



Union Civil Protection Mechanism -
Peer Review Programme
for disaster risk management

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Civil Protection



Wildfire Peer Review report Greece 2024



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- Enrique REY, Team manager at the Centre for Defence against Fire (CDF), Forest Service of Castilla y León, Spain;
- Ove STOKKELAND, Chief of Staff of the Greenland Fire and Rescue Service; Chairman of the Forest Fire Troops in the region of Telemark, Norway;
- João Carlos VERDE, Head of Policy at the Portuguese Agency for Integrated Rural Fire Management.



Figure 1 - The Peer review team, representatives from the NCP team and GSCP, and support firefighters on the field visit to 12th Athens Fire Station & Fire Museum. From left to right: Fire Warrant Officer Drakotos Ioannis (Fire Museum), Cristina Brăilescu (DG ECHO), Dana Salpina (CMCC), Christina Theodoridou (MEE/Forest Service), Angelica Marengo (CMCC), Judith Sørensen (DG ECHO), Sofia Kollarou (MEE/Forest Service), Spyros Afentoulidis (DG ECHO), Ove Stokkeland (peer), Ira Stamatoukou (GSCP), João Carlos Verde (peer), Lieutenant Fire Colonel Ioannis Kouinelis (NCP/HFC), Marta Arbinolo (peer), Fire Lieutenant Ioannis Koutsogiannis (NCP/HFC), Enrique Rey (peer), Gérard Patimo (peer), 2nd Fire Lieutenant Koumoutseas Christos (Fire Museum), Veronica Casartelli (CMCC), Fire Brigadier Vasileios Zafeiris (Commander of Athens Fire Brigade's Administration) and Fire Captain Katsiadis Vasileios (Assistant Officer at the General Inspectorate of Fire Services of Southern Greece).



Figure 2 - The peer review team. From left to right: Gérard Patimo (peer), João Carlos Verde (peer), Cristina Brăilescu (DG ECHO), Marta Arbinolo (peer), Veronica Casartelli (CMCC), Fire Lieutenant Ioannis Koutsogiannis (NCP/HFC), Lieutenant Fire Colonel Ioannis Kouinelis (NCP/HFC), Enrique Rey (peer), Judith Sørensen (DG ECHO), Spyros Afentoulidis (DG ECHO), Ove Stokkeland (peer).

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In September 2023, the General Secretariat of Civil Protection, Ministry for Climate Crisis and Civil Protection, requested a peer review of wildfire risk management capabilities within the Union Civil Protection Mechanism (UCPM)

Peer Review Programme 2020-2024, and worked closely with the Ministry of the Environment and Hellenic Fire Corps to support the review process. This is a thematic review focusing on the following key thematic areas of the wildfire risk management cycle: governance of wildfire risk management, wildfire prevention, wildfire preparedness, and wildfire emergency response. Key focus areas concerning wildfire risk assessment, wildfire risk management planning, and recovery and lessons learned are covered only in terms of the legislative and institutional framework, as part of the overall governance of wildfire risk management.

The infographic below highlights the thematic areas (hexagons) and topics (wedges) of the Wildfire Peer Review Assessment Framework (Wildfire PRAF) covered in this report¹.

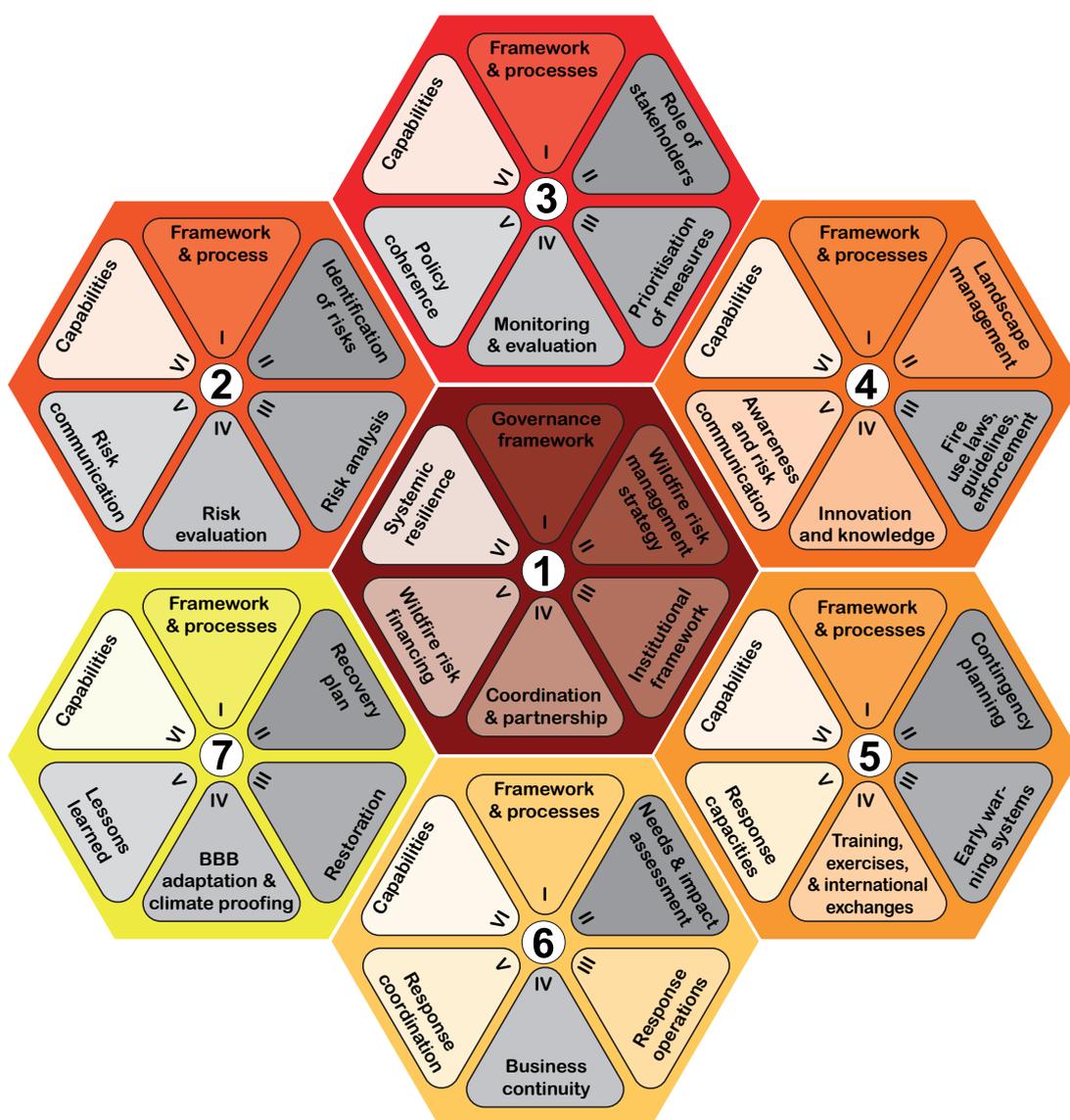


Figure 3 – The Wildfire Peer Review Assessment Framework (left) and the areas covered within the peer review in Greece (right).

¹ Casartelli Veronica, and Jaroslav Mysiak. 'Union Civil Protection Mechanism - Peer Review Programme for Disaster Risk Management: Wildfire Peer Review Assessment Framework (Wildfire PRAF)', 2023.

Executive summary

The Greek wildfire risk management system is effective and well-structured, although mostly focused on preparedness and response. However, in recent years, the country has made concrete efforts to implement a paradigm shift from wildfire management to wildfire risk management, focusing more strongly on prevention and promoting a cross-sectoral and holistic approach. The collaboration among key actors involved in the overall wildfire risk management cycle is constantly increasing and significant progress has been made in improving vertical cooperation between the main stakeholders at the different territorial levels. These effective relationships should be further strengthened and expanded to include other actors, including the private sector, research and academia, and citizens, with a view to promoting a whole-of-government and whole-of-society approach.

The existing strengths of and recommendations for the Greek wildfire risk management system are detailed in the report for the key focus areas covered within this Peer review: governance of wildfire risk management, wildfire prevention, wildfire preparedness, and response. The strengths and recommendations regarding wildfire risk assessment, wildfire risk management planning, and recovery and lessons learned are not exhaustive, as they are exclusively related to the legislative and institutional framework.

The key strengths are summarised below:

GOVERNANCE OF WILDFIRE RISK MANAGEMENT

- In recent years, and especially since the establishment of the Ministry of Climate Crisis and Civil Protection (MCCCP), Greece has made **significant improvements** in wildfire risk management, adopting a **more comprehensive and holistic approach**.
- Along with the establishment of the MCCCP, the adoption of the National Climate Law (Law 4936/2022) is a key step in ensuring **policy coherence between disaster risk reduction (DRR) and climate change adaptation (CCA)**, aiming to integrate adaptation considerations in all plans and strategies.
- The General Secretariat of Civil Protection (GSCP), the Hellenic Fire Corps (HFC) and the Forest Service cooperate effectively throughout the wildfire response phase. A **good spirit of collaboration** is also in place with other key institutions, such as the Ministry of Culture and the Ministry of Infrastructure and Transportation and the Ministry of National Defence.
- There are increasing attempts by the Greek government to adopt a **whole-of-society approach** in the wildfire risk management system, seeking to engage the private sectors, civil society organisations (CSOs), and research and academia more closely.
- An important **investment package** is under implementation in **building resilience and strengthening the civil protection system** through EU funding instruments, the European Investment Bank (EIB) loan, and national funds.
- The **increased budget** allocated to **wildfire prevention** in recent years could signal an effort in implementing a paradigm shift in the overall management system towards a more holistic approach.

WILDFIRE RISK ASSESSMENT

- Good wildfire risk assessments, including hazard and risk maps, have recently been **developed on different**

territorial scales by Greek scientific institutions and can potentially inform the overall wildfire risk management system. For example, the **conceptual model** for a **risk map** prepared as part of the FirEUrisk project could be further developed jointly with public authorities.

- The **National Forest Cadastre** is being finalised and will be a key source of information to support risk assessment processes on the different territorial scales.
- The implementation of the **Integrated Risk Management and Prevention Information System (MIS)**, foreseen under the Civil Protection Operational Programme 2021-2027, will be a key source of information to support risk assessment and decision-making processes on the different territorial levels.

WILDFIRE RISK MANAGEMENT PLANNING

- **Forest protection plans** in national parks are drawn up in collaboration with the Fire Services and civil protection authorities to ensure that all sectoral needs are taken into consideration.
- Although legislation on forest management plans is outdated, efforts are being made to **update and modernise** these planning processes, for example by including climate change and wildfire risk management considerations.

WILDFIRE PREVENTION

- **Collaboration** is improving significantly among key authorities in charge of wildfire prevention and response.
- The **budget allocated to wildfire prevention** has **increased** over the last few years, showing a concrete commitment of the government in transitioning from a heavily response-focused approach to a more holistic approach.
- The **AntiNero programme**, which is the most important investment programme for wildfire prevention in recent decades, has generated considerable improvements in forest management and wildfire risk reduction. It is necessary to explore options to ensure continuity of prevention programmes in the long term, and to enhance the rural bioeconomy, which is largely self-financed.
- Ongoing efforts to compile key data will soon produce maps and tools, which will be crucial not only in prevention but also in the overall Disaster Risk Management Cycle (DRMC). The **Forest Cadastre**, currently being finalised, is a key achievement and will support the entire DRMC.
- The Greek scientific community has already developed several **new tools, information and digital platforms** that improve the understanding and management of wildfire risk. University educational programmes are also training a pool of experts, who form an invaluable resource to be recruited by key bodies involved in wildfire risk management.
- **Clear restrictions** are in place to reduce wildfire risk, especially during the wildfire season.
- Several **wildfire risk awareness and communication campaigns** have been implemented in recent years by different entities, some of them in different languages to cater for tourists.
- **Cooperatives of trained forest workers**, listed on an official register, is a good practice already in place. This valuable resource is enhanced by the fact that most of the workers are local people.

- The **pilot project on Chios** for **prescribed burning** proved to be an excellent initiative that could pave the way for changes to national regulations on the use of prescribed fires. Projects on other wildfire prevention measures could be further promoted to engage local communities and boost resilience.

WILDFIRE PREPAREDNESS

- The **State of Special Mobilisation** recently introduced to national legislation is a powerful and effective instrument to increase preparedness in the imminence of a disaster.
- The General Plan for Dealing with Emergencies Due to Forest Fires **IOLAOS 2** is a key **multidisciplinary planning instrument** for wildfire preparedness, setting objectives, roles and defining clear responsibilities for key actors, and coordinating procedures.
- Robust protocols for citizen protection are in place, especially with regard to **preventive evacuation procedures**, including logistical support.
- An **alert system** using **broadcast messages** through the **emergency number 112** is in place to disseminate timely information to the public during or in the imminence of a wildfire event (although thresholds need to be revised, to avoid an overload of alert messages). Several entities contribute to this system depending on their role (e.g. the Ministry of Foreign Affairs intervenes if tourists are in danger).
- **Response capacities** for wildfires have improved consistently in recent years, in view of the increasing risk.
- There is an inventory of **private companies** that can support public authorities in case of emergency at the local level to facilitate response operations. There is also a **registry of equipment and means** available for leasing under contract.
- The development of **volunteer fire brigades** is a valuable complementary addition to the permanent response resources. It could be further promoted for deployment under predetermined conditions, with the same requirements and training as for professional personnel.
- A **Volunteer Registry** is managed and regularly updated by the Directorate of Volunteerism and Education at the GSCP. **Clear requirements** exist for registration as a volunteer group/member. Also, volunteers undergo physical/mental health checks before being accepted and then receive training.
- The development of **Special Forest Fire Operational Units - EMODE** is an excellent initiative that should be further promoted. Their ability to reach and suppress wildfires quickly in remote areas is crucial. In addition, they are the only teams allowed to use backfires and are also involved in prevention activities, which demonstrates the holistic approach being pursued.
- The **Fire Academy** is an excellent institution open to students from different academic backgrounds. Citizens with no involvement in firefighting can also attend the academy to receive different kinds of training and expand their knowledge on risks.
- The importance of **conducting exercises** at the different territorial levels is very well known. Whenever possible, **lessons learned** processes in the form of debriefing with key stakeholders are carried out. Otherwise, final reports are drafted and distributed among the stakeholders afterwards.

- Greece actively participates in opportunities provided within the **UCPM** in terms of exercises, training, and international exchanges.

RESPONSE

- The **National Coordination Centre for Operation and Crisis Management - ESKEDIK** is a crucial component of the disaster management system in Greece, ensuring 24/7 monitoring of the national situation and a good coordination mechanism in the response phase. The presence of representatives of different authorities facilitates the flow of information and the collaboration between the key actors.
- The **ENGAGE software** is a good IT tool to support the coordination of on-site operations and share geo-referenced information between entities at the different territorial levels.
- The regional and local **operational bodies** activated in the event of disasters, including severe wildfire events, are key in ensuring that all the authorities and actors are engaged in response operations and act in a coordinated manner.
- **New methods of cooperation** between the Forest Service and the Fire Corps have been recently established by Law 5075/2023 for the response phase. Specifically, the establishment of **Support Groups for the Management of Large-scale Forest Fires**, composed of technical experts from the Forest Service who support decision-making during major wildfire events, is an excellent opportunity to improve effectiveness and exchange of knowledge.
- Very specific procedures for **preventive evacuations** have been in place since 2008 and recently updated with the GSCP A1161 of 2023 Guidelines and special plans for the organised preventive evacuation of citizens. Moreover, specific procedures have been developed in cooperation with the Ministry of Foreign Affairs to assist **tourists** and **foreign citizens** during mass evacuations.
- With regard to Host Nation Support, a pool of **trained liaison officers** has been established to support international teams deployed to Greece through the UCPM and/or bilateral agreements. Their efficiency was proved during the UCPM activations in summer 2023.

RECOVERY AND LESSONS LEARNED

- Having recognised the importance of identifying the causes of wildfires, the **Arson Crimes Response Directorate (ACRD)** was established within the Hellenic Fire Corps and is fully operational.
- The **Hellenic Fire Corps** plays a crucial role in fire investigations and is supported by other forces, such as the Hellenic Police.
- A number of **lessons learned** processes are in place to identify good practices and areas for improvement. Specifically, two lessons learned meetings, before and after the wildfire season, are held among the parties involved in forest fire fighting.

The key recommendations are summarised below:

GOVERNANCE OF WILDFIRE RISK MANAGEMENT

- A more **integrated wildfire risk management** would help increase resilience, promoting a **holistic** and **cross-sectoral** approach while ensuring policy coherence. A whole-of-society and a whole-of- government

approach is needed to strengthen the wildfire risk management capabilities and to promote resilient landscapes in view of environmental and socio-economic changes at the different territorial levels.

- The system of governance of wildfire risk in Greece is pyramidal, characterised by formal political and hierarchical relations, and mainly focused on fire suppression and emergency response. Ensuring a **degree of flexibility** and **focusing more on prevention** could be helpful in achieving greater efficiency and reducing losses.
- The overall legal and institutional framework on disaster and wildfire risk management has changed quite often in recent years, leading to significant improvements. However, continuous changes are difficult to enforce and put into operation, especially at the local level. **Adequate time to test the effectiveness of policies** would ensure more effectiveness and overall stability.
- Ensuring more **transparency and accountability** in the national decision-making processes for planning investments could help strengthen the efficiency of the system and increase trust among key stakeholders. A **bottom-up approach** and a clear system for **monitoring** the allocation of public funding and expenditures could help.
- A **national wildfire risk management committee** or an overarching coordinating body consisting of all key entities could help, among other things, in establishing a **wildfire risk management strategy** in line with the overall strategy of DRR and the **Hellenic National Platform for Disaster Risk Reduction (HNP-DRR)**. This would clarify roles and responsibilities, facilitate vertical and horizontal coordination, and increase connections among key stakeholders.
- Despite its crucial role in wildfire risk management, the local level shows critical weaknesses, especially in the lack of qualified personnel and financial resources. **Reinforcing the local level** and **ensuring a bottom-up approach** is key for the effectiveness of the overall system.
- **Closer cooperation and collaboration between public institutions and research bodies** could help foster the exploitation and transfer of updated data, analyses and innovative tools in the operational processes. At the same time, it could help focus research and implement the tools that public institutions need.
- The **Forest Service** and the **Fire Service** being progressively more **complementary**, can lend each other to cooperate to the maximum extent possible in each other's initiatives (i.e. the Forest Service could provide additional knowledge and personnel to aid in suppression, whereas the Fire Service could provide personnel and technical resources to help in prevention).
- The effective allocation of the overall financial resources available for wildfire risk management is needed. There is a clear need to **increase the budget dedicated to wildfire prevention**. Also, having a **long-term budget** is essential to ensure the sustainability of prevention measures over the years and the availability of qualified personnel in the forest service.

WILDFIRE RISK ASSESSMENT

- There is a need to **update the national wildfire hazard map**, which dates back to 1980 (although it is validated annually with statistical analysis). Despite being dated, it is still considered as a source of information for preparing strategic plans and identifying wildfire risk management measures.

- A **comprehensive wildfire risk assessment** at the national level is recommended, which takes into consideration different vulnerabilities and cross-sectoral impacts. Along with information on past events, future projections in terms of climate, environmental, and socio-economic changes should be also considered in the analyses. **A joint initiative of research and academia and public institutions** would be able to exploit the excellent research capabilities and expertise already available.
- Specific focus on the **assessment of wildfire risk in the Wildland Urban Interface (WUI)** is highly recommended to support risk management planning processes and prioritise effective risk reduction measures in such critical areas. **New tools** already implemented by **research institutions** could be helpful in this process.
- With specific reference to maps, there is the need for **clarifications of the terminology**. The interchangeable use of some terms (such as hazard, susceptibility, probability) in assessment and mapping processes can lead to misinterpretation and misuse.

