector collaboration.	targeted version of the game.	
RED ROSES 2023-25 France & Italy link	Aim: improve prevention and preparedness for wildfire disasters in the French Italian cross-border area through better data sharing and cooperation. Focus: development of an interoperable Spatial Data Infrastructure and geoportal to support wildfire risk mapping, decision-making, and public awareness.	Public-facing tools to boost fire risk perception and preparedness. Data-sharing infrastructure and risk visualization tools could complement SparkleFire's creative and educational outputs by providing accurate, localized wildfire data for use in games, workshops, and awareness campaigns. Cross-border cooperation model. Could incorporate geoportal and risk maps into SparkleFire games.	Risk data tools adaptable for wildfire awareness platforms. Cross-border cooperation model for creative education initiatives. Geoportal interface concepts are useful for interactive learning. Inclusion of civil society actors like the Red Cross as engagement partners. Framework for participatory risk mapping in awareness campaigns.
SAILOR 2023-25 Georgia-Azerbaijan link	Aim: develop a joint forest fire risk assessment and cross-border risk management plan for the Georgia-Azerbaijan border area. Focus: strengthen bilateral cooperation through shared wildfire risk analysis, creation of coordinated action plans, and optimization of joint firefighting operations based on data-driven planning.	Practical context for SparkleFire's creative tools, offering realistic scenario content for games, educational materials, and simulations. Combining risk data with playful learning formats.	Model for cross-border wildfire cooperation. Foundation for shared risk maps usable in educational tools. Input for storytelling around regional wildfire collaboration. Scenario ideas for serious games simulating cross-border response.
State Fire and Rescue Service of Latvia 2020-21 Latvia link	Aim: assess the technical, educational, and financial feasibility of three innovative initiatives aimed at modernizing Latvia's civil protection and fire	The mobile security class can inform SparkleFire about differential educational content depending on the location of the class.	Blueprints for mobile fire prevention classes, applicable to regions involved in SparkleFire.

	safety infrastructure, including green transport, mobile prevention education, and institutional training capacity. Focus: three main focal points exist: i) Adoption of energy-efficient vehicles in the State Fire and Rescue Service of Latvia, ii) Development of mobile and stationary security classes to improve fire prevention awareness and civil protection education for the public, and iii) Evaluation and modernization of training systems and infrastructure for colleges offering civil protection and fire safety education.	This can in turn inspire the design of different bioregion storytelling. Information can be incorporated into game elements and designs, specifically concerning the improvement of training infrastructure and systems.	Insights on integrating sustainability (e.g., low-emission fire vehicles) into wildfire response. Models of education and inter-stakeholder collaboration, useful for developing stakeholder-specific games under SparkleFire.
Türkiye - Wildfire Prevention and Emergency Response 2023-25 Türkiye link	Aim: strengthen wildfire prevention and response in Türkiye. Focus: developing scalable, bottom-up solutions rooted in forest village knowledge, integrated with scientific methods, to enhance resilience and support a green transition.	Translate the village-level innovations into interactive tools, serious games, and storytelling formats for SparkleFire games. Bottom-up local empowerment and participatory learning.	Community-based wildfire prevention models. Scalable good practices blending traditional and modern knowledge. Case studies for awareness materials and creative formats. Inspiration for participatory games involving forest village dynamics. Practical examples for public engagement and education.
THEMIS 2025-26 Greece link	Aim: improve wildfire preparedness and response in Greece. Focus: raise awareness among tourists, especially vulnerable groups, through targeted communication and education strategies that enhance individual safety and national disaster resilience.	Inspiration for how to reach diverse audiences, including non-residents and people with disabilities, and more specifically tourists, and non-local populations.	Preparedness strategies tailored to tourist populations. Inclusive educational content for people with special needs. Scenarios and storytelling materials for creative and gamified disaster education.

