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D6.3
Fire-Governance and Agencies-Interoperability White Paper

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Executive Summary

Wildfires in Cyprus and the wider Southeastern Mediterranean have become noticeably more intense in recent years. Longer heatwaves, reduced moisture, and shifts in vegetation have produced conditions that make fires faster and harder to predict. These patterns resemble those seen in California, Australia, and southern Europe, but the SE-Med faces its own mix of steep terrain, expanding settlements and abandoned rural areas.

SEMEDFIRE, through its integrated programme of capacity-building, research-policy transfer, and collaboration with five Advanced Partners, has produced an evidence base substantial enough to support systemic governance reform. The present White Paper — Deliverable D6.3 — synthesises these findings and offers a structured proposal for a modern, resilient, interoperable fire-governance system in Cyprus, positioned within the regional context of the SE-Med.

► Cyprus stands at a governance crossroads

Cyprus has agencies with solid experience and capable personnel. However, coordination between them is still uneven, and responsibilities often overlap or fall between organisational boundaries. This creates delays and confusion during fast-evolving wildfire conditions.

The independent analyses carried out under SEMEDFIRE — informed by WP3 (Operational Fire Management Suite), WP4 (Training and Exercises), WP5 (Community Engagement) and WP6 (Governance) — converge toward the same conclusion: **Cyprus requires a clear, centralised, multi-agency wildfire governance system with a unified doctrine, interoperable operational structures, and a whole-society civil protection culture.**

► A comparative lens: what France teaches us

Drawing on expertise from the French General Direction of Civil Protection and Crisis Management (DGSCGC), Nîmes Métropole (NIMES), the French Higher National School of Officer Firefighters (ENSOSP) and other French partners, SEMEDFIRE examined the highly mature French Plan of Response for Civil Protection (ORSEC) system in France — a model built on unified command (the Prefect), strong inter-agency interoperability, and robust aerial governance. France demonstrates the value of:

A single legal command authority for emergencies;

Clear, legislated responsibilities at national, regional, departmental, and municipal levels;

Consistent doctrine and common operational language across services;

A permanent crisis-coordination centre; a “Cyprus Interministerial Crisis Management Operational Centre (COGIC) (inspired by the French COGIC approach – see Section 6.2 herein) linking field reality with national strategic oversight;

- Integrated volunteerism under a national regulatory framework;
- Dedicated aerial command units, seasonal centres, and specialised training;
- Strong digital interoperability and nationwide situational awareness systems.

This White Paper draws inspiration from these principles and adapts them for Cypriot realities — without proposing a direct copy of the French model.

► Lessons from Arakapas 2021 and Semi-Mountainous Limassol 2025

Two landmark events define the urgency of governance reform:

Arakapas 2021 demonstrated:

- Fragmented command during the early phase;
- Lack of unified situational awareness;
- Delayed mutual-aid synchronisation;
- Communication incompatibility between agencies;

- Lack of a national “Lessons Learned” mechanism (i.e. such as the French “Retour d’Expérience – (RETEX)” model – see Section 6.5 herein);
- Challenges in deploying aerial units under a single tactical lead.

Semi-Mountainous Limassol 2025 (to be elaborated with official documents) underscored:

- The scale of fuel accumulation in mixed peri-urban/forest landscapes.
- Difficulties in land-use enforcement in abandoned agricultural zones.
- Interagency mobilisation delays across forestry, structural firefighting, and local authorities.
- New challenges in evacuations across mountainous communities.
- The absence of common protocols for joint aerial-ground coordination.
- The need for localised fire-adapted community planning and pre-defined contingency zones.

Both events confirm that Cyprus requires a **unified doctrine**, a **national multi-agency command architecture**, and a **permanent lessons-learned system**.

► Roadmap for transformation

This White Paper proposes a set of recommendations that combine SEMEDFIRE outputs, EU policy logic, and French operational excellence:

1. Establish a National Lead Agency for Integrated Fire Management

A specifically mandated authority — designated through Ministerial Council decision — responsible for prevention, preparedness, suppression, recovery, and cross-ministerial coordination.

2. Create a Centralised Inter-Ministerial Crisis Coordination Model; a “Cyprus - COGIC”

A permanent national-level operations and intelligence hub (inspired by the French “COGIC” – see Section 6.2 herein) that unifies:

- Fire Service
- Forests
- Police
- Civil Defence
- Meteorology
- Local authorities
- National Guard
- British Sovereign Base Area Administration (SBAA) liaison
- and integrates the European Union Civil Protection Mechanism (UCPM)

3. Introduce a Unified Interagency Doctrine for Wildfire Management

Standard operating procedures, interoperable communication protocols, and a shared operational language, supported by modular training and mission-twinning with France, Spain, and Portugal.

4. Reform and Modernise the Volunteer Governance Framework

Building on D6.1 – D6.2 insights, Cyprus should adopt a national volunteer fire-management framework inspired by a combination of the French and Greek models, ensuring:

- Legal clarity
- Training and certification
- Rights and protections
- Integration with professional forces
- Community preparedness missions

5. Strengthen Aerial Firefighting Governance and Standardisation

Building on the French - National Advanced Coordination Center for Civil Protection (CNCASC) model and leveraging the recent 2025 announcement by the President of the European Commission, Cyprus should prepare the operational groundwork for the **EU Regional Aerial Firefighting Hub** to serve the SE-Med and Middle East & North Africa (MENA) region.

6. Reform Land-Use Planning through Fire-Smart Principles

Science-based zoning, fuel-break integration, strategic land management areas (SMAs), and restoration of agro-silvo-pastoral mosaics, building on tools from D4.3 and D5.3.

7. Institutionalise a National RETEX Mechanism

Establishing a permanent, cross-agency, post-event learning system, connected to EU knowledge networks and based on the French "Retour d'Expérience – RETEX" methodology (see Section 6.5 herein).

8. Promote Whole-Society Engagement and Community Fire Resilience

A sustained multi-level communication strategy (schools, media, municipal exercises), supported by Non-Governmental Organisations (NGOs), volunteers, landowners, and local authorities.

9. Develop a Digital Interoperability Framework

A Next Generation Emergency Information System (NexSIS)-inspired unified platform for call-taking, dispatching, Geographic Information System (GIS) data integration, satellite feeds, and inter-agency communication.

► Cyprus as a regional leader

The White Paper ultimately positions Cyprus as a critical regional actor. The island's geostrategic location, EU membership, and growing capacity in fire-science and integrated fire management provide the foundations for:

- a **One-Stop-Shop** for regional fire governance;
- a **hub for aerial coordination and pilot training**;
- a **centre of excellence for science-policy integration**;
- a **bridge between the EU and the MENA region** in civil protection.

Cyprus has the opportunity to evolve from a wildfire-affected state into a wildfire-resilient leader — and a foundational pillar of regional civil protection cooperation.

► Structure of the White Paper

- **Chapter 1** introduces the purpose, role, methodology, and structure of D6.3.
- **Chapter 2** provides context on wildfire trends, SEMEDFIRE outputs, EU policy frameworks, and lessons from previous wildfire crises.
- **Chapter 3** analyses current Cypriot governance architectures, identifying fragmentation & critical gaps.
- **Chapter 4** extracts comparative lessons from advanced international systems, especially the French ORSEC model.
- **Chapter 5** evaluates interagency coordination and operational interoperability in Cyprus, supported by breakdown analyses of Arakapas 2021 and Semi-Mountainous Limassol 2025.
- **Chapter 6** presents strategic recommendations for governance reform, including the proposed creation of a National Lead Agency.
- **Chapter 7** focuses on aerial firefighting governance and the emerging strategic role of Cyprus as an EU regional hub.
- **Chapter 8** emphasises on community governance, prevention, and engagement.
- **Chapter 9** outlines the role of science, innovation, and digital transformation.
- **Chapter 10** positions Cyprus as a regional fire-governance actor in the SE-Med.

Glossary of Abbreviations and Terms

ACO	Aeronautical Communications Officers
AOBD	Air Operations Branch Director
ATGS	Air Tactical Group Supervisor
APLeTs	Adjunct Professorships – Lectureships – Trainerships (a SEMEDFIRE modality of knowledge-transfer & capacity-building)
CCD	Cyprus Civil Defense
CERIDES	Centre-of-Excellence in Risk and Decision Sciences (the Research Centre of EUC carrying out SEMEDFIRE)
CFS	Cyprus Fire Service
CIC	Inter-ministerial Crisis Cell (Cellule Interministérielle de Crise)
CNASC	National Advanced Coordination Center for Civil Protection (Centre National de Coordination Avancé de la Sécurité Civile)
COGIC	Interministerial Crisis Management Operational Centre (Centre Opérationnel de Gestion Interministérielle des Crises)
COP	Common Operational Picture
CWPPs	Community Wildfire Protection Plans
CYPOL	Cyprus Police
DGSCGC	Direction Générale De La Sécurité Civile Et De La Gestion Des Crises (the French General Direction of Civil Protection and Crisis Management, and Advanced Partner in the SEMEDFIRE project leading its WP6)
DoF	Department of Forests (of MARDE)
DOO	Director of Operations
DOS	Directeur des Opérations de Secours – the French Director of Operations (see DOO above)
EFFIS	European Forest Fire Information System
ENSOSP	French Higher National School of Officer Firefighters (École Nationale Supérieure des Officiers de Sapeurs-Pompiers)
ERA	European Research Area
EUC	European University Cyprus (the Widening Institution – Coordinator of the SEMEDFIRE project)
GCC	General Command Center
GFFF CY 1	Ground Forest Fire Fighting Module CY 1
GIS	Geographic Information System
GPS	Global Positioning System
HFS	Hellenic Fire Service
HNS	Host Nation Support
HOT	Hands-On-Training (one of SEMEDFIRE project's modalities for knowledge-transfer and capacity-building)
ICS	Incident Command System
IFN	Integrated Fire Management (Strategy)
IMPERIAL	Imperial College London (an Advanced Partner of the SEMEDFIRE project, leading its WP3)
JESIP	Joint Emergency Services Interoperability Principles (UK modality of Interoperability)
KPIs	Key Performance Indicators
LEMA	Local Emergency Management Authorities
LFACs	Local Fire Adaptation Committees
MARDE	Ministry of Agriculture, Rural Development and the Environment of the Republic of Cyprus
MENA	Middle East & North Africa
NexSIS	Next Generation Emergency Information System (SI de Secours de Nouvelle génération)
NFICS	National Fire Information and Coordination System
NGOs	Non-Governmental Organisations
NIMES	Nîmes Métropole (Advanced Partner in the SEMEDFIRE project co-leading its WP6)
ORSEC	French National Plan of Response for Civil Protection (Organisation de la Réponse de SEcurité Civile)
PCF	Pau Costa Foundation (an Advanced Partner in the SEMEDFIRE project leading its WP5)
PPE	Personal Protective Equipment
PRAF	Peer Review Assessment Framework
RETEX	Return of Experience (Retour d'Expérience) – French "Lessons Learned" Model
SAR	Search And Rescue
SBAA	Sovereign Base Areas Administration (UK Ministry of Defence)
SE-Med	Southeastern Mediterranean
SEMME-WRN	Southeastern Mediterranean and Middle East Wildfire Resilience Network
SET	Staff-Exchange-Twinning visit (one of SEMEDFIRE project's modalities for knowledge-transfer and capacity-building)
SMAs	Strategic Land Management Areas
SOPs	Standard Operational Procedures
TBT	Tactics Briefing Templates
UAV	Unmanned Aerial Vehicle
UCPM	Union Civil Protection Mechanism
WP	Work Package
WUI	Wildland Urban Interface
WUR	Wageningen University & Research (an Advanced Partner in the SEMEDFIRE project leading its WP4)

1. Introduction

The “Southeastern Mediterranean Excellence Development in Fire Research – SEMEDFIRE” project is funded by the European Commission, through Grant Agreement no. 101079337, under its HORIZON EUROPE Programme, and more particularly within the WIDERA-2021-ACCESS-03-01 Twinning Topic. In full alignment with the WIDERA-Twinning-topic’s requirements, SEMEDFIRE aims to enhance the capacities and knowledge-acquisition of the Widening institution; EUC, in Research-&-Innovation (R&I) and Research-Management-Administration (RMA) relating to Fire Safety and Fire Management. This is aimed through networking activities with five top-class leading counterparts at EU level; IMPERIAL COLLEGE, WAGENINGEN UNIVERSITY, PAU COSTA FOUNDATION, FRENCH GENERAL DIRECTORATE OF CIVIL SECURITY AND CRISIS MANAGEMENT and NIMES-Metropole, which represent a multifaceted, but complementary and synergistic, ‘geography’ of R&I philosophies and approaches, comprising:

- two leading Academic institutes in the area of fire safety and integrated fire management.
- a leading Foundation in investigating fires and communities-engagement.
- a Governmental Agency leading the EU-effort in operationally combating wildfires.
- an Agglomeration of Municipalities providing the tangible example of local governance in wildfire.
- representation of both Member States and an Associated Country.
- linking of the European Research Area (ERA) in a “compass” fashion: from north (UK) to central Europe (FR, NL), to the west (ES), and to the Mediterranean biogeographical region (ES, FR, CY) and its South-Eastern area (CY).

The networking-for-excellence and twinning-contributions of the internationally leading Advanced Partners in knowledge-transfer and capacity-building, focus on both EUC and within and for its surrounding targeted stakeholders from public governance, industry/ entrepreneurship, and civic society, at local and regional levels. It is hence scoped to raise the profile and reputation of EUC to such a level of ERA-excellence that it will be able to become a lighthouse of spreading fire-science excellence in Cyprus and the SE-Med

The document at hand, in accordance with the Grant Agreement (GA), constitutes Deliverable **D6.3 Fire-Governance and Agencies-Interoperability White Paper**, prepared by the Widening Institution; **European University Cyprus (EUC)**, with strong support and insights from the Advanced Partners; **Direction Générale de la Sécurité Civile et de la Gestion des Crises (DGSCGC)** and **Nîmes Métropole (NIMES)**. Deliverable D6.3 constitutes the culmination of the work of WP6 and highlights how the Widening EUC puts to tangible use and praxis the expertise and knowledge transferred by the French Advanced Partners, especially in its capacity to analyse, formulate and propose tangible and implementable Policy-suggestions to Decision-Takers and Policy-Makers.

1.1. Purpose of the White Paper

The **Deliverable D6.3 – “White Paper”** constitutes one of the culminating outputs of the SEMEDFIRE project under WP6, and key part of the project’s overall contributions in enhancing national and regional resilience to wildfires through research excellence, capacity-building, and institutional development. It provides a strategic, policy-oriented analysis and forward-looking proposal for a reformed and integrated system for **Fire-Governance and Agencies-Interoperability** in Cyprus. Building on the scientific-technical core outputs produced under WP3 (Suite of Fire Management Systems and Tools), WP4 (Integrated Fire Management) and WP5 (Community Engagement Planning), WP6’s White Paper comes to complement them by adopting a **high-level, opinion-driven perspective**, translating operational evidence, scientific insights, and comparative international models into a coherent governance roadmap. As such, the three main objectives of D6.3 are to:

1. **Diagnose** the strengths and vulnerabilities of the current wildfire governance and interagency coordination system in Cyprus;
2. **Propose** a set of strategic reforms — administrative, legal, organisational, operational, and cultural — aimed at establishing an integrated fire-governance architecture;

3. **Position** Cyprus as a pivotal civil-protection and wildfire-management actor in the SE-Med, particularly in light of the recent European Commission initiative to create a **Regional Aerial Firefighting Hub** on the island.

1.2. Methodological Approach and Considerations

It is ensured that the D6.3 White Paper used a mixed-policy methodology, combining: institutional analysis, strategic foresight, regulatory comparison, interoperability assessment, organisational theory, science for policy, and operational modelling and synthesis. EUC thus considers D6.3 to present a governance proposal that is **practical**, **context-specific**, and **aligned with EU policy directions**, since it has been formulated by utilizing empirical and technical elements and insights, via a multi-layered methodology, which integrated the following:

A. Core SEMEDFIRE Deliverables from other WPs of the Project

- **D3.3 Basic Fire Management Suite for Cyprus and the Region**[1], with insights regarding Wildfire Management Systems (Risk Mapping, Fire Detection and Early Warning, Decision-Support, Post-Fire Recovery) and Fire Modelling and Evacuation Tools (e.g. FlamMAP, FARSITE).
- **D4.3 Integrated Fire Management Strategy for Cyprus and the Region**[2], with insights regarding Landscape Planning and Land Abandonment, Digital Information Management and Innovation, Financial Mechanisms, recent Agro-Forestry Developments in Wildfire Management, and Integration of all into a Strategy for Protection of Forests from Fires.
- **D5.3 Forest Fires Community Engagement Plan for Cyprus and the Region**[3], with insights on Wildfire Risk Management regarding Assessment and Communication Frameworks, Prevention, Preparedness, Response, and relevant Training Programmes.

B. International Governance Benchmarking

- The **French ORSEC**[4] **Plan**, *Organisation de la réponse de la sécurité civile*, the Organization Plan of the French Civil Protection, as presented in detail by the SEMEDFIRE Advanced Partner DGSCGC.
- The specialised civil protection structures of the center activated in the Garon airbase of the SEMEDFIRE Advanced Partner Nîmes, during the forest fire season, in order to ensure a close and fair distribution of air assets; Centre National de Commandement Aérien de la Sécurité Civile (CNCASC), **the National Air Command Centre of the French Civil Security**[5].
- National and regional governance arrangements/modalities from the countries represented in SEMEDFIRE; Spain, the Netherlands, and the UK, as well as from countries of the Mediterranean with which there is sense for Cyprus to compare paradigms, such as: Portugal, Italy and Greece.

The French model, in particular, provides a mature example of unified command, interagency interoperability, and aerial resource governance highly relevant to Cyprus. Additionally, the Greek paradigm provides to Cyprus a pathway of greater proximity, in terms of Administrative nomenclature and

1 SEMEDFIRE – WP3, D3.3 available at: https://semedfire.eu/wp-content/uploads/2025/06/SEMEDFIRE_D4.3_Integrated-Fire-Management-Strategy-for-Cyprus-and-the-Region_EUC.pdf

2 SEMEDFIRE – WP4, D4.3 available at: https://semedfire.eu/wp-content/uploads/2025/06/SEMEDFIRE_D4.3_Integrated-Fire-Management-Strategy-for-Cyprus-and-the-Region_EUC.pdf

3 SEMEDFIRE – WP5, D5.3 available at: https://semedfire.eu/wp-content/uploads/2025/06/SEMEDFIRE_D5.3-Forest-Fires-Community-Engagement-Plan-Cyprus-and-Region_EUC.pdf

4 European Commission, https://civil-protection-humanitarian-aid.ec.europa.eu/what/civil-protection/national-disaster-management-system/france_en

5 https://www.securite-civile.interieur.gouv.fr/nous-connaitre/nos-missions/moyens-aeriens-et-terrestres and https://www.defense.gouv.fr/marine/base-aeronautique-navale-nimes-garons

overall Safety Culture, which showcases several parameters of good potential to be implemented in the Cypriot realities.

C. European Commission's Peer Review Assessment Framework (PRAF)

D6.3 takes into concrete consideration the **European Commission's Wildfire PRAF**[6], thus aligning its analysis with EU standards in:

- Governance,
- Risk Assessment and Planning,
- the "Prevention – Preparedness – Recovery – Response" cycle[7,8].

D. Case-Study Approach

D6.3 investigates two Cyprus wildfire "landmark-events", and utilizes them as analytical reference points that provide the most relevant-to-Cyprus grounding for situational and baseline diagnosis:

- **Arakapas 2021**, evaluated through the analysis already presented in Section 2.1 of the SEMEDFIRE D3.3 Deliverable.
- **Semi-Mountainous Limassol 2025**, assessed and reviewed through the "lenses" of four Post-Incident Reports from the Cypriot competent Agencies that were deployed and engaged operationally and tactically; namely the **Reports provided by the Presidency of the Republic on 4 August 2025**[9], as compiled by the: **Department of Forests (DoF)**, the **Cyprus Fire Service (CFS)**, the **Cyprus Civil Defence (CCD)**, and the **Cyprus Police (CYPOL),**

Both abovementioned Case-Studies highlight systemic governance and coordination gaps in real-world conditions of Cyprus.