WILDFIRE RISK MANAGEMENT PLANNING

- Wildfire risk management planning processes should be based on the assumption that **fire is a landscape modelling agent and a natural process**. As such, the scope of wildfire risk management planning should be the reduction and mitigation of major and uncontrolled wildfires, thus allowing the good use of fire under safe conditions.
- An **overarching integrated wildfire risk management plan** should be developed and be intended as an action plan that ideally puts into operation the overall risk management strategy and can benefit from a **unified funding stream**. Wildfire risk management plans at the sub-national level and sectoral plans should align with the national plan and include corresponding detailed measures, responsible authorities for their implementation, timing and costs. There should also always be formal **monitoring and evaluation** processes in place, along with **regular reviews**.
- Planning processes should engage **all relevant stakeholders** and include a **bottom-up component**, where the national plan, related measures, and budget are informed by the implementation of projects on a local/regional scale and the needs of stakeholders closer to the landscape and communities.
- **The existing planning processes should be streamlined** at the different territorial levels to ensure coherence, avoid overlapping and promote further collaboration among the key actors in wildfire risk management. One option to be explored could be the development of **individual plans covering the whole DRMC** at the different territorial levels.
- The capacity of **local municipalities** to develop and implement comprehensive plans for wildfire prevention, preparedness and response needs to be strengthened by regional and national level. **Local stakeholders** who live in/near the forest or rely on the forest should also be actively engaged in the planning process.
- **Systematic accounting of investments in and expenditure** on the overall wildfire risk management cycle could help assess the quality of spending and enable better planning. Sharing these data with key stakeholders would increase public accountability and transparency.

WILDFIRE PREVENTION

- It would be helpful to revise the overall **legislative and institutional framework for wildfire prevention considering the causes of fires** and taking the opportunity to also include climate change and cross-sectoral considerations.
- While **cooperation and collaboration** between key authorities in charge of wildfire prevention and suppression has significantly improved in recent years, further efforts in this direction are needed, for example by involving the Fire Service in prevention activities in support of the Forest Service in accordance with article 38 of Law 4892 of 2022.
- The **Forest Service** plays a crucial role in wildfire prevention and needs **urgent reinforcement**, in terms of both additional qualified staff and funding. A **long-term budget** for prevention is also needed to ensure the implementation and sustainability of measures over time.
- Many institutions and stakeholders actively and effectively participate in prevention activities. However, there is the need to improve their coordination, clarify and streamline roles and responsibilities, and **strengthen collaboration and cooperation** with some key actors.
- Relationship models between the **local population and forests** need to be further promoted by combining the socio-economic alternatives with the rural environment based on a forestry culture, in order to enhance sustainability and social participation.
- **Investments in forest management** need to be further expanded using both public and private funds, where feasible. Consideration should be given to **tax incentives** for private forest landowners who engage in prevention (fuel reduction) on their properties, and incentives to stimulate forestry activities that increase employment of local human resources while reducing fuel load.
- Although clear rules exist for **land use planning** detailing where new buildings are and are not allowed in relation to wildfire risk, there is need for better enforcement. Similarly, the implementation of rules on preventive measures to be taken by **building and critical infrastructure owners** should be improved.
- The importance of **prescribed burnings** for fuel management is well understood. It is important that the legal framework for its implementation is adopted, and accompanied by training provisions, procedures to follow, and guidelines on the pre-identification of areas to be treated. Implementing **prescribed fires** also offers opportunities for cooperation and joint training between the Forest Service and the Fire Corps.
- Clearer guidelines for **fuel management at landscape level** (including forests, but not limited to forest areas) would make prevention clearer to local communities and organisations. Allowing some economic activities in forests and encouraging **bioeconomy** with the double-purpose of preventing fires and generating additional revenue for forest owners could be considered. This includes the potential reintroduction of **grazing** as a tool to manage fuel growth in forests, or the use of **firebreaks** for other economic activities (i.e. vineyards, cork production).
- Risk-awareness campaigns need to be further improved especially in **remote rural areas** and among the most **vulnerable categories**. Moreover, these campaigns need to be assessed in terms of effectiveness and designed according to the **major causes** of fires. Adopting an **overall wildfire risk communication strategy**

tegy/guideline jointly defined with key actors at the national level would help to streamline key messages and adopt a common terminology.

- Excellent educational materials have been developed for voluntary use in primary and secondary schools. The inclusion of **environmental education** programmes in **school curricula** could strengthen the penetration of risk awareness messages and foster sustainability.

WILDFIRE PREPAREDNESS

- **Adapting the concept of fire season to apply** a more flexible approach based on **other criteria**, such as meteorological conditions or prolonged periods of vegetation dryness or stress, could increase the overall preparedness of the system for wildfires occurring outside the traditional period.
- The **Fire Service** could support the **Forest Service** in prevention activities and vice versa depending on the season. To make this cooperation effective, **joint training** on fuel management and preparedness and response activities should be implemented on a regular basis to ensure interoperability and a common approach.
- The **Special Forest Fire Operational Units - EMODE** should be further **strengthened**, in tandem with the Forest Service, and their wildfire **prevention** activities could be expanded, especially in winter periods, to support the Forest Service in landscape management. Transferring certain skills and capacity of the EMODE to other Fire Brigade teams and establishing common training standards for all firefighting personnel is also recommended.
- Improving the functioning and capacity of the **Academy of Civil Protection** would have a positive effect on the offer of training activities for different stakeholders, including mayors, volunteers, and citizens.
- A huge effort is currently devoted to **patrolling**, with the participation of various entities using different means and tools. An internal analysis including **cost-benefit considerations** to evaluate the effectiveness of the overall patrolling system would allow it to be reorganised more efficiently.

RESPONSE

- The Greek wildfire management system is well established and informed by good quality data and information. **Alternative strategies to the unconditional suppression of all fires** should be explored to increase the effectiveness of the overall system and help people to better live with fires.
- The implementation of one **coordination centre in each region** – which has already been planned with allocated resources – will significantly increase the effectiveness of the overall wildfire response system, vertical and horizontal coordination and information flow.
- The **regional and local operational coordination bodies** of civil protection are a crucial component of the response system to ensure effective, timely and coordinated actions. To increase the efficiency of response, it is important to ensure the **engagement** of all key entities and stakeholders needed to manage the emergency (including, for example, the private sector and CSOs).
- In order to ensure a unified and effective response system, it is essential for the national **Civil Protection Coordination Body (SOPP)**, established by law, to become fully operational.

- A **comprehensive incident management system** is needed to clarify roles and responsibilities, procedures, planning processes, logistics, operations, safety aspects, financing, staff involvement, and the chain of command during incidents. On this basis, specific **personnel profiles** need to be defined and **training programmes** implemented to ensure that all areas of the incident management system are staffed with the best qualified personnel.
- The added value of defining and using specific **tactical maps and fire behaviour analysis** to support response activities during major wildfire events requires further exploration in order to enhance the effectiveness of the emergency management system.
- In the case of **UCPM** activations, it is strongly recommended to draft and send to the Emergency Response Coordination Center (ERCC) comprehensive **requests for international assistance** based on an up-to-date and very detailed description of needs. Precise and clear requests are crucial to receive timely and adequate assistance. This could be achieved by developing an **internal procedure** and **tools**, such as checklists, for activating the Mechanism.
- When international assistance is needed, it is important that the **procedures** for activating the **UCPM and bilateral agreements** are followed and that this is performed exclusively on the basis of operational requirements.

RECOVERY AND LESSONS LEARNED

- There is a clear need to expand and deepen the **knowledge** on the **underlying causes** of fires. Although there is a specific directorate for the investigation of fires, it focuses only on arson crimes.
- Since one of the main goals should be to reduce the number of ignitions, the **collection, analysis, evaluation and sharing** of information and data about the real causes of fires on different spatial scales is crucial to informing the overall wildfire risk management system and implementing targeted awareness campaigns.
- An adequate number of **multidisciplinary teams** of qualified staff from the Forest Service, Fire Service, and Police is needed in order to conduct thorough investigations into the causes of fire that consider all types of evidence. Also, more **staff, standard operating procedures (SOPs)**, and regular certified **training programmes** are needed to improve the investigation analyses.
- Since the analysis of the causes of fire is not limited to forestry, it would be appropriate to adopt more specific **terminology**, for instance 'rural' or 'landscape' fire, besides forest/agricultural fire, in the statistical data currently collected and analysed.
- **Cost-benefit analysis of suppression operations** after wildfire events should be performed in order to identify appropriate risk reduction policies and measures.
- A **formal lessons learned process** should be applied after each wildfire season and following major wildfire events at the different territorial levels. All key **entities** involved in wildfire risk management should be actively engaged. Also, the results gathered in terms of good practices, recommendations and lessons learned should be **disseminated** to continuously improve the system.

Συνοπτική παρουσίαση

Το ελληνικό σύστημα διαχείρισης κινδύνου πυρκαγιών είναι αποτελεσματικό και καλά δομημένο, αν και εστιάζει κυρίως στην ετοιμότητα και την καταστολή. Ωστόσο, η χώρα καταβάλλει σταθερά τα τελευταία χρόνια προσπάθειες για την αλλαγή παραδείγματος, μεταβαίνοντας από τη διαχείριση πυρκαγιών στη διαχείριση του κινδύνου εμφάνισής τους, μέσω περισσότερης πρόληψης και προώθησης μιας διατομεακής και ολιστικής προσέγγισης. Η σύμπραξη μεταξύ των βασικών εμπλεκόμενων φορέων σε όλο τον κύκλο διαχείρισης του κινδύνου πυρκαγιών αυξάνεται συνεχώς και έχει σημειωθεί σημαντική πρόοδος στη βελτίωση της συνεργασίας μεταξύ των κύριων παραγόντων στα διάφορα διοικητικά επίπεδα. Οι αποτελεσματικές αυτές σχέσεις θα πρέπει να ενισχυθούν περαιτέρω και να καθιερωθούν αντίστοιχες με άλλους φορείς όπως ο ιδιωτικός τομέας, η ερευνητική και ακαδημαϊκή κοινότητα, αλλά και με τους πολίτες, έχοντας ως στόχο την προώθηση μιας προσέγγισης που να εμπλέκει το σύνολο της κυβέρνησης και το σύνολο της κοινωνίας.

Η παρούσα έκθεση ομοτίμων εστιάζει στα υπάρχοντα πλεονεκτήματα του ελληνικού συστήματος διαχείρισης του κινδύνου πυρκαγιών και σε συστάσεις. Αμφότερα σκιαγραφούνται λεπτομερώς στους βασικούς τομείς της έκθεσης όπως: η διακυβέρνηση της μείωσης του κινδύνου πυρκαγιών, η πρόληψη πυρκαγιών, η ετοιμότητα και η αντιμετώπιση των πυρκαγιών. Τα πλεονεκτήματα και οι σχετικές συστάσεις σχετικά με την εκτίμηση του κινδύνου πυρκαγιών, το σχεδιασμός για την διαχείριση κινδύνου, την αποκατάσταση και την αποκόμιση διδαγμάτων δεν καλύπτονται διεξοδικά στην παρούσα έκθεση, παρά έχουν αποκλειστικά άμεση συνάφεια με το νομοθετικό και θεσμικό πλαίσιο που τα διέπει.

Τα κύρια πλεονεκτήματα συνοψίζονται στα εξής:

ΔΙΑΚΥΒΕΡΝΗΣΗ ΤΗΣ ΔΙΑΧΕΙΡΙΣΗΣ ΤΟΥ ΚΙΝΔΥΝΟΥ ΠΥΡΚΑΓΙΩΝ

- Τα τελευταία χρόνια, ιδιαιτέρως μετά την ίδρυση του Υπουργείου Κλιματικής Κρίσης και Πολιτικής Προστασίας (ΥΚΚΠΠ), η Ελλάδα σημείωσε **σημαντική πρόοδο** στη διαχείριση του κινδύνου πυρκαγιών μέσω της υιοθέτησης μιας **πιο εμπειριστατωμένης και ολιστικής προσέγγισης**.
- Μαζί με την ίδρυση του ΥΚΚΠΠ, η θέσπιση του **Εθνικού Κλιματικού Νόμου** (Νόμος 4936/2022) απετέλεσε καθοριστικό βήμα για τη διασφάλιση της **συνοχής μεταξύ των πολιτικών Μείωσης Κινδύνου Καταστροφών (DRR) και Προσαρμογής στην Κλιματική Αλλαγή (CCA)**, στοχεύοντας στην ολοκλήρωση της προσαρμογής σε όλους τους σχεδιασμούς και τις στρατηγικές.
- Η Γενική Γραμματεία Πολιτικής Προστασίας (ΓΓΠΠ), το Ελληνικό Πυροσβεστικό Σώμα (ΕΠΣ) και η Δασική Υπηρεσία συνεργάζονται αποτελεσματικά σε όλα τα στάδια αντιμετώπισης των πυρκαγιών. Υπάρχει επίσης **καλό πνεύμα συνεργασίας** με άλλους φορείς ζωτικής σημασίας, όπως το Υπουργείο Πολιτισμού, το Υπουργείο Υποδομών και Μεταφορών και το Υπουργείο Εθνικής Άμυνας.
- Η ελληνική κυβέρνηση προσπαθεί όλο και περισσότερο να υιοθετήσει μια **προσέγγιση του** συστήματος διαχείρισης του κινδύνου πυρκαγιών με βάση **το σύνολο της κοινωνίας**, επιδιώκοντας να εμπλέξει στενότερα τον ιδιωτικό τομέα, τις οργανώσεις της Κοινωνίας των Πολιτών (ΟΚΠ), καθώς και την ερευνητική και ακαδημαϊκή κοινότητα.
- Ένα σημαντικό **επενδυτικό πρόγραμμα** που βρίσκεται στο στάδιο της υλοποίησης αφορά στην **οικοδόμηση ανθεκτικότητας και την ενίσχυση του συστήματος πολιτικής προστασίας** μέσω χρηματοδοτικών εργαλείων της ΕΕ, του δανείου της Ευρωπαϊκής Τράπεζας Επενδύσεων (ΕΤΕΠ) και εθνικών κονδυλίων.

- Ο **αυξημένος προϋπολογισμός** που διατίθεται για δραστηριότητες **πρόληψης πυρκαγιών** τα τελευταία χρόνια πιθανόν σηματοδοτεί μια προσπάθεια υλοποίησης αλλαγών στο σύστημα διαχείρισης προς μια πιο ολιστική προσέγγιση.

ΕΚΤΙΜΗΣΗ ΤΟΥ ΚΙΝΔΥΝΟΥ ΠΥΡΚΑΓΙΩΝ

- Προσφάτως, ελληνικά επιστημονικά ιδρύματα εκπόνησαν αξιόλογες εκτιμήσεις κινδύνου πυρκαγιάς και χάρτες επικινδυνότητας σε **διάφορες εδαφικές κλίμακες**, που μπορούν δυναμικά να πληροφορήσουν το συνολικό σύστημα διαχείρισης κινδύνου πυρκαγιών. Για παράδειγμα, το **ενοιολογικό μοντέλο** για έναν **χάρτη επικινδυνότητας** στο πλαίσιο του έργου FirEUrisk θα μπορούσε να αναπτυχθεί περαιτέρω από κοινού με τις δημόσιες αρχές.
- Το **Εθνικό Δασικό Κτηματολόγιο** βρίσκεται στο στάδιο της ολοκλήρωσης και θα αποτελέσει βασική πηγή πληροφοριών για την υποστήριξη των διαδικασιών εκτίμησης κινδύνου στις διάφορες εδαφικές κλίμακες.
- Η εφαρμογή του **Ενοποιημένου Πληροφοριακού Συστήματος Διαχείρισης Κινδύνων και Πρόληψης**, που προβλέπεται στο πλαίσιο του επιχειρησιακού προγράμματος για την Πολιτική Προστασία 2021-2027, θα αποτελέσει βασική πηγή πληροφοριών για την υποστήριξη της αξιολόγησης κινδύνων και τη διαδικασία λήψης αποφάσεων στα διάφορα διοικητικά επίπεδα.

ΣΧΕΔΙΑΣΜΟΣ ΔΙΑΧΕΙΡΙΣΗΣ ΚΙΝΔΥΝΟΥ ΠΥΡΚΑΓΙΩΝ

- Τα **σχέδια δασοπροστασίας** στα εθνικά πάρκα καταρτίζονται σε συνεργασία με τις πυροσβεστικές υπηρεσίες και τις αρχές πολιτικής προστασίας, ώστε να διασφαλίζεται ότι λαμβάνονται υπόψη όλες οι ανάγκες των διάφορων τομέων.
- Παρά το γεγονός πως τον σχεδιασμό διαχείρισης των δασών διέπει ένα ξεπερασμένο νομικό πλαίσιο, καταβάλλονται προσπάθειες για **την επικαιροποίηση και τον εκσυγχρονισμό** αυτών των διαδικασιών σχεδιασμού. Για παράδειγμα, με την πρόβλεψη για τη συμπερίληψη της κλιματικής αλλαγής και ζητημάτων διαχείρισης κινδύνου πυρκαγιών.

ΠΡΟΛΗΨΗ ΠΥΡΚΑΓΙΩΝ

- Η **συνεργασία** μεταξύ των βασικών αρχών, αρμοδίων για την πρόληψη και την αντιμετώπιση των πυρκαγιών βελτιώνεται σημαντικά.
- Ο **προϋπολογισμός που διατίθεται για** δραστηριότητες **πρόληψης έχει αυξηθεί** τα τελευταία χρόνια, επιδεικνύοντας την έμπρακτη δέσμευση της κυβέρνησης να στραφεί από μια προσέγγιση που επικεντρώνεται σε μεγάλο βαθμό στην αντιμετώπιση σε μια πιο ολιστική προσέγγιση.
- Το **πρόγραμμα AntiNero**, το πιο σημαντικό επενδυτικό πρόγραμμα για την πρόληψη των πυρκαγιών των τελευταίων δεκαετιών, επιτρέπει μεγάλες βελτιώσεις στη διαχείριση των δασών και στη μείωση του κινδύνου πυρκαγιών. Θεωρείται απαραίτητο να διερευνηθούν λύσεις για την εξασφάλιση της συνέχειας των προγραμμάτων πρόληψης μακροπρόθεσμα και να ενισχυθούν οι δραστηριότητες αγροτικής βιοοικονομίας, που σε μεγάλο βαθμό είναι αυτοχρηματοδοτούμενες.
- Οι συνεχείς προσπάθειες για τη συγκέντρωση κρίσιμων δεδομένων θα παράσχουν σύντομα χάρτες και εργαλεία ζωτικής σημασίας όχι μόνο για την πρόληψη αλλά και για ολόκληρο τον κύκλο

διαχείρισης του κινδύνου καταστροφών (DRMC). Το **Δασικό Κτηματολόγιο**, το οποίο βρίσκεται στη φάση ολοκλήρωσης του, είναι σημαντικό επίτευγμα που θα υποστηρίξει ολόκληρο τον DRMC.

- Η ελληνική επιστημονική κοινότητα έχει ήδη αναπτύξει αρκετά **νέα εργαλεία, πληροφοριακό υλικό και ψηφιακές πλατφόρμες** που επιτρέπουν την καλύτερη κατανόηση και διαχείριση του κινδύνου πυρκαγιών. Επιπλέον, πανεπιστημιακά εκπαιδευτικά προγράμματα καθιερώνουν έναν ανεκτίμητο πόρο, μια δεξαμενή εμπειρογνομόνων, τα μέλη της οποίας θα μπορούσαν να προσληφθούν από τους φορείς που διαχειρίζονται τον κίνδυνο πυρκαγιών.
- Καθιερώθηκαν **σαφείς περιορισμοί** για την μείωση του κινδύνου πυρκαγιάς, ιδίως κατά την αντιτυρική περίοδο.
- Τα τελευταία χρόνια έχουν υλοποιηθεί διάφορες επικοινωνιακές καμπάνιες και **εκστρατείες ευαισθητοποίησης του πληθυσμού για τον κίνδυνο πυρκαγιάς** από διάφορους φορείς, ορισμένες από αυτές σε άλλες γλώσσες ώστε να καλύψουν τις ανάγκες των τουριστών.
- Οι **συνεταιρισμοί εκπαιδευμένων δασεργατών**, καταγεγραμμένων σε επίσημο μητρώο, είναι μια καλή πρακτική που εφαρμόζεται ήδη. Επιπλέον, το γεγονός ότι το μεγαλύτερο μέρος των εργαζομένων είναι κάτοικοι της περιοχής καθιστά την πρακτική αυτή ακόμη πιο πολύτιμη.
- Το **πilotικό σχέδιο προδιαγεγραμμένης καύσης που εφαρμόστηκε στη Χίο** αποδείχθηκε μια εξαιρετική πρωτοβουλία που θα μπορούσε να οδηγήσει σε μια αλλαγή κανόνων σε εθνικό επίπεδο όσον αφορά τη χρήση των προδιαγεγραμμένων καύσεων. Τέτοιες πρωτοβουλίες άλλων μέτρων πρόληψης θα μπορούσαν να προωθηθούν περαιτέρω για να κινητοποιήσουν τις τοπικές κοινότητες και να ενισχύσουν την ανθεκτικότητα.