			Communication tools adaptable to different languages and cultures.
VERA 2024-26 EU link	Aim: enhance cross-border risk management for natural and human-caused disasters, including forest fires. Focus: enhancing multi-risk decision-support system, integrating European data sources (Copernicus and Galileo).	Tools and vulnerability maps can feed into games designed by SparkleFire to raise awareness of fire risks across borders, particularly in transboundary fire-prone areas.	Cross-border forest fire vulnerability database.
VESPRA 2021-23 Portugal & Spain link	Aim: strengthen risk management between Spain and Portugal for both local risks like forest fires. Focus: creating a shared information system that improves the identification and mapping of vulnerable elements to support cross-border emergency response.	A shared information system can inform materials to be incorporated into the games produced by SparkleFire. It can be used for dissemination of the games to multiple actors. Can inform the inclusion of the vulnerability dimension in the games made by SparkleFire.	Increased institutional capacity across government levels. Knowledge-sharing through workshops with scientific and technical communities. Improved coordination between research and civil protection sectors.
WEDS 2025-26 Czech Republic link	Aim: improve understanding of wildfire risk factors and vulnerabilities in the Czech Republic and strengthen the collaboration and coordination among stakeholders involved in wildfire management. Focus: analyze existing early detection technologies and systems for wildfires to be established in the Czech Republic, while assessing the technical, operational, financial, and environmental feasibility.	Make use of risk factors and vulnerability patterns from Czech Republic to adapt and incorporate in the design of the bioregions. Inform about different wildfire stakeholders in Czech Republic.	Input from forest and environmental sectors are integrated into wildfire risk management solutions.
WILDFIRE RISK AWARENESS AND COMMUNICATION: Analysis of good practices 2023—24	Aim: strengthen wildfire risk awareness and communication across Europe by analyzing effective initiatives and promoting shared learning.	Can use wildfire risk awareness and communication initiatives from across Europe to design bioregions storytelling and designs as well as to	Identification of good practices in wildfire risk communication that can inform serious games like SparkleFire.

EU link	Focus: reviews selected wildfire awareness projects gathered through a DG ECHO call, highlighting key practices, gaps, and lessons to support a coordinated European approach to risk communication.	improve the educational effectiveness of SparkleFire games. Can incorporate and disseminate the idea of a uniform European approach to risk communication through SparkleFire games.	Emphasis on citizen involvement and stakeholder engagement. Recognition of the need for adaptable, up-to-date messaging supports SparkleFire's dynamic game design. Highlights the value of cross-border awareness tools. Call for actionable, engaging tools reinforces the role of gamification in risk education strategies.
WUITIPS 2023-25 EU link	Aim: improve understanding of wildfire risks in touristic areas. Focus: studying impacts on buildings, infrastructure, cultural heritage, and people, as well as the effectiveness of current mitigation measures across the EU.	Make use of impact data from all four bioregions across all the EU to inform storytelling and game design of the said bioregions of the SparkleFire project. Incorporate relevant tourist -data and information into the games produced by SparkleFire.	Development of tools and EU-wide guidelines for fire prevention and protection in cross-border areas, tested in Spain-France pilot sites. Involvement of stakeholders from other EU (bio)regions promotes stronger cross-border cooperation in wildfire prevention and preparedness, with outcomes designed for broader European use.
WUIVIEW 2019-21 EU link	Aim: strengthen wildfire risk reduction in wildland-urban interface (WUI). Focus: develop a virtual platform to assess fire hazards and building vulnerabilities. Through simulations and fire experiments, the project analyzes how structures respond to wildfire, with a focus on flammable vegetation and gas infrastructure.	Use WUIVIEW simulation data to create fire scenarios in different WUI settings across all bioregions in the whole of Europe. Incorporate building vulnerability into SparkleFire games. Make use of flammable vegetation and building vulnerability info for SparkleFire games.	Provides tools for residents, fire managers, engineers, and authorities to better understand and reduce fire risks. A key outcome is the Wildfire Vulnerability Assessment Tool (June 2023).

4.2. Education and training

Education and training are components of a large number of UCPM initiatives. To highlight the most relevant projects for SparkleFire, we present below the initiatives that have their main focus on education and training, setting these apart from the projects that use education and awareness raising as part of, for instance, their communication and dissemination strategy. This resulted in thirteen initiatives presented in Table 2. Geographically these projects all presented an EU-wide scope. Six of these projects are currently ongoing (Jul 2025), while the remaining seven have been concluded.

Potential synergies between these education-and-training-focused UCPM initiatives and SparkleFire include the ability to inform scenario-based gaming and bioregional design using differential regional capacities for risk assessment, integrate multi-hazard and compound risk dynamics (e.g. wildfires intersecting with Chemical Biological Radiological and Nuclear threats or post-conflict conditions), and translate Virtual Reality, evaluation, and trainer-development tools into SparkleFire's game mechanics.

Potentially relevant outcomes from these UCPM initiatives that focus on education and training involve validated Climate Risk Assessment toolboxes, training methodologies for local actors, templates for immersive simulations, and best practices in multi-actor game involvement. Table 3 provides an overview of the individual projects, their potential synergies, and their relevant outcomes.

Table 3 Overview of UCPM and DG ECHO initiatives that have a primary focus on awareness and education.