E. SEMEDFIRE - Advanced-Partners' Inputs and Consultations with Experts and Stakeholders

Mainly stemming from:

- DGSCGC and NIMES Insight-providing discussions and relevant advisory memos.
- Staff-Exchange-Twinning (SET) visits, Hands-On-Trainings (HOT), Short-Courses and Field Exercises conducted within the context of the SEMEDFIRE WP3, WP4, WP5 and WP6.
- Contributions, Discussions, and Exchange-of-Opinions during participatory Workshops, Meetings, Seminars, Focus Groups and other instances, mainly of SEMEDFIRE and the "Cyprus LandLab" of the RESALLIANCE[10] project, but also of other initiatives and projects, where the EUC team had interactions with DoF, CFS, CCD, CYPOL, Governmental and regional/local authorities and services, other disaster-management-related actors and stakeholders, and NGOs.

F. Science-for-Policy Analysis, Contextual Framing and Comparative Synthesis

[6] Casartelli V, Mysiak J (2023). Union Civil Protection Mechanism - Peer Review Programme for disaster risk management: Wildfire Peer Review Assessment Framework (Wildfire PRAF). https://doi.org/10.25424/CMCC-6A3V-5G64. Available at: https://civil-protection-humanitarian-aid.ec.europa.eu/system/files/2023-06/Wildfire_PRAF_V2.pdf

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[10] EU-funded project under GA.no.101086600: https://www.resalliance.eu/, where EUC as well as PCF are Partners.

Besides considering the Inputs and Consultations described above in 1.2.E, the EUC team also reviewed a wide range of both scientific-research and grey literature (reports, studies, government and regional strategies, etc.), as well as considered the expertise, experiences and recommendations from international best practices. The following approaches and models are those that best frame conceptually the D6.3's methodologies and pathways:

- **Quadruple-Helix Model.** Mainly following the 2016 EU Committee of the Regions' "*Using the Quadruple Helix Approach to Accelerate the Transfer of Research and Innovation Results to Regional Growth*"[11], but, of course, also other works, such as: Stein & Dobers, 2017[12]; Schütz et.al., 2019[13]; Nordber et.al., 2020[14]; Roman & Fellnhofer, 2022[15]; and Irungu et.al., 2023[16].
- **Deliberative Democratic Participatory approaches.** Mainly following the 2022 European Commission's "Citizens' engagement and deliberative democracy"[17] and the EC-JRC's "Competence Centre on Participatory and Deliberative Democracy"[18], the 2023 "Strategic and Collaborative Approaches to Mitigating Wildfire Dialogue"[19] (especially on stewarding pathways of transformative interaction between government, industry-leaders and communities), but, of course, also other works, such as: Van den Hove, 2000[20]; Sutherland et.al., 2011[21]; Rietbergen-McCracken, 2017[22]; Löhr et.al., 2020[23]; and Kaplan et.al., 2021[24].
- **Science for Policy, Living Labs and Co-Creation practices.** Mainly following the 2020 JRC's "Science for Policy Handbook"[25], the 2024 "Strengthening Societal Resilience to Disasters – A Synthesis Policy Brief (by Nine Horizon Projects"[26] (especially regarding improving multisectoral and

[11] EU Committee of the Regions (2016). *Using the Quadruple Helix Approach to Accelerate the Transfer of Research and Innovation Results to Regional Growth*. Accessed at: https://op.europa.eu/en/publication-detail/-/publication/6e54c161-36a9-11e6-a825-01aa75ed71a1.

[12] Stein, J. & Dobers, P. (2017). *Quadruple Helix Co-creation in SSH: Experiences, Considerations, Lessons Learned*. Groningen: Sustainable Society, Univ.of.Groningen. (ACCOMPLISSH Deliv.Work package 2). Available at: https://sh.diva-portal.org/smash/record.jsf?pid=diva2%3A1173302&dswid=-731.

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[14] Nordber, K. et.al. (2020). *Community-driven social innovation and quadruple helix coordination in rural development. Case study on LEADER group Aktion Österboten*. Journal of Rural Studies, Vol. 79, pp. 157-168. doi.org/10.1016/j.jrurstud.2020.08.001.

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[25] JRC – Šucha, V. & Sienkiewicz, M. (Eds.) (2020). *The Science for Policy Handbook*. Elsevier. ISBN 978-0-12-822596-7. Available: https://www.sciencedirect.com/book/9780128225967/science-for-policy-handbook.

[26] EU Societal Resilience Cluster (2024). Strengthening Societal Resilience to Disasters – A Synthesis Policy Brief (by Nine Horizon Projects), Accessed: https://civil-protection-knowledge-network.europa.eu/media/strengthening-societal-resilience-disasters-synthesis-policy-brief.

pluridisciplinary engagement between authorities and citizens towards Disaster-Management), the "2030 Recommendations of the UN-SLG on DRR for Resilience"[27] (especially those on strengthening risk governance within and across sectors/helixes), the approaches of the "Pilot Living Labs"[28] at the EC's JRC, but of course also other works, such as: Geurts & Joldersma, 2001[29]; Herselman et.al., 2010[30]; Corallo et.al., 2013[31]; Dell'Era & Landoni, 2014[32]; Schuurman et.al., 2016[33]; and Merino-Barbancho et.al., 2023[34].

- **Creating and Establishing Communities of Practice.** Mainly following the 2021 JRC's "*The Communities of Practice Playbook - A playbook to collectively run and develop communities of practice*"[35], but of course also other works, such as: Allee, 2000[36]; Wenger et.al., 2002[37]; Handley et al., 2006[38]; Scarso & Bolisani, 2008[39]; Corso – Giacobbe – Martini, 2009[40]; and Cheng & Lee, 2015[41].

G. AI-assistance

Portions of the D6.3 text were prepared with the support of the AI language model ChatGPT (OpenAI GPT-5.1)[42], used under human supervision for: drafting, editing, structuring, consistency-checking and linguistic refinement. All substantive and conceptual content, all analyses, and all interpretations and final decisions, were validated and approved by the project team and authors, who maintain the responsibility.

[27] UN DRR (2024). *2030 Recommendations of the United Nations Senior Leadership Group on Disaster Risk Reduction for Resilience*. Accessed at: https://reliefweb.int/report/world/2030-recommendations-united-nations-senior-leadership-group-disaster-risk-reduction-resilience

[28] European Commission's "Pilot Living Labs at the JRC". Accessed at: https://joint-research-centre.ec.europa.eu/living-labs-jrc_en.

[29] Geurts, Jac.L.A. & Joldersma, C. (2001). *Methodology for participatory policy analysis*. European Journal of Operational Research, 128, pp. 300-310.

[30] Herselman, M., et.al. (2010). *Applying Living Lab Methodology to Enhance Skills in Innovation*. eSkills Summit 2010 Proceedings – International Information Management Corporation. ISBN: 978-1-905824-22-9.

[31] Corallo, A., et.al. (2013). *Methodology for User-Centered Innovation in Industrial Living Lab*. ISRN Industrial Engineering, Vol.2013. http://dx.doi.org/10.1155/2013/131596.

[32] Dell'Era, C. & Landoni, P. (2014). *Living Lab: A Methodology between User-Centred Design and Participatory Design*. Creativity and Innovation Management, Vol. 23, No. 2, pp. 137-154. 10.1111/caim.12061.

[33] Schuurman, D. et.al. (2016). *The Impact of Living Lab Methodology on Open Innovation Contributions and Outcomes*. Technology Innovation Management Review, Vol. 6, Iss.1, pp. 7-16. http://timreview.ca/article/956.

[34] Merino-Barbancho, B. et.al. (2023). *Innovation through the Quintuple Helix in living labs: lessons learned for a transformation from lab to ecosystem*. Frontiers in Public Health 11:1176598. doi: 10.3389/fpubh.2023.1176598.

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[39] Scarso, E. and Bolisani, E. (2008). "*Communities of practice as structures for managing knowledge in networked corporations*". Journal of Manufacturing Technology Management, Vol. 19 No. 3, 2008, pp. 374 – 390.

[40] Corso, M., et.al. (2009). *Designing and managing business communities of practice*. Journal of Knowledge Management, Vol. 13 No. 3, 2009, pp. 73-89.

[41] Cheng, E.C.K. & Lee, J.C.K. (2014). *Developing Strategies for Communities of Practice*. Emerald Publishing International Journal of Educational Management, Vol. 28, No. 6, pp. 751-764. DOI 10.1108/IJEM-07-2013-0105.

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2. Background and Context

2.1. Changing Wildfire Paradigm in Cyprus and SE-Med

The UNDRR Strategic Framework for 2022-2025[43], the years of duration of SEMEDFIRE, states: "*Climate change is driving increased risk across all countries, and unpredictable hazards can have devastating cascading impacts on all sectors, with long-lasting, debilitating socio-economic and environmental consequences*". European peoples, ecosystems and economies are among those who will face major impacts from the Climate Crisis (JRC – Feyen et.al., 2020)[44] due to climate-change-enhanced disasters. Especially regarding Wildfires, Europe is faced with great concerns (JRC – Oom et.al., 2022)[45] as it is challenged by up to tenfold increase in extreme fire-events (Garroussi et.al., 2024)[46]. Particularly the Mediterranean biogeographical region[47] of Europe is among those consistently recognized as heavily impacted by the Climate Crisis and frequently characterized as a "hotspot" for risks related to Wildfires.

According to JRC – San-Miguel-Ayanz et.al (2025)[48], in their "Advance report on Forest Fires in Europe, Middle East and North Africa 2024", present statistical data showing that the 2024 wildfire season in the European Union finished with a total burnt area of 419,298 ha, with about 35% of this, i.e. 147,017 ha, having occurred in sites of "Natura-2000" protection regime. According to the JRC, and data sourced from the European Forest Fires Information System (EFFIS), the current wildfire situation in Europe as updated on 28 October 2025[49], shows 2,187 fires detected since the beginning of the year, resulting in 1,031,717 hectares of burnt areas; a number that is considerably higher than the average (351.632 ha) recorded for this time of year over the past approximately 20 years (2006-2024). In 2025, Cyprus faced its worst wildfires in 50 years, resulting in two fatalities and approx. 125 sq.km (about 1% of the island's territory) of burnt area (Euronews, 2025)[50].

As per the above, it is evident that the SE-Med has entered a **new wildfire regime**, characterised by higher-intensity fires, longer fire seasons, rapidly spreading fronts, and unprecedented operational complexity. Cyprus — situated at the climatic, ecological, and geostrategic crossroad of the region — is experiencing these changes acutely. All the above Climate data, operational insights, and field observations showcase several converging trends:

A. Climate Change Intensification

- Rising temperatures and prolonged droughts are creating longer, more volatile fire seasons.
- Extreme weather events (heatwaves, dry lightning, strong winds) are becoming more frequent.
- Fuel moisture levels are dropping dramatically during critical months.

[43] United Nations Office for Disaster Risk Reduction (2021). *UNDRR Strategic Framework 2022-2025*. Available: https://www.undrr.org/publication/undrr-strategic-framework-2022-2025.

[44] JRC – Feyen L. et.al. (2020). *Climate Change Impacts and Adaptation in Europe*. Available: https://publications.jrc.ec.europa.eu/repository/handle/JRC119178.

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[46] El Garroussi, S. et. al. (2024). *Europe Faces Upto Tefold Increase in Extreme Fires in a Warming Climate*. npj Climate and Atmospheric Science (2024) 7:30; https://doi.org/10.1038/s41612-024-00575-8.

[47] https://www.eea.europa.eu/help/glossary/eea-glossary/biogeographical-region

[48] JRC - San-Miguel-Ayanz et.al (2025). *Advance report on Forest Fires in Europe, Middle East and North Africa 2024*. Publication Office of the EU, doi:10.2760/1264626. Available at: https://publications.jrc.ec.europa.eu/repository/handle/JRC141505

[49] JRC – EFFIS (2025). *Current wildfire situation in Europe (updated on 28 October 2025)*. Available at: https://joint-research-centre.ec.europa.eu/projects-and-activities/natural-and-man-made-hazards/fires/current-wildfire-situation-europe_en

[50] Euronews (2025). *Cyprus battles largest wildfires in more than 50 years as two people found dead – News Article and Coverage*. Available at: https://www.euronews.com/2025/07/24/two-bodies-found-in-burned-out-car-as-wildfirerages-in-cyprus

B. Land-Use Shifts and Abandonment

- Abandonment of semi-mountainous agricultural landscapes has led to a proliferation of unmanaged biomass.
- The traditional agro-silvo-pastoral mosaic — once a natural fire buffer — is collapsing.
- Urban sprawl in high-risk areas has increased exposure, particularly along the rural–urban interface.

C. Fuel Accumulation in Forested Regions

- The Troodos massif and foothill regions now host unprecedented fuel loads.
- Vegetation transitions (e.g., pine expansion) increase vertical and horizontal continuity.

D. Socio-Economic Sensitivities

- Tourism sectors, energy-critical infrastructure, and cultural heritage sites face increasing risk.
- Demographically vulnerable communities in semi-mountainous villages lack sufficient preparedness.

E. Regional Interdependence

Cyprus is not an isolated hotspot. Similar patterns in Greece, Turkey, Lebanon, Israel, Jordan, and Egypt demonstrate the need for a **regional governance approach**, with Cyprus emerging as a natural hub for coordination, training, and aerial support. These combined factors reinforce the need for **new governance architecture, improved interagency interoperability, and long-term fire-smart planning**, forming the foundation for this White Paper.

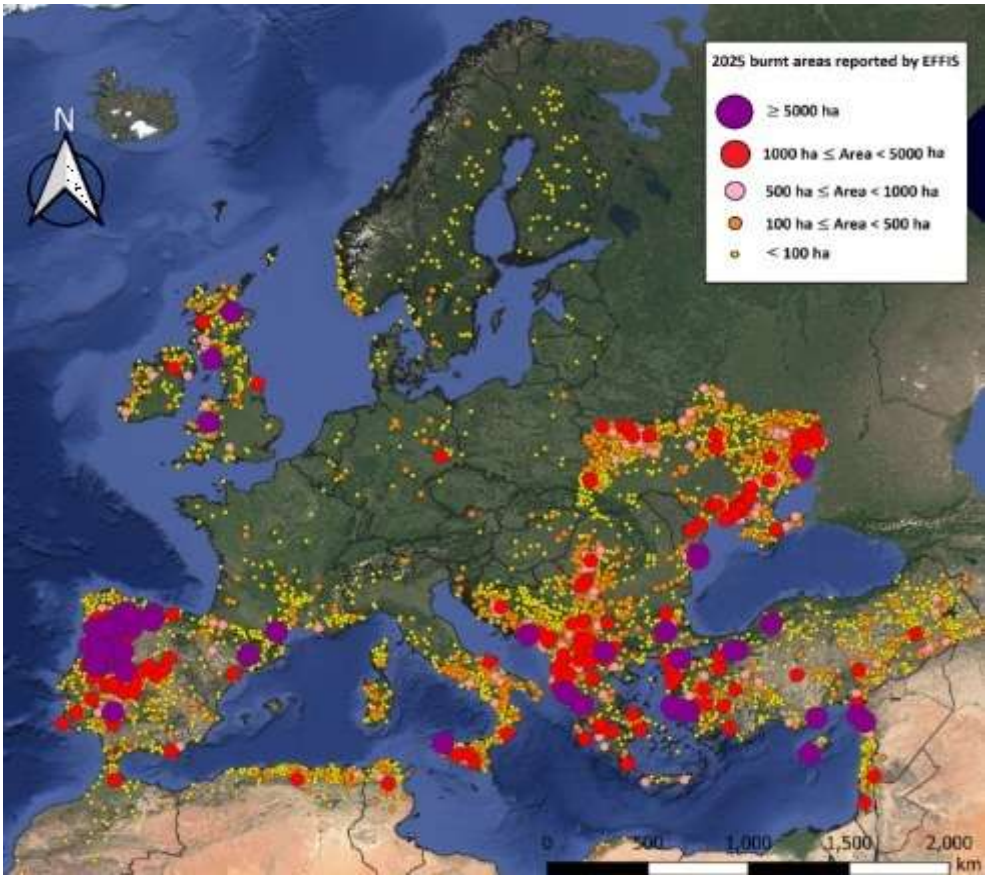

Figure 1: Current-2025 Wildfire Situation in Europe (Updated 28 Oct.2025), JRC-EFFIS

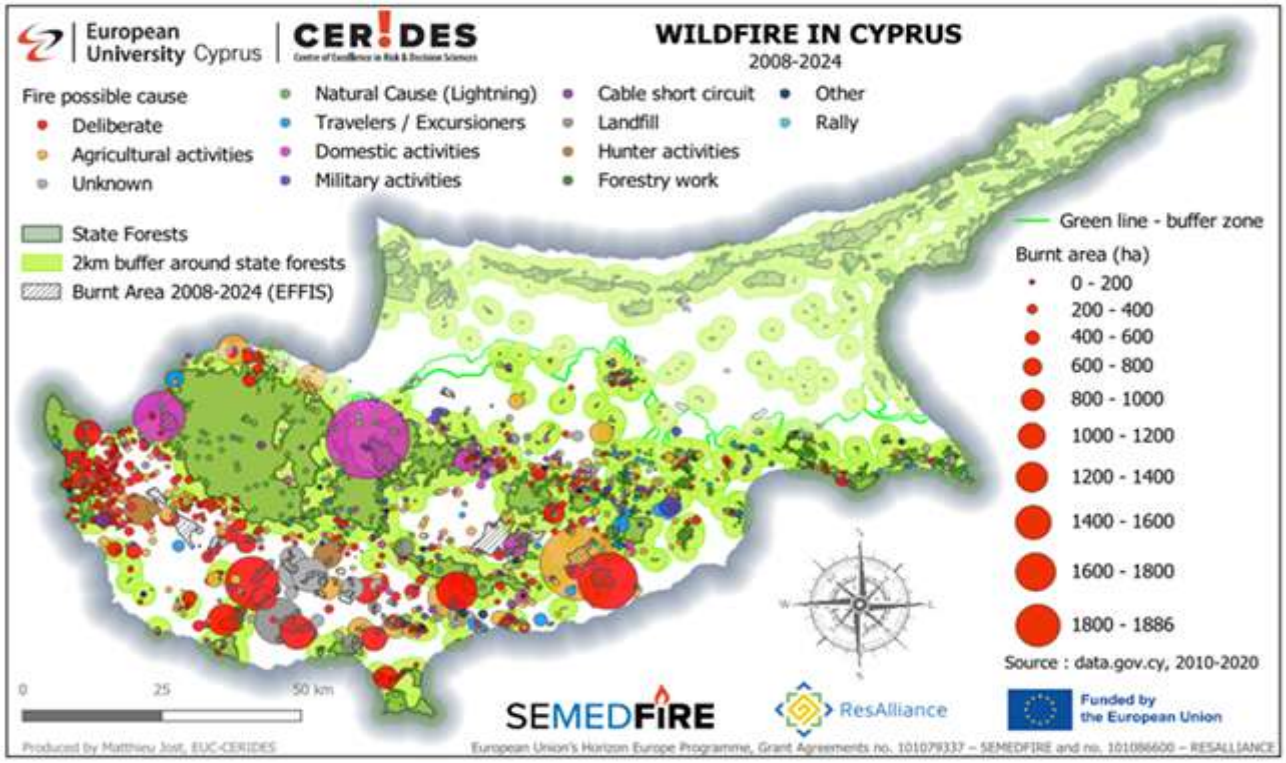

Figure 2: Wildfire in Cyprus - 2008 to 2024, EUC-CERIDES

2.2. SEMEDFIRE Vision and Deliverables leading to a White Paper

SEMEDFIRE is a Horizon Europe WIDERA Twinning project designed to elevate fire research, training, governance analysis, and management capacity in Cyprus. Its ambition extends beyond research excellence; it aims to support **systemic transformation** in the Cypriot wildfire risk management ecosystem.