ΕΤΟΙΜΟΤΗΤΑ ΓΙΑ ΠΥΡΚΑΓΙΕΣ

- Η **Κατάσταση Ειδικής Κινητοποίησης** που εισήχθη πρόσφατα στην εθνική νομοθεσία είναι ένα ισχυρό και αποτελεσματικό μέτρο για την αύξηση της ετοιμότητας σε περίπτωση επικείμενης καταστροφής.
- Το Γενικό Σχέδιο Αντιμετώπισης Εκτάκτων Αναγκών εξαιτίας Δασικών Πυρκαγιών **IOLA-OS 2** αποτελεί βασικό **πολυκλαδικό εργαλείο σχεδιασμού** για την ετοιμότητα έναντι δασικών πυρκαγιών, που θέτει στόχους και ρόλους, ενώ καθορίζει και τις σαφείς αρμοδιότητες των βασικών φορέων καθώς και τις διαδικασίες συντονισμού.
- Υπάρχουν ισχυρά πρωτόκολλα για την προστασία των πολιτών, ιδίως όσον αφορά στις **διαδικασίες προληπτικής εκκένωσης**, συμπεριλαμβανομένης της επιμελητείας/υλικοτεχνικής υποστήριξης.
- Ένα **σύστημα συναγερμού μέσω μηνυμάτων του αριθμού 112** είναι σε λειτουργία για τη διάδοση έγκαιρων πληροφοριών στο κοινό κατά τη διάρκεια ή σε περίπτωση επικείμενης πυρκαγιάς (αν και τα όρια πρέπει να αναθεωρηθούν, ώστε να αποφευχθεί η υπερχρήση τέτοιων μηνυμάτων). Στο σύστημα αυτό συμβάλλουν διάφοροι φορείς ανάλογα με το ρόλο τους (π.χ. το Υπουργείο Εξωτερικών παρεμβαίνει εάν κινδυνεύουν τουρίστες).
- Οι **μονάδες αντιμετώπισης** των πυρκαγιών αυξάνονται συνεχώς τα τελευταία χρόνια, λόγω του αυξανόμενου κινδύνου.

- Υπάρχει κατάλογος από **ιδιωτικές εταιρίες** που μπορούν να υποστηρίξουν σε τοπικό επίπεδο τις δημόσιες αρχές σε περίπτωση έκτακτης ανάγκης, διευκολύνοντας τις επιχειρήσεις αντιμετώπισης. Επίσης, τηρείται **μητρώο εξοπλισμού και μέσων** που μπορούν να δανειστούν οι αρχές βάσει υπογεγραμμένων συμβάσεων.
- Η ανάπτυξη **ομάδων εθελοντών πυροσβεστών** αποτελεί πολύτιμη πρωτοβουλία που συμπληρώνει τα καθιερωμένα μέσα αντιμετώπισης. Θα μπορούσε να προωθηθεί περαιτέρω και να ενεργοποιούνται υπό προκαθορισμένες συνθήκες, εφόσον έχουν τα ίδια προσόντα και την ίδια εκπαίδευση με τους επαγγελματίες πυροσβέστες.
- Η Διεύθυνση Εθελοντισμού και Εκπαίδευσης της ΓΓΠΠ διαχειρίζεται και ενημερώνει τακτικά ένα **Μητρώο Εθελοντών** με **σαφείς προδιαγραφές** για την εγγραφή ως εθελοντική ομάδα/μέλος. Επίσης, οι εθελοντές εκπαιδεύονται και υποβάλλονται σε ελέγχους σωματικής/ψυχικής υγείας πριν γίνουν δεκτοί.
- Η ανάπτυξη **Ειδικών Μονάδων Δασικών Επιχειρήσεων (ΕΜΟΔΕ)** αποτελεί μια εξαιρετική πρωτοβουλία που θα πρέπει να προωθηθεί περαιτέρω. Η ικανότητά τους να προσεγγίζουν και να καταστέλλουν γρήγορα πυρκαγιές σε απομακρυσμένες περιοχές είναι ζωτικής σημασίας. Επιπλέον, είναι οι μόνες ομάδες που επιτρέπεται να χρησιμοποιούν την τεχνική αντιπύρ και να συμμετέχουν σε δράσεις πρόληψης, γεγονός που επιβεβαιώνει την ολιστική προσέγγιση που ακολουθείται.
- Η **Πυροσβεστική Ακαδημία** είναι ένας εξαιρετικός θεσμός στον οποίο έχουν πρόσβαση σπουδαστές από διαφορετικά γνωστικά πεδία. Ακόμα και πολίτες που δεν σχετίζονται με πυροσβεστικές δράσεις μπορούν να παρακολουθήσουν τα μαθήματά της για να εκπαιδευτούν σε διάφορους τομείς και να διευρύνουν τις γνώσεις τους σχετικά με τους κινδύνους.
- Η σημασία της **διεξαγωγής ασκήσεων** σε διάφορα διοικητικά επίπεδα έχει πλέον εμπεδωθεί. Όποτε είναι δυνατόν, πραγματοποιούνται διαδικασίες **αποκόμισης διδαγμάτων** με τη συμμετοχή των εμπλεκόμενων φορέων. Επιπλέον, συντάσσονται τελικές εκθέσεις που στη συνέχεια διανέμονται στους ενδιαφερόμενους.
- Η Ελλάδα συμμετέχει ενεργά στις ευκαιρίες που παρέχονται στο πλαίσιο του **Μηχανισμού Πολιτικής Προστασίας της Ένωσης** όσον αφορά τις ασκήσεις, την εκπαίδευση και τις διεθνείς ανταλλαγές.

ΑΝΤΙΜΕΤΩΠΙΣΗ

- Το **Ενιαίο Συντονιστικό Κέντρο Επιχειρήσεων και Διαχείρισης Κρίσεων - ΕΣΚΕΔΙΚ** αποτελεί μια κρίσιμη συνιστώσα του συστήματος διαχείρισης καταστροφών της Ελλάδας, διασφαλίζοντας την παρακολούθηση της κατάστασης στη χώρα επί 24ωρου βάσεως 7 μέρες την εβδομάδα και έναν καλό μηχανισμό συντονισμού στο στάδιο της καταστολής. Η παρουσία εκπροσώπων διαφορετικών αρμόδιων αρχών διευκολύνει τη ροή πληροφοριών και τη συνεργασία μεταξύ των βασικών φορέων.
- Το **λογισμικό ENGAGE** είναι ένα καλό εργαλείο πληροφορικής για την υποστήριξη του συντονισμού των επιχειρήσεων στο πεδίο και την ανταλλαγή γεωαναφερόμενων πληροφοριών μεταξύ φορέων των διάφορων διοικητικών επιπέδων.

- Τα συντονιστικά όργανα που ενεργοποιούνται σε συμβάντα καταστροφών σε δημοτικό και περιφερειακό επίπεδο (Σ.Τ.Ο. και Σ.Ο.Π.Π.), συμπεριλαμβανομένων των μεγάλων δασικών πυρκαγιών, αποτελούν τον παράγοντα-κλειδί που διασφαλίζει πως όλες οι αρχές και οι φορείς συμμετέχουν ενεργά στις επιχειρήσεις αντιμετώπισης και δρουν συντονισμένα.
- **Νέοι τρόποι συνεργασίας** μεταξύ της Δασικής Υπηρεσίας και του Πυροσβεστικού Σώματος στο στάδιο της αντιμετώπισης των πυρκαγιών καθιερώθηκαν πρόσφατα με τον Νόμο 5075/2023. Συγκεκριμένα, η σύσταση **Υποστηρικτικών Ομάδων Διαχείρισης Δασικών Πυρκαγιών Μεγάλης Κλίμακας**, αποτελούμενων από τεχνικούς εμπειρογνώμονες της Δασικής Υπηρεσίας που υποστηρίζουν τη λήψη αποφάσεων κατά τη διάρκεια μεγάλων πυρκαγιών, αποτελεί μια εξαιρετική ευκαιρία για τη βελτίωση της αποτελεσματικότητας και την ανταλλαγή γνώσεων.
- Πολύ συγκεκριμένες διαδικασίες για **προληπτικές απομακρύνσεις πολιτών** εφαρμόζονται από το 2008 και πρόσφατα επικαιροποιήθηκαν με το GSCPA 1161 του 2023, «Κατευθυντήριες οδηγίες για την οργανωμένη προληπτική απομάκρυνση πολιτών για λόγους προστασίας από εξελισσόμενη ή επικείμενη καταστροφή εξαιτίας δασικών πυρκαγιών και οδηγίες για την σύνταξη ειδικών σχεδίων στα πλαίσια εφαρμογής του αρθ. 23 παρ. 4 του Ν. 4662/2020.». Επιπλέον, έχουν αναπτυχθεί ειδικές διαδικασίες σε συνεργασία με το Υπουργείο Εξωτερικών για την παροχή βοήθειας σε **τουρίστες και ξένους πολίτες** κατά τη διάρκεια μαζικών εκκενώσεων.
- Όσον αφορά την υποστήριξη ως κράτος υποδοχής, έχει δημιουργηθεί μια ομάδα **εκπαιδευμένων αξιωματικών-συνδέσμων** για την υποστήριξη των διεθνών ομάδων που αναπτύσσονται στην Ελλάδα μέσω του Ευρωπαϊκού Μηχανισμού Πολιτικής Προστασίας και/ή διμερών συμφωνιών. Η αποτελεσματικότητά τους αποδείχθηκε κατά τη διάρκεια των ενεργοποιήσεων του μηχανισμού αυτού το καλοκαίρι του 2023.

ΑΝΑΚΑΜΨΗ ΚΑΙ ΑΠΟΚΟΜΙΣΗ ΔΙΔΑΓΜΑΤΩΝ

- Έχοντας αναγνωρίσει τη σημασία του εντοπισμού των αιτιών των δασικών πυρκαγιών, συστάθηκε στο Ελληνικό Πυροσβεστικό Σώμα η **Διεύθυνση Αντιμετώπισης Εγκλημάτων Εμπρησμού (ΔΑΕΕ)** η οποία είναι σε πλήρη λειτουργία.
- Το **Ελληνικό Πυροσβεστικό Σώμα** διαδραματίζει κρίσιμο ρόλο στις έρευνες πυρκαγιών και υποστηρίζεται από άλλες δυνάμεις όπως η Ελληνική Αστυνομία.
- **Υπάρχουν διάφορες διαδικασίες για τον εντοπισμό καλών πρακτικών και των τομέων που χρήζουν βελτίωσης.** Συγκεκριμένα, οι υπηρεσίες που εμπλέκονται στην καταστολή των δασικών πυρκαγιών πραγματοποιούν δύο συναντήσεις, μια πριν και μια μετά την αντιτυρική περίοδο.

Οι βασικές συστάσεις συνοψίζονται στα εξής:

ΔΙΑΚΥΒΕΡΝΗΣΗ ΤΗΣ ΔΙΑΧΕΙΡΙΣΗΣ ΤΟΥ ΚΙΝΔΥΝΟΥ ΠΥΡΚΑΓΙΩΝ

- Μια πιο **ενοποιημένη διαχείριση του κινδύνου πυρκαγιών** θα συμβάλει στην αύξηση της ανθεκτικότητας, προωθώντας μια **ολιστική και διατομεακή προσέγγιση**, διασφαλίζοντας παράλληλα τη συνοχή των πολιτικών. Για την ενίσχυση των δυνατοτήτων διαχείρισης του κινδύνου πυρκαγιών και την ανάπτυξη ανθεκτικών περιοχών ενόψει των περιβαλλοντικών και

κοινωνικοοικονομικών αλλαγών στις διάφορα διοικητικά επίπεδα, απαιτείται μια προσέγγιση που να παίρνει υπ' όψη της το σύνολο της κοινωνίας και το σύνολο της κρατικού μηχανισμού.

- Το σύστημα διακυβέρνησης κινδύνου πυρκαγιών στην Ελλάδα είναι πυραμιδοειδές, χαρακτηρίζεται από επίσημες πολιτικές και ιεραρχικές σχέσεις και επικεντρώνεται κυρίως στην καταστολή των πυρκαγιών και την αντιμετώπιση έκτακτων αναγκών. Η εξασφάλιση ενός **βαθμού ευελιξίας** και η **μεγαλύτερη εστίαση στην πρόληψη**, θα μπορούσε να συμβάλει στην επίτευξη μεγαλύτερης αποτελεσματικότητας και στη μείωση των απωλειών.
- Το συνολικό νομικό και θεσμικό πλαίσιο για τη διαχείριση του κινδύνου καταστροφών και πυρκαγιών έχει αλλάξει αρκετές φορές τα τελευταία χρόνια, οδηγώντας σε σημαντικές βελτιώσεις. Ωστόσο, είναι δύσκολο να επιβληθούν και να λειτουργήσουν τόσες αλλαγές, ιδίως σε τοπικό επίπεδο. **Επαρκής χρόνος για τη δοκιμή της αποτελεσματικότητας αυτών των πολιτικών** θα εξασφάλιζε μεγαλύτερη αποτελεσματικότητα και γενικότερη σταθερότητα.
- Η εξασφάλιση μεγαλύτερης **διαφάνειας και λογοδοσίας** στις εθνικές διαδικασίες λήψης αποφάσεων σχετικά με τον προγραμματισμό των επενδύσεων θα μπορούσε να συμβάλει στην ενίσχυση της αποτελεσματικότητας του συστήματος και στην αύξηση της εμπιστοσύνης μεταξύ των βασικών ενδιαφερομένων. Μια **προσέγγιση από κάτω προς τα πάνω** και ένα σαφές σύστημα **παρακολούθησης** της κατανομής της δημόσιας χρηματοδότησης και των δαπανών θα μπορούσαν να βοηθήσουν.
- Μια **εθνική επιτροπή διαχείρισης κινδύνου πυρκαγιών** ή ένα γενικότερο συντονιστικό όργανο που θα αποτελείται από όλους τους βασικούς φορείς θα μπορούσε να βοηθήσει, μεταξύ άλλων, στην καθιέρωση μιας **στρατηγικής διαχείρισης κινδύνου πυρκαγιών** σύμφωνα με τη συνολική στρατηγική μείωσης κινδύνου καταστροφών και την **Εθνική Πλατφόρμα για τη Μείωση του Κινδύνου Καταστροφών**. Έτσι θα μπορούσαν να αποσαφηνιστούν οι ρόλοι και οι αρμοδιότητες, να διευκολυνθούν ο κάθετος και οριζόντιος συντονισμός και να αυξηθούν οι διασυνδέσεις μεταξύ των βασικών εμπλεκόμενων μερών.
- Παρά τον κρίσιμο ρόλο του στη διαχείριση του κινδύνου πυρκαγιών, το τοπικό επίπεδο παρουσιάζει κρίσιμες αδυναμίες, ιδίως όσον αφορά στην έλλειψη εξειδικευμένου προσωπικού και οικονομικών πόρων. Η **ενίσχυση του τοπικού επιπέδου** και η **εξασφάλιση μιας προσέγγισης από κάτω προς τα πάνω** είναι καθοριστικής σημασίας για την αποτελεσματικότητα του συνόλου του συστήματος.
- Μια **στενότερη σύμπραξη και συνεργασία μεταξύ δημόσιων φορέων και δομών έρευνας** θα συνέβαλε στην αξιοποίηση και τη μεταφορά επικαιροποιημένων δεδομένων, αναλύσεων και καινοτόμων εργαλείων στην επιχειρησιακή διαδικασία. Ταυτόχρονα, θα μπορούσε να βοηθήσει στην εστίαση της έρευνας και στην εφαρμογή εργαλείων που χρειάζονται οι δημόσιοι οργανισμοί.
- Η **Δασική Υπηρεσία και η Πυροσβεστική Υπηρεσία**, που γίνονται ολοένα πιο **συμπληρωματικές**, μπορούν να μετέχουν στο μέγιστο δυνατό βαθμό ή μια στις πρωτοβουλίες της άλλης (π.χ. η Δασική Υπηρεσία θα μπορούσε να παρέχει πρόσθετες γνώσεις και προσωπικό για να βοηθήσει στην καταστολή, ενώ η Πυροσβεστική Υπηρεσία θα μπορούσε να παρέχει προσωπικό και τεχνικούς πόρους για να βοηθήσει στην πρόληψη).

- Απαιτείται μια αποτελεσματική κατανομή του συνόλου των οικονομικών πόρων που διατίθενται για τη διαχείριση του κινδύνου πυρκαγιών. Υπάρχει σαφής ανάγκη να **αυξηθούν τα κονδύλια για δραστηριότητες πρόληψης πυρκαγιών**. Επίσης, ένας **μακροπρόθεσμος προϋπολογισμός** είναι απαραίτητος για την εξασφάλιση της βιωσιμότητας των μέτρων πρόληψης με την πάροδο των ετών και της διαθεσιμότητας εξειδικευμένου προσωπικού στη δασική υπηρεσία.

ΕΚΤΙΜΗΣΗ ΚΙΝΔΥΝΟΥ ΠΥΡΚΑΓΙΑΣ

- Εντοπίστηκε η ανάγκη **επικαιροποίησης του εθνικού χάρτη κινδύνου πυρκαγιών**, που χρονολογείται από το 1980 (αν και επικυρώνεται ετησίως με στατιστική ανάλυση). Παρά το γεγονός ότι είναι ξεπερασμένος, εξακολουθεί να θεωρείται πηγή πληροφοριών για την εκπόνηση στρατηγικών σχεδίων και τον προσδιορισμό μέτρων διαχείρισης του κινδύνου πυρκαγιών.
- Συνιστάται η ανάπτυξη μιας **ολοκληρωμένης εκτίμησης της επικινδυνότητας πυρκαγιών** σε εθνικό επίπεδο, λαμβάνοντας υπόψη τα διάφορα τρωτά σημεία και τις διατομεακές επιπτώσεις. Εκτός από πληροφορίες για παρελθόντα γεγονότα, στις αναλύσεις θα πρέπει να λαμβάνονται υπόψη και οι μελλοντικές εκτιμήσεις όσον αφορά τις κλιματικές, περιβαλλοντικές και κοινωνικοοικονομικές αλλαγές. **Μια κοινή πρωτοβουλία της ερευνητικής και ακαδημαϊκής κοινότητας και των φορέων του δημοσίου** θα επέτρεπε την αξιοποίηση των εξαιρετικών ερευνητικών δυνατοτήτων και της εμπειρογνομosύνης που είναι ήδη διαθέσιμα.
- Συνιστάται ιδιαίτερα να δοθεί ιδιαίτερη έμφαση στην **αξιολόγηση της επικινδυνότητας πυρκαγιών σε περιοχές διεπαφής δάσους-άστεως (WUI)**, ώστε να υποστηριχθούν οι διαδικασίες σχεδιασμού διαχείρισης κινδύνου και να δοθεί προτεραιότητα σε μέτρα μείωσης του κινδύνου σε αυτές τις κρίσιμες περιοχές που να είναι αποτελεσματικά. Τα **νέα εργαλεία** που έχουν ήδη εφαρμοστεί από τα **ερευνητικά ιδρύματα** θα μπορούσαν να είναι χρήσιμα για τη διεξαγωγή αυτής της διαδικασίας.
- Όσον αφορά ειδικότερα στους χάρτες, απαιτείται **αποσαφήνιση της ορολογίας**. Η χρήση ορισμένων όρων στις διαδικασίες αξιολόγησης και χαρτογράφησης (π.χ. κίνδυνος, ευαισθησία, πιθανότητα) εναλλάσσεται και θα μπορούσε να οδηγήσει σε παρερμηνείες και καταχρήσεις.