Project	Project focus	Potential synergy	Potential Outcomes
CLIMAAX (CLIMate risk and vulnerability Assessment framework and toolbox) 2023-26 EU link	Aim: enhance the capacity of European regions and civil protection agencies to conduct reliable climate risk assessments (CRAs). Focus: Four main focal points involve: i) Deliver a standardized CRA framework and toolbox, ii) Offer training and help desk support for regional and civil protection authorities, iii) Facilitate learning-by-doing through five pilot CRAs, and iv) improve access to global and European open data, models, and scenarios for at least 50 regions across the EU.	Can inform scenario-based gaming and design of bioregions with differential regional capacity for risk assessment. Can use resulting tools and frameworks to incorporate elements on landscape fire risk into SparkleFire games.	Validated CRA toolbox as examples for SparkleFire bioregions. Training methodologies for local fire managers and civil protection actors in risk modelling.
COVALEX 2023-24	Aim: establish a common and extended community of experts on	Can inform science-policy-practice integration scenarios	Human-centered training methodologies and DRM

EU link	experience, geographical coverage, and diverse sectoral networks in hydrometeorological multi-hazards events. Focus: integrate science, practice, and policy into a unified, interoperable framework for improved resilience and civil protection capacity.	and create more realistic governance layers in SparkleFire's multiplayer dynamics. Can use scenario-based exercises and open-source tools to simulate real-world cooperation challenges, training dynamics, and response decision-making in SparkleFire games. Access to a network of hydrometeorological and risk governance experts can help gather information, expertise or disseminate SparkleFire games across Europe.	exercises adaptable to wildfire governance context. Best practice templates for engaging media, NGOs, and policymakers in landscape fire education and resilience-building.
CROSSFLO OD 2025-26 EU link	Aim: improve civil protection response during multi-sectorial emergencies. Focus: preparedness for and response to a complex emergency resulting from a large-scale flooding in a post-conflict (or low conflict) cross-border region that is contaminated with CBRN (chemical, biological, radiological, and nuclear) agents, UXOs (unexploded ordnance) and remnants of war.	Can inform game elements and designs, specifically regarding complex multi-sectorial emergencies like wildfires in SparkleFire. It can inform the designs of bioregions which experience wars in the SparkleFire games and incorporate relevant information and data into the games. Can incorporate compounding risks into SparkleFire games.	Simulation of compound disasters is useful for scenario design in SparkleFire.
EFIRECOM 2015-2016 Mediterranean Region link	Aim: enhance the resilience of citizens to wildfires in interface areas from the Mediterranean region. Focus: promote and increase awareness and participation on the culture of risk with updated knowledge and best practices.	Can use the different communication strategies adapted to different actors to improve the effectiveness at capturing the attention of a diverse audience by SparkleFire games. Can incorporate good risk communication practices into SparkleFire games.	Development of a communication toolkit for the capacity building of citizens and communities towards wildfire risk prevention, adapted to three target audiences: i) Communities and municipalities (inhabitants and managers of wildland urban interface), ii) Scholars, youths and their teachers, and iii) Journalists and media professionals. Edition and dissemination of recommendations for the improvement of the

			communication on risk and reduction of social vulnerability to wildfires in Mediterranean areas, transferred to the relevant authorities.
eNOTICE-2 2024-25 EU link	Aim: advance CBRN (chemical, biological, radiological, and nuclear) emergency preparedness. Focus: develop and distribute updated training modules, digital tools, and simulations that promote cross-border education and harmonized awareness practices.	Can inform game mechanics for complex hazard interactions, such as fire intersecting with toxic or radiological zones. Can use CBRN virtual simulations and training frameworks to design multi-hazard scenarios within SparkleFire.	Templates for complex simulations combining wildfires and hazardous materials. Access to digital training modules that can be gamified and adapted for educational gameplay.
EU MODEX Training of Trainers Course 2024-25 EU link	Aim: enhance capacity of civil protection trainers. Focus: deliver blended learning courses on adult education methods, simulations, and feedback delivery to build a consistent and interculturally aware training network.	Can inform the pedagogical logic and facilitation techniques embedded in SparkleFire's multiplayer or classroom-based training modes. Can use trainer development strategies to shape the role of facilitators in SparkleFire exercises.	Best practices in training delivery and debriefing, useful for shaping SparkleFire's educational components. Models for simulation training and scenario designs transferable to game-based learning formats.
EUMA 2024-25 EU link	Aim: elevate European disaster management education. Focus: establish a postgraduate master's program and promote knowledge exchange via workshops, summer schools, and research dissemination, setting a foundation for shared educational standards.	Can inform the design of game learning patterns, and game elements. Can use academic frameworks and summer school content to improve the educational rigor of SparkleFire scenarios.	Standardized learning outcomes and taxonomies applicable to SparkleFire's curriculum-like progression. Access to real-world educational data, information and expert content for storytelling integration.
Evidence for Policy in Disaster Risk Management Summer School 2025 & 2024 2024-25 & 2023-24 EU link & link	Summer School on generating Evidence for Policy in Disaster Risk Management (DRM) Aim: promote evidence-based policymaking in DRM. Focus: conduct targeted seminars, summer schools, and Training Trainers programs to support policy-relevant education and develop a community of informed DRM professionals.	Can inform the design of decision-making challenges, game elements and stakeholder roles to incorporate in SparkleFire's games.	Inclusion of realistic policy dilemmas and trade-offs into gameplay. Support for integrating science-informed decision frameworks.