A. Strategic Vision of SEMEDFIRE

- Strengthen the role of European University Cyprus (EUC/CERIDES) as a centre of excellence in wildfire science and governance.
- Transfer expertise from advanced partners including:
  - Imperial College London
  - Wageningen University
  - Pau Costa Foundation (PCF)
  - Nîmes Métropole / ECASC
  - DGSCGC (France)

B. Key Deliverables Feeding into D6.3

Each earlier deliverable provides foundational knowledge:

- **D3.3 Fire Management Suite**. Identifies early operational breakdowns, aviation coordination limitations, and interoperability gaps across agencies.
- **D4.3 Integrated Fire Management (IFM) Strategy**. Presents risk assessment challenges, strategic management areas, the role of the Department of Forests (DoF), and cross-sector prevention needs.

- **D5.3 Community Engagement Plan**. Offers a governance-centric roadmap for public participation, local authorities, and civil society roles in prevention, preparedness, and risk communication.

Together, they form a **three-pillar evidence base**: **operations + strategy + community governance**.

C. Alignment with D6.3 Objectives

D6.3 uses SEMEDFIRE outcomes to:

- Diagnose systemic governance weaknesses;
- Propose a centralised model for coordination;
- Suggest legal and institutional reforms;
- Highlight the interplay between scientific evidence and policy innovation;
- Position Cyprus within a broader EU and regional civil protection landscape.

2.3. D3.3 – D4.3 – D5.3: Important Feed-Ins to the White Paper

From D3.3 — Basic Fire Management Suite

- **Operational fragmentation** between the Department of Forests and Cyprus Fire Service during mixed-vegetation fires.
- **Absence of integrated command structures** during fast-evolving events.
- **Insufficient early situational awareness**, leading to delayed escalation and resource reallocation.
- Issues with **radio interoperability**, common terminology, and shared mapping systems.
- Aviation coordination challenges linked to:
    - unclear tactical lead,
    - lack of common training,
    - absence of a unified doctrine.

These issues became particularly visible during the **Arakapas 2021** incident.

From D4.3 — Integrated Fire Management Strategy

- Cyprus needs a **science- and landscape-based fire governance system**, not solely a suppression-oriented one.
- Identification of **Strategic Management Areas (SMAs)** is essential for prevention.
- Land-use planning must incorporate wildfire risk in:
    - Zoning and peri-urban planning,
    - building codes,
    - forest–agriculture mosaics.
- Prevention and suppression are deeply interlinked but governance lines blur responsibilities.
- A lack of a unified national fire management policy limits coherence.

From D5.3 — Community Engagement Plan

- Community-level understanding of fire risk is limited and uneven.
- Volunteers are poorly integrated into formal governance.
- Public communication is reactive rather than proactive.
- The absence of a national prevention culture undermines resilience.
- Local authorities lack resources and clarity in roles.

D5.3 underscores that **no fire governance reform can succeed without community involvement**.

2.4. Relevant EU Policy Contexts

Cyprus is deeply embedded in the UCPM. Recent EU-level developments highlight a shift from response-centric to governance-centric thinking:

A. The Wildfire PRAF (Peer Review Assessment Framework)

Provides a structured analysis framework across:

- risk assessment,
- governance,
- planning,
- prevention,
- preparedness,
- response,
- recovery.

This White Paper adopts PRAF as a conceptual backbone, ensuring alignment with EU expectations and best practices.

B. EU Strategic Trends

- **Wildfire prevention** is now a priority in the Union Civil Protection Knowledge Network (UCPKN).
- The EU emphasises **interoperability**, common training, and cross-border alignment.
- Growing use of:
  - Copernicus EMS,
  - EFFIS,
  - transnational pre-positioning of assets.

C. Aerial Assets & rescEU

The EU's investment in rescEU aerial fleets strengthens the case for Cyprus as a regional node. President von der Leyen's 2025 State of the Union speech[51] explicitly cites Cyprus as the **EU's intended location for a regional aerial firefighting hub** — a strategic development intertwined with the governance reforms proposed here in this D6.3 Deliverable of SEMEDFIRE.

2.5. Wildfire Landmark-Events in Cyprus

The Cypriot wildfire governance system is strongly shaped by its crisis events. This White Paper focuses on the two most consequential; the Arakapas-2021 and the Limassol-2025 events, both of which will be further analysed in Chapter 5; in Sections 5.5 and 5.6, respectively.

Location/Area and Year	Consequences Characterization	Main Post-Event Revelations
Arakapas 2021	Most lethal wildfire in the history of Cyprus	• Early-stage command ambiguity and Failure to escalate in time • Difficulties coordinating aviation • Insufficient interagency communication • A lack of common operational doctrine • Limited community preparedness • Need for institutionalised "Lessons Learned"/'RETEX" approach

[51] European Commission – President (2025). 2025 State of the Union Address by President von der Leyen. Available at: https://ec.europa.eu/commission/presscorner/detail/en/speech_25_2053

Semi-Mountainous Limassol 2025	Most extensive losses in area and properties burnt in the history of Cyprus (including two casualties)	• Limitations of land-use planning enforcement • High fuel loads in abandoned agricultural belts • Slow initial coordination across agencies, and persisting communication silos during the crisis • Evacuation challenges in dispersed communities • Strains on aerial-ground coordination • Need for improved municipal-level wildfire contingency planning

3. Cypriot Current Organizational Structure for Fire-Governance

Cyprus' wildfire governance system is the product of historical mandates, sectoral responsibilities, and incremental adaptations rather than an integrated, purpose-built architecture. Although individual agencies demonstrate high levels of professionalism and commitment, the **system as a whole remains fragmented**, with overlapping responsibilities, unclear lines of authority during multi-agency incidents, and gaps in prevention, preparedness, coordination, and lessons integration. This chapter provides a diagnostic overview of the existing fire-governance landscape, paving the way for the reform proposals outlined later in the White Paper.

3.1. Landscape of Organisational Structures and Legal Mandates

Cyprus' fire governance system involves multiple ministries and agencies, each operating with its own legal authority and historical remit. The result is a **divided governance model** where **responsibilities often depend on land classification, rather than on operational necessity or risk realities**. **The Semi-Mountainous Limassol 2025 wildfire provides an unprecedented multi-agency documentation of how the current system *actually functions in terms of Inter-Agency inter-operability under crisis conditions***. Key operational and governance weaknesses — previously only occasionally discussed or considered as hypothetical — were **empirically confirmed** across all reports from the four main Agencies that had operational and tactical deployment: DoF, CFS, CCD and the CYPOL.

3.1.1. Department of Forests (DoF)

Ministry of Agriculture, Rural Development and Environment (MARDE)

Mandate

- Prevention and suppression of **forest fires**
- Responsibility for **all fires occurring within state forests** and a **2 km buffer zone**
- Forest road maintenance, fuel-breaks, lookout towers, and seasonal staffing
- Prescribed burning pilot projects (limited)
- Fuel management and silvicultural treatments in state forests
- Detection via lookout towers, patrols, and early-warning systems

Strengths

- Extensive territorial knowledge
- Highly experienced ground crews for forest terrain
- Strong prevention culture
- Embedded within landscape and biodiversity policy
- Increasing engagement with scientific partners (see SEMEDFIRE D4.3)

Limitations

- Mandate stops at the 2 km forest perimeter regardless of fire behaviour

- Limited authority over land-use planning in peri-urban and private lands
- Under-resourced for large-scale fuel management beyond state forests
- Air-to-ground coordination remains inconsistently structured
- Communication systems not fully interoperable with other services

DoF New Evidence from Limassol-2025

The DoF post-Incident Report[52] for the Limassol-2025 wildfire disaster is the most comprehensive (ca. 20 pages), containing detailed logs, meteorological analysis, call chronology, and an internal assessment of systemic gaps.

1. **DoF confirms early detection delays caused by separate call-in systems**
   - The report's **timeline table on page 15** shows DoF received parallel calls with delays created by multi-channel reporting.
   - Confusion existed between the General Command Center - GCC (in Greek: ΓΚΕ - Γενικό Κέντρο Ελέγχου), the CYPOL 112/199, and local contacts.
2. **Lack of unified dispatching**
   The DoF report notes that from **13:30 to 14:15**, DoF, CFS, and CYPOL received information in *different sequences*, contributing to non-synchronised initial attack.
3. **Interagency radio communication deficiencies**
   The DoF describes using its own channels, TETRA in pilot form, and parallel mobile phones when interoperability failed (pp. 8–10).
   This (re)confirms generally-accepted perceptions of persisting "communication silos", frequently leading to poor coordination across Agencies and/or with the General Command Center.
4. **Aerial coordination gaps**
   Multiple DoF aircraft were airborne, but synchronisation with CFS ground units was inconsistent.
   The DoF narrative shows that *simultaneous* dispatches took place from:
   - Troodos region,
   - Paphos district,
   - Limassol district.
5. **Need for unified meteorological fire intelligence**
   DoF's **detailed meteorological analysis on pp. 11–12** demonstrates the necessity for a national fire-weather intelligence unit.
6. **DoF explicitly acknowledges structural governance deficiencies**
   The **conclusion on pp. 18–19** states:
   - the current model for non-forest vegetation fires is unsustainable,
   - cross-agency doctrine is missing,
   - responsibilities require legal and administrative reform,
   - Cyprus needs an "updated, integrated model of wildfire management."

Based on the Limassol-2025 report, the DoF's aforementioned strengths remain, but structural limitations are more severe, with unclear jurisdiction during fires migrating across vegetation boundaries, and with current key systemic gaps including:

- fragmented command,
- multi-channel dispatch delays,
- incompatible communication systems,
- insufficient cross-agency situational awareness at the onset,

[52] Department of Forests Report available in Greek as: «Έκθεση του Τμήματος Δασών για την πυρκαγιά που εκδηλώθηκε στη Μαλιά την Τετάρτη 23 Ιουλίου 2025», at: https://www.gov.cy/media/2025/08/04082025_EkthesiTmimatosDason.pdf

3.1.2. Cyprus Fire Service (CFS)

Ministry of Justice and Public Order

Mandate

- Structural firefighting
- Urban firefighting
- Wildfire suppression **outside forests and beyond the 2 km buffer**
- Protection of life, property, and infrastructure
- Technical rescue, hazardous materials response, and evacuations
- Increasing involvement in rural/wildland–urban interface fires

Strengths

- Strong operational culture
- High-quality structural firefighting capability
- Growing experience in wildland firefighting
- National dispatching network (112/199)
- Maintains fleet of ground and aerial firefighting support units

Limitations

- Mandate boundary with DoF creates discontinuities
- Ground crews not always trained in forest fire tactics to EU standards
- No institutional role in land management or fuel reduction
- Limited integration with forestry-specific operations
- Disparate communication and mapping systems

CFS New Evidence from Limassol-2025

The CFS post-Incident Report (18 pages)[53] for the Limassol-2025 wildfire provides highly detailed logs and highlights operational challenges during the Limassol 2025 wildfire.

1. **Role conflicts at the initial attack stage**
   CFS was notified at **13:46** (timeline, p. 4) while carrying out other wildfire responses in the Limassol district.
   By that time, the fire direction had already changed due to wind shifts.
2. **Ground unit challenges across semi-mountainous terrain**
   The CFS narrative highlights:
   - narrow roads,
   - blocked access routes,
   - inadequate pre-fire clearing of access corridors,
   - need for more agile firefighting vehicles (p. 15).
3. **Aerial-to-ground disconnect**
   CFS depended on DoF for aerial coordination decisions, and reports indicate **a lack of unified air operations command**, especially during hours 13:30–15:30.
4. **Evacuation coordination complexities**
   CFS was issuing evacuation orders to CCD while:
   - CYPOL was confirming road closures,
   - DoF was attempting to reconcentrate resources,
   - Local authorities received mixed instructions.

[53] Cyprus Fire Service Report available in Greek as: «Έκθεση ενεργειών όσον αφορά την πυρκαγιά που ξέσπασε στην Επαρχία Λεμεσού στην Κοινότητα Μαλιά ημερομ. 23/07/2025», at: https://www.gov.cy/media/2025/08/04082025_Ekthesi-Pyrosvestikis-Ypiresias-Final.pdf

5. **CFS explicitly highlights the need for unified doctrine**
   The "General Observations" section on p. 13 states Cyprus needs:
   - common operational terminology,
   - joint training,
   - harmonised SOPs,
   - integrated dispatching.
6. **Vehicle and equipment limitations**
   The report recommends:
   - more compact 4×4 initial-attack units,
   - increased off-road capacity,
   - modernization of water-carrying vehicles.

Following the Limassol-2025 Wildfire, the CFS report clearly demonstrates:

- **operational strain**,
- **difficulty operating without unified command**,
- **persistent aerial-ground coordination issues**,
- **evacuation friction points**, and
- **resource congestion in semi-mountainous areas**.

The above findings reinforce the need for systemic reform encompassing also the CFS.

3.1.3. Cyprus Civil Defence (CCD)

Ministry of Interior

Mandate

- Support to first responders in crises
- Population protection, evacuation support, relief centres
- Volunteer coordination in emergency situations
- Public information and preparedness activities
- Limited operational involvement in prevention and pre-suppression activities

Strengths

- Extensive volunteer network
- Strong logistics and community interface potential
- Experience in evacuation support and crisis communication
- Close ties with local authorities

Limitations

- No unified national framework for volunteer operational certification
- Volunteers not consistently integrated into prevention or pre-suppression
- Lack of standardised training in wildfire-specific support roles
- Fragmented volunteer governance compared to EU models (e.g., France)

CCD New Evidence from Limassol-2025

The CCD post-Incident Report (11 pages)[54] for Limassol-2025 focuses primarily on evacuation, logistics, and population protection — and provides crucial insights.

1. **Evacuations occurred at multiple, rapidly changing time points**
   Page 12 of the Fire Service report lists **13 separate community-level evacuations**, initiated often by different agencies. CCD confirms this in its own narrative.
2. **CCD was often the only actor with situational awareness of displaced populations**
   The CCD report emphasises that **local population movements were not systematically relayed to CFS or DoF**.
3. **Lack of unified evacuation doctrine**
   Despite POLYVYOS and IKAROS II plans:
   - role boundaries were unclear,
   - local authorities acted independently at times,
   - verbal instructions created inconsistencies.
4. **Volunteer integration issues**
   CCD had volunteers:
   - escorting evacuees,
   - assisting in shelters,
   - offering logistics,
     but highlighted that volunteers were not uniformly trained for wildfire conditions.
5. **Host Nation Support (HNS) obligations triggered unexpectedly**
   CCD coordinated temporary accommodation for Greek and Israeli crews due to rapid international mobilisation.
6. **Lack of unified communication channels**
   CCD repeatedly relied on:
   - mobile phones,
   - ad-hoc messaging,
   - personal contacts.

Following the Limassol-2025 Wildfire, the CCD report conclusively demonstrates:

- the absence of a **National Evacuation Doctrine**,
- **the need for a single operational authority for public protection during wildfires**,
- lack of digital systems for real-time tracking of evacuees,
- **fragmented volunteer governance**,
- logistical friction under time pressure.

3.1.4. Cyprus Police and Local Authorities

A. Cyprus Police - CYPOL (Ministry of Justice and Public Order)

- Traffic management during evacuations
- Investigations into wildfire causes
- Perimeter control and public safety
- Coordination with CFS and DoF during major incidents

B. Local Authorities: Municipalities/Townships and Communities (District Administrations, and with the Ministry of Interior as the supervisory Ministry)

- Responsibility for local-level preparedness and awareness
- Provision of water sources, access maintenance, and small-scale prevention works

[54] Cyprus Civil Defence Report available in Greek as: «Ενημέρωση σχετικά με τις ενέργειες που έγιναν από την Πολιτική Άμυνα για αντιμετώπιση της έκτακτης κατάστασης λόγω της πυρκαγιάς που ξέσπασε στην ορεινή περιοχή Λεμεσού την Τετάρτη 23/07/2025», at: https://www.gov.cy/media/2025/08/04082025_Ekthesi-Politikis-Amynas-Final.pdf

- Support to CCD in evacuation and relief
- Limited resources and unclear legal mandates
- Often excluded from strategic wildfire planning

Limitations Across Both

- No institutionalised role in integrated fire management
- Reactive involvement rather than systematic planning
- Lack of structured training in wildfire operations or planning

CYPOL New Evidence from Limassol-2025

The CYPOL post-Incident Report[55] for Limassol-2025 is rather compact (4 pages) but quite informative.

1. CYPOL **became aware of the fire at 13:30** (as stated on the first page of its Report).
   - Rapid mobilisation followed,
   - CYPOL confirmed road closures and evacuations.
2. CYPOL **filled operational gaps caused by unclear command arrangements** The report shows CYPOL:
   - closed roads,
   - redirected traffic,
   - verified evacuation compliance,
   - coordinated with CCD.
3. **Parallel incident: discovery of fatalities and arson investigation** Page 2–3 reports the CYPOL conducting:
   - early forensic investigation into a fatal vehicle incident,
   - DNA confirmation of two victims.
4. **CYPOL highlight the need to reduce crowding at the Provisional Command Center** Explicit recommendation on page 4: **Only authorised persons should be allowed at command posts**.
5. **CYPOL recommended changes to the national plan "PYRSOS"** Their report explicitly calls for a revision (page 4).

Following the Limassol-2025 Wildfire, the CYPOL report confirms that the service:

- plays a **critical bridging role** when other agencies lack situational clarity.
- compensates for gaps in evacuation governance.
- identifies congestion and coordination failures at command posts.
- supports the need for an integrated command model.

Local authorities, as referenced indirectly in all reports, lacked:

- clear evacuation responsibilities,
- preparedness resources,
- training for municipal-level coordination.

3.1.5. Other Actors and Stakeholders

A. Cyprus National Guard (Ministry of Defence)

- Provides helicopter aerial firefighting support during high-risk periods

[55] Cyprus Police Report available in Greek as: «Έκθεση σχετικά με τις ενέργειες της Αστυνομίας για αντιμετώπιση της πυρκαγιάς που εκδηλώθηκε στις 23 Ιουλίου 2025 στην ορεινή Λεμεσό», at: https://www.gov.cy/media/2025/08/04082025_EkthesiAstinomias.pdf

- Increasing collaboration with Greece (HAF Canadair)
- No long-term dedicated wildfire aviation programme yet

B. SBAA – the British "Sovereign Base Areas Administration" (UK Ministry of Defence)

- Operates independent fire and rescue services
- Sometimes provides mutual assistance
- Unique jurisdictional structure creates coordination challenges

C. NGOs & Volunteers

- Mainly: Associations/Groups active in Response to Wildfires and/or Civil Protection in general, Forestry associations, environmental NGOs, community groups
- Major potential for prevention, preparedness and education
- Lack of unified volunteer governance framework
- Fragmented participation

D. Private Sector

- Contractors for forestry works, aerial operators, utility companies
- Not yet systematically integrated into fire-risk governance frameworks

3.1.6. Overall Post-Limassol-2025

Across the abovementioned four Agencies, as well as the other additional Actors, the following themes appear consistently:

1. **Lack of unified command system**
2. **Fragmented dispatch and early situational awareness**
3. **Breakdowns in interagency communication connectivity**
4. **Concurrent, uncoordinated evacuation orders**
5. **Aerial–ground coordination inconsistencies**
6. **Congested or dysfunctional provisional command posts**
7. **Volunteer governance gaps**
8. **Poor digital interoperability**
9. **Inconsistent engagement of local authorities**
10. **Need for a unified inter-agency operational doctrine**

These findings will be fully elaborated in **Section 5.6: Case Study – Semi-Mountainous Limassol 2025 Breakdown Analysis**.

3.2. Fragmentation of Responsibilities and/or Overlapping Responsibilities

The most significant structural weakness of the Cyprus wildfire governance model is **fragmentation** across agencies based on *land classification*, not on operational or risk logic.

Structural Fragmentation Includes:

- DoF responsible for *forests*
- CFS responsible for *non-forest vegetation fires*
- CCD responsible for *population protection*
- CYPOL responsible for *public safety and investigations*
- Municipalities responsible for *local infrastructure and support*
- National Guard for *support aviation*

- SBAA for *parallel jurisdictional operations*

This incoherent, fragmented, non-integrated, and siloed approach leads to:

A. Ambiguity in Initial Attack

Fires evolving across forest–agriculture–urban gradients encounter changing jurisdictions, causing delays.