ΣΧΕΔΙΑΣΜΟΣ ΔΙΑΧΕΙΡΙΣΗΣ ΚΙΝΔΥΝΟΥ ΠΥΡΚΑΓΙΑΣ

- Οι διαδικασίες σχεδιασμού της διαχείρισης του κινδύνου πυρκαγιών θα πρέπει να στηρίζονται στην παραδοχή ότι η **πυρκαγιά είναι ένας παράγοντας διαμόρφωσης του τοπίου και μια φυσική διαδικασία**. Ως εκ τούτου, το πεδίο εφαρμογής του σχεδιασμού διαχείρισης του κινδύνου θα πρέπει να είναι η μείωση και ο μετριασμός μεγάλων και ανεξέλεγκτων πυρκαγιών, επιτρέποντας έτσι την καλή χρήση της φωτιάς υπό ασφαλείς συνθήκες.
- Θα πρέπει να αναπτυχθεί ένα **γενικότερο ενοποιημένο σχέδιο διαχείρισης του κινδύνου πυρκαγιών**, με την πρόθεση να αποτελέσει σχέδιο δράσης που ιδανικά θα θέσει σε λειτουργία τη συνολική στρατηγική διαχείρισης του κινδύνου και θα μπορεί λάβει πόρους από μια **ενιαία ροή χρηματοδότησης**. Τα σχέδια διαχείρισης του κινδύνου σε υπο-εθνικό επίπεδο και τα τομεακά σχέδια θα πρέπει να ευθυγραμμίζονται με το εθνικό και να προσδιορίζουν λεπτομερή μέτρα, τις αρμόδιες αρχές για την εφαρμογή τους, το χρονοδιάγραμμα και το κόστος, όπως γίνεται και με το εθνικό. Επίσης, θα πρέπει πάντα να εφαρμόζονται επίσημες διαδικασίες **παρακολούθησης και αξιολόγησης**, καθώς και **αναθεωρήσεις σε τακτική βάση**.

- Ο σχεδιασμός θα πρέπει να εμπλέκειν **όλους τους σχετικούς φορείς** και να περιλαμβάνει μια **συνιστώσα «από κάτω προς τα πάνω»**, όπου οι υλοποιήσεις έργων σε τοπική/περιφερειακή κλίμακα και οι ανάγκες των φορέων που βρίσκονται πιο κοντά στο πεδίο και τις κοινότητες θα ενημερώνουν με στοιχεία το εθνικό σχέδιο, τα σχετικά μέτρα και τον προϋπολογισμό.
- Συνιστάται ο **εξορθολογισμός των υφιστάμενων διαδικασιών σχεδιασμού** στα διάφορα διοικητικά επίπεδα, ώστε να διασφαλιστεί η συνοχή, να αποφευχθούν οι επικαλύψεις και να προωθηθεί η περαιτέρω συνεργασία μεταξύ των βασικών φορέων που διαδραματίζουν ρόλο στη διαχείριση του κινδύνου πυρκαγιών. Η εκπόνηση **ενιαίων σχεδίων που θα καλύπτουν το σύνολο του γενικότερου σχεδίου διαχείρισης του κινδύνου καταστροφών** στις περιφέρειες θα μπορούσε να αποτελέσει μια επιλογή προς διερεύνηση.
- Η ικανότητα της **τοπικής αυτοδιοίκησης** να αναπτύσσει και να εφαρμόζει ολοκληρωμένα σχέδια για την πρόληψη, την ετοιμότητα και την αντιμετώπιση του κινδύνου πυρκαγιών πρέπει να ενισχυθεί τόσο από το περιφερειακό όσο και από το εθνικό επίπεδο. Επίσης, οι **τοπικοί εμπλεκόμενοι φορείς** που ζουν μέσα/κοντά στο δάσος ή βιοπορίζονται από αυτό θα πρέπει να συμμετέχουν ενεργά στη διαδικασία σχεδιασμού.
- Η **συστηματική καταγραφή των επενδύσεων και των δαπανών** για το συνολικό κύκλο διαχείρισης του κινδύνου πυρκαγιών θα μπορούσε να βοηθήσει στην εκτίμηση της ποιότητας των δαπανών και να επιτρέψει έναν καλύτερο σχεδιασμό. Η κοινοποίηση αυτών των δεδομένων στους βασικούς ενδιαφερόμενους θα αυξήσει τη λογοδοσία και τη διαφάνεια.

ΠΡΟΛΗΨΗ ΠΥΡΚΑΓΙΩΝ

- Θα ήταν χρήσιμο να αναθεωρηθεί συνολικά το **νομοθετικό και θεσμικό πλαίσιο για την πρόληψη των πυρκαγιών λαμβάνοντας υπόψη τα αίτια** και, αξιοποιώντας την ευκαιρία, να συμπεριλάβουν την κλιματική αλλαγή και διατομεακές εκτιμήσεις.
- Ενώ η **σύμπραξη και η συνεργασία** μεταξύ των αρχών, αρμοδίων για την πρόληψη και την καταστολή των πυρκαγιών έχει βελτιωθεί σημαντικά τα τελευταία χρόνια, απαιτούνται περαιτέρω προσπάθειες προς αυτή την κατεύθυνση, για παράδειγμα η συμμετοχή της Πυροσβεστικής Υπηρεσίας σε δραστηριότητες πρόληψης προς υποστήριξη της Δασικής Υπηρεσίας Σύμφωνα με το άρθρο 38 του Νόμου 4892 του 2022.
- Η **Δασική Υπηρεσία** διαδραματίζει κρίσιμο ρόλο στην πρόληψη των πυρκαγιών και πρέπει **επαιγόντως να ενισχυθεί** με επιπλέον εξειδικευμένο προσωπικό και κονδύλια. Απαιτείται επίσης ένας **μακροπρόθεσμος προϋπολογισμός** για την πρόληψη, ώστε να διασφαλιστεί η εφαρμογή και η βιωσιμότητα των μέτρων με την πάροδο του χρόνου.
- Πολλοί οργανισμοί και εμπλεκόμενοι φορείς συμμετέχουν ενεργά και αποτελεσματικά στις δραστηριότητες πρόληψης. Ωστόσο, θεωρείται αναγκαίο να βελτιωθεί ο συντονισμός τους, να αποσαφηνιστούν και να εξορθολογιστούν οι ρόλοι και οι αρμοδιότητες και να **ενισχυθεί η συνεργασία και η συνεννόηση** με ορισμένους βασικούς φορείς.
- Μοντέλα σχέσεων μεταξύ του **τοπικού πληθυσμού και των δασών** θα πρέπει να προωθηθούν περαιτέρω συνδυάζοντας την υιοθέτηση κοινωνικοοικονομικών εναλλακτικών λύσεων για το

αγροτικό περιβάλλον με βάση τη δασική κουλτούρα, η οποία εμβαθύνει την πορεία της αειφορίας και της κοινωνικής συμμετοχής.

- Οι **επενδύσεις στη διαχείριση των δασών** θα πρέπει να επεκταθούν περαιτέρω με τη χρήση τόσο δημόσιων όσο και ιδιωτικών πόρων, όπου αυτό είναι εφικτό. Θα πρέπει να εξεταστεί η θέσπιση **φορολογικών κινήτρων** για τους ιδιώτες δασοκτήμονες που πραγματοποιούν προληπτικές δράσεις (μείωση της καύσιμης ύλης) στις ιδιοκτησίες τους, καθώς και κίνητρα για την τόνωση δασικών δραστηριοτήτων που αυξάνουν την απασχόληση του τοπικού ανθρώπινου δυναμικού, μειώνοντας παράλληλα το φορτίο καύσιμης ύλης.
- Παρόλο που υπάρχουν σαφείς κανόνες για το **σχεδιασμό χρήσεων γης** που καθορίζουν λεπτομερώς πού επιτρέπονται και που απαγορεύονται νέα κτίρια σε σχέση με τον κίνδυνο πυρκαγιών, θα πρέπει να βελτιωθεί ο βαθμός επιβολής τους. Ομοίως, θα πρέπει να βελτιωθεί η εφαρμογή των κανόνων σχετικά με τα προληπτικά μέτρα που παίρνουν **ιδιοκτήτες κτιρίων και υποδομών ζωτικής σημασίας**.
- Η σημασία των **προδιαγεγραμμένων καύσεων** για τη διαχείριση της καύσιμης ύλης έχει πλέον κατανοηθεί. Είναι σημαντικό να θεσπιστεί το νομικό πλαίσιο για την εφαρμογή τους και να συνοδεύεται από διατάξεις για την κατάρτιση, τις διαδικασίες που πρέπει να ακολουθούνται και κατευθυντήριες γραμμές για τον προ-προσδιορισμό των περιοχών όπου πρέπει να εφαρμοστεί. Οι **προδιαγεγραμμένες καύσεις αποτελούν** και μια ευκαιρία για την προώθηση της συνεργασίας μεταξύ της Δασικής Υπηρεσίας και του Πυροσβεστικού Σώματος και την ενίσχυση κοινών εκπαιδευτικών δραστηριοτήτων.
- Σαφέστερες κατευθυντήριες γραμμές για τη **διαχείριση της καύσιμης ύλης σε επίπεδο τοπίου** (συμπεριλαμβανομένων των δασών, αλλά όχι μόνο) θα καθιστούσαν την πρόληψη σαφέστερη για τις τοπικές κοινότητες και οργανώσεις. Θα μπορούσε να εξεταστεί το ενδεχόμενο να επιτραπούν ορισμένες οικονομικές δραστηριότητες στα δάση και να ενθαρρυνθεί η **βιοοικονομία** με διττό σκοπό την πρόληψη των πυρκαγιών και την εξασφάλιση πρόσθετων εσόδων για τους δασοκτήμονες. Αυτό περιλαμβάνει την πιθανή επαναφορά της **βόσκησης** ως εργαλείο για τη διαχείριση της αύξησης της καύσιμης ύλης σε δασικές εκτάσεις ή τη χρήση **αντιπυρικών ζωνών** για άλλες οικονομικές δραστηριότητες (π.χ. αμπελώνες, παραγωγή φελλού).
- Οι εκστρατείες ευαισθητοποίησης σε θέματα κινδύνου θα πρέπει να βελτιωθούν περαιτέρω, ώστε να καλύψουν ιδίως τις **απομακρυσμένες αγροτικές περιοχές** και τα πιο **ευάλωτα άτομα**. Επιπλέον, συνιστάται η αξιολόγηση της αποτελεσματικότητάς τους και ο σχεδιασμός τους σε συνάρτηση με τις **κύριες αιτίες πυρκαγιών**. Απαιτείται η υιοθέτηση μιας **συνολικής επικοινωνιακής στρατηγικής/κατευθυντήριας γραμμής για τον κίνδυνο πυρκαγιάς**, η οποία θα καθοριστεί από κοινού με τους βασικούς φορείς σε εθνικό επίπεδο, για να εξορθολογιστούν τα βασικά μηνύματα και να υιοθετηθεί μια κοινή ορολογία.
- Έχει αναπτυχθεί εξαιρετικό υλικό για τα σχολεία που μπορεί να χρησιμοποιηθεί εθελοντικά για την πρωτοβάθμια και δευτεροβάθμια εκπαίδευση. Η συμπερίληψη προγραμμάτων **περιβαλλοντικής εκπαίδευσης στα σχολικά προγράμματα** μπορεί να συμβάλει στην αύξηση της διεύθυνσης των μηνυμάτων ευαισθητοποίησης σε θέματα κινδύνου και στη διασφάλιση της βιωσιμότητας.

ΕΤΟΙΜΟΤΗΤΑ ΓΙΑ ΠΥΡΚΑΓΓΕΣ

- Η **προσαρμογή της έννοιας της αντιπυρικής περιόδου** για την εφαρμογή μιας πιο ευέλικτης προσέγγισης με βάση **άλλα κριτήρια**, όπως οι μετεωρολογικές συνθήκες ή οι παρατεταμένες περιόδοι ξηρασίας ή καταπόνησης της βλάστησης, θα μπορούσε να αυξήσει τη συνολική ετοιμότητα του συστήματος όταν οι πυρκαγιές εκδηλώνονται πέραν της παραδοσιακής περιόδου.
- Η **Πυροσβεστική Υπηρεσία** θα μπορούσε να υποστηρίξει τη **Δασική Υπηρεσία** σε δραστηριότητες πρόληψης και το αντίστροφο, ανάλογα με την εποχή. Για να είναι αποτελεσματική αυτή η συνεργασία, θα πρέπει να πραγματοποιούνται σε τακτική βάση **κοινές εκπαιδεύσεις** πάνω στη διαχείριση των καυσίμων και τις δραστηριότητες ετοιμότητας και ανταπόκρισης, ώστε να διασφαλίζεται η διαλειτουργικότητα και η κοινή προσέγγιση.
- Οι **Ειδικές Μονάδες Δασικών Επιχειρήσεων (ΕΜΟΔΕ)** θα πρέπει να **ενισχυθούν** περαιτέρω, σε συνδυασμό με τη Δασική Υπηρεσία, και οι δραστηριότητές τους για την **πρόληψη** των πυρκαγιών θα μπορούσαν να επεκταθούν, ιδίως κατά τις χειμερινές περιόδους, για να υποστηρίξουν τη Δασική Υπηρεσία στη διαχείριση τοπίου. Επίσης, συνιστάται η μεταφορά ορισμένων δεξιοτήτων και ικανοτήτων των ΕΜΟΔΕ σε άλλες ομάδες του Πυροσβεστικού Σώματος και η καθιέρωση κοινών προτύπων εκπαίδευσης για όλο το προσωπικό της πυροσβεστικής.
- Η βελτίωση της λειτουργίας και του αριθμού εκπαιδευομένων της **Ακαδημίας Πολιτικής Προστασίας** θα μπορούσε να αποτελέσει βασικό βήμα για τις δραστηριότητες κατάρτισης που απευθύνονται σε διάφορους φορείς, συμπεριλαμβανομένων των δημάρχων, των εθελοντών και των πολιτών.
- Σήμερα καταβάλλεται τεράστια προσπάθεια για **δραστηριότητες περιπολιών**, με τη συμμετοχή πολλών φορέων που χρησιμοποιούν διάφορα μέσα και εργαλεία. Θα μπορούσε να διεξαχθεί εσωτερική ανάλυση που να περιλαμβάνει **εκτιμήσεις κόστους-οφέλους**, για την αξιολόγηση της αποτελεσματικότητας του συνολικού συστήματος περιπολιών και την αποτελεσματικότερη αναδιοργάνωσή του.

ΑΝΤΙΜΕΤΩΠΙΣΗ

- Το ελληνικό σύστημα διαχείρισης των πυρκαγιών είναι καλά εδραιωμένο και βασίζεται σε εμπειριστικά δεδομένα και πληροφορίες. Θα πρέπει να διερευνηθούν **εναλλακτικές στρατηγικές στην άνευ όρων καταστολή όλων των πυρκαγιών**, ώστε να αυξηθεί η αποτελεσματικότητα του συνολικού συστήματος και να βοηθήσει τους πολίτες να αναπτύξουν άμυνες στις πυρκαγιές.
- Η υλοποίηση ενός **κέντρου συντονισμού σε κάθε Περιφέρεια**, που έχει ήδη προγραμματιστεί και για το οποίο έχουν διατεθεί πόροι, θα αυξήσει σημαντικά την αποτελεσματικότητα του συνολικού συστήματος αντιμετώπισης πυρκαγιών, τον κάθετο και οριζόντιο συντονισμό και τη ροή πληροφοριών.
- Τα **περιφερειακά και τοπικά όργανα επιχειρησιακού συντονισμού** της πολιτικής προστασίας αποτελούν κρίσιμη συνιστώσα του συστήματος αντιμετώπισης για τη διασφάλιση αποτελεσματικών, έγκαιρων και συντονισμένων δράσεων. Για να αυξηθεί η αποτελεσματικότητα του μηχανισμού, είναι σημαντικό να εξασφαλιστεί η **συμμετοχή** όλων των βασικών φορέων και εμπλεκόμενων

μερών που απαιτούνται για τη διαχείριση μιας έκτακτης ανάγκης (συμπεριλαμβανομένων, για παράδειγμα, του ιδιωτικού τομέα και των ΟΚΠ).

- Προκειμένου να διασφαλιστεί ένα ενιαίο και αποτελεσματικό σύστημα αντιμετώπισης, είναι απολύτως απαραίτητο να καταστεί πλήρως λειτουργικό το **Συντονιστικό Όργανο Πολιτικής Προστασίας (ΣΟΠΠ)** σε εθνικό επίπεδο, το οποίο έχει συσταθεί με νόμο.
- Χρειάζεται ένα **ολοκληρωμένο σύστημα διαχείρισης συμβάντων** για την αποσαφήνιση των ρόλων και των αρμοδιοτήτων, των διαδικασιών, του σχεδιασμού, της υλικοτεχνικής υποδομής, των επιχειρήσεων, των πτυχών ασφάλειας, της χρηματοδότησης, του προσωπικού που πρέπει να συμμετάσχει και του τρόπου με τον οποίο διαμορφώνεται η γραμμή της ιεραρχίας κατά τη διάρκεια συμβάντων. Σε αυτή τη βάση, πρέπει να καθοριστούν συγκεκριμένα **προφίλ προσωπικού** και να εφαρμοστούν **προγράμματα κατάρτισης** ώστε να διασφαλιστεί ότι όλοι οι τομείς του συστήματος διαχείρισης συμβάντων είναι στελεχωμένοι με το πλέον εξειδικευμένο προσωπικό.
- Η προστιθέμενη αξία του καθορισμού και της χρήσης ειδικών **χαρτών τακτικής και ανάλυσης της συμπεριφοράς των πυρκαγιών** για την υποστήριξη των δραστηριοτήτων αντιμετώπισης κατά τη διάρκεια μεγάλων πυρκαγιών θα πρέπει να διερευνηθεί περισσότερο για την ενίσχυση της αποτελεσματικότητας του συστήματος διαχείρισης έκτακτων αναγκών.
- Σε περίπτωση ενεργοποίησης του **Μηχανισμού Πολιτικής Προστασίας της Ένωσης**, συνιστάται εντόνως να συντάσσονται και να αποστέλλονται στο Κέντρο Συντονισμού Αντιμετώπισης Εκτάκτων Αναγκών εμπεριστατωμένα **αιτήματα διεθνούς βοήθειας** με βάση μια ενημερωμένη και πολύ λεπτομερή περιγραφή των αναγκών. Ένα ακριβές και σαφές αίτημα είναι ζωτικής σημασίας για να αποσταλεί βοήθεια εγκαίρως και να είναι προσαρμοσμένη στις ανάγκες. Εν όψει αυτού, θα μπορούσαν να αναπτυχθούν **εσωτερικές διαδικασίες και εργαλεία**, όπως λίστες ελέγχου, για την ενεργοποίηση του μηχανισμού.
- Όταν απαιτείται διεθνής συνδρομή, είναι σημαντικό να ακολουθούνται οι **διαδικασίες** ενεργοποίησης του **Ευρωπαϊκού Μηχανισμού και των διμερών συμφωνιών** και να μην λαμβάνονται υπόψη άλλες εκτιμήσεις πέραν των επιχειρησιακών.

ΑΝΑΚΑΜΨΗ ΚΑΙ ΑΠΟΚΟΜΙΣΗ ΔΙΔΑΓΜΑΤΩΝ

- Υπάρχει σαφής ανάγκη να αυξηθούν οι **γνώσεις** σχετικά με τις αιτίες των πυρκαγιών και να εξεταστούν ενδελεχώς τα **βαθύτερα αίτια**. Αν και υπάρχει ειδική διεύθυνση για τη διερεύνηση των αιτιών των πυρκαγιών, επικεντρώνεται μόνο σε εγκλήματα εμπρησμού.
- Δεδομένου ότι ένας από τους κύριους στόχους θα πρέπει να είναι η μείωση του αριθμού των αναφλέξεων, η **συλλογή, ανάλυση, αξιολόγηση και ανταλλαγή** πληροφοριών και δεδομένων σχετικά με τις πραγματικές αιτίες των πυρκαγιών σε διάφορες χωρικές κλίμακες είναι ζωτικής σημασίας για την ενημέρωση του συνολικού συστήματος διαχείρισης του κινδύνου πυρκαγιών και την υλοποίηση στοχευμένων εκστρατειών ευαισθητοποίησης των πολιτών.
- Χρειάζεται επαρκής αριθμός **πολυκλαδικών ομάδων** εξειδικευμένου προσωπικού από τη Δασική Υπηρεσία, την Πυροσβεστική Υπηρεσία και την Αστυνομία για τη διεξαγωγή αποτελεσματικών ερευνών σχετικά με τις αιτίες των πυρκαγιών που θα λαμβάνουν υπόψη όλα τα αποδεικτικά

στοιχεία. Επίσης, απαιτείται περισσότερο **προσωπικό, Τυποποιημένες Διαδικασίες Λειτουργίας (SOPs)** και τακτικά, πιστοποιημένα **προγράμματα κατάρτισης** για τη βελτίωση των ερευνών.