INEGMA-E2 2022-23 EU link	Aim: standardize exercise evaluation in civil protection. Focus: educate evaluators using harmonized tools and methods, ensuring knowledge sharing and capacity-building across member states.	Can inform post-game evaluation frameworks and feedback scoring tools for SparkleFire. Can use evaluation methods to build realistic performance assessment for players at the end of the game sessions.	Structured evaluation toolkits to incorporate in SparkleFire for reflection. Standardized performance criteria and scoring for game sessions with multiple actors/participants.
RESISTANT 2021-22 EU link	Aim: educate crisis responders and citizens. Focus: deliver virtual reality training platforms and shared learning environments to enhance operational awareness and preparedness.	Can inform immersive design and user experience for SparkleFire's gaming environments and interactive gameplay style. Can use and potentially incorporate the VR dimension to enhance interactivity and realism in SparkleFire games, perhaps design a fully VR version of the game.	Lessons learned from VR integration into training platforms. Examples of responder-citizen learning environments relevant to cooperative and interactive gameplay.
SYNERGIES 2023-26 EU link	Aim: revise and improve the outcomes of six earlier projects focused on disaster risk management (DRM), increasing their maturity and integrating them with best practices and practitioner experiences. Focus: key areas of DRM, including involvement of all stakeholders, education and training, communication with citizens, and the management of spontaneous volunteers, while striving to ensure sustainability.	Best practices and practitioner experience can inform and be incorporated into game elements and designs, especially regarding multi-stakeholder involvement, risk communication and risk awareness.	Three real preparedness cases.
TRACENET 2023-24 EU link	Aim: develop a civil protection training center network, with the support of a scientific institution, to offer technologies and innovations for prevention, preparedness, and response, to support policy and decision-making, to encourage scientific excellence and to disseminate and	Can inform the design of interactive multiplayer training environments. Can incorporate the dynamic aspect of disaster scenarios into SparkleFire games to foster knowledge co-creation. Can be inspired by the connection between	Simulation scenarios and opportunities to build expertise, share knowledge and establish remote but real contacts among participants. EU-wide working and training platform to discuss and share scenario-based disasters. Multi-user training courses, and extendable and

	exchange state-of-the-art knowledge and expertise. Focus: planners, decision makers, experts, teams, and civil protection modules jointly operate, evaluate and learn from each other interacting within an online and real-time 3D environment.	communities and decision-makers through immersive simulation to design multistakeholder/serious versions of the SparkleFire games.	replicable hazard simulation framework.
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4.3. Games, play, creativity, and arts

Games, play, creativity, and arts are approaches that are uncommon among UCPM initiatives. Only four projects were found using the following keywords: games, play and art: namely EU MODEX, FloodNorthALB, MPCs and THEMIS. Of those projects, two are ongoing and two are concluded. The geographic focus of these projects includes the whole of the EU, as well as single countries (Albania, Greece).

Potential synergies between these game-and-creativity-focused UCPM initiatives and SparkleFire include the use of role-play and tabletop exercises to promote interactive and play-based learning, as well as the potential for collaboration with established trainer networks to co-design or disseminate educational games. Additional synergies include the focus on scenario design and multilingual inclusivity, which could inform the development of SparkleFire's bio-regions storytelling and outreach to vulnerable or non-local audiences such as tourists.

Potentially relevant outcomes from these UCPM initiatives that focus on game-based learning, play and arts include scenario-based learning formats that encourage teamwork, training methodologies that emphasize communication and feedback and creative tools developed for empowering communities through participatory education. Table 4 provides an overview of the individual projects, their potential synergies, and their relevant outcomes.