B. Absence of a Unified Command System

No equivalent to the French Prefect-led ORSEC model exists; instead, coordination depends on informal, event-specific arrangements.

C. Competing Operational Doctrines

- DoF prioritises landscape and ecological considerations
- CFS prioritises life and structural protection
- CCD focuses on logistics and civilian protection
- CYPOL on law enforcement

Yet complex modern fires require **coherent joint doctrine**.

D. Duplication of Functions

- Separate detection systems
- Separate dispatching protocols
- Separate training regimes
- Separate mapping and GIS tools
- Separate communications infrastructure and radio channels

E. Legislative Gaps

- Prevention mandates unclear for privately-owned forests
- Vegetation management policy fragmented
- Volunteer roles not legally harmonised
- No defined National Lead Agency for wildfires

F. Limited Horizontal Coordination

Interagency operations often depend on personal relationships rather than institutional mechanisms.

G. Vertical Coordination Challenges

National–regional–local cohesion is weak, especially in:

- land-use enforcement,
- community preparedness,
- evacuation planning.

3.3. Diagnostic Summary of Current Cypriot Fire-Governance Structure Strengths & Gaps

Strengths

- High professionalism of individual agencies
- Strong bilateral partnerships (Cyprus–Greece; Cyprus–France)
- Access to EU Mechanisms including rescEU
- Growing national awareness of wildfire risks
- Strong scientific engagement through SEMEDFIRE
- Commitment to modernisation across ministries

Critical Gaps

- No unified national wildfire command architecture
- Incompatible communication systems
- Absence of national operational doctrine
- Weak interagency interoperability
- Limited integration between aerial and ground operations
- Insufficient community preparedness
- Absence of "Lessons Learned" mechanism (i.e. such as the French "Retour d'Expérience – RETEX" model – see Section 6.5 herein);
- Fragmented legal framework for volunteer Responders ('specializing' in forest-firefighting and/or in Civil-Protection-response in general)
- Lack of "fire-smart" land-use integration
- No dedicated wildfire coordination centre, no "Cyprus-COGIC" (i.e. like the French COGIC – see Section 6.2 herein).

The abovementioned gaps are not merely operational or tactical, but more severe; they are systemic and structural — thus requiring systemic reform.

In summary, Cyprus possesses all the essential components of a functional wildfire governance ecosystem, but **not yet an integrated system**. The fragmentation described above enhances existing risks and/or creates new risks, which are further exacerbated by the anyway intensifying Climate Crisis in the SE-Med, of which the island is anyway a characteristic "hot-spot", thus triggering a 'vicious cycle' of Climate-Crisis-induced disasters that present ever-growing magnitude and intensity, putting ever-growing pressure on the civil-protection system, which in turn finds itself in a continuously-more-frequent mode of "chasing behind" crises due to the growing systemic gaps, and so on and so forth. As per the above, a 'diagnosis' of the current Cypriot system can be summarised as follows:

The Cyprus wildfire governance system is:

- Functionally competent
- Operationally overstretched
- Structurally fragmented
- Institutionally unclear
- Digitally outdated
- Legislatively incomplete
- Not prepared for the scale of emerging wildfires

The Cyprus Civil-Protection (including Wildfire) governance system requires:

- **A unified command architecture**
- **Interagency doctrine**

4. Comparative Insights from International Civil-Protection and Fire-Governance Systems

Modern wildfire governance models across Europe demonstrate that effective crisis management depends not only on technical capability but on **institutional design**: clear command authority, legally defined responsibilities, interoperable systems, and professionalised volunteer forces. Cyprus' evolving wildfire challenges, exacerbated by the Climate Crisis, are not unique, and valuable lessons can be drawn from countries with mature civil protection architectures.

This chapter explores the governance systems of the countries represented in SEMEDFIRE; mainly of **France**, whose DGSCGC actually leads the D6.3's WP, but also briefly of **Spain**, the **Netherlands** and the **United Kingdom** (UK). Additionally, and in order to make the review more comprehensive and representative, the chapter also investigates other countries with which there is sense for Cyprus to compare paradigms, mainly due to their belonging to the Mediterranean biogeographical region, such as: **Portugal**, **Italy** and **Greece**. Comparative analysis shows that Cyprus must transition from a **fragmented, land-type-based model** to a **unified, mission-based governance structure** aligned with EU civil protection standards and regional wildfire realities

4.1. France's ORSEC: Benchmark for Unified Command & Inter-Agency InterOperability

France's wildfire governance system — as presented to SEMEDFIRE by DGSCGC (Direction Générale de la Sécurité Civile et de la Gestion des Crises) and the Nîmes Metropolitan partners — represents **the most mature and integrated model in the EU**. It is a prime reference point for Cyprus due to its:

- Unified command structure
- Integration of professional and volunteer responders
- Coherent aerial firefighting governance
- Multi-level interoperability (local–departmental–zonal–national)
- Digital coordination systems
- Strong prevention orientation
- National doctrine (ORSEC) shaping all emergencies

The features most relevant to Cyprus are outlined below.

4.1.1. ORSEC National Doctrine for All Emergencies

France operates under the **ORSEC (Organisation de la Réponse de Sécurité Civile)** system — a legally enshrined, all-hazards national doctrine governing:

- Chain of command
- Operational responsibilities
- Interagency cooperation
- Crisis communication
- Use of aerial, ground, and logistical resources
- Public protection and evacuation

ORSEC Matters for Cyprus, because it ensures that:

- all services operate under a single doctrine,
- coordination is mandatory and not optional,
- emergency mobilisation is rapid and organised,
- jurisdiction does *not* change operational responsibilities,
- local, departmental, zonal, and national levels work in synchrony.

Cyprus currently lacks:

- a unified doctrine,
- a unified command system,
- a shared operational language,
- a consolidated coordination centre.

These gaps were confirmed in both **Arakapas 2021** and **Limassol 2025** (see Chapter 5).

4.1.2. Director-of-Operations – Unified Strategic and Tactical Command

In France the **Prefect** is the legally mandated **Director of Operations (Directeur des Opérations de Secours – DOS)** during major crises.

This ensures:

- a single responsible authority,
- unified communication to all stakeholders,
- strong coordination between fire services, gendarmes, police, medical services, and municipal authorities,
- rapid escalation to national assistance (zonal, interstate, or EU/UCPM assets).

Relevance for Cyprus

Cyprus currently distributes authority across:

- DoF,
- CFS,
- CCD,
- CYPOL,
- Local authorities.

This leads to:

- command fragmentation,
- parallel instruction flows,
- competing priorities (forest/ecology vs life/property),
- unclear leadership at operational peaks.

A Cypriot equivalent of the **Prefectoral Unified Command** is strongly recommended in Chapter 6.

4.1.3. Fire & Rescue Services – Integration of Professional and Volunteer Forces

France's **Sapeurs-Pompiers (SIS)** combine:

- professional firefighters,
- volunteer firefighters (≈79% of the force),
- specialised units (forest firefighters, aviation coordination teams),
- clear legal status, rights, and training requirements.

Why this matters to Cyprus:

The Limassol 2025 CCD and CYPOL reports highlight:

- insufficiently trained volunteers,
- lack of unified deployment protocols,
- ad-hoc mobilisation,
- inconsistent protection measures.

France demonstrates how volunteer forces can be:

- professionalised,
- doctrinally embedded,
- legally protected,
- systematically trained.

Cyprus urgently needs volunteer governance reform (Section 6.4).

4.1.4. The DGSCGC and Crisis Coordination Centres

The DGSCGC operates various multi-level crisis coordination centres:

- **COGIC** - Centre Opérationnel de Gestion Interministérielle des Crises (Interministerial Crisis Management Operational Centre), for national-level crisis coordination,
- Seven Zonal Operational Centres,
- **CIC** - Cellule Interministérielle de Crise (Inter-ministerial Crisis Cell) for major events,
- **CNCASC** - Centre National de Commandement Aérien de la Sécurité Civile (National Advanced Coordination Center for Civil Protection), the Nîmes-Garons Aerial Coordination Centre for summer seasonal aerial operations.

Key lessons for Cyprus:

- A **central, permanent, multi-agency crisis centre** dramatically improves speed, coherence, and intelligence fusion.
- Seasonal aerial coordination centres reduce delays and ensure professionalised air-ground synchronisation.
- Crisis intelligence is continuously updated across administrative levels.

Cyprus currently has:

- temporary command posts,
- no permanent National Crisis Coordination Centre,
- no unified aerial command.

Both **Arakapas** and **Limassol** demonstrate the urgency of creating a **Cyprus–COGIC** (see Section 6.2).

4.1.5. The CNCASC Model for Aerial Governance

The **CNCASC in Nîmes** manages:

- all national aerial firefighting missions,
- pilot and ATCO training,
- integration of foreign assets,
- prevention of aviation conflicts,
- dispatch optimisation based on risk and demand.

Relevance for Cyprus

President von der Leyen's 2025 announcement of an **EU Regional Aerial Firefighting Hub** in Cyprus aligns perfectly with: CNCASC principles, SEMEDFIRE's emphasis on aerial coordination, and the geographical position of Cyprus as a regional access point.

4.2. Comparative Insights from Spain, the Netherlands, UK, Portugal, Italy, and Greece

European countries facing increasing wildfire risks have adopted varied governance models shaped by geography, administrative structure, and historical experience. While France offers the closest full-spectrum model for Cyprus, other SEMEDFIRE partner countries and key Mediterranean comparators provide highly relevant operational, institutional, and strategic lessons. The following compact comparative review synthesises governance insights from six countries of direct relevance: **Spain, the Netherlands, the UK, Portugal, Italy and Greece**.

4.2.1. Spain – Landscape-centered Governance and Fire-Behavior Expertise

Spain offers one of the most advanced wildfire management ecosystems in Europe, with the Regions of **Andalucía (INFOCA)**, **Catalonia (GRAF)**, and **Valencia (GV-FIRE)**, being global leaders in key governance aspects, such as:

- **Integrated landscape and fire behaviour modelling**
- **Long-standing prescribed burning programmes**
- **Highly trained forest-fire specialists (bomberos forestales)**
- **Dedicated wildfire research centres**
- **Aerial coordination embedded within fire agencies**
- **Decentralised but doctrinally coherent governance**

Core Lesson for Cyprus

Spain demonstrates how a country can bridge **forest science with operational firefighting**, ensuring prevention, prediction, and suppression are part of one governance continuum — a principle emphasised in Deliverable D4.3 of SEMEDFIRE.

4.2.2. Netherlands: Interagency Doctrine, Incident-Command Standardization & Risk Governance

Although the Netherlands are not considered as a country of high wildfire-frequency, they are nevertheless globally recognised for their **risk governance excellence** and their **interoperability doctrine**; both especially relevant to Cyprus' governance challenges.

Key Governance Features

- **Nationwide adoption of the Incident Command System (ICS)**
- **LOCC (National Operational Coordination Centre)** for strategic oversight
- **Risk regions** ("veiligheidsregio's") integrating fire, police, and medical services
- **Joint training across all emergency services**
- **Robust evacuation and population-safety science** (important for mountainous Cyprus)

Core Lesson for Cyprus

The Netherlands provides a model for **institutionalised interoperability**, where joint doctrine (ICS), centrally supported coordination structures, and legally mandated interagency cooperation create a seamless emergency response — precisely what Cyprus lacks today.

4.2.3. United Kingdom – National Resilience Framework and JESIP

The United Kingdom contributes essential insights into **interoperability**, **standardised communication**, and **multi-agency training culture**.

Key Governance Features

- **JESIP (Joint Emergency Services Interoperability Principles)**
- **National Resilience Capabilities** (NR assets deployable nationwide)
- **Gold–Silver–Bronze command structure**
- **Integrated Fire and Rescue Services** under a statutory framework
- **Emphasis on situational awareness, joint decision-making, and shared terminology**

Core Lesson for Cyprus

UK experience highlights how **common language, shared procedures, and systematic joint training** improve real-time coordination — a critical gap exposed in Cyprus during both Arakapas 2021 and Limassol 2025.

4.2.4. Portugal – Post-2017 Reform and the ANEPC Unified Authority

The catastrophic fires in 2017 triggered a profound transformation in Portugal, creating:

- **ANEPC (National Authority for Emergency & Civil Protection)**
- **Integrated wildfire management policies**
- **Permanent crisis coordination structures**
- **Expanded fuel management programmes**
- **Reinforced aerial capabilities**

Key Governance Features

- Clear operational hierarchy for wildfires
- Unified national command for large events
- Community-level fire adaptation programmes
- Stronger local-authority integration

Core Lesson for Cyprus

Portugal shows how a country heavily impacted by wildfire can **rebuild its governance structure** after disaster, merging prevention, preparedness, response, and recovery into a coherent system — directly relevant to Cyprus' post-2025 trajectory.

4.2.5. Italy – a Hybrid National-Regional System with Deep Integration of Volunteers

Italy's system is a combination of national, regional, and specialist wildfire agencies, with strongly-rooted roles for volunteers.

Key Governance Features

- **Vigili del Fuoco** (national fire service) handles urban and major incidents
- **Carabinieri Forestali** manage forest protection and investigations
- **Regional Civil Protection** (e.g., Sicily, Sardinia) operate wildfire ground forces and aerial assets
- **Well-developed volunteer fire organisations**

Core Lesson for Cyprus

Italy demonstrates how **decentralisation with strong national frameworks** can work when:

- responsibilities are clear,
- doctrine exists,
- volunteer forces are professionalised.

This offers insights for Cyprus' fragmented landscape involving DoF, CFS, CCD, CYPOL, municipalities/townships and communities, and even the UK's SBAA on the island.

4.2.6. Greece – Unified Fire Authority Model, Specialized Forest Units, Cross-Border Operations at Regional and EU levels

Greece is Cyprus' closest comparator in terms of societal and cultural background, administrative safety culture, and, of course, geography, vegetation, climate extremes, topography, rural-urban interface structure, and wildfire risk profile. Greece has experienced major wildfire disasters over the past two decades, culminating in the catastrophic **Evros–Dadia 2023 mega-fire**, which burned for over 16 days and revealed high-level structural vulnerabilities. Following this event, and on the foundation of existing post-2018 Mati reforms, Greece introduced further systemic changes.

Cyprus can benefit significantly from analysing Greece's reforms in its Governance-system, since Greece has had considerable experiences with: **Extreme mega-fires**, a **complex mountainous landscape**, **Urban–wildland interface expansion**, **Aerial firefighting reliance,** while its Fire-Governance system has the following key characteristics and parameters:

- **Hellenic Fire Service** (HFS) as the unified firefighting authority
- Central command for all wildfires since 1998
- Strong EU/UCPM integration
- Collaboration with armed forces and forest directorates
- Rapid mobilisation of aerial assets (Canadair CL-215/415, AirTractors)
- Post-Mati 2018 civil protection reform
- Post-Evros 2023 further modernization reforms

Key Governance Features

1. Unified Fire Authority for All Wildfires

Since 1998, Greece transferred all wildfire suppression responsibilities to the **HFS**, creating a single nationwide authority. This contrasts with Cyprus' dual system (DoF + CFS), and provides a model for integration.

2. Strong Aerial Capacity & Multi-Agency Integration

Greece operates one of Europe's largest aerial firefighting fleets (Canadair CL-215/415, Air Tractors, helicopters), with structured coordination between:

- HFS (suppression)
- Hellenic Air Force (CL-215 and CL-415 operations)
- Forest directorates
- Civil Protection
- Army units during crisis periods

3. Post-Evros 2023 Reform Actions

Greece initiated a new package of civil protection and wildfire-governance reforms that emphasise:

- stronger **prevention over suppression**,
- a substantial increase in **fuel-management projects**,
- enhanced **forest-road and water-access infrastructure**,
- mandatory **interagency wildfire contingency plans** at municipal and regional levels,
- significant **recruitment of seasonal and permanent firefighters**,
- expansion of early detection and surveillance systems (UAVs, towers, sensors),
- adoption of **risk-based pre-positioning** of forces during “red alert days.”

These measures provide actionable governance analogues for Cyprus, particularly concerning local authority involvement and structural prevention financing.

4. E.MO.Δ.E. – Special Forest Operations Units (Hellenic Fire Service)

One of the most important reforms — highly relevant to SEMEDFIRE and Cyprus — is the establishment of the: **Ειδικές Μονάδες Δασικών Επιχειρήσεων (Ε.ΜΟ.Δ.Ε.) – Special Forest Operations Units (EMODE)**. Created in 2022 and expanded after 2023, E.MO.Δ.E. are:

- **Highly-trained forest-fire specialist units** within the HFS
- Focused on **initial attack**, **forest-fireline operations**, **forest Search And Rescue (SAR)**, and **all-terrain wildfire suppression**
- Staffed by firefighters who undergo specialised training in:
  - forest-fire behaviour,
  - hand-tool operations,
  - helitack techniques,
  - night operations,
  - mountain operations,
  - use of advanced Personal Protective Equipment (PPE) and hand-carried systems
- Equipped with:
  - off-road vehicles,
  - portable water systems,
  - specialised forestry PPE,
  - saw teams,
  - mobile command kits

E.MO.Δ.E. matter for Cyprus, because Cyprus currently lacks dedicated forest-wildfire units within the Fire Service capable of:

- rapid off-road deployment,
- coordinated hand-crew suppression tactics,
- all-terrain initial attack,
- helitack-compatible operations,
- forest-fireline safety doctrine.

The Limassol 2025 reports (all four agencies) highlight: access limitations, insufficiently trained mixed crews, and delayed initial attack in difficult terrain.

E.MO.Δ.E. therefore provide a **direct model for creating specialised wildfire units in Cyprus**, integrated across DoF and CFS functions or within a unified future authority.

5. Civil Protection Modernisation & Local Authority Responsibility

Post-2023 reforms expanded:

- the National Civil Protection Plan "ΙΟΛΑΟΣ",
- the local-municipal roles in wildfire prevention,
- evacuation protocols via **registry-based evacuation tools**,
- the use of Civil Protection Volunteers within a formalised governance framework.

Cyprus' current CCD & municipal roles could be modernised by adopting similar mechanisms:

- unified evacuation doctrine,
- municipal contingency plans for each community,
- digital evacuation and accountability systems.

6. Deep EU Integration & Cross-Border Synergies

Greece is consistently the largest UCPM contributor in wildfire deployments and is deeply integrated with:

- rescEU
- EFFIS
- European wildfire knowledge networks
- cross-border joint training (Cyprus–Greece CL-415 operations; joint aerial coordination)

This provides a natural bridge for Cyprus to: expand regional cooperation, access advanced training, and integrate future Cyprus-based EU aerial hub operations with Greek aerial assets.

Core Lessons from Greece for Cyprus

A. Unification of wildfire suppression under a single authority

Immediate relevance to Cyprus' dual-system fragmentation.

B. Creation of forest-specialist units similar to Ε.ΜΟ.Δ.Ε.

Addresses Cyprus' terrain-access, hand-crew, and initial-attack deficiencies.

C. Stronger municipal and regional responsibility

Critical for Cyprus' semi-mountainous communities (Limassol 2025).

D. Integration of aerial operations in a national, unified command system

Highly relevant to Cyprus' future EU aerial hub.

E. Reinforced prevention doctrine via fire-weather alert days, fuel management, and surveillance

Multiple reports (DoF, CFS) identified these as gaps in Cyprus.

F. Robust evacuation doctrine & digital systems

A major weakness exposed in the Limassol 2025 case

4.2.7. Brief Synthesis across the six Countries: ES, NL, UK, PT, IT, GR

There are common features emerging across the six abovementioned country-cases of Spain, Netherlands, UK. Portugal, Italy and Greece. These are:

1. Unified or Clearly Structured Command Systems

ICS in NL; JESIP in UK; ANEPC in Portugal; HFS in Greece; regional wildfire agencies in Spain; mixed but coordinated system in Italy.

2. Institutionalised Interagency Training

All six countries maintain national-level training programmes for multi-agency staff — something Cyprus currently lacks.

3. Aerial Coordination Professionalisation

Especially strong in Spain, Portugal, Italy, and Greece — and essential for Cyprus as it assumes EU regional hub responsibilities.