- Δεδομένου ότι η ανάλυση των αιτιών των πυρκαγιών δεν περιορίζεται στη δασοκομία, θα ήταν σκόπιμο να υιοθετηθεί πιο συγκεκριμένη **ορολογία** στα στατιστικά στοιχεία που συλλέγονται και αναλύονται σήμερα, για παράδειγμα πυρκαγιά «υπαίθρου» ή φωτιά «τοπίου», και όχι μόνο δασική/αγροτική πυρκαγιά.
- Το **κόστος των επιχειρήσεων καταστολής** μετά από συμβάντα πυρκαγιάς θα πρέπει να αξιολογείται και να αναλύεται, ώστε να είναι δυνατή η διενέργεια ανάλυσης κόστους-οφέλους και να προσδιορίζονται οι κατάλληλες πολιτικές και τα μέτρα μείωσης του κινδύνου.
- Θα πρέπει να καθιερωθεί μια **επίσημη διαδικασία αποκόμισης διδαγμάτων** που θα διεξάγεται μετά από κάθε αντιπυρική περίοδο και μετά από μείζονα συμβάντα πυρκαγιάς στα διάφορα διοικητικά επίπεδα. Όλες οι ζωτικοί **φορείς** που εμπλέκονται στη διαχείριση του κινδύνου πυρκαγιών θα πρέπει να συμμετέχουν ενεργά. Επίσης, τα αποτελέσματα που συγκεντρώνονται σε επίπεδο ορθών πρακτικών, συστάσεων και διδαγμάτων θα πρέπει να **διαδίδονται** για τη συνεχή βελτίωση του συστήματος.

1 Introduction

1.1 - Peer review of disaster risk management capabilities

Peer review is a common working method for assessing policy performance and implementation. The European Union Civil Protection Mechanism (UCPM) introduced peer review as a means for improving risk management capabilities, stimulating exchange of knowledge, identifying good practices of policy and operations, and fostering integration of risk prevention, preparedness and response. The EC General Directorate for Civil Protection and Humanitarian Aid Operations (DG ECHO) operates the UCPM peer review programme. Since 2013, sixteen countries have completed the voluntary peer review assessment.

The Wildfire peer review is a strategic tool for strengthening resilience against wildfires at the European, national, and sub-national level, with the primary objective of exchanging knowledge through independent analyses conducted by experts ('peers') from UCPM countries.

1.2 - Scope of the review in Greece

Greece, represented by the General Secretariat of Civil Protection (GSCP), Ministry for Climate Crisis and Civil Protection (MCCCCP), submitted a request for a UCPM peer review of wildfire risk management capabilities in September 2023. The scope of the assessment was co-designed through dialogue and consultations that involved stakeholders from the GSCP, the Hellenic Fire Corps (HFC), the Ministry of Environment and Energy (MEE) and the Forest Service. DG ECHO appointed five peers through a call for interest circulated among the UCPM countries. During a field visit organised by the HFC and the MEE/Forest Service held in January/February 2024, the peers engaged in discussions with representatives of more than 20 Greek institutions, including ministries, public agencies, private companies, academic institutions and civil society organisations (see Figures 4 and 5).



Figures 4 and 5 - The peer review team (peers, DG ECHO, CMCC), the NCP team and representatives from key institutions attending plenary meetings during the peer review mission at the GSCP.

The 2023 [Wildfire Peer Review Assessment Framework](#) develops the thematic areas and topics pertaining to wildfire risk management capabilities. Countries may choose between a comprehensive review of all areas or a tailored thematic review focusing on a selection of these. Greece chose a tailored thematic review focused on the following key areas: governance of wildfire risk management (overall governance, legislative and institutional framework), wildfire prevention, wildfire preparedness, and wildfire emergency response (see Figure 3).

UCPM peer review in context. UCPM Peer review is one of the key initiatives for assessing the wildfire risk management system of Greece and for supporting the country in improving its wildfire risk management capabilities. Recommendations specifically aimed at enhancing wildfire prevention in Greece were formulated within the UCPM-funded project "PREvention Action Increases Large fire response preparedness (PREVAIL)" implemented by five research organisations from Italy, Spain, Portugal, Greece (2019-2021). Other more recent projects and initiatives, also with a broader focus on the whole Greek DRM system, have supported, assessed, and provided recommendations to the country to improve its risk management capabilities. These include the report "Inputs and Recommendations for the Development of a Draft NDRM Plan for Greece" by the World Bank (2021) and the ongoing EU-funded project "Capacity Building of the Ministry for Climate Crisis and Civil Protection: Coordinating Emergency Preparedness, Response and Climate Change Adaptation Actions" led by Expertise France. The UCPM Peer Review is complementary to these initiatives; it addresses policy accomplishments achieved by Greece under the Sendai Framework, as well as existing operational arrangements under the UCPM and other European DRR policies and schemes.

1.3 - Greece – economy, society and environment

Greece was a founding member of the United Nations, and the tenth member to join the European Communities (before the establishment of the European Union). It has been part of the eurozone since 2001. It is also a member of many international institutions, including the Council of Europe, NATO, the OECD, the WTO, the OSCE, and is one of the five institutions that form the World Bank Group.

- Administrative government.** Greece, or the Hellenic Republic, is a parliamentary republic. The Prime Minister, elected every four years by Greek citizens, is the head of government and has most political powers. The President, elected by the Parliament every five years, is the head of state and has mostly ceremonial duties. The Ministerial Council, consisting of the Prime Minister, Ministers, Deputy Ministers and Ministers without portfolio, is the collective decision-making body that constitutes the Government of Greece. The Hellenic Republic comprises two levels of governance: the central-State governance, and the local self-government. The central governance, and thus the executive power, is exercised both centrally by the government and line ministries and at a decentralised level (Decentralised Administrations), while the local self-government is exercised at the regional and municipal levels. The administrative-territorial organisation of Greece is made up of 7 Decentralised Administrations – the Decentralised Administration of Attica includes the capital city of Athens –, 13 Regions and 332 Municipalities. The Monastic community of Mont Athos is an autonomous territory with special status.
- Economic development.** Greece is a developed country with an advanced high-income economy, the second largest in the Balkan peninsula. In 2022, the GDP of the Hellenic Republic was \$219.07 billion², and its real GDP is estimated to have grown by 2.2% in 2023³. Despite the rapid recovery due to the reopening of the economy after the pandemic, Greece is still dealing with some major economic challenges, such as the energy crisis, a high level of public debt, a widened current account deficit (in part driven by the energy crisis), a large stock of non-performing loans, and high unemployment rates. Beside the high living costs, the damage caused by recent extreme weather events, including extreme wildfires, has further slowed the growth in real consumption and highlighted the need for broader property insurance coverage. Nonetheless, the average household's purchasing power is projected to grow, as reported by the OECD, thanks to improvements in the business environment, the disbursement of greater EU funds and strengthened global economic conditions, which will facilitate the country's economic recovery. There has also been a recent rise in employment rates

² 'Greece | Data', The World Bank - IBRD IDA, accessed 22 February 2024, <https://data.worldbank.org/country/GR>

³ European Commission, 'Economic Forecast for Greece - European Commission', Economy and Finance, accessed 8 March 2024, https://economy-finance.ec.europa.eu/economic-surveillance-eu-economies/greece/economic-forecast-greece_en.

to their highest level since 2010. Similarly, real investment grew by 7.9% in the year to October 2023 and headline inflation dropped (to October 2023) as energy prices eased⁴. In terms of energy, the country is also becoming more energy efficient, in part because it has started to diversify its sources of energy and in part thanks to the support measures adopted to cushion the inflation on households and businesses. Finally, with the support of EU funds, Greece is making progress towards the adoption of a more sustainable development model⁵.

- Social cohesion.** In January 2023, the population of Greece was 10,394,055, down from 11.1 million in 2010. Life expectancy at birth is currently 80 years⁶. The Human Development Index (HDI) of Greece is very high, positioning the country as 33rd out of 191 countries and territories globally. As a constituent part of the HDI, the Gender Inequality Index (GII) measures gender inequalities and ranks Greece in 32nd place out of 170 countries (2021) – the largest gender gap indicator is the ‘shares of seats in parliament’ (-56.7%) with 21.7% females versus 78.3% males that hold a seat in the parliament⁷. The number of immigrants fell significantly from 1990 to 2013 and then increased slightly from 2013, as shown by the net migration index – the net total of migrants during the period, that is, the number of immigrants minus the number of emigrants, including both citizens and noncitizens – increasing from -31,535 (2013) to -14,806 (2021)⁸. The increasing attention of the current government of Greece on topics related to social cohesion is reflected in the recent creation (2023) of a new Ministry for Social Cohesion and Family, which will be supported by three General Secretariats: one for demographic and housing policies, one for solidarity/welfare and poverty fighting policies, and one for gender equality and human rights⁹.
- Environmental capital.** Greece is mostly mountainous (80%), with a very long indented coastline on the Mediterranean Sea characterised by peninsulas and islands, such as Crete – the number of islands are between 1,200 and 6,000. Greece’s habitats consist of mountains (the highest peak, Mount Olympus, rises to 2,918 m), hills, forests, rivers, lakes, coasts and farmland, and are home to a rich biodiversity including more than a thousand endemic species. In Greece there are 1,249 designated nationally protected areas, covering about 30% of the country’s total land¹⁰. Additionally, the country has a total of 443 NATURA 2000 areas covering roughly 19% of the country, of which 202 are Special Protection Areas (SPAs) and 241 are Sites of Community Importance (SCI) – the two areas often overlap with each other. The vegetation of Greece varies according to the different habitats and consists of: typical Mediterranean vegetation, such as scrub, shrubs and coniferous forests; mixed deciduous forests, with oaks as dominant species; mountain coniferous forests, characterised for instance by black pines and firs; continental central European arboreal species, such as the broad-leaved oak or the beech; subalpine and alpine systems, with vegetation typical of locations of 1,700-2,900 metres above sea levels; and the subtropical system, only found in Crete and characterised by the palm forest of Vai. Overall, according to World Bank data, in 2021 the percentage of forest area in Greece was 30.3%.

4 ‘Greece Economic Snapshot’, OECD.org, accessed 22 February 2024, <https://www.oecd.org/economy/greece-economic-snapshot/>.

5 European Commission, ‘Greece-2022 Country Report’, Commission Staff Working Document (Brussels, 2022).

6 ‘Greece | Data’, The World Bank-IBRD IDA, accessed 22 February 2024, <https://data.worldbank.org/country/GR>

7 ‘Specific Country Data | Human Development Reports’, UNDP, accessed 22 February 2024, <https://hdr.undp.org/data-center/specific-country-data>.

8 ‘Greece | Data’, The World Bank - IBRD IDA, accessed 22 February 2024, <https://data.worldbank.org/country/GR>

9 ‘New Ministry of Social Cohesion and Family in Greece’, ELFAC - European Large Families Confederation, 2023, <https://www.elfac.org/new-ministry-of-social-cohesion-and-family-in-greece/>.

10 Aristotle University of Thessaloniki (AUTH), ‘Post-Fire Biodiversity and Biotic Natural Capital Recovery: Framework Development in the Case of Evia (Greece) N° REFORM/MVC2021/007’, 2022.

2 Governance of wildfire risk management

2.1 - Governance framework

- In recent years, and especially since the establishment of the Ministry of Climate Crisis and Civil Protection (MCCCP), Greece has made **significant improvements** in wildfire risk management towards a more comprehensive and holistic approach.

In Greece, civil protection is competence shared by all levels of governance. At the national level, the General Secretariat of Civil Protection (GSCP) is responsible for the coordination and management of civil protection authorities and actors in all phases of the disaster risk management cycle (DRMC). At the sub-national level, civil protection is organised by Autonomous Regional Civil Protection Directorates and Autonomous Municipal Civil Protection Departments. The Hellenic Fire Corps (HFC), which also have a top-down organisation, are the operational arm of civil protection (see also Section 2.2 - Institutional framework).

The governance framework of the Greek disaster risk management system is regulated by a series of main legislative acts. Most importantly, Law 4662/2020 on the "National Mechanism for Crisis Management and Response, restructuring the General Secretariat for Civil Protection, upgrading the civil protection volunteer system, reorganising the Fire Brigade and other provisions" regulates the country's civil protection system. Specifically, it establishes the National Mechanism for Crisis and Risk Management (Art. 2), which is the operational and administrative structure of the Civil Protection system, covering the entire DRMC; it appoints the GSCP as the authority responsible for the coordination and management of civil protection authorities and actors in all phases of the DRMC (Art. 30a); and it establishes the HFC as the authority in charge of planning and conducting fire extinguishing operations (Art. 74). In December 2023, Law 5075/2023 on the "Restructuring of Civil Protection - National Air Rescue and Airports Mechanism and other urgent provisions on state assistance" was adopted in amendment of Law 4662/2020. The purpose of Law 5075/2023 is to strengthen the effectiveness of civil protection and crisis management, the existing National Mechanism for Search and Rescue 'Theofanis Ermou Theochar-Ropoulos', and state aid. It revises the procedures, structure and measures of Law 4662/2020 on civil protection, extends the scope of Law 4989/2022 on 'the National Aerial Search and Rescue Mechanism' to include air transport, and addresses specific issues relating to the treatment of natural disasters and the proper functioning of State aid committees (see also Box 1).

Following the severe fires in the summer of 2021, Presidential Decree (PD) 70/2021 on "The establishment of the Ministry for Climate Crisis and Civil Protection" significantly changed the institutional framework of the country with the establishment of a new ministry that aims to enhance the collaboration and coordination among the institutional actors involved in the management of climate risks. The establishment of the MCCCP and the new legislative framework of 2020 (Law 4662/2020) demonstrate the country's efforts in pursuit of a more comprehensive and holistic approach, covering the whole DRMC and considering climate change as one of the main challenges. Along with the establishment of the MCCCP, the adoption of the National Climate Law 4936/2022 on the transition to climate neutrality and adaptation to climate change is a key step in ensuring policy coherence between disaster risk reduction (DRR) and climate change adaptation (CCA), aiming to integrate adaptation considerations in all plans and strategies.

In the field of wildfire risk management, the main legislative acts and articles include Article 25 of Law 998/1979 on the "Protection of forests and forest areas in general in the country", which defines fire-prone areas and indicates

prevention measures to be taken by different stakeholders; and Regulation 55904/2019 on "Fire Protection for properties in or near forest areas", defining preventive fire protection measures as well as minimum requirements for passive and active fire protection both for buildings (new and existing) and for the areas surrounding properties. In line with Regulation 55904/2019, the areas of the country at greatest risk of forest fires are estimated and illustrated in the map published by PD 575/1980 (GG 157/A/1980) – see also Section 3.1 - Wildfire risk assessment. Finally, Law 4824/2021 contains a series of rules and detailed indications regarding measures to counter fire risk, restrictions on activities that could cause fires, administrative sanctions for violation of the regulations, support for people affected by wildfires and the restoration of the natural environment after such events.

Additionally, Joint Ministerial Decision 12030/1999 on the "Cooperation between the Hellenic Fire Department and the Armed Forces, the Hellenic Police, the Forest Service, local authorities, health services and other entities and individuals providing their services for the prevention and suppression of forest fires" and Joint Ministerial Decision 181752/2052 of 2019 "Regulating cooperation between the Fire Brigade and the Forest Service at the central and regional level" govern the cooperation between the main actors involved in wildfire risk management. Notably, the former conferred on the previous Ministry of Civil Protection, via the Fire Brigade, the responsibility for organising and managing the forest fire suppression mechanism and implementing forest fire response policies, two functions that were previously under the responsibility of the Forest Service; prevention, instead, remained under the Forest Service. Twenty years later, Joint Ministerial Decision 181752/2052 was issued to establish a clearer and more comprehensive framework for cooperation between these two actors, outlining specific roles, responsibilities and areas of mutual support in the areas of forest fire prevention and suppression. Overall, the Hellenic wildfire risk management system has historically focused on suppression at the expense of prevention. This imbalance has been exacerbated by the lack of coordination and collaboration in relations between the HFC and the Forest Service in the past. However, recently the 'competition' between these two authorities has evidently diminished, partly thanks to the changes in legislation brought about by Joint Ministerial Decision 181752/2052. Additionally, under the provisions of Law 5075/2023, the newly established committees, in which the HFC and the Forest Service will cooperate and work closely, are likely to further encourage cooperation and coordination between these two bodies – see Box 1 and Section 7 - Response.

Box 1 - Law 5075/2023: Main amendments to Law 4662/2020

Law 5075/2023 on the "Restructuring of Civil Protection – National Air Rescue and Airports Mechanism and other urgent provisions on state assistance" was adopted on 12 December 2023. The main amendments to Law 4662/2020 include:

- The transfer of the National Meteorological Service and the National Observatory of Athens under the MCCCCP, with the aim of providing the GSCP/HFC with additional scientific and technical expertise.
- Strengthening the 112 emergency service with additional expertise.
- Providing the MCCCCP with the authority to control regional and local administrations regarding their implementation of risk prevention measures, including against wildfires and floods.
- The obligation for citizens to declare electronically, through the new "Register of Preventive Fire Protection Measures" that they have carried out the mandatory clearing of dry/flammable material from their land, with fines foreseen for failure to declare or false declarations.
- The establishment of a Risk Assessment Committee for adverse weather events and civil protection risks, composed of 7 Members (GSCP, Head of the National Coordination Center for Operations and Crisis Management/ESKEDIK, five scientist-experts on hazard assessments). Its tasks include hazard monitoring, impact assessment, reporting, suggestions for preventive measures, assessment of measures for the protection of life/property during a disaster.
- The establishment of Support Groups, under the Forest Service, in each regional unit of the country composed of scientific and specialised staff that will assist the Fire Service during large-scale fires.
- The representation of a wider range of entities in the National Coordination Centre for Operation and Crisis Management/ESKEDIK, such as electricity network operators and telecommunication providers.

2.2 - Institutional framework

- **The primary roles and responsibilities** of key authorities and stakeholders involved in wildfire risk management are well defined by law. Nonetheless, there still is a high degree of fragmentation that sometimes leads to overlaps or unclear distribution of responsibilities.
- The MCCCCP has the leading role in **preparedness** and **response**. Under the MCCCCP, the HFC is the operational arm of civil protection.
- The Forest Service plays a crucial role in wildfire **prevention**. However, the strong emphasis of the wildfire risk management system on suppression observed to date and the consequent lack of adequate technical, administrative and financial resources for forest management and wildfire prevention have undermined the effectiveness of the Forest Service.

The main authority responsible for the disaster risk management (DRM) system in Greece is the MCCCCP. Its activities include the supervision of the GSCP, HFC and all civil protection administrative structures and functions; the monitoring of existing policies on climate change adaptation; and coordinating the development and implementation of the National Disaster Risk Management Plan. Under the MCCCCP, the GSCP is responsible for the organisation of the Greek civil protection system at a legislative, administrative and operational level. Headed by the Secretary General of Civil Protection, the GSCP is tasked with developing, planning, and overseeing national civil protection policies in accordance with governmental directives. Together with the MCCCCP, the GSCP also drafts the General Emergency Response and Consequence Management Plans, which define the roles, responsibilities and main actions of all the actors involved in the DRM.

Under the supervision of the GSCP, the National Crisis and Risk Management Mechanism (Nat-CHAMM) constitutes the operational and administrative structure of the Civil Protection system (Law 4662/2020). The Nat-CHAMM operates through the National Coordination Center for Operations and Crisis Management - ESKEDIK, the Emergency Management Frameworks, and the Civil Protection Coordination Bodies; the Autonomous Regional Directorates of Civil Protection and the Autonomous Departments of Civil Protection, which coordinate all kinds of civil protection activities in their respective areas of expertise, act as "support services" for the Nat-CHAMM.