Table 4 Overview of game, creativity and art-related UCPM initiatives relevant to the SparkleFire project.

Project	Project focus	Potential synergy	Relevant Outcomes
EU MODEX Training of Trainers Course 2024-25 EU link	Aim: improve the quality and consistency of coaching in EU MODEX civil protection exercises. Focus: incorporate playful and experiential learning methods, including role play, tabletop exercises, and scenario-based simulations to enhance participants' practical skills.	This project's focus can inspire our games and other products. Consider collaboration and knowledge sharing from trainers to inspire/incorporate their input in our games.	Role play and tabletop exercises promote interactive, play-based learning. Trainers' communication and feedback skills, useful for wildfire risk communication to diverse audiences.

	Help coach/trainers internalize key concepts, practice realistic field dynamics, and apply feedback. Participating countries are Bulgaria, Finland, Germany, Italy, Portugal, Romania, and Spain.	Potentially connect with the trainers' network to explore collaboration in dissemination.	Focus on cultural and linguistic inclusivity to reach vulnerable groups. Scenario design can inform different bio-regions storytelling. Focus on observation and evaluation can inform on continuous improvement in our games.
FloodNorthALB 2024-25 Albania link	Aim: strengthen Albania's and the Western Balkans' preparedness and response to large-scale flood disasters through coordinated civil protection efforts. Focus: use of play-based training (e.g. realistic scenario-based drills) to foster experiential learning and enhance understanding of complex flood management. Building response capacity, improving cross-border cooperation, and promoting shared learning. Focuses on Albania, with participation from Western Balkan countries.	Provides information and context about the fire regime and fire management in Albania and the Western Balkans, useful information for adapting SparkleFire materials to the European bioregions. Potentially valuable information on diverse stakeholders active in Albania. Educational game elements among Civil Protection representatives.	Simulation exercises can inspire our wildfire risk educational games. Realistic scenario-based drills can inform different bio-regions storytelling.
MPCS 2022-24 EU link	Aim: enhance collective competence in marine pollution control through an innovative, cloud-based training and simulation tool. Focus: Game-based Learning and Massive Multiplayer Gaming for training, exercising, and assessing individual and team responses to pollution scenarios in a virtual environment. The simulator supports collective and individual learning, integrates real-world context, and improves user engagement and decision-making skills through interactive gameplay.	Shared use of game-based learning. Simulation and multiplayer aspects. Joint dissemination or pilot testing could reinforce the value of serious games in civil protection training across Europe. Scenario-based storytelling and decision-making.	Multiplayer simulation format encourages teamwork and coordination. Shows how virtual tools can support large-scale training without physical deployments. Serious games in civil protection.
Themis 2025-26	Aim: enhance disaster preparedness among tourists in Greece through	Similar focus on tourists (non-local	Increased risk awareness among tourists through playful

Greece link	engaging and accessible strategies tailored to their specific needs. Focus: use of games and playful learning tools to raise awareness, teach emergency preparedness to tourists, including vulnerable groups, foster better understanding of local hazards in an intuitive, memorable way, and empower tourists to respond more effectively in crisis situations.	and unfamiliar with local hazards). SparkleFire could integrate the game-based awareness tools for tourists into its broader wildfire communication strategy. Co-design possibility and/or knowledge sharing regarding empowerment of vulnerable groups using creative playful methods.	and intuitive learning tools. Games or interactive materials, and risk communication methods tailored to non-local audiences unfamiliar with local hazards like wildfires.
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4.4. UCPM initiatives at SparkleFire partner organizations

A total of 97 UCPM funded projects in the period 2018-25 include SparkleFire partner countries: The Netherlands, Portugal, and Spain. Zooming in on these projects, a total of ten projects include organizations part of the SparkleFire consortium. Furthermore, four DG ECHO funded projects were deemed of great relevance to SparkleFire and therefore added to Table 5. In addition to SparkleFire, Wageningen University and VOST are/have been involved in one other projects (EWED and VERA, respectively), CTFC is or has been involved in seven projects (EFIRECOM, FIREFFICIENT, FIRE-SCENE, NETRISKWORK, PREVAIL, RECIPE, and WILDFIRE RISK AWARENESS AND COMMUNICATION: Analysis of good practices), and the Pau Costa Foundation (PCF) is involved in eleven other initiatives (AFAN, EFIRECOM, EWED, FIREFFICIENT, FIRE-SCENE, FIREPRIME, IOPES, NEMAUSUS, NETRISKWORK, RECIPE, WUIVIEW). The Municipality of Paredes de Coura is not involved in other projects currently. Geographically these projects focused on the whole of the EU, Southern Europe, and Mediterranean countries. Six of these projects are currently ongoing (July 2025), while the remaining four have been concluded.