4. Integrated Prevention with Land-Use Planning

Spain and Portugal lead here; Greece is improving; Cyprus needs this urgently (see D4.3).

5. Mature Volunteer Governance Systems

Italy, Spain, Portugal and UK provide clear legal frameworks for volunteer integration — absent today in Cyprus.

6. Permanent Crisis Coordination Centres

Netherlands (LOCC), UK (National Resilience), Portugal (ANEPC), Italy (regional CP centres), Spain (regional EOCs).

4.3. Overall Summary of Comparative Governance Lessons and Applicability of International Good Practices to Cyprus

Across Europe, successful wildfire governance relies on:

1. Unified Command Systems.

(France, Portugal, Italy)
– Legal authority + single operational leader.

2. Integrated Professional–Volunteer Structures

(France, Italy, and Greece)
– Clear training standards and deployment frameworks.

3. Dedicated Crisis Coordination Centres

(France's COGIC/CIC/CNCASC; Portugal's ANEPC)

4. Aerial Coordination Professionalisation

(France, Spain, and Greece)
– Dedicated aviation command units.

5. Science-based Prevention and Landscape Governance

(Spain, Portugal)
– Risk mapping, strategic fuel breaks, prescribed burning.

6. National Operational Doctrines

(France, Spain, Portugal)
– Common terminology, SOPs, training curricula.

7. Robust Digital Interoperability

(France's NexSIS; Spain's SitFire; Portugal's FORESAT)

As per the above, International Governance lessons for Cyprus are:

From the Netherlands

- ICS as a universal command language
- Legally mandated interoperability across emergency services
- Strong evacuation planning science

From the United Kingdom

- JESIP doctrine as the ideal model for Cyprus' needed "Unified Interagency Doctrine"
- Joint Decision Model (JDM) as a tool for shared situational awareness

From Spain

- Landscape-scale fire management
- Professional wildfire units (bomberos forestales)

From Portugal

- Post-catastrophe systemic restructuring
- Unified authority (ANEPC)

From Italy

- Integrating volunteers into operational command systems
- Blending national and regional competences effectively

From Greece

- Single authority (HFS) for all wildfire suppression
- Strong mountainous evacuation protocols
- Deep UCPM integration — an essential model for Cyprus' regional role

Stemming from the above, Cyprus can draw concrete and actionable lessons, such as:

A. Adopt a Unified Multi-Agency Command System

→ Mirrors ORSEC / ANEPC reforms

B. Create a National Crisis Coordination Centre (Cyprus-COGIC)

→ Directly inspired by France, with elements from UK's JESIP

C. Professionalise Volunteer Involvement

→ France, Italy, as well as Greek model for Registry of "Volunteer-NGOs"

D. Standardise Aerial Governance and Build the EU Hub

→ France's CNCASC as blueprint, Greece's deep UCPM integration

E. Implement Landscape-Based Prevention & IFM Strategy

→ Spain, Portugal, Netherlands SEMEDFIRE D4.3

F. Draft a National Interagency Wildfire Doctrine

→ All comparator countries

These lessons form the backbone of the recommendations presented in later Chapters (e.g. 6, 7).

5. Inter-Agency Coordination and Inter-Operability in Cyprus

Modern wildfire response demands a governance system capable of synchronising multiple agencies in real time, under unified command and shared operational doctrine. Cyprus' current model, divided by land-type responsibilities and lacking institutionalised interoperability, struggles to meet this requirement. SEMEDFIRE's operational analyses, combined with the evidence from two landmark wildfire events (Arakapas 2021 and Limassol 2025), reveal both systemic weaknesses and opportunities for transformation. This chapter offers a structured diagnosis of Cyprus' interagency coordination system and lays the groundwork for the governance reforms proposed in Chapter 6.

5.1. Current Mechanisms for Coordination

In Cyprus, Interagency coordination is currently based on:

A. Legal Mandates Rather Than Operational Logic

- The DoF leads forest fires.
- The CFS leads non-forest fires / structural and urban–wildland interface (UWI).
- CCD coordinates citizens' protection and evacuations.
- CYPOL enforces road closures, crowd management and investigations.
- Local authorities support logistics and local preparedness.

This division of responsibilities **does not align with modern wildfire behaviour**, which moves quickly across forest–agricultural–urban boundaries.

B. Event-Based, Not System-Based Coordination

Coordination structures are activated **during** incidents, not embedded in a permanent or pre-seasonal command framework.

The main mechanisms include:

- ad-hoc incident command posts,
- ministerial coordination via telephone chains,
- informal collaboration among agency focal points,
- occasional participation of National Guard or SBAA.

There is **no permanent multi-agency crisis centre**, no national wildfire fusion cell, and no unified incident command strategy.

C. Parallel Communications Systems

DoF, CFS, CCD, CYPOL, and local authorities each operate **separate** communication channels, often requiring:

- mobile phones,
- WhatsApp messages,
- personal contacts to bridge communication gaps.

Both **Arakapas 2021** and **Limassol 2025** show that communication silos repeatedly cause operational delays.

D. Limited Joint Training

SEMEDFIRE-enhanced HOTs and SETs revealed that:

- Cyprus lacks systematic joint training curricula
- Firefighters, forest officers, and CCD volunteers rarely train together
- Aerial–ground coordination training is very limited
- Local authorities have almost no exposure to multi-agency wildfire exercises

This contributes to inconsistent tactical understanding during real events.

E. Absence of a Unified Operational Doctrine

There is no shared “Cyprus Wildfire Doctrine” that:

- defines operational terminology,
- clarifies cross-agency protocols,
- harmonises command language,
- assigns responsibilities beyond land-type classification.

France’s **ORSEC**, the UK’s **JESIP**, and the Netherlands’ **ICS** provide strong comparators

5.2. PRAF-based Analysis – Preparedness-Response-Recovery

Using the EU's Wildfire **Peer Review Assessment Framework (PRAF)**(see Section 1.2.C herein), Cyprus' interagency system presents the following profile:

5.2.1. Preparedness

Strengths

- Seasonal staffing increases by DoF
- Pre-positioning of fire engines and patrols
- Training delivered through SEMEDFIRE HOTs
- Cooperation with Greece for aerial reinforcement
- Strong volunteer potential through CCD

Weaknesses

- No national pre-season multi-agency planning cycle
- No integrated risk-based staffing model
- Limited joint simulations
- No permanent crisis coordination centre
- Gaps in municipal-level preparedness planning

5.2.2. Response

Strengths

- High professionalism of DoF and CFS crews
- Rapid mobilisation of aerial assets
- Strong CYPOL role in safety and traffic management
- CCD's flexible volunteer deployment capacity

Weaknesses

- Fragmented initial attack
- Delayed transfer of situational awareness
- Multiple parallel dispatch channels
- Unregulated engagement of volunteers (organized NGO-groups and/or spontaneous) highly non-homogeneous in capacities/skills and operational behaviour/culture
- Lack of unified aerial operations command
- Evacuations not coordinated through a central authority
- Absence of a common GIS/situational picture

These deficiencies were very clearly exposed in both 2021 and 2025 case studies

5.2.3. Recovery

Recovery in Cyprus is: managed by municipalities, supported by MARDE for environmental assessment, and guided by state compensation mechanisms. However:

- cross-agency lessons learned processes are not institutionalised,
- no RETEX cycle exists,
- recovery insights rarely feed back into future preparedness plans.

5.3. SEMEDFIRE's own Findings from SETs, HOTs and APLeTs

SEMEDFIRE revealed five major interoperability weaknesses:

1. Differing Operational Cultures

Forest-Firefighting vs Structural-Firefighting philosophies create:

- different priorities,
- different safety cultures,
- unaligned terminology.

2. Aerial Coordination Challenges

Especially WP6 HOTs showed:

- unclear aerial tactical leadership,
- inconsistent communication with ground units,
- lack of Tactical Briefing Templates (TBTs).

3. Volunteer Integration Difficulties

With the exception of CCD volunteers, who are actually embedded in the governmental CCD operational and tactical nomenclature, other NGO/Association-style Volunteer-groups or township/community-level volunteer-groups (usually youth) showed:

- Unregulated engagement, often via ad-hoc connections to Agencies
- Considerable differences (non-homogeneity) in capacities/skills
- Lacking a 'professionalism' in behaviour/culture
- Lacking (in several cases) wildfire-specific training,
- Operation in ad-hoc support roles,
- underutilization in activities of prevention and preparedness (i.e. "before" disasters).

4. Local Authority Disconnection

Communities often lacked:

- clear evacuation protocols,
- preparedness guidance,
- wildfire adaptation planning.

5. Lack of Common Information Systems

No shared:

- mapping platform,
- incident logging tool,
- radio system,
- dispatching system.

5.4. Communication-Gaps across Agencies

Cyprus currently uses:

- VHF systems (DoF),
- separate VHF/UHF (CFS),
- TETRA (CYPOL & CCD),
- mobile phones and ad-hoc messaging.

Gaps include:

- incompatible radio systems
- no national encrypted interagency channel
- unable to share real-time GIS maps
- parallel dispatch information sources
- unclear reporting chains during escalation

The **Limassol 2025 reports** provide exhaustive documentation of these failures — they will be used extensively in Section 5.6.

5.5. Case Study Breakdown Analysis: "Arakapas 2021"

Arakapas 2021 was the deadliest wildfire in Cyprus' history. SEMEDFIRE's review (in D3.3) revealed the following systemic failures:

A. Delayed Initial Detection

Multiple reports indicated confusion in early call handling.

B. Fragmented Initial Attack

DoF deployed forest assets; CFS deployed structural units. The jurisdiction boundary slowed unified action.

C. Aerial-Ground Disconnection

Aircraft were deployed without a unified aerial management authority.

D. Evacuation Challenges

CCD struggled due to:

- lack of unified command,
- limited situational awareness,
- unclear triggers for evacuation.

E. Communication Failures

Different radio systems forced crews to rely on:

- mobile phones,
- personal contacts.

F. Lessons Not Institutionalised

No national RETEX mechanism captured findings into governance or planning frameworks.

Arakapas demonstrated the need for:

- unified command,
- unified dispatch,
- unified doctrine,
- unified communications.

Limassol 2025 reinforced the abovementioned lessons at even greater and more severe scale.

5.6. Case Study Breakdown Analysis: "Limassol 2025"

Based on the Post-Incident Reports of the four main Cypriot competent Agencies that were deployed and engaged operationally and tactically; namely the: **DoF**, the **CFS**, the **CCD**, and **CYPOL**, the subsections below present a brief but structured cross-agency synthesis.

5.6.1. Reception Delays in Calls from/to Multiple Channels

- **DoF report (p. 15)** details that initial notifications reached DoF, CYPOL, and CFS in **different sequences**, causing non-synchronised deployment.
- CYPOL confirmed receiving the first call at **13:30**, while
- CFS logs the first alert at **13:46**.

This confirms the **lack of unified dispatching** across agencies.

5.6.2. Fragmented Operational-Picture Awareness at Early Stages

DoF, CFS, CYPOL, and CCD all recorded **different early fire locations**, due to:

- terrain complexity,
- incomplete maps,
- multiple initial ignition reports,
- non-shared GIS systems.

DoF report pages 8–10 show DoF relying on multiple communication modes simultaneously

5.6.3. Coordination-Failures in Aerial Operations

All four reports describe aerial deployment challenges:

- Simultaneous dispatch from multiple districts (DoF, p. 14–17)
- Lack of unified aerial tactical lead (CFS p. 13–14)
- Late synchronisation with ground resources
- No shared air-to-ground communication plan

Complaints about aerial sequencing and communication appear in all reports.

5.6.4. Friction in the Governance and Coordination of Evacuations

The CCD report (pp. 7–10) describes:

- multiple evacuation triggers,
- lack of unified doctrine,
- conflicting instructions from different agencies,
- difficulties in tracking evacuees.

The CYPOL records note **13 community-level evacuation orders**.

This reveals the **absence of a single national evacuation authority**

5.6.5. Command-Post Congestion and Boundary Issues

- The CYPOL explicitly warn that too many individuals entered the provisional Command Centre, impairing coordination (p. 4).
- CFS also notes operational friction due to multiple representatives from all Agencies/Actors/Stakeholders/NGOs/etc. issuing instructions (p. 13–14).

This reflects the **absence of a unified chain of command**

5.6.6. Limitations in Ground Access and Challenges in Resource Allocation

The CFS report (pp. 14–16) details:

- narrow, obstructed roads
- insufficient pre-season clearing
- water access challenges
- difficulty mobilising heavy vehicles in semi-mountainous terrain

DoF confirms terrain impeded resource concentration in the early stages.

5.6.7. Communication System Failures

All four agencies relied on:

- mobile phones,
- non-interoperable radios,
- mixed VHF/TETRA channels.

The CCD report (p. 9–10) describes frequent communication gaps.

5.6.8. Lack of Unified Incident Logging & Shared Maps

No agency had access to a **common operational picture**.

- DoF used internal maps (pp. 8–9).
- CFS used separate GIS overlays (pp. 10–12).
- CCD relied on officer field reports.
- CYPOL used internal GPS logs.

5.6.9. Absence of Common Doctrine

All four reports conclude with **explicit recommendations** calling for:

- unified command
- unified communications
- unified training
- unified doctrine

The convergence across agencies is unprecedented and highly instructive.

5.6.10. Synthesis: Structural Lessons from Limassol 2025

The Limassol 2025 wildfire confirms:

Systemic Governance Failures

- Multi-channel dispatch delays
- No unified command
- Duplicated operational roles
- Lack of aerial-ground coordination structure
- No unified evacuation authority
- Local authorities acting without integration

Operational Failures

- Terrain-access constraints
- Mixed, confused communications
- Non-shared maps and situational awareness
- Overcrowded command posts
- Volunteers operating without structured roles

Strategic Conclusion

Limassol 2025 is the strongest possible empirical evidence supporting the need for a **unified wildfire governance reform** in Cyprus.

5.7. Requirements for a Unified Interagency Doctrine

Based on SEMEDFIRE findings and the two case studies:

1. Single National Wildfire Command Architecture

Equivalent to:

- France's ORSEC (Prefect model)
- UK JESIP
- Netherlands ICS
- Greece's unified HFS authority
- Portugal's ANEPC system

2. A Unified Dispatch & Communications System

A Cyprus-wide platform combining:

- 112/199
- DoF dispatch
- CFS dispatch

- CYPOL
- CCD
- Municipal inputs
- Aerial coordination units

3. Standardised Operational Terminology

Drafted jointly by all agencies.

4. National Aerial Operations Doctrine

Modelled after:

- CNCASC (France)
- HFS–HAF model (Greece)
- INFOCA/GRAF (Spain)

5. National Evacuation Doctrine

CCD + CYPOL + CFS + local authorities must follow one clear legal framework.

6. Volunteer Integration Framework

Inspired by:

- France (SIS volunteer model)
- Italy (volunteer brigades)
- UK (retained firefighters)

7. National Multi-Agency Training Curriculum

Mandatory joint HOTs, ICS/JESIP-based courses, and aerial–ground exercises.

8. Permanent National Crisis Coordination Centre

(Cyprus–COGIC)
Integrating:

- meteorological intelligence,
- dispatch,
- GIS,
- aerial operations,
- interagency command.

9. Institutionalised RETEX (Lessons-Learned) System

A cross-agency, post-event mechanism feeding into planning and doctrine

6. Governance Reform Proposals for Cyprus

The analyses in Chapters 2–5, the operational lessons from **Arakapas 2021** and **Semi-Mountainous Limassol 2025**, and the comparative insights from France, Spain, the Netherlands, the UK, Portugal, Italy and Greece all converge to one central conclusion:

Cyprus does not need "incremental fine-tuning" of its wildfire system.
It needs a **coherent, integrated, national fire governance architecture**.

This chapter sets out structured, realistic but ambitious reform proposals designed to be **politically actionable** and **operationally meaningful**, aligned with EU frameworks and with Cyprus' emerging role as a regional civil protection hub.

6.1. National Lead-Agency for Integrated Fire Management

6.1.1. Summarizing the Rationale for a Lead Agency

The current wildfire responsibilities in Cyprus are divided primarily between:

- **DoF** — forest fires + 2 km buffer
- **CFS** — non-forest, structural, and UWI fires
- **CCD, CYPOL, Municipalities** — support, evacuations, logistics

This land-type division has repeatedly failed under modern wildfire conditions. Both **Arakapas 2021** and **Limassol 2025** illustrate that fire behaviour ignores administrative boundaries and requires **one operational brain, many hands**.

6.1.2. Options for a Lead Agency

Three main options exist:

1. **Upgrade an existing structure**
    - e.g. designate the **CFS** or **DoF** as the National Integrated Fire Management Authority.
    - Pros: builds on existing structure; politically easier.
    - Cons: may be perceived as a "winner–loser" reform; risks institutional resistance.
2. **Create a new dedicated "National Fire & Forest Risk Authority"**
    - A standalone Wildfire-dedicated entity under one Ministry or directly under the Council of Ministers.
    - Pros: neutral ground; can be purpose-built for IFM and governance.
    - Cons: requires new legislation, budget, and transition period.
3. **Establish a "National Civil Protection Authority"**
    - A formation/entity becoming a Ministry and/or Deputy-Ministry on its own, or placed under an existing Ministry with renewed specific mandate, or placed directly under the Council of Ministers
    - Broader scope: all-natural hazards + wildfire, with a strong IFM pillar.
    - Pros: aligns with EU multi-hazard thinking; avoids siloed governance (also in wildfires)
    - Cons: higher complexity; may delay wildfire-specific changes if not well managed

6.1.3. Mandate of the Lead Agency

Whichever option is chosen, the **Lead Agency** should be legally mandated to:

- Develop and implement a **National Integrated Fire Management Strategy**, including:
    - risk assessment,

    - prevention,
    - preparedness,
    - response,
    - recovery.
- Coordinate **DoF, CFS, CCD, CYPOL, National Guard, Municipalities**, and other actors for wildfire-related planning and operations.
- Act as the **Cypriot counterpart** to EU bodies (UCPM, rescEU, EFFIS, Copernicus, EU wildfire knowledge networks).
- Oversee the **National Aerial Firefighting Governance framework**, including the upcoming **EU regional hub**.
- Maintain the **National Wildfire Doctrine** (see Sections 6.3 & 6.6).

This Lead Agency must be **explicitly named and empowered** by a relevant Decision of the Council of Ministers, and subsequent primary legislation.

6.2. Cyprus Inter-Ministerial Crisis Coordination Mechanism

6.2.1. The "Cyprus-COGIC" Concept

Inspired by France's **COGIC** and **Inter-Ministerial Crisis Cell**, Cyprus should establish a **permanent National Crisis Coordination Centre for Wildfires and Civil Protection** — here referred to as **"Cyprus-COGIC"**.

This is not just a room with screens; it is a **standing institution** with:

- permanent staffing,
- 24/7 situation monitoring during fire season, and direct links to all dispatch centres,
- legal authority to coordinate inter-ministerial actions,
- capability to activate national and international assistance

6.2.2. The "Cyprus-COGIC" Core Functions

The Cyprus-COGIC should:

- Integrate feeds from:
    - CFS,
    - DoF,
    - CCD,
    - CYPOL,
    - Meteorology,
    - National Guard aviation,
    - Local authorities,
    - EU systems (EFFIS, Copernicus).
- Maintain a **Common Operational Picture (COP)**:
    - Risk indices, and live fire perimeters,
    - resource locations,
    - evacuation status,
    - weather projections,
    - satellite imagery.
- Coordinate **inter-ministerial decisions** during wildfires:
    - school closures,
    - road checks and diversions,
    - national warnings and SMS alerts,
    - cross-district resource reallocation.
- Host and Coordinate **international liaison officers** (HNS cell) when foreign assets are deployed.

6.2.3. The "Cyprus-COGIC" Activation Levels

The Cyprus-COGIC could adopt a three-tiered modality of Activations regarding Wildfires, as follows:

- **Level 1 – Monitoring Mode**: high-risk days, no major incidents.
- **Level 2 – National Coordination**: one or several major fires active.
- **Level 3 – Full Inter-Ministerial Crisis**: multi-hazard and/or extreme wildfire scenario and/or cascading interconnected incidents; e.g. critical or sensitive infrastructures impacted by wildfire, or multi-casualty events, or even scenarios where hostile (terrorist) forces take advantage of a crisis situation to cause further disruptions, etc.