Institutional framework for wildfire risk management

The Greek institutional framework for wildfire management has historically been strongly fragmented and with an unclear distribution of roles and responsibilities.

The MCCCCP has the leading role in the operational response to a wildfire disaster, as well as in planning for preparedness. In collaboration with the GSCP, it develops the General Plan for Dealing with Emergencies Due to Forest Fires - IOLAOS 2 and the Action Plan for the Management of Forest Fires.

The GSCP is responsible for operations carried out by the HFC and oversees the work of the ESKEDIK. The HFC - or Hellenic Fire Brigade (HFB) - is responsible for planning and conducting fire suppression operations (since 1998) and its functions include early detection, notification and intervention, as well as the preparation and updating of operational plans for forest fire suppression. Specifically, the HFC operates through central and regional centres spread across the Greek territory at various administrative levels. Central services include the headquarters in Athens, which are headed by the Fire Chief; the ESKEDIK; the Fire Corps Aviation Unit; the Arson Crime Response Directorate (ACRD); the Fire Academy; the Fire Fighting Vessels Unit; and the Directorate of Inspection and Control of the Fire

Brigade. The regional services are divided into 13 Regional Fire Administrations and Operational Centres; 54 Prefectures Fire Service Administrations; 127 Local Fire Services and Stations; 8 Special Disaster Response Units (SDUs); 16 Special Forest Fire Operational Units (known as EMODE); Fire Units; Fire Garage Stations; Volunteer Fire Stations; and Volunteer Fire Brigades.

Since 2021, the Ministry of Environment and Energy (MEE) has been increasingly engaged in fire management through the Forest Service: its responsibilities mostly involve wildfire prevention and the recovery of burnt areas in the aftermath of a wildfire. The Forest Service is made up of several subordinate bodies that operate in a vertically integrated structure that descends from the central to local level as follows: the General Secretariat of Forests (which operates under the MEE's General Directorate of Forests and Forest Environment); 7 Inspectorates of Implementation of Forest Policy; 7 Forest Coordination and Inspection Directorates; 42 Decentralised Forest Directorates; 103 Decentralised Forest Services; and 3 Reforestation Directorates.

Other relevant stakeholders involved in wildfire risk management include: the Ministry of Infrastructure and Transportation, which issues directives for the clearing of vegetation along the road network under its responsibility and activates the appropriate warning messages on the VMS (variable message signs) on the motorways; the Ministry of Rural Development and Food, which performs research on forest fire prevention, forest fire suppression and post-fire rehabilitation; the Ministry of Interior, Public Administration and Decentralisation, mainly in charge of financial activities, especially post-disaster economic support; the Ministry of Health¹¹, ensuring public health in the event of natural disasters, as well as the care of those affected; the Ministry of Culture, which manages wildfire risk in selected archaeological sites and museums, mainly focusing on prevention; the Ministry of Education, Religious Affairs and Sports, in charge of awareness campaigns and activities in schools; the National Meteorological Service, which provides weather forecasting and monitoring services, contributes to the elaboration of the Daily Fire Risk Map (see Section 6.1 - Wildfire preparedness) and supports the response operations; the National Observatory of Athens, providing research findings and a wide range of monitoring and forecasting products; the electricity network operators, namely the Independent Power Transmission Operator (IPTO) and the Hellenic Electricity Distribution Network (HEDNO), which carry out specific actions in areas under their responsibility during the different phases of the wildfire risk management cycle and take part in the ESKEDIK during an emergency (Art. 39 of Law 5075/2023). Finally, the Armed Forces (Ministry of National Defence/Hellenic National Defence General Staff) and the Hellenic Police also have active roles in wildfire risk management, and operate according to the General Plan for Civil Protection - XENOKRATIS and the IOLAOS 2, respectively, in the various phases of the management cycle, providing fundamental support to the GSCP and HFC, also through the various units of the ESKEDIK (see also Section 7.3 - Response coordination).

2.3 - Coordination and partnership

- There are growing efforts by the Greek government to achieve a **whole-of-society approach** to wildfire risk management, seeking to engage more closely the private sectors, civil society organisations (CSOs), and research and academia.
- The GSCP, the HFC and the Forest Service cooperate effectively throughout the wildfire response phase. There is also a **good spirit of collaboration** with other key institutions, such as the Ministry of Culture and the Ministry of Infrastructure and Transportation and the Ministry of National Defence.

¹¹ Under the Ministry, the bodies involved in wildfire risk management include: General Directorate for Public Health and Quality of Life, Directorate of Operational Preparedness for Public Health Emergencies, National Center for Emergency Care (EKAB), and National Public Health Organization.

The Hellenic National Platform for Disaster Risk Reduction (HNP-DRR) was created in 2012 and operated for some time as an open network and forum gathering government agencies and other stakeholders with the aim of facilitating the integration of DRR into decision-making processes, both at the national and the local level with the participation of the private sector and research institutes. Coordinated by the GSCP, but currently inactive, the platform promoted the implementation of the Sendai Framework for DRR.

Although an overarching committee, entity, or platform in charge of coordination is lacking, a new spirit of cooperation among most authorities involved in wildfire risk management has been developing in recent years. Some examples include the cooperation between the Ministry of Culture and the MCCCCP, formalised in November 2023 through a Memorandum of Collaboration (see Box 2) and between the HFB and the Ministry of Infrastructures and Transportation (MIT), which is based on the Firefighting Agreement between the Fire Brigade and the Concession Company. Similarly, the collaborations between the HFC/GSCP and IPTO and HEDNO have been reinforced in recent years and were further strengthened by Law 5075/2023; when carrying out their activities to prevent and manage wildfires, the two electricity networks are in close contact with the HFB and, in case of emergency, cooperate with the ESKEDIK.

The participation of the scientific community in wildfire risk management is also growing, partly thanks to the amendments of Law 5075/2023 which transferred the National Observatory of Athens and the National Meteorological Service under the MCCCCP. Generally, the scientific community carries out substantial research on topics relevant to wildfire risk management and have co-produced related tools and systems with the HFC.

Civil society actors include Volunteer Teams (linked to the Civil Protection Volunteer Organizations) and Volunteer Fire Stations under the Fire Brigades. There are no current initiatives for the active involvement of citizens; nonetheless, further strengthening the awareness and participation of the community in such activities is among the priorities of HFC. With regards to civil society organisations (CSOs), these are usually engaged in international protection, immigration and social integration. However, some CSOs, such as the WWF Hellas, are active also on wildfire-related activities, mainly through participation in projects.

Finally, the private sector is also involved in wildfire management mainly through contracts signed with the HFC/GSCP, through which these authorities can hire any means needed during an emergency situation. The efficient contribution of the private sector in these terms has been further strengthened by Law 5075/2023 (see also Section 7.3 - Response coordination).

In the field of international cooperation, the GSCP promotes the country's relations in the field of civil protection with relevant international organisations and corresponding civil protection agencies in other countries, and coordinates the provision of scientific or material assistance to and from other disaster-affected countries. One of Nat-CHAMM's areas of action for risk prevention, preparedness, response and recovery is Greece's participation in international civil protection mechanisms and systems. In terms of multilateral cooperation, Greece actively participates in the UCPM and has signed agreements with different countries, such as the joint declaration on "Operational Cooperation within the Union Civil Protection Mechanism" with the civil protection authorities of Italy, France, Portugal and Spain. In terms of bilateral agreements, three particularly relevant agreements are in place with France – special Memorandum of Mutual Assistance in aerial vehicles and a "Joint Decision" of the two national Civil Protection authorities – and the recent agreement between the Portuguese and Greek civil protection authorities ratified in 2024.

Box 2 - The Memorandum of Cooperation between the Ministry of Culture and the MCCC

The Memorandum of cooperation was signed between the Ministry of Culture and the MCCC for cooperation on the design and adoption of measures to protect archaeological sites under the responsibility of the Ministry of Culture against the risk of fire. The scope of the Memorandum includes: 1) management of the wildfire risk and improving the related civil protection plans; 2) establishing specific protocols and standard operating procedures (SOPs).

The development of synergies and the active participation of other competent authorities is recognised as an important component for improving wildfire management and governance in cultural sites. Therefore, the memorandum involves other key players in central administration, and at the regional and local levels (Figure 6).



Figure 6 - Key stakeholders of the Memorandum of Cooperation.

Each year, several archaeological sites (from 10 to 20) are selected by the Ministry of Culture to be included in the memorandum, based on a set of criteria including high vulnerability to fire risk, archaeological and historical significance of the site, inclusion among the UNESCO World Heritage sites and on the Tentative List, number of visitors, and organisation of cultural events within the site. The National and Kapodistrian University of Athens helps to select the sites as far as the vulnerability of wildfire risk is concerned. So far, the memorandum has been applied to 36 archaeological sites, with 12 sites to be added in 2024. The vast majority of these sites are exposed to wildfire risk.

The memorandum establishes a series of short-term actions (e.g., periodic on-site inspections, drafting site-specific action plans, planning and conducting fire drills, staff training) and medium-term actions (e.g., conducting and implementation of fire protection studies, installation of early warning systems (EWS) at 21 sites, revision of the current legislative framework to facilitate the implementation of wildfire prevention actions, with a specific focus on oblations to reduce burning fuel) to be implemented in relation to the selected sites.

During the Peer review mission in Athens, the representative of the Ministry of Culture highlighted a few open issues in the implementation of the memorandum, including the need to link evacuation plans for archaeological sites (with regard to wildfires) to the respective plans of local authorities in the wider vicinity, in order to ensure the consistency and interplay of measures. In addition, there is a need to ensure that all competent authorities allocate annually the necessary funding to meet the staffing and operational needs of wildfire prevention measures as linked to the selected archaeological sites.

2.4 - Wildfire risk management strategy

- Greece is currently developing a **National Disaster Risk Reduction Strategy**. Some effective, but sometimes overlapping, **planning instruments** are in place for managing wildfires.
- The **National Forest Strategy**, drafted by the MEE, includes several priorities specifically addressing wildfire risk management.

Greece is in the process of creating its first National Disaster Risk Reduction Strategy. Meanwhile, activities and objectives related to disaster risk reduction are laid down in the National Hazard Mitigation Policy (Article 9 of Law 4662/2020). Based on the Policy, a three-year National Civil Protection Planning shall be implemented and include the civil protection actions related to all phases of the DRMC at the national level (see also Section 4 - Wildfire risk management planning).

The Greek National Disaster Risk Management (NDRM) Action Plan 2023/2027 was drafted within the project "Capacity Building of the Ministry of Climate Crisis and Civil Protection: Coordinating Emergency Preparedness, Response and Climate Change Adaptation Actions" led by Expertise France under the EU Technical Support Instrument. The plan defines the main actions required for the effective management of potential risks in Greece and includes actions to improve or reform structures, resources, procedures and governance in all stages of crisis management. It does not contain specific actions for wildfire risk management.

The National Adaptation Strategy (NAS) of Greece, endorsed by Law 4416/2016, provides a strategic direction for building climate change adaptation capacity and prioritising and implementing an initial set of actions to adapt to the impacts of climate change. The strategy also formed the basis for the preparation of the 13 Regional Climate Change Adaptation Plans. The strategy foresees measures targeting the forestry sector with the objective of limiting the extent and intensity of wildfires, such as the compilation of a forestry registry and the modernisation of the legislative framework for fire prevention. Building upon the NAS, Expertise France also supported the country in the drafting of the 'Strategic Planning Framework and Action Plan 2023-2027', which focuses on the link between adaptation to climate change and civil protection.

The National General Civil Protection Plan XENOKRATIS (Ministerial Decision 1299/2003) includes the definition of roles and responsibilities for wildfire preparedness and response at the central, regional and local levels, as well as planning guidelines and instructions for national, regional and municipal authorities. The central government is responsible for the XENOKRATIS Plan (see Section 4 - Wildfire risk management planning).

Wildfires

Greece does not have a national wildfire risk management strategy that covers the whole wildfire management cycle in an integrated manner. However, the National Forest Strategy (NFS), drafted by the MEE and with a 20-year time horizon spanning from 2018 to 2038, includes several priorities specifically addressing wildfire risk management, such as the development of national, regional and local road maps to enhance proactive fire planning and forest fire response. In accordance with the NFS, the National Plan for Reforestation supports the implementation of reforestation actions in 13 priority areas up to 2026.

Other planning instruments that are specifically centred on wildfire risk management planning include the Action Plan for the Management of Forest Fires (2018), which includes wildfire prevention, preparedness and response actions at the different administrative levels as well as the roles and responsibilities of the authorities involved; and the General Plan for Dealing with Emergencies Due to Forest Fires - IOLAOS 2, which is the main instrument governing wildfire preparedness and response planning (see also Section 4.1 - Wildfire risk management planning). The latter, which is adopted as a part of the more general XENOKRATIS, is currently in its 5th edition (the first edition dates to 2010) and entered into force in April 2023.

Finally, forest fire protection plans are under development within the framework of the Forest Protection Plan, an EU-funded programme. These plans will cover 39 selected high-priority areas and are expected to be published before the fire season of 2024 (see also Section 5.2 - Landscape management).

2.5 - Wildfire risk financing

- Efforts are being made to **build resilience and strengthen the civil protection system** using an **investment package** made up of EU funding instruments, the European Investment Bank (EIB) loan, and national funds.

- The **increased budget** allocated to **wildfire prevention** in recent years could signal a paradigm shift in the overall management system towards a more holistic approach..

In the area of wildfire risk management, financing comes from public funds and projects (Regular Budget), as well as international instruments and organisations (Public Investment Programme - PIP). Public funding is provided by the central government and is reflected in the budget allocated to the relevant ministries and agencies. In accordance with Law 4662/2020, budgetary lines in the state budget provide funding for the operation of GSCP, HFB, police, and armed forces as well as general grants to local and regional governments.

The financing strategy for wildfire risk is structured into a short-term plan and a medium/long-term plan, which focus mostly on forest firefighting operations (suppression) – forest firefighting operations account for more than 75% of the Regular Civil Protection Budget. The short-term financing plan for wildfires is part of the more general financial plan of the HFB, which also includes other natural and man-made hazards. When funds for wildfire suppression are not sufficient, as occurred in 2023, supplementary reserves are requested from the Ministry of Economy and Finance, according to Article 59 of Law 4270/2014.

As for the medium/long-term financing plan, the MCCCCP has secured funding for the AEGIS Programme, through the PIP, for a total of EUR 2 billion. This includes EU funding for wildfire risk management from major financing instruments (Cohesion Fund, Recovery and Resilience Fund, and Common Agricultural Policy funds), which amounts to approximately EUR 1.4 billion for the period 2021-2027. This is an important increase, compared to an estimated amount of approximately EUR 155 million for the period 2014-2023 (note that the periods overlap due to the different duration of the instruments). Greece also received a loan of EUR 595 million from the EIB to strengthen its disaster management capacities after the COVID-19 pandemic, i.e. not only related to wildfire management.

With this funding, the EU supports key initiatives proposed by Greece to support wildfire prevention (e.g. modernisation of electric cables running through forests, fuel clearing activities), the drafting of the Greek Disaster Risk Management Plan to provide a strategic approach to risk management and to fulfil the enabling condition for funding from the ERDF and Cohesion Fund, the strengthening of disaster management structures (e.g. the establishment of 13 new Regional Civil Protection Operational Centres), response capabilities (e.g. aircraft, vehicles, communication infrastructure), and the restoration of forests/reforestation after wildfires.

Concerning wildfire prevention, the financing mechanism is separated from that established for the other phases of wildfire risk management. The Ministry of Interior finances annually wildfire prevention actions in the municipalities, while the MEE finances prevention initiatives at the national and regional level, especially through the Green Fund, which is supervised and used by the Ministry particularly for the design and implementation of financial programmes for the protection, enhancement and restoration of the environment. These short-term (1-year) budgets, however, have caused a chronic lack of stability in the Forest Service's available budget, which has significantly hampered effective long-term planning of wildfire prevention activities. Nonetheless, funds for fire prevention have increased greatly in recent years and today are at the highest level ever. This is mostly thanks to the inflow of EU funds for wildfire prevention activities, predominantly channelled through the AntiNero project. To give an example, for the next two years, investments in forest protection will exceed EUR 600 million, partly from the Resilience and Recovery Fund (AntiNero programme; see Section 5.2 - Landscape management)¹². It is important to mention that there are projects to analyse the effectiveness of AntiNero activities, which could be used to develop updated guidelines on wildfire risk prevention.

¹² 'TH. Skylakakis: The Green Invoice Is Already Mobilizing Competition', Ministry of Environment and Energy, 14 December 2023, <https://ypen.gov.gr/th-skylakakis-to-prasino-timologio-kinitopoiei-idi-ton-antagonismo/>

To estimate the cost of an event, a Cost Accounting Information System (SWOT) was developed as a tool to improve decision making. This platform, however, is not interoperable with the Armed Forces, Hellenic Police, Coast Guard or local governments.

With regard to the recovery phase, post-disaster reconstruction is financed through various sources, including the funds for earthquake and fire victims, the PIP, and national grants. Since 2023, state aid has become the responsibility of the MCCCCP (Directorate for State Aid - DSA). Specifically, it is regulated by Law 4797/2021, which introduced new measures for the immediate support of those affected by natural disasters, including a 'First State Aid' option when natural disasters seriously affect a large number of households and/or businesses; in case of specific economic sectors or areas affected, special support schemes are activated. As for agricultural damage, the DSA does not cover damage to crops and livestock, which instead falls under the responsibility of the Greek Agricultural Insurance Organization (ELGA), according to Law 3877/2010. In relation to this, Law 5075/2023 strengthens the state aid mechanism for agricultural holdings that were affected by the 2023 fires and ensures that the aid received by agricultural holdings in accordance with the applicable regulations, as compensation for damage to crops and livestock caused by the fires of summer 2023, is tax-free, immune from seizure, and cannot be reallocated by the State or third parties.

In Greece, the limited insurance penetration nationwide regarding extreme weather events has led to an increase in claims for State compensation. The widest protection gap is for earthquakes and wildfire, where the insurance penetration is at the lowest level (0-25%)¹³. Natural hazard insurance coverage for residential and commercial assets in Greece is not mandatory by law.

2.6 - Systemic resilience

- Although the concept of systemic resilience is not specifically addressed in legislation, the establishment of the MCCCCP reflects the increasing awareness of the link between **Climate Change Adaptation and Disaster Risk Management**.
- A governmental committee has been convened to discuss internally the implementation of the **Union Disaster Resilience Goals**.

The topic of systemic resilience does not feature significantly in existing institutional documents. However, the recent establishment of the MCCCCP – and with it the transfer of responsibility of climate change adaptation – is a demonstration of the efforts to strengthen the link between climate change adaptation and disaster risk management strategies. Recently, a governmental committee has been convened to discuss internally the implementation of the Union Disaster Resilience Goals.

2.7 - Conclusions

Greece's legislative framework for wildfire risk management is characterised by formal political and hierarchical relations mostly focused on the response phase. Overall, the country has become increasingly aware of the urgent need to adopt a comprehensive and holistic approach to wildfire risk management. This recognition is reflected in significant improvements and relevant changes implemented in the governance system, such as the establishment of the MCCCCP, the adoption of the national Climate law – both key steps in ensuring policy coherence between DRR and CCA – and increased cooperation between the GSCP, the HFC and the Forest Service.

¹³ European Commission, 'Greece - 2022 Country Report'.

It is worth noting that continuous changes in the legal framework are difficult to implement and enforce, especially at the local level. Adequate time to test policies would ensure greater effectiveness and overall stability and, consequently, better coordination. Also, ensuring a bottom-up approach, engaging and empowering the local communities and taking their specific needs into account in the decision-making and regulatory processes, could help build effective wildfire risk management systems and relationships, as well as ensuring a whole-of-society and whole-of-government approach.