Potential synergies between these member-organization-focused UCPM initiatives and SparkleFire include integration of cross-border wildfire knowledge into SparkleFire's game scenarios, the use of stakeholder networks for wider dissemination and co-creation, the use of wildfire risk communication principles, and the adaptation of simulation data and local case studies to improve the design of the bioregions.

Potentially relevant outcomes from these UCPM initiatives include a Wildfire Vulnerability Assessment Tool for risk-based scenario design, real-time training data to inform interactive game mechanics, and multi-audience educational resources that support inclusive wildfire awareness campaigns. Table 5 provides an overview of the individual projects, their potential synergies, and their relevant outcomes.

Table 5 Overview of UCPM and DG ECHO initiatives that SparkleFire partner organizations are / have been involved in.

Project	Organization	Project focus	Potential synergy	Potential outcomes
AFAN 2021-22 EU link	Pau Costa Foundation, Spain	European expert network focused on wildfire risk analysis and response. Aim: foster knowledge sharing and mutual learning to strengthen trust and support among fire response systems. Focus: build on regional and national expertise to enhance Europe's wildfire response.	Access to diverse stakeholders across Europe for participation in our events and dissemination of our results.	Establishment of a trusted expert wildfire knowledge-sharing network in Europe. Integration of national and regional wildfire knowledge into a shared European framework. Development of a replicable model for expert knowledge exchange in other risk domains.
EFIRECOM 2015-2016 Mediterranean Region link	CTFC, Spain Pau Costa Foundation, Spain	Aim: enhance the resilience of citizens to wildfires in interface areas from the Mediterranean region. Focus: promote and increase awareness and participation on the culture of risk with updated knowledge and best practices.	Can use the different communication strategies adapted to different actors to improve the effectiveness at capturing the attention of a diverse audience by SparkleFire games. Can incorporate good risk communication practices into SparkleFire games.	Development of a communication toolkit for the capacity building of citizens and communities towards wildfire risk prevention, adapted to three target audiences: i) Communities and municipalities (inhabitants and managers of wildland urban interface), ii) Scholars, youths and their teachers, iii) Journalists and media professionals. Edition and dissemination of operational and strategic recommendations for the improvement of the communication on risk and reduction of social vulnerability to wildfires in Mediterranean areas, transferred to the relevant authorities.

EWED 2024-25 EU link	Wageningen University, Netherlands Pau Costa Foundation, Spain	Aim: foster better understanding of fire-atmosphere interactions during Extreme Wildfire Events (EWEs). Focus: build an open testbed and data platform to advance research and improve European wildfire response and collect fire and atmospheric data.	Knowledge of extreme wildfire events can be used to develop game materials. Project focus on diverse European regions including emerging fire regions can support adapting game materials to the European bioregions.	Real-time analysis tools, training, and guidelines for diverse European regions, including those newly exposed to wildfire risks. Lasting digital hub may provide a place to disseminate/ link to SparkleFire output.
FIREEFFICIENT 2014-15 EU link	CTFC, Spain Pau Costa Foundation, Spain	Aim: establish a sustainable platform for efficient exchange of available knowledge in which "lessons-learned" can be made available to relevant stakeholders and public agencies at EU level, dealing with innovative operational tools and means to integrate the prediction of potential fire events into emergency strategies and land-use planning. Focus: build capacity for planning developers to enhance the transfer of best practices and lessons-learned in wildfires to planning practices and processes.	Use of the platform to disseminate and advertise the SparkleFire games. Integrate fire events prediction into the game design and elements.	EU context adaptation of operational transfer tools for prior fire assessment and actor participatory processes. Development of a knowledge base and "lessons-learned" platform of innovative tools and means for wildfire hazard assessment.
FIRE-SCENE 2025-27 Southern Europe link	CTFC, Spain Pau Costa Foundation, Spain	Aim: improve wildfire risk management in the Mediterranean by developing new tools and approaches for better planning, assessment, and coordination. Focus: wildfires near cities, tourist areas,	Work across Spain, Italy, Greece can help adapt SparkleFire materials to European bioregions. Connection with local stakeholders	The creation of practical tools strengthens key areas of governance such as policy alignment, participation, and coordination. Training and knowledge exchange.