Each level/tier should be linked to predefined, but continuously updated when-&-as pertinent:

- **Missions and Responsibilities**,
- **Standard Operational Procedures** (**SOPs)**, and
- **Tactical Protocols and Field Guidelines**.

6.3. Responsibilities and Roles across National – District – Local Levels

6.3.1. National Level

At national level, the following **must be clarified in law**:

- Who has ultimate operational command during major wildfires (i.e. the equivalent of the Director of Operations (DOO) in Cyprus)?
- Who issues evacuation orders?
- Who requests and coordinates EU and international assistance?
- Who is responsible for national-level communication to the public?

The current fragmentation and dispersion of these functions across Ministries, Agencies and Services is: incompatible with modern international praxis of civil protection and wildfire governance; it has proven to be administratively unsustainable and operationally inefficient; and – to put it quite simply – especially after Arakapas-2021 and Limassol-2025 it should no longer be acceptable.

6.3.2. District Level

Cyprus could adopt a **"Regional Crisis Coordination Cell"** model for each District, under:

- the District Officer (or designated Civil Protection Authority) in peacetime, and
- the National Lead Agency / Cyprus-COGIC during crisis.

Regional cells would:

- coordinate all local agencies – who would anyway become "LEMAs" during a crisis,
- oversee resource staging areas,
- maintain regional evacuation plans,
- act as the bridge between local and national levels

6.3.3. Local Level

Local Authorities, such as Municipalities, Townships, and Communities, should be assigned:

- a **clear statutory role** in wildfire risk management, including:
    - local preparedness plans,

    - mapping of evacuation routes, safe zones and shelters,
    - fuel management along municipal roads and critical sites,
    - local communication channels to residents and visitors.
- access to **national training and guidance**, e.g. especially for understanding and embodying their role as possible LEMAs.
- participation in **periodic table-top and field exercises**.

6.3.4. Redefining Operational Roles

With the adoption of all the above into a new Governance Framework, Responsibilities and Roles will inevitably have to be redefined. Although it is not within the scope of the present D6.3, an indicative adjustment of Roles could be as follows:

- **Lead Agency**: strategic leadership and national coordination
- **DoF**: primary competence for forest fuel management & forest prevention; participation in suppression as a specialised technical operator
- **CFS**: primary competence for suppression & life/property protection; host of specialised forest-fire units (EMODE-like model)
- **CCD**: Volunteer Registry and Management, Training, and Mobilisation; Direction of Volunteers during Crises in support of operations of the professional competent Agencies, and as per orders by the COGIC (or pertinent Activation Level/Tier); evacuation implementation & shelter management;
- **CYPOL**: perimeter security, investigations, public order during evacuations
- **Municipalities/Townships/Communities**: local prevention/mitigation, public information, micro-planning

Such redefinitions must be negotiated and co-created/codeveloped (e.g. through participatory processes such as those mentioned in Section 1.2.F herein), so as to then ensure strong co-ownership, and then finally be **legally codified**.

6.4. Proposals for Volunteer-NGOs Governance and Management, and for Integration into the National Civil Protection System

In the past approximately fifteen years, and more during the past approximately ten years, and even more so in the past approximately five years, the Cypriot society has seen the creation and development of an increasing number of Associations, Clubs, Groups, and in general NGO-style formations, which are more and more active within the wider context of Civil Protection and Crisis Management, but mainly in Wildfires/Forest-Fires Response. It should be noted that most of them may be considered as genuine and positive expressions of the ever-growing societal awareness for EU-inspired active citizenship, and others of entrepreneurial/corporate social responsibility. However, despite ‘good intentions’, the wide spectrum of ‘backgrounds’ and ‘scopes’ of such groups, combined with their big differences in operational ‘mentalities’ and tactical capacities/skills, constitute a growing operational/tactical concern, thus necessitating a robust framework for their integration into and utilization by the National Civil Protection System.

The Arakapas-2021 incident, and even more so the extreme Incident of July 2025, in the Semi-Mountainous area of Limassol, reaffirmed that Cyprus possesses significant volunteer capacity but lacks a **coherent legislative framework** for integrating NGO-style and Association/Club-style volunteer groups into the wildfire and broader civil protection system. Volunteers contribute meaningfully through:

- **CCD Volunteer SAR Units**,
- informal community groups,
- environmental NGOs,
- local firefighting support groups,
- emerging civil-protection-oriented and/or wildfire-specific volunteer groups.

Nevertheless, as mentioned also in Section 5.3/3 above, with the exception of the CCD-volunteers who are embedded in the governmental operational/tactical procedures and protocols, the engagement of other NGO/Association-style Volunteer-groups or township/community-level volunteer-groups (usually youth) remains:

- Unregulated, often via ad-hoc connections to Agencies,
- Fragmented and non-homogeneous in terms of capacities/skills,
- Lacking 'professionalism' in behaviour and overall safety-culture (e.g. frequently even 'criticizing' operations of Agencies on social media),
- Lacking (in several cases) civil-protection general-training and/or wildfire-specific training,
- Operating with focus in ad-hoc support roles in the "Response" phase; less frequently in the "Preparedness" phase (e.g. patrolling for early detection); and rarely or never in "Prevention" phase activities "before" disasters, i.e. fuel management, cleaning of Wildland Urban Interface (WUI) areas, etc.

Considering all the above, and especially against the background of the analyses of Chapters 4 and 5, and the propositions already made in the previous Sections of Chapter 6, this **Section 6.4 provides a structured reform framework better aligned with EU and international best practices, after it critically examines the following**:

- A recent law-proposal introduced by Member of the Cyprus Parliament **Mrs. Eirini Charalambidou** (full text reviewed from uploaded file).
- The **existing Volunteer structure of the CCD**, and the operational/tactical needs emerging from the Ground Forest Fire Fighting Module CY 1 (**GFFF CY 1) – the Ground Forest Fire Fighting module under the responsibility of the DoF**, as well as from the **EU Regional Hub**.
- The example of the **Greek model** for Volunteers' Integration.

6.4.1. Critical Assessment of the Law Proposal by MP Charalambidou

On 24 September 2025, the Member of the Cypriot Parliament, Mrs. Eirini Charalambidou, submitted a "Draft Law Proposal on the Regulation of Activities and the Provision of Services by Specialised Volunteer Groups to the State Authorities of the Republic"[56]. The proposed law represents an important step by acknowledging the need to regulate NGO-volunteer groups. It includes:

- establishment of a registry,
- certification and training requirements,
- medical fitness and insurance,
- activation only under official orders,
- operational subordination to the requesting state service,
- prohibition of independent or unsupervised interventions.

These elements respond to real operational issues in Cyprus. However, the proposal also contains **significant structural deficiencies**, identified through SEMEDFIRE analysis and cross-agency experience in major fires:

A. Fragmentation of Volunteer Governance

The proposal creates distinct registries under each operational service (DoF, CFS, CYPOL, port/airport authorities). This would institutionalise:

[56] MP Mrs. Eirini Charalambidou (2025). *Πρόταση για Θέσπιση Νόμου αναφορικά με την Ρύθμιση των Δράσεων και της Προσφοράς των Ομάδων Εξειδικευμένων Εθελοντών στις Κρατικές Υπηρεσίες της Δημοκρατίας (ψ)*. Available (in Greek) at: https://www.cna.org.cy/press-release/article/9122967/anakoinosi-typoy-protasi-nomoy-voylefti-akel-e-charalabidoy-gia-rythmisi-draseon-omadon-ethelonton

- multiple training standards,
- different certification regimes,
- different safety doctrines,
- non-interoperable volunteer capacities,
- unnecessary administrative duplication.

Fragmentation is the primary cause of interagency weakness in Cyprus' wildfire system. **This proposal risks extending that fragmentation into the volunteer sphere.**

B. Absence of a Central Certification Authority

The Greek model demonstrates the value of a **National Registry** under a central authority (i.e. in the Greek case the General Directorate for Civil Protection). This proposal for Cyprus does not:

- define common standards,
- include a national training curriculum,
- provide an independent certification mechanism,
- establish common PPE or safety protocols.

This risks inconsistency and safety gaps.

C. No Integration with CCD (the country's main volunteer institution)

CCD maintains:

- structured volunteer SAR units,
- wildfire support roles,
- evacuation support capability,
- operational experience in large-scale incidents,
- established training, logistics, administration, and insurance frameworks.

The proposed law ignores this existing backbone and creates parallel, disconnected structures.

D. No Connection to EU/UCPM Standards or the GFFF CY 1 Module

For Cyprus to activate and deploy the **GFFF CY 1** ground module (under DoF, with CCD volunteers) and to support the **new EU Regional Aerial Firefighting Hub** announced in 2025, volunteer legislation must:

- define EU compatibility requirements,
- enable national and cross-border deployments,
- standardise operational qualifications,
- facilitate EU training pathways.

The proposal does none of these.

E. Unclear Multi-Hazard Integration

The proposal focuses primarily on firefighting NGOs, without addressing: floods, earthquakes, search-and-rescue, and community preparedness.

This is inconsistent with EU multi-risk principles and Civil Defence's responsibilities.

F. Risk of politicisation

By allowing each Agency/Service leadership to "approve" Volunteer-NGOs without a national, independent oversight framework, the system risks inconsistency or undue influence.

Conclusion of Critical Assessment

The proposal is well-intentioned and contains important foundations — but it is not sufficient for a modern, EU-aligned, interoperable volunteer governance system. Cyprus requires a unified, centralised, standards-based approach.

6.4.2. Existing Volunteer Infrastructure: National Assets to Capitalize

Cyprus already possesses two highly valuable cornerstones for Integration of Volunteers with 'professionalism' and 'proper operational/tactical training and behavior/culture':

A. Volunteer SAR Units of CCD

These units:

- are formally structured,
- trained to defined national standards,
- equipped and insured by the state,
- integrated in evacuation and SAR plans,
- recognised by international partners,
- regularly used in wildfire support roles.

They represent the most mature volunteer institution in the country. As such, an updated national volunteer system should expand from and anchor itself in CCD, not bypass it.

B. The Ground Forest Fire Fighting Module CY 1 (GFFF CY 1) under the DoF

GFFF CY 1 is being developed under **UCPM**, and it:

- includes **Civil Defence volunteers**,
- is built for **international mobilization**,
- requires a robust national volunteer legal framework,
- will operate alongside the future **EU Regional Aerial Hub**.

For Cyprus to function as a **regional civil protection hub**, the legal framework must:

- accommodate EU certification and deployment standards,
- standardise volunteer eligibility and training,
- ensure operational compatibility with foreign teams,
- enable EU-funded training and needs assessments.

MP-Mrs-Charalambidou's proposal does not currently achieve this.

6.4.3. Three Governance Models as Recommended Administrative/Legislative Architectures

The following three models reflect: good practice validated on the field (Greek model), SEMEDFIRE analysis, and Cypriot realities.

Model 1 — Greek-Style National Registry Under a Unified Civil Protection Authority

Key Features

- A **single National Registry of Volunteer Organisations**,
- Under a **Unified National Civil Protection Authority** (existing or newly created Lead Agency),
- National training and certification standards,
- National operational doctrine and PPE standards,
- Deployment only under official orders,
- Regular audits of competencies,
- Integration with:
    - CCD,
    - DoF,
    - CFS,
    - CYPOL,
    - Local Authorities.

Advantages

- Highest degree of standardisation,
- Fully aligned with Greek and EU/UCPM doctrine,
- Supports the GFFF CY 1 module,
- Supports the EU aerial hub,
- Enhances safety and accountability.

Limitations

- Requires new legislation and administrative restructuring.

Model 2 — Local Authority Governance Model (Municipal–District Integration)

Key Features

- NGOs registered at district or municipal level,
- Funding through local civil protection budgets,
- Integration into Local Emergency Management Authorities (LEMA) logic,
- Local training delivered under national guidelines.

Advantages

- Strengthens community resilience,
- Leverages existing municipal structures,
- Improves micro-level preparedness.

Limitations

- Weak national interoperability,
- Risk of uneven standards,
- Limited support to national / EU operations.

Model 3 — Unified Civil Defence Volunteer Command Model

Key Features

- All volunteer NGOs fall legally under **CCD**
- Centralised registration,
- CCD-led training, certification, and activation,
- Integration with:
    - SAR Units,
    - Evacuation teams,
    - Shelter teams,
    - Wildfire support teams,
    - GFFF CY 1 (jointly with DoF).

Advantages

- Builds on existing institutional maturity,
- Enhances multi-hazard alignment,
- Supports EU deployments,
- Enables standardised volunteer capability development.

Limitations

- Requires strengthening of CCD's wildfire role,
- Risk of over-centralisation if not balanced with DoF and CFS.

6.4.4. Proposition of a Hybrid Model for Cyprus

After comparative assessment, the optimal approach for Cyprus is a **hybrid system** combining:

- the **Greek-style National Registry**,
- with **CCD as the central volunteer management institution**,
- and **Local Authorities responsible for community-level implementation**.

This maximises:

- interoperability,
- EU compliance,
- community ownership,
- alignment with GFFF CY 1 and the EU aerial hub,
- integration of SAR unit best practices,
- multi-hazard readiness.

6.4.5. Key Legislative Pillars for Cyprus' New Volunteer Framework

A. Establish a Single National Registry of Volunteer Organisations under the National Civil Protection Authority / Lead Agency.

B. Standardise Training, PPE, and Certification Across All Volunteers

- National curriculum (ICS/JESIP/ORSEC-aligned),
- Joint DoF–CFS–CCD courses,
- EU-compliant training for GFFF CY 1,
- Accredited instructors.

C. Ensure Activation Only Through Official Orders

Volunteers cannot self-deploy; they integrate into formal command.

D. Guarantee Insurance, Liability Protection, and Medical Coverage

E. Integrate All NGO Volunteers Under CCD Command for Planning and Administration

While maintaining operational tasking under DoF/CFS/CYPOL depending on the emergency.

F. Allow Local Authorities to Co-Fund and Co-Train Volunteers

G. Align Legislation with UCPM Requirements

Essential for the **EU Aerial Hub** and **GFFF CY 1**.

6.5. Building an Integrated Lessons-Learned (RETEX) Mechanism

6.5.1. Necessity for a Cypriot RETEX Mechanism

Arakapas 2021 and Limassol 2025 both produced **post-incident reports** — but these were agency-specific and not systematically combined into:

- multi-agency diagnostic reviews,
- policy revisions,
- doctrine updates,
- training curricula changes.

A **RETEX (Retour d' Expérience) mechanism** should thus be institutionalised.

6.5.2. Structure of a Cypriot RETEX

The Lead Agency, via Cyprus-COGIC, should:

- Convene **multi-agency post-incident debriefs** after each major wildfire season and each large incident.
- Use a **standardised template** to capture:
  - what worked,
  - what failed,
  - what must change.
- Produce **annual national lessons-learned reports** integrating:
  - DoF, CFS, CCD, CYPOL, Municipalities, NGOs.
- Feed RETEX results into:
  - National Wildfire Doctrine updates,
  - Training curricula,
  - Planning and legislation proposals,
  - Funding priorities.

6.5.3. Legal & Cultural Requirements

- RETEX must be **non-punitive and learning-focused**.
- Legal protections are needed so that staff can speak freely during debriefs.
- A culture shift is required: from blame to improvement.

6.6. Towards a National Fire Management Policy

Finally, Cyprus should adopt a **National Fire Management Policy** with the following constituent aspects and parameters:

6.6.1. Integration of Prevention, Suppression, and Recovery

- Moves beyond “fire = problem, suppression = solution”,
- Recognises:
  - the role of **prescribed burning**, and **controlled grazing**,
  - agroforestry,
  - green firebreaks,
  - land-use regulation.
- Coherent with D4.3’s IFM Strategy and D5.3’s community engagement plan.

6.6.2. Formalization of the Use of Fire

- Regulates:
  - traditional burning,
  - prescribed burning,
  - backfiring,
    ensuring only trained, authorised personnel use it, and under strict conditions.

6.6.3. Embedding of Wildfire-Risk in Spatial Planning

- Requires **wildfire risk zoning** to be integrated into:
  - Local Plans,
  - Special Zoning Plans,
  - building regulations,
  - infrastructure projects.

6.6.4. Alignment of Funding with Strategic Priorities

- Directs agricultural, rural development, climate adaptation, and recovery funds towards:
  - fuel management,
  - agro-silvo-pastoral revitalisation,
  - community fire adaptation projects.

6.6.5. Synchronization with EU Policies

- Aligns with:
  - EU Forest Strategy,
  - Climate Adaptation Strategy,
  - UCPM resilience agenda,
  - EU Green Deal.

This National Policy should be the **political and legal umbrella** tying together:

- the Lead Agency,
- Cyprus-COGIC,
- the unified doctrine,
- volunteer governance,
- prevention strategies,
- aerial hub operations.

7. Aerial Firefighting Governance and Regional Interoperability

Wildfires in the Southeastern Mediterranean are increasingly characterised by high-intensity behaviour, extreme weather-driven spread, and multi-front evolution across mountainous, semi-mountainous, and peri-urban landscapes. Under such conditions, **aerial firefighting is no longer a force multiplier — it is a core operational pillar** of modern wildfire management.

Cyprus, due to its geographic location, climate trajectory, and strategic position between Europe, the Middle East, and North Africa, requires a **state-of-the-art aerial firefighting governance system** capable of both:

1. **Supporting national wildfire suppression**, and
2. **Providing regional aerial coordination capacity**, as foreseen by the European Commission's 2025 announcement of a **Regional Aerial Firefighting Hub in Cyprus**.

This chapter outlines the governance, operational, and institutional requirements for achieving both missions.

7.1. Current Aerial Firefighting Capacities and Gaps in Cyprus

7.1.1. National Assets

Cyprus' current aerial firefighting capabilities consist of:

- 2–3 light fixed-wing aircraft under the Department of Forests;
- 2 state-operated helicopters (variable availability);
- National Guard helicopters with Bambi buckets;
- Occasional leasing of foreign assets during the peak season;
- EU/UCPM deployments (Greece, Jordan, Israel, Italy);
- SBAA (UK MoD) mutual assistance possibilities.

7.1.2. Systemic Strengths

- High professionalism of DoF aviation officers;
- Strong bilateral cooperation with Greece;
- Rapid seasonal mobilization capabilities;
- Aerial radio procedures partially standardised (but not unified with CFS).

7.1.3. Systemic Weaknesses (from SEMEDFIRE HOTs, SETs, and both case studies)

- No **unified aerial operations command structure**;
- No integrated **AOBD** system;
- Fragmented communications (VHF vs TETRA);
- No national **Air Tactical Group Supervisor (ATGS)** curriculum;
- No central aviation intelligence cell;
- No unified dispatch panel for aerial-ground synchronisation;
- No national standard for:
    - Tactics Briefing Templates (TBTs),
    - Drop safety zones,
    - Aerial–ground liaison teams,
    - Load/cycle optimisation.

Both **Arakapas 2021** and **Limassol 2025** demonstrated these limitations clearly, especially in the **first 2 hours**, where aerial operations were not synchronised with ground suppression.

7.2. Need for a unified National Aerial Operations Doctrine

Drawing from:

- **France's CNCASC (Nîmes-Garons)**
- **Spain's INFOCA/GRAF**
- **Greece's HAF–HFS aerial coordination models**
- **Portugal's ANEPC aerial command framework**
- **SEMEDFIRE HOT7 Findings**

Cyprus must adopt a **National Aerial Firefighting Doctrine** that includes:

7.2.1. Command & Control

- A dedicated **Aerial Operations Branch** within the unified Incident Command System;
- A single **Aerial Tactical Lead** at each major incident;
- A national Aerial Supervisor accreditation scheme.

7.2.2. Communications

- Compatible (perhaps unified) aerial radio channel;
- Common (standardised) terminology;
- Real-time GPS tracking of aircraft;
- A dedicated Aerial Dispatch Console within Cyprus-COGIC.

7.2.3. Operational Templates

- Standard Tactics Briefing Templates (TBTs);
- Mandatory pre-flight briefings;
- Drop safety protocols;
- Zones for helitack insertion/extraction;
- Aerial priority protocols (life–infrastructure–forest–buffer zones).