The Greek institutional framework of wildfire risk management is traditionally highly fragmented, which leads to overlaps or unclear distribution of responsibilities. To avoid this and to create an efficient governance system, it is extremely important to clarify the roles and responsibilities of the actors involved throughout the whole wildfire risk management cycle. Additionally, the capacity of the Forest Service, which plays a crucial role in wildfire risk management, needs to be strengthened urgently in terms of expertise, staff and funding. Indeed, the lack of adequate and stable resources in the Forest Service is currently seriously undermining its effectiveness. This urgency also applies to addressing the crucial weaknesses at the local level in terms of lack of qualified personnel and financial resources. There is good existing cooperation between the GSPC, the HFC and the Forest Service, but this is mainly focused on response. The newly established committees (Law 5075/2023) are likely to further strengthen the cooperation and coordination between the three entities in the whole wildfire risk management cycle, including prevention. Ensuring a degree of flexibility and focusing more on prevention could be helpful in achieving greater efficiency and reducing losses.

The willingness to cooperate and collaborate has improved among most key actors involved in wildfire risk management, as shown, for example, by the cooperation agreements signed by the MCCCPC with the MEE, the Ministry of Culture and the Ministry of Infrastructure and Transportation, as well as the engagement of the private sector (HEDNO and IPTO), CSOs, especially WWF, and research and academia. Even better results could be achieved by establishing new cross-sector collaborations, most importantly with the Ministry of Rural Development and Food, and by further strengthening existing relationships, most notably with the Ministry of Environment. Similarly, reinforcing cooperation and collaboration between public institutions and research bodies would help in terms of the transfer and exchange of updated data, analyses and innovative tools in the operational processes. At the same time, it would provide the public institutions with necessary research and tools to facilitate the management of wildfire risk (Box 3 and 4).

In terms of vertical and horizontal coordination, these could be further improved by streamlining the different coordination mechanisms already in place. The HNP-DRR, established in 2012 and currently inactive, could help promote coordination processes and ensure coherence across different policies and activities by defining a DRR strategy. As for wildfire risk management, the establishment of a national wildfire risk management committee or an overarching coordinating body including all key entities could optimise the relationship and cooperation between the Forest Service and the HFC. Most importantly, such a committee would help establish a wildfire risk management strategy in line with the overall strategy for DRR, clarifying the roles and responsibilities, facilitating vertical and horizontal coordination, and establishing greater connections with key stakeholders (private sectors, CSOs, research and academia). The strategy should also insist on the establishment of an effective integrated wildfire risk management system that promotes resilient landscapes in view of environmental and socio-economic changes. A national plan covering the entire wildfire risk management cycle would ensure the operationalisation of the strategy and the alignment of planning processes across different sectors.

Regarding wildfire risk financing, there is an important investment package being implemented to build resilience and strengthen the civil protection system through EU funding instruments (ERDF, RRF), EIB loan, and national funds.

The increased budget recently allocated to wildfire prevention could signal efforts towards a concrete paradigm shift in the overall management system and recognition of the crucial role of prevention. However, there is the urgent need for a long-term budget for prevention measures, which is essential to ensure sustainability over time, effective long-term planning, and the availability of qualified personnel in the Forest Service (currently, they can only be hired on fixed-term contracts). A comprehensive, long-term budget for all phases of wildfire risk management is recommended for the effective allocation of the overall financial resources available. Also, given that extreme wildfire events are increasingly likely to occur outside of the traditional wildfire season, a dedicated financing stream for the whole financial year would improve flexibility in response to uncertain demand for resources across the year. Finally, a bottom-up approach to needs assessment and a comprehensive system for monitoring the allocation of public funding and expenditure should be considered. This approach would also help to ensure greater transparency and accountability in the decision-making processes at the national level and could improve the efficiency of the system and inspire trust among key stakeholders and the general public.

As a final remark, developing a new fire paradigm that allows some fires to take place, encourages the use of bio-economy measures that contribute to fuel management, and sets out principles and criteria for allowing co-existence with fire is needed to foster resilience.

Box 3 - Good practice from Portugal: Collaborative Laboratory for Integrated Forest and Fire Management - CoLAB ForestWISE

CoLAB ForestWISE is a non-profit Portuguese association governed by private law. This initiative includes the establishment of a Consortium of Universities focused on the integrated management of forest and fire. As a player in wildfire risk management, this collaborative laboratory acts as a unifying element between service providers and customers, uniting industry, academia and public administration.

This model offers participants the flexibility to engage with multiple universities rather than being restricted to just one under a single procurement procedure, which means a wider range of services can be provided, according to the needs that may be presented. It could also be useful in other countries in which academia and industry, as well as public services, do not yet benefit from the transfer of knowledge and technologies, or where procurement processes are very time consuming. A unifying element, such as a CoLAB, is an efficient way to narrow the gaps between providers and those in need of integrated fire management solutions.

Box 4 - Good practices from Spain: Spanish National Wildland Firefighting Committee (Comité de Lucha contra Incendios Forestales - CLIF)

The Spanish National Wildland Firefighting Committee (CLIF) is a technical committee attached to the State Commission for Natural Heritage and Biodiversity, created in 1994 for inter-administrative coordination on matters of governance, risk, prevention, preparedness and response. CLIF is composed of representatives of the state and regional administrations competent in wildfires and is chaired by the General Subdirector of Forestry Policy and Fight against Desertification and the Wildfire Management Service acts as Secretariat. It meets at least twice a year to coordinate actions at the national level. The adopted agreements are submitted to the Environment Sectoral Conference and are included in the Fire Prevention and Suppression Action Plan approved annually by the Council of Ministers.

3 Wildfire risk assessment

3.1 - Legislative and institutional framework and processes

- Good wildfire risk assessments, including hazard and risk maps, have recently been **developed at different territorial scales** by Greek scientific institutions and can potentially inform the overall wildfire risk management system. For example, the conceptual **model** for a **risk map** prepared within the FirEUrisk project could be further developed jointly with public authorities.
- The **National Forest Cadastre** is being finalised and will serve as a key source of information to support risk assessment processes on the different territorial scales.
- The implementation of the **Integrated Risk Management and Prevention Information System (MIS)**, foreseen under the Civil Protection Operational Programme 2021-2027, will serve as a key source of information to support risk assessment and decision-making at the different territorial levels.

According to Law 4662/2020, risk assessment in Greece is a prerequisite and a component for drafting both the Plan for Civil Protection (at the national and regional level) and the General Plans for Emergency Response and Management of Consequences.

The National Risk Assessment (NRA) was developed in 2021 by the Center for Security Studies (KEMEA), in collaboration with the Hellenic National Meteorological Service (HNMS), and the 'Demokritos' National Centre of Scientific Research, and reviewed by the GSCP. The NRA was built upon projects that included the Greco-Risks multi-hazard platform (currently inactive) and based on the guidelines on national disaster risk assessment developed by the United Nations Office for Disaster Risk Reduction (UNDRR) and the EU risk assessment guidelines¹⁴. The hazards considered within the NRA include forest and wildland fires; however, the Landscape Fire Risk Assessment included in the document reveals significant gaps and limitations in data and maps related to fire risk.

The wildfire hazard map was developed back in 1980 and never updated (PD 575/1980). The map is still used to prepare strategic plans and measures, and to inform and implement wildfire policy at the national and subnational level, despite the fact that this means the spatial distribution of fire risk is based on obsolete statistical data. As reported in the 2021 NRA, there are a number of more detailed, although unofficial, maps based on more recent statistics (from 1981-2009) and useful for wildfire risk assessment, including the map of the geographic distribution of fire ignition risk on the level of the Prefecture, and the map depicting the wildfire occurrence zones based on historical wildland fire ignition observations at the national level. It is worth noting that a national-level forestry cadastre and forest maps are nearing completion (see also Section 5.2 - Landscape management).

According to the findings of the peer review mission and previous reports¹⁵, only a few municipalities have performed risk assessment at the urban level. Similarly, at the regional level, risk assessment has been implemented by a few regions, one of them being the Attica region, which is involved in the ongoing research project entitled "Risk Assessment for Earthquakes, Floods and Fire in the Region of Attica" (2022-2024) in collaboration with the National Kapodistrian University of Athens and the National Observatory of Athens. Among other things, the project assesses fire risk exposure in appropriately selected and vulnerable areas and municipalities of the Attica Region.

¹⁴ World Bank, 'Inputs and Recommendations for the Development of a Draft NDRM Plan for Greece', 2021.

¹⁵ World Bank, 2021.

Another relevant project under implementation in this area is the ongoing EU-funded [FirEUrisk project](#), a holistic approach for risk-wise adaptation of the wildfire management in the EU to global changes (2021-2025), which sees the participation of several Greek research institutions and private companies, such as the Aristotle University of Thessaloniki, Center for Security Studies, and Satways Ltd. It aims to develop, assess, and promote a science-based integrated strategy to improve existing wildland fire risk assessment, create efficient methods to reduce fire risk and adapt management strategies for future climate and socio-economic changes.

There is a Residential Risk Assessment tool for homeowners (although it seems outdated), which consists of a form developed by Institute of Mediterranean Forest Ecosystems and Forest Products Technology and designed to provide a concise and non-exhaustive evaluation of the potential risk of forest fire for people living close to forested areas.

Data collection

The implementation of a national disaster risk and loss database – Integrated Risk Management and Prevention Information System (MIS) – is foreseen under the Civil Protection Operational Programme 2021-2027. The MIS will record a wide range of data, including: data related to disasters occurred (such as characteristics of the events, inventory of impacts/damage, resources available during the response phase, costs of damage restoration); risk maps for natural and human-induced hazard-related disasters, which will be updated on a regular basis; time series of data for predictive models; and all critical infrastructure and building facilities in Greece. MIS will firstly act as a support tool for decision-making at the operational level of the ESKEDIK and its units (see Section 7.3 - Response coordination) during the preparedness and response phase, the production of detailed risk maps at the local/regional and national level, and the provision of critical information on spatial/urban planning. The MIS will also be a national baseline for the Sendai Framework Monitor System and the main reference for the National Disaster Risk Reduction Platform. It will also be compatible with the EU Risk Data Hub. The MIS will be accessible and usable by a wide range of stakeholders at the different territorial levels.

3.2 - Conclusions

The NRA developed in 2021 includes a Landscape Fire Risk Assessment characterised by significant limitations in terms of data and maps. A comprehensive wildfire risk assessment at the national level should be developed that considers the vulnerabilities, cross-sectoral impacts, data and information on past events, future projections in terms of climate, and environmental and socio-economic changes. Similarly, the national wildfire hazard map also shows significant limitations, mostly due to the fact that it dates back to 1980 and has never been updated. Despite this, the map is still considered as a source of information for preparing strategic plans and identifying wildfire risk management measures.

Recent data from and analyses by local research institutes – such as the conceptual model for drawing up risk maps under the FirEUrisk project – should help to update maps and implement comprehensive hazard and risk assessments at the different territorial levels. A joint initiative of research, academia and public institutions is recommended to exploit the excellent research capabilities and expertise already available.

Additionally, the completion of the National Forest Cadastre, which includes the mapping of fuel types, alongside the implementation of the Integrated Risk Management and Prevention Information System (MIS) as foreseen in the Civil Protection Operational Programme 2021-2027, will serve as a key source of information to support risk assessment and decision-making at the different territorial levels.

A specific focus on the assessment of wildfire risk in WUI is highly recommended to support risk management planning processes and prioritise effective risk reduction measures in these critical areas, for which the new tools already implemented by research institutions could be helpful.

Overall, planning processes would also benefit greatly from fine-grained knowledge of the location of fuels in need of urgent management. The current mapping of fuel types is a key activity and should be used to help produce accurate wildfire susceptibility maps that can support prevention and suppression.

With specific reference to maps, there is the need for clarifications of the terminology. The interchangeable use of some terms (such as hazard, susceptibility, probability) in assessment and mapping processes can lead to misinterpretation and misuse.

4 Wildfire risk management planning

4.1 - Legislative and institutional framework and processes

- There are a variety of effective planning instruments in place for managing wildfires. The **establishment of a comprehensive and common planning instrument**, also including prevention activities, could help improve the alignment between different plans, which are sometimes disconnected and overlapping.
- **Forest protection plans** are drawn up in collaboration with Fire Services and civil protection authorities to ensure that all sectoral needs are taken into consideration.
- Although legislation on forest management plans is outdated, efforts are being made to **update and modernise** these planning processes, for example by providing for the inclusion of climate change and wildfire risk management considerations.

Greece has in place a variety of planning documents at each territorial level that support the country's framework for DRM. Hazard- and sector-specific guidelines and plans are prepared either in the form of Action Plans or General Emergency Response Plans, which act as guidance documents for the preparation of the more specific action and response plans drafted by the actors involved in civil protection activities. The current legal framework comprises, among others, the following key plans: the Civil Protection Action Plans for risk management; the National General Civil Protection Plan XENOKRATIS; and the General Plans for Emergency Response to Hazards and Immediate/ Short-term Impact Management (e.g. the IOLAOS 2). The three-year National Civil Protection Planning programme regulates civil protection actions of all phases of the DRMC, including programmes, plans, measures, and actions by the central/national and regional authorities involved in civil protection activities.

The Civil Protection Action Plans for risk management

The hazard-specific Action Plans for Risk Management are drafted by the GSCP and include prevention, preparedness and response actions at the different administrative levels as well as the roles and responsibilities of the authorities involved. The Civil Protection Action Plan for the Management of Forest Fires (2018), drafted by the GSCP includes civil protection prevention, preparation, response and short-term recovery actions to deal with wildfire risk at the different administrative levels, as well as specifying the roles and responsibilities of the different authorities. It also lays down the instructions for coordinating and implementing these actions and details the financial resources allocated.

The National General Civil Protection Plan XENOKRATIS

The XENOKRATIS is a response-based plan for dealing with disaster events. It defines the types of disasters, the means of civil protection, and the role of the different central and local government stakeholders involved in DRM. At the same time, it represents the planning framework for the specific hazard-related plans (e.g. IOLAOS 2) to be set up by the national, regional and municipal authorities under the coordination of the GSCP.

The General Emergency Response and Consequence Management Plans and IOLAOS 2

The General Emergency Response and Consequence Management Plans (hereinafter General Plans) describe the organisation of the response to and early recovery from natural and technological disasters and other threats. They are drafted for each type of risk at central level by the Emergency Planning Directorate of the GSCP and the MCCCCP, and then approved by the Secretary General of Civil Protection. Regional and Local Plans are drawn up by the Auto-

onomous Regional Civil Protection Directorates and Autonomous Municipal Civil Protection Departments, respectively, and are harmonised with the General Plans. These plans include Special Plans for the preventive organised evacuation of citizens.

The General Plan for Dealing with Emergencies Due to Forest Fires IOLAOS 2 is the main instrument governing the planning of forest fire management in Greece. The purpose of the IOLAOS 2 – which is not an operational plan – is to coordinate the actions of civil protection in order to support the HFB in the suppression of forest fires, effectively respond to emergencies, and promptly manage their consequences. It does not include prevention measures.

The IOLAOS 2 is structured along the four phases of emergency management adopted in the XENOKRATIS and named "Phases of Mobilisation of Civil Protection Capacity": Phase 1 - Standard Preparedness (preparatory actions); Phase 2 - Enhanced Preparedness (increased preparedness actions in view of a forest fire); Phase 3 - Immediate Mobilisation/Intervention (actions to support the Fire Brigade in the fight against forest fires and actions to respond to emergencies and manage the consequences of forest fires); Phase 4 - Rehabilitation/Relief (immediate relief for people affected and immediate short-term disaster remediation).

The roles and responsibilities of all the authorities involved in firefighting are detailed for each of the four phases listed above. Regional and local authorities are urged to update and align their civil protection plans and response and management plans with the IOLAOS 2. Local-level operational plans to assist the HFB shall also be developed in accordance with the guidelines of the IOLAOS 2.

4.2 - Conclusions

In Greece, different effective planning instruments are in place for managing wildfires. Although legislation on forest management plans is outdated, efforts are being made to update and modernise these planning processes, for example by providing for the inclusion of climate change and wildfire risk management considerations. The establishment of a comprehensive and common planning instrument, including prevention activities, could further improve the alignment of different plans, which are sometimes disconnected and overlapping. Such an overarching integrated wildfire risk management plan should be developed and be intended as an action plan that ideally enables the overall risk management strategy to be put into operation and can benefit from a unified funding stream. From this perspective, prevention and suppression investments and expenditure should be the subject of systematic accounting in order to assess the quality of spending. The collection, analysis, and public sharing of these data would enable better planning and greater public accountability and transparency. Additionally, wildfire risk management plans at the sub-national level and sectoral plans should align with the national plan and similarly include detailed descriptions of the measures, the authorities responsible for their implementation, timing and costs. Finally, planning should always be subject to formal monitoring and evaluation processes, along with regular reviews.

Planning processes should engage all relevant stakeholders and include a bottom-up component, whereby the national plan, related measures, and budget would be informed by the implementation of projects at local/regional level and the needs of stakeholders closer to the local landscape and communities. In parallel, the capacity of municipalities to develop and implement comprehensive plans for prevention, preparedness and response to wildfire risk needs to be strengthened by actions at regional and national level. Also, local stakeholders who live in the forest or rely on the forest for their livelihoods (farming –agriculture, livestock; tourism – campsites, archaeological sites, etc.) should be actively engaged in the planning process.

Overall, it is recommended to streamline the existing planning processes at the different territorial levels to ensure coherence, avoid overlapping and promote further collaboration among the key actors in wildfire risk management. Developing single plans covering the whole DRMC at the different territorial levels could be an option to explore.

Box 5 - Good practices from Spain

Strategic Guidelines for Wildland Fire Management

In 2022, the Spanish Government published the Strategic Guidelines for Wildland Fire Management, approved by the national Environment Sectoral Conference. The scope of the guidelines is thus to establish a common framework and common principles in wildfire management, along with clarifying the objectives and the roles of the main stakeholders involved in this field, so as to ensure policy coherence in wildfire risk management planning. Therefore, one of the specific objectives of the guidelines is the alignment of strategic management policies, including territorial, agricultural, energy, environmental, educational, judicial, urban planning and emergency management.

Forest Law 43/2003:

The Spanish National Forest Law 43/2003 establishes that when a very high or extreme fire risk is foreseeable in a certain territorial area, the autonomous communities must immediately apply bans and restrictions, including on the use of machinery and equipment whose operation could cause a fire, in the forest lands and rural areas located within 400 metres of forest lands.

Furthermore, the Forest Law 3/2009 of the Autonomous Community of Castilla y León establishes that the competent forestry authority may approve preventive measures against wildfires on forest lands and within 400 m of forest lands.

Good practices from Portugal

In 2020, Portugal approved its National Plan for Integrated Rural Fire Management ([NPIRFM](#)), which comprises the national strategy, the wildfire value chain and the National Action Programme (NAP). The wildfire value chain is composed of processes including planning, preparation, prevention, pre-suppression, suppression and post-fire recovery, all with diagrams and descriptive actions, and the NAP includes over 90 projects to fulfil the objectives set by the strategy and the value chain. Both the processes and the NAP clearly identify in a table those Responsible, Accountable, Consulted, and Informed (RACI) on each action or initiative. As such, the NPIRFM is a unified, cross-sectoral plan, covering all stages of wildfire management, applicable to both prevention and response agencies, among others, and seeking to avoid both overlaps and lack of accountability.

As a circular planning instrument, the NAP informs subsidiary action programmes at the regional, sub-regional and local level, but is also revised and adjusted using a bottom-up approach, using execution and impact data collected at these levels.

5 Wildfire prevention

5.1 - Legislative framework and processes

- **Collaboration** is significantly improving among key authorities in charge of wildfire prevention and response.
- The **budget allocated to prevention** has **increased** over the last few years, demonstrating a concrete commitment by the government to shifting from a heavily response-focused approach to a more holistic approach.
- There are **clear restrictions** in place to reduce wildfire risk, especially during the wildfire season.

Wildfire prevention in Greece is characterised by a complex legislative framework comprising legislation, ministerial decisions, specifications, circulars and regulations. Law 2612/1998 and Joint Ministerial Decision 12030/1999 transferred responsibility for wildfire suppression from the Forest Service to the Fire Brigade. In 2019, the two entities adopted Joint Ministerial Decision 181752/2052 "Regulating cooperation between the Fire Brigade and the Forest Service at the central and regional level", covering the areas of prevention and suppression of forest fires and enhancing cooperation between the two. This decision establishes a comprehensive framework for institutional cooperation, outlining specific roles, responsibilities and areas of mutual support. Currently, the Forest Service, under the umbrella of the MEE, is responsible for planning, proposing and implementing measures for the prevention of forest fires. Meanwhile, the Fire Brigade ensures the issue of unified rules, guidelines and directives for collaboration with the Forest Service, in terms of both prevention and suppression.