		and protected natural sites.	can be valuable for involving them in project, or dissemination of results.	
FIREPRIME 2024-26 EU link	Pau Costa Foundation, Spain	Aim: create an EU-wide initiative to boost fire resilience among households, communities, and infrastructure. Focus: Wildland-Urban Interface (WUI) areas, with increasing risks and low awareness and preparedness.	Close collaboration with local stakeholders. Work in Spain, Austria, Sweden can inform adaptation of SparkleFire materials to European bioregions.	Practical toolkit including a mobile app, guidelines, and educational resources. Long-term strategy to apply the approach in other fire-prone areas across Europe.
IOPES 2020-21 EU link	Pau Costa Foundation, Spain	Aim: strengthen the preparedness of civil protection and emergency teams (CPETs) involved in disaster-related operations. Focus: development of a wearable location-tracking solution for Civil Protection Emergency Teams (CPETs), integrated into an existing Emergency Management System (EMS), capable of functioning independently of damaged communication infrastructure. The project enhances real-time situational awareness, decision-making, and post-crisis analysis.	Can inform game elements and materials for games directed at emergency responders. The Emergency Management System can inform SparkleFire about existing management practices to incorporate into gam rules.	Data collection enabling post-exercise analysis of team movements and decisions, also useful for training and debriefing. Enhanced situational awareness tools for integration into wildfire simulation platform.
NEMAUSUS 2021-23 EU link	Pau Costa Foundation, Spain	Aim: transform national civil protection center in Nîmes-Garons into a European center of expertise for forest and wildfires. Focus: feasibility study covering governance, management, resources, and activities, and a	Potential connection to support dissemination in France. French go-to point to support adaption of SparkleFire materials to European bioregions.	The pilot center will build capacity and conduct scientific work, involving UCPM members and neighboring countries, with strong stakeholder support to establish it as a leading wildfire expertise hub.

		model for similar centers across Europe.		
NETRISKWORK 2017-18 EU link	CTFC, Spain Pau Costa foundation, Spain	Aim: enhance natural risk disaster reduction across Europe by fostering knowledge exchange and delivering operational guidelines on forest-related hazards. Focus: capitalize best practices in the planning and management of wildfires, storms, avalanches, and floods. It also examines the interactions between these hazards under climate change and builds regional and thematic networks supported by European-level coordination.	NET RISK WORK's multi-actor knowledge exchange platform complements SparkleFire's interactive educational format, enabling integration of expert insights into the game. The focus on interactions between multiple hazards aligns with SparkleFire's wildfire education and offers potential to expand awareness to other natural risks.	SparkleFire can enhance its educational content by incorporating NET RISK WORK's operational guidelines and best practices. Regional networks may improve SparkleFire Dissemination. Insights on hazard interactions could help SparkleFire raise awareness about the combined effects of different natural disasters.
PREVAIL 2019-21 Mediterranean countries link	CTFC, Spain	Aim: improve the effectiveness of the Union Civil Protection Mechanism in managing fire disasters by integrating prevention and preparedness strategies into existing suppression methods. Focus: development of practical tools, data analysis, and decision support systems to optimize fuel management; simulation of large fire events; and promotion of cross-border training and awareness-raising materials for citizens, land managers, and fire operators.	The way that this project develops understandable and accessible materials can inform SparkleFire regarding how to easily communicate specific knowledge to broader audiences. Inspiration for cross-border creative workshops.	Multi-audience training and awareness raising materials. Storytelling or game content from local prevention strategies. Concepts for immersive, simulation-based learning. Narrative links between fire prevention and community resilience.

RECIPE 2020-21 EU link	CTFC, Spain Pau Costa Foundation, Spain	Aim: develop operational recommendations and tools to reinforce civil protection, emergency management, and risk planning for different natural hazards across Europe, simultaneously addressing the impacts of climate change. Focus: develop integrated tools and guidelines to reinforce civil protection systems and risk management practices, for multiple natural hazards, including wildfires, in the context of climate change. Emphasize prevention, preparedness, risk planning, and response adaptation through scenario-based learning and cross-sector collaboration.	Integrate RECIPE's climate-adapted hazard data as well as cross-border insights into SparkleFire game scenarios and bioregions. Joint development of interactive multi-hazard learning modules. Incorporate findings into a decision-maker and civil protection actors targeted version of the game.	Guidelines for civil protection decision-making applicable in wildfire contexts. Use of pilot site insights to inspire realistic regional wildfire scenarios. Datasets and frameworks are useful for educational or planning modules in SparkleFire.
VERA 2024-26 EU link	VOST, Portugal	Aim: enhance cross-border risk management for natural and human-caused disasters, including forest fires. Focus: enhance multi-risk decision-support system, integrating European data sources (Copernicus and Galileo)	Tools and vulnerability maps can feed into games designed by SparkleFire to raise awareness of fire risks across borders, particularly in transboundary fire-prone areas.	Cross-border forest fire vulnerability database.
WILDFIRE RISK AWARENESS AND COMMUNICATION: Analysis of good practices 2023—24	CTFC, Spain	Aim: strengthen wildfire risk awareness and communication across Europe by analyzing effective initiatives and promoting shared learning.	Can use wildfire risk awareness and communication initiatives from across Europe to design bioregions storytelling and designs as well	Identification of good practices in wildfire risk communication that can inform serious games like SparkleFire. Emphasis on citizen involvement and