7.2.4. Integration with Ground Forces

Aerial operations must be synchronised with:

- DoF ground crews,
- CFS structural units,
- CCD evacuation teams,
- GFFF CY 1 module (EU standard),
- Local Authorities.

This integrated doctrine must be codified under the Lead Agency (Section 6.1 herein). Furthermore, there must be periodic joint trainings implemented between aerial (pilots) and field teams.

7.3. Requirements for a National Aerial Coordination Centre

A National Aerial Coordination Centre should operate **within the Cyprus-COGIC structure** (see Section 6.2), similar to France's CNCASC.

7.3.1. Core Functions

- Risk-based pre-positioning of aircraft;

- Seasonal mobilization and stand-by schedules;
- Real-time dispatch coordination;
- Air-to-ground liaison management;
- Meteorological intelligence integration;
- EU rescEU and cross-border asset coordination;
- Incident-level airspace deconfliction.

7.3.2. Staffing

- Aerial Operations Coordinator (Chief-level);
- Air Tactical Group Supervisors (ATGS-trained);
- Aviation meteorologists;
- Flight planners;
- Liaison officers (EU, Greece, Israel, Jordan, etc.).

"Air Tactical Supervisors" should be personnel trained to the Air Tactical Group Supervisor - ATGS standard (US, Canadian, French, or equivalent), and thus capable of: managing multi-aircraft operations; integrating international assets (e.g. from rescEU deployments, Greece, Israel, Jordan, etc); and managing within the future EU Aerial Hub model. Within the present proposition of D6.3, such ATGS-trained personnel re critical, because Cyprus currently has: pilots, aerial firefighters, and dispatchers, but no dedicated tactical Air-Coordinators.

7.3.3. Systems

- A unified national aerial dashboard;
- Copernicus EMS Wildfire layers;
- EFFIS hotspots integrated into dispatch;
- Aerial cycle-time analytics;
- AI-supported risk prediction tools (SEMEDFIRE WP5 research integration).

7.4. The Cyprus–EU Regional Aerial Firefighting Hub (SOTEU 2025)

In her **2025 State of the Union Address**[57], President Ursula von der Leyen announced the creation of a **"Regional Aerial Firefighting Hub in Cyprus"** to support:

- SE-Med Member States,
- The Middle East,
- North Africa.

This initiative positions Cyprus as a strategic regional platform for the EU Civil Protection Mechanism, and for Wildfires in particular.

7.4.1. Strategic Significance of the Cyprus-EU Hub

- Geographic proximity to SE-Med and MENA wildfire hotspots;
- Access to EU-rescEU fleets during deployment;
- Strengthening UCPM readiness in a climate front-line region;
- Enhancing Cyprus' diplomatic and operational role.

[57] See Section 2.4.E herein, as well as: European Commission – President (2025). 2025 State of the Union Address by President von der Leyen. Available at: https://ec.europa.eu/commission/presscorner/detail/en/speech_25_2053

7.4.2. Operational Requirements for Cyprus

To host the hub, Cyprus must develop:

- a **unified aerial doctrine** (see Section 7.2);
- a **Cyprus-AOC** integrated into Cyprus-COGIC;
- a national training pipeline for:
  - ATGS,
  - HBT (Helicopter Bucket Teams),
  - Airfield-based support operations;
- reinforced ground support capacity (fuel, retardant supply, maintenance);
- EU-compatible volunteer infrastructure (Chapter 6.4);
- EU-standards base at:
  - Larnaca, and/or
  - Paphos, and/or
  - Lakatamia Airbase cluster, and/or
  - Other new infrastructure to be pursued for establishment.

Support infrastructure must meet EASA and UCPM readiness standards.

The implementation pathway could be to capitalize an existing infrastructure and improve/upgrade it to required EU-standards, while in the meantime examining the possibility of pursuing the establishment of a new modern infrastructure. Relevant EU funding and co-funding mechanisms could obviously be sought in all cases.

7.4.3. Interoperability with Partner Countries

The hub must be interoperable with:

- Greece (HAF/HFS),
- Israel,
- Jordan,
- Lebanon,
- Egypt,
- UK's SBAA on the island (i.e. UK's RAF at Akrotiri - Limassol).

This requires:

- bilateral SOPs,
- periodic (e.g. annual) joint exercises (SKYFLAME-type),
- harmonised fuel and retardant standards,
- shared meteorological intelligence.

7.5. Aerial-Ground Interoperability and the EU GFFF CY 1 Module

The under-development **GFFF CY 1** module represents a major step forward in Cyprus' alignment with EU operational standards. It includes:

- Department of Forests expert ground personnel;
- Trained Civil Defence volunteers;
- EU-standard ICS structure;
- Cross-border deployability.

7.5.1. Synergies with the EU Hub

GFFF CY 1 can become:

- the standard national ground force accompanying EU aerial deployments,
- the “Cyprus hand-crew elevator” supporting foreign aircraft,
- the link between aerial operations and ground suppression.

7.5.2. Legislative Requirements

As described in Section 6.4, Cyprus must legally ensure:

- accredited volunteer firefighters,
- national Command System certification,
- insurance coverage under EU missions,
- a unified activation mechanism.

Failure to align legislation would jeopardize the module’s operational readiness.

7.6. Infrastructure Requirements for Hosting the EU Hub

7.6.1. Airfields

Airbases must support:

- Large airtankers (CL-215/415, Q400-MR),
- Medium helicopters,
- High-tempo fixed-wing operations,
- Fuel storage and retardant mixing facilities.

7.6.2. Ground Support

- Night-time maintenance capabilities;
- On-site meteorological services;
- Rapid refuelling and turn-around infrastructure;
- Secure digital connectivity and dispatch lines.

7.6.3. Logistics & Accommodation

- Accommodation, and possibly even Short-Stay-grade Living Quarters, for foreign crews,
- HNS-capability under CCD,
- Medical support,
- Rapid customs clearance for equipment.

7.7. Training & Capacity Building

Cyprus must establish a **National Aerial Firefighting Training Programme**, including:

- ATGS / Aeronautical Communications Officers (ACO) training,
- Air Operations Branch Director Course (AOBD) courses,

- HBT training for ground teams
- Joint aerial-ground exercises,
- Exchange programmes with NIMES, Andalusia (INFOCA), Portugal (ANEPC), and HFS.

This should be anchored within:

- the new Lead Agency (6.1),
- Nicosia and Limassol training facilities,
- SEMEDFIRE legacy partnerships.

7.8. Legal & Institutional Reforms for Aerial Governance

Required reforms include:

1. **Aerial operations legally assigned to the Lead Agency**
   (command unity; strategic direction; C2 authority).
2. **Mandatory unified aerial doctrine** for any Agency/Service with Aerial Assets and Systems (Manned or Unmanned), thus integrating: DoF, CFS, CCD, CYPOL, National Guard.
3. **Legal framework for EU hub hosting and foreign deployments**
4. **Certification requirements for aerial roles**
5. **Shared funding model**:
   - national budget,
   - UCPM co-financing,
   - potential third-country contributions.
6. **Accreditation of ground volunteers (Section 6.4)** to enable:
   - EU deployments,
   - hub support roles,
   - GFFF CY 1 activation.

7.9. Pathway for Cyprus to Achieve SE-Med MENA Regional Leadership

Cyprus can transform itself into a **regional centre of excellence** in aerial firefighting by:

- consolidating national doctrine;
- operationalising Cyprus-COGIC;
- hosting the EU Regional Hub;
- professionalising the GFFF CY 1 module;
- establishing bilateral agreements with Israel, Jordan, Lebanon, Greece;
- developing specialised training programmes;
- integrating civil society and volunteers;
- investing in digital and meteorological intelligence.

Cyprus' geopolitical position makes this role not only possible — but strategically feasible and imperative to pursue.

8. Digital Systems, Situational Awareness, and the National Common Operational Picture (COP)

Modern wildfire governance depends on a resilient, integrated, and secure digital ecosystem. Fragmented ICT systems — as observed during Arakapas 2021 and Semi-Mountainous Limassol 2025 — lead to delays, operational misalignment, and preventable escalation.

Cyprus must therefore establish a **unified digital architecture** for:

- real-time situational awareness,
- multi-agency communication,
- EU interoperability,
- secure satellite-supported connectivity, and
- data-driven decision-making at national and regional scales.

This chapter integrates **national ICT reforms** with Cyprus' strategic space-related programmes: **Cyprus GOVSATCOM**, **IRIS²**, and the **Cyprus Space Strategy 2022–2027**.

8.1. Current ICT Limitations and Fragmented Information Flows

Cyprus' wildfire-related ICT landscape remains decentralised across multiple agencies:

- DoF uses forest-specific GIS & internal dispatch tools.
- CFS uses separate incident-logging and VHF communications.
- CYPOL operate TETRA and AVL systems.
- CCD relies on mobile-based and ad-hoc coordination during emergencies.
- Municipalities maintain unintegrated hydrant/shelter/road datasets.
- The National Guard uses military-grade systems not interoperable with civilian counterparts.

The **absence of a unified COP** generated specific problems during the Limassol 2025 wildfire:

- conflicting fire-perimeter interpretations,
- delays in aerial–ground synchronisation,
- uncoordinated evacuation warnings,
- loss of connectivity in mountainous communications "dead zones",
- poor cross-service intelligence sharing.

These failures justify the urgent need for a **National Fire Information and Coordination System (NFICS)**.

8.2. National Fire Information and Coordination System (NFICS): Architectural Overview

NFICS should function as the *digital backbone* of Cyprus' unified wildfire governance architecture, embedded within **Cyprus-COGIC**. It must integrate:

- satellite data,
- aerial intelligence,
- agency dispatch systems,
- GIS layers,
- resource tracking,
- evacuation data,
- weather models,
- and secure communications.

NFICS should support:

- incident-level operations,
- district-level coordination,
- national strategic direction,
- EU hub interoperability,
- and regional cross-border joint operations.

8.2.1. NFICS Core Components

A. Common Operational Picture (COP) Portal

A central, multi-agency web-based interface displaying:

- live fire perimeters (Earth Observation from Copernicus, drones, and field inputs),
- satellite thermal anomalies,
- wind/weather layers,
- aerial tracks,
- resource deployments,
- evacuation areas and roads,
- NFICS secure connectivity status (GOVSATCOM / IRIS² link status).

B. Unified National Dispatch & Logging System

NFICS merges:

- DoF forest-fire dispatch,
- CFS multi-hazard dispatch,
- CYPOL and CCD mobilisation systems.

Satellite connectivity (via GOVSATCOM and IRIS²) ensures **uninterrupted dispatch** even during:

- mountain shadow zones,
- power outages,
- base-station overloads.

C. National GIS Wildfire Repository

Integrates:

- high-res satellite imagery,
- fuel-moisture indices,
- fire danger zones,
- infrastructure & critical assets,
- municipal hydrants/shelters,

optical data from Cyprus' emerging earth observation capabilities (Space Strategy, pp. 102–104)**D. Resource Tracking (Ground + Air)**

Real-time GPS fed through terrestrial + satellite links, ensuring persistent tracking even in terrain-denied environments.

E. Communications Interoperability Layer

Bridges:

- VHF (DoF),
- TETRA (Police),
- CFS digital channels,
- Civil Defence systems,
- satellite backhaul nodes (GOVSATCOM/IRIS²),
- EU liaison communication portals.

F. Fire Intelligence & Decision Support

AI-assisted analytics incorporating:

- Copernicus rapid mapping,
- EFFIS FWI model outputs,
- EO from national programmes,
- mesoscale weather forecasting,
- risk modelling & spread projections.

8.3. Integration with European and Space-based Systems

This section now incorporates **GOVSATCOM**, **IRIS²**, and the **Cyprus Space Strategy**.

8.3.1. Copernicus EMS Wildfire Services

NFICS automatically ingests:

- fire-perimeter products,
- burn-severity maps,
- thermal anomaly data (Sentinel-3),
- rapid-mapping products during large incidents.

These feed real-time operational decision-making and support post-fire recovery.

8.3.2. EFFIS - European Forest Fire Information System

NFICS integrates:

- forecast indices (FWI),
- hotspot detection,
- long-term fire risk projections,
- seasonal climate outlooks.

This supports **risk-based prepositioning** and strategic readiness.

8.3.3. UCPM & rescEU Integration

NFICS must be directly linked to:

- **CECIS** (EU crisis communication tool),

- **rescEU aerial support**,
- **EU liaison officers** at the Cyprus hub.

8.3.4. Integration of Cyprus GOVSATCOM (CGS Project)

The **Cyprus GOVSATCOM Study (CGS Project)**, implemented by EUC, assessed secure governmental satellite communication needs for Cyprus' public agencies during crises — including wildfires.

GOVSATCOM capabilities provide:

- **Encrypted, resilient satellite connectivity** for command centres and field teams.
- Guaranteed bandwidth even during terrestrial network failure.
- Secure channels for:
  - incident commanders,
  - aerial operations teams,
  - Cyprus-COGIC,
  - foreign liaison officers at the EU hub.

Integration into NFICS ensures:

- persistent communication in mountainous zones (e.g., Troodos),
- redundancy during power/telecom disruption,
- secure dissemination of sensitive operational data,
- uninterrupted aerial operations coordination.

GOVSATCOM is essential for Cyprus' readiness to host EU regional operations.

8.3.5. IRIS² and EU Secure Connectivity for Civil Protection

IRIS², the EU's new secure-connectivity constellation, provides:

- anti-jamming, anti-spoofing communications,
- quantum-resistant encryption,
- coverage over the Mediterranean and MENA region,
- emergency broadcast capabilities,
- priority access for civil protection during crises,
- high-reliability drone-to-ground communication.

For wildfire operations, IRIS² enables:

- secure cross-border coordination (Greece–Cyprus–Israel–Jordan),
- aerial supervision linkage to COGIC,
- remote-piloted aircraft system (RPAS) streaming even in congested communications environments,
- sovereign-level cybersecurity for critical information.

Cyprus should designate CCD, DoF, CFS, and Cyprus-COGIC as **IRIS² priority users**.

8.3.6. Alignment with the Cyprus Space Strategy 2022–2027

The **Cyprus Space Strategy 2022–2027**[58] identifies space-based services as pillars for:

- national security,
- environmental monitoring,
- disaster risk reduction,
- regional digital leadership.

Relevant elements include:

A. Satellite Communications

The Strategy emphasises expanding Cyprus' role as a regional satcom hub, noting the need for **secure communications** for governmental authorities (pp. 39–42).

NFICS should align with this by adopting GOVSATCOM and IRIS².

B. Earth Observation (EO)

The Strategy promotes leveraging EO for:

- climate monitoring,
- environmental protection,
- emergency management (pp. 102–104).

Cyprus Space Strategy 2022-2027

NFICS will use EO as a foundation for predictive modelling and fire intelligence.

C. Optical Gateway & EuroQCI

Cyprus aims to become a Mediterranean **optical communications gateway** and implement **EuroQCI** quantum-secure networks (pp. 89–95).

Cyprus Space Strategy 2022-2027

This provides:

- ultra-secure links between COGIC and EU hubs,
- encrypted data exchange for sensitive wildfire or aerial-operation intelligence.

D. Cyprus as a Regional Digital Hub

The Strategy envisions Cyprus as a regional data and space services hub (pp. 13–14).

Hosting the EU Aerial Firefighting Hub directly supports this objective.

[58] Department of Electronic Communications. *Cyprus Space Strategy 2022-2027, File Number: 16.31.001*. Available at: https://dec.dmrid.gov.cy/dmrid/DEC/ws_dec.nsf/0/C976C0C5D58E47C9C225893B0035FE92/$file/Cyprus%20Space%20Strategy%202022-2027_APROVED%20-Ammended%2005_2023.pdf

E. National Security and Socioeconomic Resilience

Space-enabled services apply to disaster response, telecommunications resilience, and environmental crisis management (p. 84).

Cyprus Space Strategy 2022-2027

NFICS operationalises these priorities in practice.

8.4. Digital Evacuation Management Systems — Satellite-Enabled

NFICS must incorporate:

- satellite-backed evacuation decision-support (ensuring uptime),
- GNSS-enhanced tracking of evacuees, buses, and shelters,
- satellite-enabled mobile command posts for remote communities.

8.5. Municipal Integration — With Satellite Redundancy

Local authorities access NFICS through:

- secure terrestrial networks,
- **GOVSATCOM fallback lines**,
- dedicated municipal dashboards.

This ensures uninterrupted connectivity during wildfires affecting power or telecommunications.

8.6. Digital Infrastructure for the EU Regional Hub — Enhanced with GOVSATCOM & IRIS²

The EU aerial hub requires:

- satellite-secured air operations communications,
- IRIS²-enabled cross-border aerial coordination,
- secure data sharing with MENA partners,
- resilient connectivity for foreign aircraft crews,
- satellite-backed COP for multi-country operations.

Cyprus' digital infrastructure becomes part of the **EU's Mediterranean operational chain**.

8.7. National Fire Intelligence & Meteorological Cell — Satellite Enhanced

The fire weather cell must integrate:

- EO thermal anomaly data,
- satellite-based wind and humidity sensors,
- IRIS² secure downlinks,
- Copernicus forecasting models.

8.8. Simulation & Training — Using Satellite EO Data

Digital wildfire simulations should incorporate:

- satellite-derived fuel maps,
- historic EO-based fire perimeters,
- high-resolution terrain data,
- IRIS² backbone for remote training nodes.

8.9. Governance & Cybersecurity — Quantum-Ready

Cyprus must adopt:

- EuroQCI quantum-secure communication for the national Civil Protection authority,
- IRIS² cybersecurity protocols,
- secure user authentication for NFICS,
- satellite-safe encrypted data exchange with EU partners.

9. Prevention, Land-Use Governance, and Integrated Fire Management (IFM)

Wildfire risk in Cyprus is driven by a combination of **climate intensification**, **land abandonment**, **urban expansion into forest interfaces**, and **fragmented land-use governance**. These conditions are consistent with SEMEDFIRE's regional analysis of the SE-Med and are fully aligned with the findings from Deliverable D4.3, which emphasises that: "*Suppression capacity alone cannot prevent catastrophic wildfires. Prevention, land stewardship, and coherent IFM governance are indispensable pillars for long-term wildfire resilience*". Cyprus needs a holistic, multi-sector approach to fire management that integrates prevention, land-use planning, ecological resilience, agricultural revitalisation, and community engagement.

9.1. Current Limitations of Prevention and Land-Use Systems in Cyprus

The existing wildfire prevention landscape suffers from:

9.1.1. Fragmented responsibilities

- DoF manages forest prevention.
- Municipalities manage urban and peri-urban zones.
- Private landowners often remain disengaged and unregulated.
- Agricultural decline leads to uncontrolled biomass accumulation.

9.1.2. Weak enforcement

- Many areas lack enforced vegetation-clearance rules,
- Illegal construction in high-risk zones persists,
- Fuel-break maintenance is inconsistent and non-centralised.

9.1.3. Lack of risk-based spatial planning

- Local Plans rarely integrate wildfire risk maps,
- UWI (Urban–Wildland Interface) regulations are outdated,
- No zoning category exists for "Extreme Wildfire Danger Zones".

9.1.4. Insufficient fuel and landscape management

- Abandoned terraces, orchards, and vineyards accumulate fuel loads,
- Traditional agricultural practices that historically reduced fuel have declined,

- Controlled burning is rare and unregulated.

9.1.5. Limited community engagement

- As documented in SEMEDFIRE's Deliverable D5.3, communities are willing but untrained,
- Volunteer prevention teams exist but are uncoordinated,
- Local prevention committees exist in theory but not in practice.

9.1.6. Absence of integrated ecosystem-based planning

- Forest and agricultural policies are not linked,
- Landscape-scale analysis is not institutionalised.

Both the Arakapas 2021 and the Limassol 2025 Incidents demonstrated that **these structural weaknesses greatly amplified fire intensity**.

9.2. Key Principles of Integrated Fire Management (IFM) for Cyprus

The SEMEDFIRE Deliverable D4.3's IFM Strategy identifies four pillars:

1. **Risk understanding**
2. **Prevention and mitigation**
3. **Preparedness and response**
4. **Recovery and adaptation**

Chapter 9 operationalises these pillars for Cypriot conditions.