EU link		Focus: review selected wildfire awareness projects gathered through a DG ECHO call, highlighting key practices, gaps, and lessons to support a coordinated European approach to risk communication.	as to improve the educational effectiveness of SparkleFire games. Can incorporate and disseminate the idea of a uniform European approach to risk communication through SparkleFire games.	stakeholder engagement. Recognition of the need for adaptable, up-to-date messaging supports SparkleFire's dynamic game design. Highlights the value of cross-border awareness tools. Call for actionable, engaging tools reinforces the role of gamification in risk education strategies.
WUIVIEW 2019-21 EU link	Pau Costa Foundation, Spain	Aim: strengthen wildfire risk reduction in wildland-urban interface (WUI) Focus: develop a virtual platform to assess fire hazards and building vulnerabilities. Through simulations and fire experiments, the project analyzes how structures respond to wildfire, with a focus on flammable vegetation and gas infrastructure.	Use WUIVIEW simulation data to create fire scenarios in different WUI settings across all bioregions in the whole of Europe. Incorporate building vulnerability into SparkleFire games. Make use of flammable vegetation and building vulnerability info to incorporate in SparkleFire games.	Provides tools for residents, fire managers, engineers, and authorities to better understand and reduce fire risks. A key outcome is the Wildfire Vulnerability Assessment Tool (June 2023).

5. Conclusion

This report presented an analysis of UCPM and DG ECHO-funded initiatives that are relevant to the SparkleFire project, which focuses on using games and play

to improve wildfire awareness and preparedness. Using the UCPM Knowledge Network Platform, we mapped initiatives that are focused on wildfires, education and training, games and creative approaches, as well as projects in which SparkleFire partner organizations are or were involved, to map potential synergies and highlight project outcomes that may be relevant to SparkleFire.

Expectedly, this search revealed a considerable number of initiatives and projects that the SparkleFire project can build upon. Potential synergies include the co-development of immersive, simulation-based learning modules; the integration of vulnerability and risk data into educational games; and the involvement of diverse stakeholders in participatory game design and dissemination activities across Europe. Outcomes of UCPM initiatives that may be relevant to SparkleFire range from cross-border wildfire vulnerability databases and real-time situational awareness tools to trusted expert networks on wildfire governance and educational toolkits and scenario making and storytelling frameworks for multi-stakeholder gaming.

This analysis showcases the importance of engaging with these current and finished projects, to incorporate the diverse fire environments as well as stakeholder perspectives into the development of SparkleFire materials and outcomes. Connecting with these diverse stakeholders and dissemination strategies across Europe can support implementation of project activities to amplify the impact of the project. In addition, there is potential to co-organize events or activities with other ongoing projects, to boost knowledge transfer and collaboration in the field of civil protection.

Altogether, the knowledge and practice base that SparkleFire can build upon is evident. Engaging with the initiatives identified can prevent duplication of efforts and instead help strengthen SparkleFire's approach across the bioregions and amplify project outcomes and impact, further contributing to strengthening Europe's civil protection approach in awareness and preparedness.

References

[1] SparkleFire website, available at: <https://civil-protection-knowledge-network.europa.eu/projects/sparklefire>

[2] Union Civil Protection Knowledge Network's website, List of funded projects & exercises, available at: [Projects | UCP Knowledge Network](#).

AI Statement

This deliverable includes contributions prepared with the assistance of Artificial Intelligence (AI) tools. Specifically:

- AI tools used: ChatGPT, Grammarly.
- Purpose of use: AI was used for language and spelling editing and summarizing content.
- Human oversight: All AI-generated content was reviewed, validated, and, where necessary, edited by the authors to ensure accuracy, clarity, and alignment with the project's objectives and ethical standards.
- No decision-making or data analysis: AI was not used for autonomous decision-making, data analysis, or generation of original research findings.

The use of AI aligns with the ethical standards and integrity requirements of the European Union and the principles of responsible research and innovation (RRI).

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