9.3. Ecological and Landscape Prevention

Cyprus must transition from reactive to **landscape-scale prevention** through:

9.3.1. Fuel Management Zones (FMZs)

Establish a national FMZ network, including:

- strategic ridgelines,
- road corridors,
- critical infrastructure buffers,
- community-protection zones,
- agricultural lands with high fuel accumulation.

9.3.2. Restoring Traditional Agro-Silvo-Pastoral Systems

SEMEDFIRE research highlights the role of:

- olive orchards,
- vineyards,
- grazing lands,
- terrace-based agriculture as natural firebreaks.

Reviving these systems reduces abandoned biomass and creates fire-resilient mosaics.

9.3.3. Managed Grazing Initiatives

Grazing cooperatives can be established in high-risk districts using:

- targeted grazing,
- joint agreements with DoF and Agricultural Department,
- incentives for goat/sheep herding.

9.3.4. Controlled Burning

Introduce:

- a national Law on the Use of Fire (linked to Section 6.6 herein),
- certified “Burn Bosses”,
- DoF–CFS joint prescribed burn teams,
- community-level fuel removal burns.

France, Portugal, and Spain all rely heavily on this tool.

9.4. Strengthening Land-Use Governance and Spatial Regulation

9.4.1. Wildfire Risk Zones in Spatial Plans

Mandatory integration of risk maps (produced by NFICS) into:

- Local Plans,
- Special Zoning Plans,
- building permits,
- infrastructure projects,
- tourist development zones.

9.4.2. Building Codes for the Wildland-Urban Interface (WUI)

Cyprus needs a dedicated WUI Code including:

- ember-resistant materials,
- defensible space rules (30–100 metres),
- mandatory clearance around roads and structures,
- stricter rules for LPG tanks, fences, roofs, and balconies.

9.4.3. Vegetation Management Laws

Introduce:

- mandatory vegetation clearance by landowners,
- penalties for non-compliance,
- public support schemes for elderly/low-income landowners.

9.4.4. Land Consolidation Tools

Enable: community-based management of fragmented parcels, shared fuel-management cooperatives, and leasing of abandoned land for grazing or agroforestry.

9.4.5. Corridor-Based Green Firebreaks

Promote:

- orchards along village perimeters,
- vineyards as natural buffers,
- low-flammability species in community zones.

9.5. Community-Level Prevention

SEMEDFIRE Deliverable D5.3 indicates that Cypriot communities are highly willing to participate but lack:

- training,
- organisation,
- tools,
- clear roles.

9.5.1. Establish Local Fire Adaptation Committees (LFACs)

Under municipalities/communities, supported by CCD, DoF and CFS, and with Responsibilities for:

- local fuel management,
- community drills,
- seasonal risk briefings,
- evacuation micro-plans.

9.5.2. Community Wildfire Protection Plans (CWPPs)

Cyprus must require:

- a CWPP for each high-risk community,
- modelled after US and EU best practices,
- integrating risk maps, fuel zones, and evacuation plans.

9.5.3. Volunteer Prevention Teams

Linked to reforms in **Section 6.4**, Volunteers could be more engaged at the “Prevention” phase of the disaster-management-cycle, and could perform:

- brush clearing,
- fuel reduction,
- evacuation support,
- awareness campaigns.

9.5.4. Public Education Campaigns

Approaching, targeting and utilising:

- schools,
- local councils,
- NGOs,
- media,
- digital tools (NFICS citizen portal).

9.6. Integration with Climate Change Adaptation

Wildfire prevention aligns with Cyprus' emerging **National Adaptation Strategies** through:

9.6.1. Climate-informed land-use planning

Integrate:

- drought projections,
- heatwave trends,
- vegetation-shift models.

9.6.2. Drought Resilience Measures

Promote:

- water storage for firefighting,
- irrigation prioritisation zones,
- drought-resistant agricultural systems.

9.6.3. Fire-adapted ecosystems

Support ecosystems that can:

- withstand low-intensity fire,
- regenerate after wildfire,
- support prescribed burning regimes.

9.7. Monitoring, Evaluation, and Adaptive Management

Cyprus must establish:

9.7.1. Key Performance Indicators (KPIs)

Such as:

- hectares treated annually,
- reduction in fuel loads,
- number of CWPPs completed,
- compliance with UWI codes,
- participation of volunteer teams.

9.7.2. Annual Prevention Review

Led by the Lead Agency (Chapter 6) using:

- NFICS data,
- community feedback,
- RETEX processes (Chapter 6.5).

9.7.3. Spatial and Ecological Monitoring

Using:

- satellite EO (Cyprus Space Strategy, pp. 102–104)
- drones,
- ground surveys.

9.7.4. Continuous IFM Strategy Updates

Every 3–5 years, aligning with:

- climate science,
- new EU policies,
- NFICS upgrades.

9.8. Regional Prevention Synergies

Cyprus can lead SE-Med prevention initiatives by exporting:

- CWPP methodology,
- fuel-mapping techniques,
- grazing pilot models,
- training for municipal leaders,
- landscape-resilience research (e.g. as that conducted by EUC).

Regional partnerships can form a **Regional Fire Adaptation Network** under the EU hub framework, with countries such as:

- Greece,
- Israel,
- Jordan,
- Lebanon,
- Egypt.

9.9. Pathway to a Fire-Adapted Cyprus

To transition from a suppression-centred model to a fire-adapted Cyprus, the State must implement:

1. **Strong legal frameworks** (land-use reforms + vegetation laws).
2. **Integrated fuel management** at landscape scale.
3. **Community empowerment** through LFACs and CWPPs.
4. **Cross-sector governance coherence** under the Lead Agency.
5. **Digital and satellite integration** through NFICS.
6. **Regular training and prevention exercises**.
7. **Alignment with EU climate, forest, and space policies**.

Prevention is the foundation of fire resilience — and the strategic pathway for Cyprus to achieve its new role as a **regional civil protection leader**.

10. Regional Cooperation and Cyprus Role in the SE-Med Fire Governance Architecture

The SE-Med is entering a new era of **high-intensity, cross-border, climate-driven wildfire activity**. The SEMEDFIRE consortium, through studies, exercises, and operational analyses, has shown that this region is not only exposed to the same hazards — it increasingly shares the same structural vulnerabilities:

- rapid vegetation changes from climate stress,
- depopulating rural landscapes and land abandonment,
- encroachment of development into forest–urban interfaces,
- overstretched national suppression forces,
- insufficient inter-agency coordination systems,
- gaps in risk governance across ministries and local levels,
- limited regional interoperability between states.

Wildfires ignore administrative boundaries, national borders, and institutional divisions. They are becoming **a shared regional security challenge**. Cyprus, due to its strategic location, institutional maturity, EU membership, and emerging aerial & digital capacities, is positioned to play a **central role in an evolving regional fire governance architecture**.

10.1. The Southeastern Mediterranean: A Shared Fire Domain

SEMEDFIRE analysis and partner-country reports show that the SE-Med forms a **single climatic and biomechanical fire domain**, characterised by:

10.1.1. Climate Trends

- more frequent and intense heatwaves,
- prolonged drought cycles,
- highly volatile wind-driven fire events,
- extended fire seasons (April–November),
- multi-front “mega-fire” behaviours (e.g., Greece 2021–2023, Turkey 2021, Cyprus 2021/2025).

10.1.2. Socio-Environmental Dynamics

- rural exodus and abandonment,
- unmanaged biomass accumulation,
- tourism-driven coastal and mountainous urbanisation,
- insufficient land-use enforcement,
- mixed governance models across countries.

10.1.3. Operational Challenges

- overstretched suppression capabilities,
- scarcity of aerial assets,
- no unified regional command structure,
- weak interoperability between different national doctrines,
- limited joint training mechanisms,
- ad-hoc cross-border support.

10.1.4. Shared Political Imperatives

Governments across the region are now converging on:

1. **the need for harmonised wildfire governance**,
2. **common digital infrastructure and situational awareness**,
3. **shared aerial firefighting capacities**,
4. **interoperable ground capabilities**,
5. **joint training and prevention initiatives**, and
6. **a stronger regional interface with the EU Civil Protection Mechanism (UCPM)**.

Cyprus is geographically and institutionally positioned to anchor these strategic developments.

10.2. Strategic Rationale for Cyprus as a Regional Fire Governance Node

Cyprus offers unique comparative advantages:

10.2.1. Geostrategic Location

At the centre of an arc linking:

- Greece,
- Israel,
- Lebanon,
- Egypt,
- Jordan,
- and the broader MENA region.

10.2.2. EU Membership with Regional Reach

Cyprus is the **closest EU Member State** to multiple high-risk non-EU countries, enabling the EU to project:

- assistance,
- training,
- coordination,
- early warning,
- and aerial assets into the region.

10.2.3. Institutional Maturity and Reform Momentum

The reforms proposed in Chapters 6–9 place Cyprus on a pathway toward a **modern civil protection and wildfire governance architecture**.

10.2.4. Aerial Firefighting Experience and Need

Cyprus has been a long-standing beneficiary and provider of aerial support:

- 2021 Arakapas responses from Greece and Israel,
- Regular assistance from Jordan,
- 2023–24 cooperation with Israel and Egypt,
- 2025 Greek and Jordanian assistance during the Limassol mega-fire.

10.2.5. Existing Bilateral Agreements

Cyprus maintains operational agreements with:

- Greece (HFS/HAF),
- Israel (Fire & Rescue Authority),

- Jordan (Civil Defence),
- Lebanon (Civil Defence),
- Egypt (Interior/Environment),
- UK SBAA (RAF Akrotiri).

These relationships can form the backbone of a **regional interoperability framework**.

10.3. The EU Regional Aerial Firefighting Hub in Cyprus

In her **2025 State of the Union Address**, European Commission President Ursula von der Leyen announced: "*the establishment of a Regional Aerial Firefighting Hub in Cyprus to better protect the Mediterranean, Middle East and North Africa from catastrophic wildfires*". This initiative confirms Cyprus' emerging role as an operational platform for **EU-supported regional wildfire response**.

10.3.1. Strategic Purposes of the Hub

The hub will:

- host EU aerial assets during the high season,
- coordinate cross-border deployments,
- serve as a staging point for MENA wildfire response,
- integrate with CECIS and rescEU protocols,
- act as a Euromed node for early warning and seasonal preparedness,
- operate as a **regional centre for training and doctrine harmonisation**,
- support civil-military cooperation in aerial wildfire operations.

10.3.2. Prerequisites for Hub Functionality

Derived from Chapters 6 to 8 herein, Cyprus must ensure:

- **a unified national aerial doctrine**,
- **Cyprus-COGIC operational**,
- **NFICS fully satellite-enabled**,
- **GOVSATCOM and IRIS² as core communications**,
- **GFFF CY 1 module ready and EU-certified**,
- **volunteer legislation (Section 6.4) aligned with EU mission requirements**,
- **robust HNS** (logistics, customs, medical, accommodation),
- **interoperable SOPs with regional partners**.

10.3.3. Strategic Reinforcement of Cyprus' Regional Role

The hub amplifies Cyprus' influence in:

- EU–MENA cooperation,
- regional diplomacy,
- operational interoperability,
- standard-setting for IFM and wildfire governance.

It positions Cyprus as a **civil protection and environmental security bridge** between Europe and the Middle East.

10.4. Regional Interoperability Framework for Aerial and Ground Operations

10.4.1. Aerial Interoperability

Cyprus should lead the creation of a **Mediterranean Aerial Interoperability Framework**, drawing from:

- CNCASC (France),
- INFOCA (Spain),
- HFS/HAF (Greece),
- ANEPC (Portugal).

Components include:

- harmonised air-attack procedures,
- shared phraseology,
- joint ATGS certifications,
- cross-border aviation risk protocols,
- common retardant standards,
- harmonised safety zones.

10.4.2. Ground Interoperability

Through GFFF CY 1 and Civil Defence, Cyprus can promote:

- multi-country hand-crew training,
- joint helitack exercises,
- cross-border Mobilisation Bases,
- common ICS-based structures.

10.4.3. Digital Interoperability

NFICS must support:

- cross-border COP access,
- satellite-secured data exchange,
- shared intelligence flows (Copernicus/EFFIS),
- real-time coordination during regional deployments.

10.4.4. Legal and Operational Frameworks

Cyprus can champion:

- regional MoUs on wildfire governance,
- joint annual Euromed wildfire exercises,
- mutual aerial assistance arrangements,
- simplified customs/immigration mechanisms for rapid deployment.

10.5. SE-Med and Middle East Wildfire Resilience Network (SEMME-WRN)

Cyprus can propose — under EU support — the creation of a **permanent regional cooperation framework**:

Core Participants

- Cyprus
- Greece
- Israel
- Jordan
- Lebanon
- Egypt
- Italy
- France (strategic partner)
- SBAA (UK MoD)

Pillars

1. **Joint training** (ground & aerial)
2. **Doctrine harmonisation**
3. **Shared digital infrastructure**
4. **Prevention & land-use governance**
5. **Aerial support and EU hub integration**
6. **Knowledge and research exchange**
7. **Space-enabled risk management** (Copernicus, GOVSATCOM, IRIS²)

Functions

- Annual strategy forum hosted in Cyprus
- Regional wildfire season outlook meetings
- RETEX exchange programme
- Operational liaison officer rotation
- Regional exercises (e.g., “SEMME-FIRE-EX”)

This model draws from the successful **Union Civil Protection Knowledge Network** and Nîmes’ regional coordination approach, but tailored to the Se-Med context.

10.6. Role of Cyprus Civil Defence in Regional Leadership

CCD should serve as Cyprus’ **regional interface** for:

- HNS,
- evacuee and shelter operations,
- volunteer deployment and accreditation,
- liaison with local authorities in partner countries,
- multi-hazard coordination.

Its established volunteer SAR and evacuation capabilities can be exported as a **regional good practice model**, particularly to Jordan, Lebanon, and Egypt.

10.7. Role of Academia and Research Institutions

Institutions such as **EUC**, and of course the large public Universities of Cyprus (University of Cyprus and Cyprus University of Technology) should pursue and support:

- regional training academies,
- digital innovation,
- space-based fire intelligence (aligned with the Cyprus Space Strategy),
- Horizon Europe research clusters,
- knowledge-sharing platforms,

- interagency lessons-learned workshops.

These institutions can serve as the operational backbone for the SEMME-WRN (Section 10.5).

10.8. Regional Prevention Initiatives and Landscape Cooperation

Cyprus can lead:

- cross-border fuel mapping,
- shared landscape-scale prevention approaches,
- regional grazing pilot schemes,
- coordinated prescribed-burning initiatives,
- UWI governance alignment,
- cultural landscapes recovery projects.

These align with Cyprus' IFM Strategy (Chapter 9 herein) and SEMEDFIRE's landscape recommendations.

10.9. Diplomatic and Political Dimensions

Cyprus' foreign policy can leverage wildfire governance to:

- deepen ties with Israel, Jordan, Lebanon, and Egypt,
- expand EU influence in MENA through civil protection diplomacy,
- build environmental security partnerships,
- strengthen trilateral and quadrilateral frameworks (Cyprus–Greece–Israel / Cyprus–Greece–Egypt).

Cyprus becomes a **reliable convener** and **regional stabiliser**.

10.10. Cyprus Pathway to Regional Leadership

To operationalise its regional role, Cyprus must:

1. **Complete governance reforms (Chapter 6)**
2. **Operationalise Cyprus-COGIC (Section 6.2)**
3. **Establish NFICS with satellite integration (Chapter 8)**
4. **Adopt unified aerial/ground doctrines (Chapter 7)**
5. **Implement prevention & land-use reforms (Chapter 9)**
6. **Finalise legislation for volunteers (Section 6.4)**
7. **Reach full GFFF CY 1 operability**
8. **Launch the EU Aerial Hub (Chapter 7 and Section 10.3)**
9. **Activate the SEMME-WRN regional network**
10. **Establish annual Euromed wildfire governance summits in Cyprus**

Cyprus can then serve as a:

- **regional coordination centre**,
- **trusted EU operational platform**,
- **preventive governance leader**,
- **innovation and knowledge hub**,
- **gateway between Europe and MENA**.

Conclusion

Wildfires in Cyprus and the wider Southeastern Mediterranean have entered an era defined by **climate extremes**, **land-use pressures**, and **increasingly complex operational environments**. The analyses from the SEMEDFIRE project — combined with lessons from Arakapas 2021, the Semi-Mountainous Limassol 2025 event, and a comparative review of European best practices — demonstrate unequivocally that traditional, suppression-centric models are no longer sufficient. Wildfire governance must be transformed into a **multi-layered, risk-informed, interoperable, and regionally integrated system**.

Cyprus stands at a decisive crossroads. The country possesses strong operational agencies, a robust volunteer ethos, growing academic excellence, and a geopolitical position that naturally situates it as **a bridge between Europe and the Middle East**. At the same time, past incidents show persistent fragmentation across agencies, gaps in unified command, limited digital integration, insufficient land-use governance, and the absence of a coherent national wildfire doctrine.

This White Paper proposes a comprehensive transformation anchored on five strategic pillars:

1. Establishing a Unified National Wildfire Governance Architecture

A Lead Agency, Cyprus-COGIC, and a unified doctrine (ICS/JESIP/ORSEC compatible) are essential to eliminate fragmentation and deliver coherent, interagency-led operations. This includes updated legislation, a clarified chain of command, and structured RETEX processes to institutionalise lessons learned.

2. Integrating Volunteers into a Modern, Trusted Civil Protection System

Reforms must channel Cyprus' strong volunteer energy into a regulated, standards-based, EU-compatible framework — using a hybrid model inspired by the Greek Registry, strengthened Civil Defence leadership, and municipal-level prevention structures. A unified national certification scheme will ensure safety, operability, and deployability.

3. Developing a National Digital Backbone for Fire Management

NFICS — a secure, satellite-enabled, AI-assisted Common Operational Picture — will form the backbone of Cyprus' operational architecture. Its integration with GOVSATCOM, IRIS², Copernicus EMS, EFFIS, and EuroQCI ensures resilience even under severe infrastructure stress. Digitalisation is the precondition for modern command, aerial coordination, evacuation management, and cross-border interoperability.

4. Embedding Integrated Fire Management (IFM) Across Land-Use, Ecosystems, and Communities

Cyprus must transition from reactive suppression to proactive landscape and ecological stewardship. Strategic fuel management zones, restoration of traditional agro-silvo-pastoral systems, controlled burning capabilities, community wildfire protection plans, and strengthened UWI governance will create fire-adapted landscapes and resilient communities.

5. Positioning Cyprus as a Regional Wildfire Governance & Aerial-Operations Hub

Cyprus is uniquely positioned to serve as a **regional node for wildfire response**, training, doctrine harmonisation, and digital integration. The European Commission's decision to establish a **Regional Aerial Firefighting Hub in Cyprus**, announced in the 2025 State of the Union Address, validates this trajectory.

With strategic reforms, Cyprus can anchor a Mediterranean–Middle East wildfire cooperation network, host joint aerial and ground deployments, drive regional training programmes, and act as the EU's forward-operational partner for climate-related crises.

A Fire-Resilient Cyprus at the Heart of a Fire-Prepared Region

The vision articulated in this White Paper is not merely administrative or operational; it is a **national strategic transformation**. It positions Cyprus as:

- **a modern, digitally-empowered civil protection system**,
- **a regional leader in wildfire governance**,
- **a central operational hub for EU-supported aerial firefighting**,
- **a convener of regional cooperation across Europe and the Middle East**,
- **and a champion of community-level resilience and prevention.**

Achieving this vision requires political will, institutional courage, sustained investment, and a commitment to science-based, evidence-driven policymaking. But the rewards are profound: safer communities, protected ecosystems, strengthened regional alliances, and a Cyprus that stands not at the periphery, but at the **centre of the Mediterranean's wildfire resilience architecture**.

The SEMEDFIRE project demonstrates that the knowledge, partnerships, and momentum already exist. With decisive implementation, Cyprus can evolve into **a model for 21st-century wildfire governance — nationally robust, regionally essential, and internationally respected**.

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