Although the cooperation and partnership between the "prevention" and "suppression" organisations has improved in recent years, it appears that the division between wildfire prevention and suppression has weakened the prevention efforts by the Forest Service, which is currently both underfunded and understaffed, lacking young professionals. According to WWF, 83.95% of the total funds available are directed towards suppression and only 16.05% towards prevention. This issue is coupled with a lack of central planning and under-utilisation of allocated funds in both areas. Other entities involved in wildfire prevention include the GSCP and the Natural Environment and Climate Change Agency (NECCA). The GSCP mainly contributes to non-structural preventive measures, such as issuing circulars containing all preventive measures mandated by current legislation. NECCA participates in local fire prevention planning in collaboration with local fire departments and maintains a permanent presence of personnel or stations within protected areas. Lastly, the Ministry of Infrastructure and Transport, the Ministry of Culture, the electricity network operators (IPTO and HEDNO) and the 16 Forest Firefighting Special Units EMODE also contribute to wildfire prevention within their areas of responsibility.

Recently, Law 5075/2023 on the Restructuring of Civil Protection established a committee for the prioritisation of urban and peri-urban forest areas, which can enhance the coordination of fire protection projects. The law also provides for the establishment of a National Register of Preventive Fire Protection Measures by the MCCCC (Art. 53a), which will record the obligations of citizens with regard to clearing dry/flammable material from their land during the wildfire seasons. Random checks will be carried out by the HFB and other local authorities using modern electronic means to check compliance with the fire safety measures by the owners, usufructs, tenants or sub-tenants of land and other open areas located in specific areas as detailed in the Law. These people will have to submit a declaration by 30 April each year on the fulfilment of the fire protection obligations for their properties in the National Register. Failure to comply with these obligations is punishable with a fine.

One of the national financial tools specifically dedicated to prevention and restoration is the Hellenic Green Fund, which is supervised by the MEE. The fund designs – in collaboration with the General Directorates of the MEE – and implements financial programmes for the protection, enhancement and restoration of forests. To give an example, together with the LIFE Programme, the Hellenic Green Fund finances the LIFE-IP AdaptInGR project, a key project supporting wildfire prevention in Greece that will be completed in 2026. It focuses on 15 priority sectors, including forestry, and aims to: improve the data and information provided to these sectors; strengthen regional capacity building and support local and regional climate adaptation action; boost adaptation mainstreaming across sectors; develop a M&E mechanism for adaptation; and raise awareness of climate risks, including wildfires, among the public.

5.2 - Landscape management

- The **AntiNero programme**, which is the most important investment programme for wildfire prevention in recent decades, has enabled considerable improvements in forest management and wildfire risk reduction. It is necessary to explore options to ensure continuity to wildfire prevention programmes in the long term, maintaining a budget, together with measures to enhance the bioeconomy, that are largely self-financed.
- The **Forest Cadastre**, currently being finalised, is a significant achievement and will support the entire wildfire risk management cycle.
- The **pilot project on Chios** regarding **prescribed burning** proved to be an excellent initiative that could pave the way for changes to national regulations on the use of prescribed fires. Projects for other wildfire prevention measures could be further promoted to engage local communities and boost resilience.
- **Cooperatives of trained forest workers**, listed in an official register, is a good practice already in place. This valuable resource is enhanced by the fact that most of the workers are local people.

In Greece, the importance of managing forest areas, encompassing both forest management and fuel treatment, has attracted increasing attention, particularly following the devastating wildfires in 2021. Despite the lack of financial and human resources, the Forest Service has worked hard to improve wildfire prevention, including efforts to exploit the RDP to fund prevention activities; the creation and maintenance of firebreaks; fuel management (e.g., clearing vegetation, adopting agroforestry practices - cropping mosaics); land use planning (e.g. implementation of forest fire protection plans, creation of water supply points); the creation of forest monitoring infrastructures (installation of observatories, forest fire detection systems and communication tools such as drones, cameras and sensors); the development of the National Forest Cadastre. The implementation of the National Forest Cadastre is financed by the Hellenic Green Fund and is almost complete, with 95% of the proposed forest maps approved, covering 90-92% of the territory; 5% of forest areas, however, are still under investigation due to objections regarding the definition of land types. The production of forest maps identifying fuel types is considered one of the most important advances in terms of wildfire prevention.

Some of the above-mentioned measures were addressed under the Forest Protection Plan (also called AntiNero), which is regarded as a flagship programme in landscape management. AntiNero is an ongoing programme developed within the framework of the EU-funded National Recovery and Resilience Plan "Greece 2.0", scheduled to be funded until 2026. The main partners are the Forest Service, as a managing and contracting authority, the Hellenic Republic Asset Development Fund, as conducting authority, and research institutes and some private contractors selected through a European tender procedure (e.g., T&T Constructions S.A.). The AntiNero includes immediate implementation measures (fuel management, road and firebreak maintenance) and long-term planning actions, such as

the preparation of forest fire protection plans – which are expected to be published before the 2024 wildfire season—concerning exclusively high priority areas, such as archaeological and urban areas. In the new cycle of AntiNero, new measures of landscape management are planned, such as the construction of open water tanks and technologically equipped observation decks (with trained observers), as well as forest replanting, the development of volunteer associations, environmental education, the creation of forest network footpaths, and the integration of grazing.

Besides the Forest Service, other entities also carry out landscape management activities. The General Secretariat of Infrastructure, under the Ministry of Infrastructure and Transport, participates in wildfire prevention procedures through the maintenance of main road networks (e.g., clearing vegetation, cutting branches, cleaning, waste disposal, and routine maintenance), while the Ministry of Culture conducts periodic on-site inspections of fire infrastructure and wildfire prevention measures within selected archaeological sites and museums. The electricity network operators IPTO and HEDNO, in cooperation with the GSCP, Forest Service, and Fire Brigade, carry out clearing, deforestation and pruning at specific sites of the transmission system. This minimises the risk of wildfires coming into contact with transmission lines by removing fuel near and below the lines, while also ensuring access to existing infrastructure in case of damage. According to HEDNO, 90% of electricity is distributed through overhead lines and poles, which is significant in terms of the risk of sparks that could potentially cause fires. Currently, they are investing in equipment such as thermal cameras for inspection and replacing copper wires with insulated alternatives. Finally, the scientific personnel of the EMODE Units also cooperates with the Forest Service for clearing vegetation and burnt areas.

Box 6 - Wildfire risk prevention in the Parnitha Mount (field visit)

During the mission, the Peer Review team visited the facilities of the Parnitha Forestry Office and met with local stakeholders involved in wildfire prevention, including representatives from the Forest Service of Parnitha, NECCA, the Forestry Directorate of East Attica, the Association of Municipalities and Communities for the Protection of Mount Parnitha (SYN-PA), the Civil Protection of the Municipality of Acharnes, and the Management Unit of Parnitha, Schinias, and Saronic Gulf Protected Areas National Parks (Figure 7). The local Forest Service outlined the daily communication and collaboration with local competent authorities, representatives of Fire Stations, Civil Protection Departments of the surrounding Municipalities, and with the employees of National Parks of Parnitha, Schoinia, and Protected Areas of Argosaronikos. It was highlighted that the drafting and updating of the 2020 Forest Protection Plan for the park was implemented by the Forest Service in collaboration with the managing body of the National Park. This plan outlines comprehensively the park's terrain, vegetation, climate, road network, firefighting resources, and overall conditions, including provisions for staffing fire patrols and using volunteer firefighting organisations. The updated plan is shared with the relevant authorities for informed decision-making and resource allocation.



Figure 7 - Field visit to the facilities of the Forest Service of Parnitha during the peer review mission.



Figure 8 - Field visit to the fire incident area at the Parnitha Mount during the peer review mission.

The discussion was followed by a field visit to the fire incident area of the Parnitha Mount (Figure 8). The Forest Service of Parnitha shared a number of activities conducted in the area to prevent future wildfires. This includes the annual maintenance of the forest road networks, preventive forest management activities (e.g., tree pruning), anti-erosion measures, inspections of the water tanks by forest rangers, and continuous patrolling. Grazing in the forest is currently forbidden by national forest law.

Box 7 - Prescribed fires

The use of prescribed fires to reduce fuel accumulation in wildland areas is still forbidden in Greece, although the use of fire remains a traditional practice among farmers. To tackle this issue, a pilot project **Prescribed burning pilot in Chios (2021-2023)** was recently implemented on the island of Chios to explore the use of prescribed burning as a form of wildfire prevention. The project involved researchers and practitioners from WWF Greece, the Institute of Mediterranean Forest Ecosystems (FRIA) –one of the institutes of the Hellenic Agricultural Organization (ELGO)-DIMITRA –, the Forest Directorate of Chios Island, and the Voluntary Action Team OMIKRON. The project focused on preventing forest fires with the participation of the local community and the horizontal cooperation of competent bodies; adapting the agroforestry environment to climate change and increasing its resilience to forest fires; the pilot application of prescribed fire for fuel management and reducing the intensity of forest fires. The Fire Service of Chios Island and the Chios Municipal Authority supported the pilot project by supplying water trucks and personnel during the burns. The outcomes were very positive, prompting the General Directorate of Forests and Forest Environment of the MEE to explore paths towards enacting legislation that would formally establish prescribed burning as both a preventive measure and a wildfire management tool.



Figure 9 - Using fire to maintain a fuel break in Chios, in February 2022.
Source: International Association of Wildland Fire.

5.3 - Innovation and knowledge services

- The Greek scientific community has already developed several **new tools, information and digital platforms** that improve the understanding and management of wildfire risk. University educational programmes are also training a pool of experts, who form an invaluable resource to be recruited by key bodies involved in wildfire risk management.

There are a range of climate services and research promoted at national and subnational levels in Greece as tools to support fire prevention and the overall wildfire risk management cycle. For instance, the [Laboratory of Forest Management and Remote Sensing \(FMRS\)](#) has developed a series of wildfire-related products & services to support the activities of the Forest Service within the project of the National Observatory of Forest Fires ([NOFFi](#)). Wildfire prevention products include remote sensing-based fuel type mapping ([NOFFi-FTM](#)); a semi-automatic burnt area mapping service ([NOFFi-OBAM](#)); and a dynamically updateable fire danger index ([NOFFi-MFDI](#)) that provides medium-term forecasts. In recent years there have been further advances in fuel type mapping developed within the ongoing projects of the Greek Observatory of Forest Fires ([gOFFi](#)) and FirEURisk. These advances encompass both the use of new, more accurate methodologies and coverage of the entire Greek territory. Moreover, there are ongoing efforts towards achieving an integrated approach to wildfire risk assessment, based on the Wildfire Risk Index¹⁶ and improving post-fire damage assessment.

The National Observatory of Athens (NOA) produces innovative services relevant to wildfire risk management. It coordinates the BEYOND CENTER for Earth Observation Research and Satellite Remote Sensing and works with a

¹⁶ Emilio Chuvieco and al, 'Towards an Integrated Approach to Wildfire Risk Assessment: When, Where, What and How May the Landscapes Burn' *Fire* 6(5) (2023), <https://doi.org/10.3390/fire6050215>.

series of FireHUB services based on the Copernicus system. These services include: drafting detailed risk assessment maps under different conditions – e.g. for evacuation purposes, for the Attica Region – through various multi-source satellite data; an AI model (FFIS) for daily prediction of the wildfire risk all over the country¹⁷; a real time fire monitoring system of smoke dispersion; and detailed analysis of burned areas (Land Use Land Cover and protected areas affected). Other wildfire tools and services include the IRIS (Rapid response fire spread forecasting system), which is used operationally by the Fire Brigade, and an early warning system based on very high temporal resolution, but not used for risk-informed decision-making. The NOA and the Fire Brigade co-designed the FireHub system and have worked together since 2011; in 2020, they signed a formal collaboration agreement.

The Hellenic National Meteorological Service (HNMS) also developed remote sensing applications for fires and cooperates at the international and national level, also with civil protection. Its meteorological products include: aeronautical forecasting; marine forecasting; general and specific forecasting; extreme weather warnings; Meteoalarm; and, most importantly, the Daily Fire Risk Map (see Section 6.1 - Wildfire preparedness). In terms of remote sensing applications, they have fire detection and monitoring products which transmit data every 15 minutes – not used for early warning purposes. Currently, there are some modernization projects under implementation, including the Nowcasting system for severe weather and for supporting the Civil Protection Authority (EUR 45 million).

The [Risk Data Hub](#) and the Copernicus Emergency Management Service (CEMS) also support wildfire risk management in the country. While the first is only used as supplementary information for the national hazard and risk assessment tools, the CEMS is actively used in Greece. According to the activation list, the CEMS has been activated by Greece 51 times in Rapid Mapping mode for forest fires (since 2014) of which 13 times in 2023, and 8 times in Risk and Recovery mapping mode (7 times out of 8 for post-fire damage assessment).

5.4 - Awareness and risk communication

- Several **wildfire risk awareness and communication campaigns** have been implemented over the recent years by different entities, some of them in different languages to cater for tourists.

In Greece, several institutions are involved in the risk communication process. The MCCCCP has undertaken various awareness-raising campaigns to disseminate information on fires and promote good practices, including the publication and dissemination of guidelines, posters, television and radio advertisements. The GSCP is also responsible for publishing self-protection guidelines for the public in both paper and electronic formats, which include suggested behaviours for preparing for and acting in the event of a fire emergency. Moreover, the Autonomous Regional Directorates of Civil Protection and the Autonomous Municipal Departments of Civil Protection, are tasked with planning, implementing information and awareness-raising actions among the population on civil protection issues, within their areas of expertise.

The HFC also produces awareness-raising material. For instance, during the wildfire season, information on prevention is disseminated by the Press Office & Communication of the Hellenic Fire Corps via the Daily Fire Risk Map issued by the GSCP (see also Section 6.1 - Wildfire preparedness), providing details about the expected dangers for the following day through press releases, Twitter, Facebook and SMS. The Fire Service, together with the Forest Services and the Chios Voluntary Action Team - Omikron, is also involved in awareness and educational campaigns for the general public in coordination and cooperation with the regional and municipal authorities. Finally, in terms of education, the EMODE Units deliver lectures in schools.

¹⁷ The NOA contracted the service of providing detailed risk assessment and risk mitigation plans for city blocks and settlements in the Region of Attica.

The National Public Health Organization (EODY), under the Ministry of Health, provides health and safety education on the effects of smoke and emissions from fires through various channels, including [recommendations](#) published on their website, [social media](#), and press releases.

CSOs and research institutes also help raise awareness and facilitate risk communication, including the Institute of Mediterranean Forest Ecosystems (FRIA), which publishes videos and information on forest fire prevention on its website, translated into several languages for foreign tourists, and the Hellenic Red Cross, which produces wildfire awareness campaigns.

Although many entities are involved in awareness-raising campaigns, there seems to be no common strategy/coordination in place.

Box 8 - Good practice from Portugal: "Safe Village" and "Safe People"

In 2017, Portugal established two programmes [Safe Village](#) and [Safe People](#), which aim to safeguard people living in urban areas close to wildland urban interface (WUI). Specifically, the "Safe Village" programme targets population groups and forest protection, implementing structural measures to safeguard lives, property, and urban/forest interface buildings. This involves the creation and management of protection zones and strategic infrastructure, identifying critical points and safe havens. The "Safe People" programme involves awareness sessions, emphasising risk prevention, self-protection measures and evacuation drills in collaboration with local municipal authorities.

Both programmes are implemented through a protocol involving the National Authority for Emergency and Civil Protection (ANEPC), the National Association of Portuguese Municipalities (ANMP), and the National Association of Parishes (ANAFRE). At the strategic level, this entails setting nation-wide standards, conducting awareness campaigns and implementing national warning systems; at the operational level, it instead focuses on implementing concrete protection and awareness measures on a local scale through municipalities and parishes, leveraging their proximity to and capacity to mobilise the local community. The scope of action includes protecting groups, preventing risky behaviours, raising awareness, evacuating clusters considered at high risk of wildfire, and establishing safe shelters. A [guide](#) to assist the implementation of the programmes was also produced to support the local implementation of activities for protecting individuals and property during imminent or ongoing wildfires, complementing national government initiatives.

Box 9 - Involvement of the population in fire prevention activities in Kythira Island.

Following the major forest fire in the island of Kythira, the FRIA also joined forces with the Hellenic Society for the Protection of Nature (HSPN) and the 'Demeter' Hellenic Agricultural Organization in a project called "Innovative action for forest fire prevention in Kythira Island Greece through mobilisation and cooperation of the population, with a pilot in three settlements"¹⁸. It was funded by the Green Fund of the MEE, as part of the measure "Innovative actions with citizens", "Innovative Actions" axis of the "Natural Environment and Innovative Environmental Actions 2018." In particular, the project aimed to improve fire prevention through the mobilisation and cooperation of the population and included: 1) fire prevention talks by experts in all three Kythira settlements, emphasising the issue, introducing the concept of prevention, and calling for community mobilisation; 2) tailored talks for elementary and high school students, providing practical information and simple take-home messages with the assistance of HSPN environmental educators; 3) limited volunteer activities, including reforestation and fuel management, aimed at fostering a voluntary spirit; 4) production of two informative videos on safe home practices and how to respond to nearby fires, distributed to local media, authorities, volunteers, and uploaded to YouTube. A third video documented all project activities; 5) creation of a four-page fire prevention brochure specifically for Kythira; 6) interviews with local radio stations featuring fire prevention experts from the research partner teams¹⁹.



Figure 10 - Involvement of the population in fire prevention activities in Kythira Island. Source: Courtesy of Dr Gavriil Xanthopoulos.

5.5 - Conclusions

The legislative and procedural framework for wildfire prevention consists of a multitude of laws, decrees, specifications, circulars and regulations, which results in a high degree of fragmentation of roles and responsibilities within the institutional framework. Given this situation, the legislative and institutional framework could benefit from comprehensive review taking into consideration the causes of fires and taking the opportunity to also incorporate climate change and cross-sectoral considerations, while also bearing in mind the conservation effectiveness of a rural economy based on the use of natural resources. At the same time, there is the urgent need to strengthen the capacity of the Forest Service, which plays a crucial role in wildfire prevention, in terms of both additional qualified staff and funding. A long-term budget for prevention is also needed to ensure the implementation and sustainability of measures over time.

In recent years, cooperation and collaboration between key authorities in charge of wildfire prevention and suppression has improved significantly. This positive trend could be further strengthened in wildfire prevention, for example by involving the Fire Service in prevention activities in support of the Forest Service.

Numerous institutions and stakeholders actively and effectively participate in prevention activities. However, there is the need to improve their coordination and strengthen collaboration and cooperation with some key actors, such as the Ministry of Rural Development and Food and the Secretary General of Spatial Planning and Urban Environment (which sits under the MEE), given that both agriculture and land use management can play a crucial role in preventing wildfires. While clear rules exist for land use planning and for determining where new buildings are and are not allowed in relation to wildfire risk, there is room for improvement in their enforcement. Similarly, the implementation of rules on preventive measures by building owners (both public and private) should be improved.

The budget allocated to prevention has increased over the last few years, demonstrating the concrete commitment of the government to shifting from a purely wildfire management approach to a wildfire risk management approach. The AntiNero programme, which is the most important investment programme for wildfire prevention in recent decades, is enabling considerable improvements in forest management and wildfire risk reduction. However, the availability of public funds for wildfire prevention in the long-term remains a concern. In this regard, a long-term budget for prevention is needed to ensure the effective planning and implementation and the overall sustainability of measures over time. Investments in forest management should be further expanded using both public and private funds, if feasible. Consideration should be given to the use of tax incentives for private forest landowners who carry out preventive treatment (such as fuel reduction) on their properties and incentives to stimulate forestry activities requiring investments (such as livestock farming, local forest product processing factories) that increase local employment while reducing fuel load.

Clear restrictions are in place to reduce wildfire risk, especially during the wildfire season. However, fuel management guidelines that provide a clear framework for all actors involved in prevention need to be developed based on existing studies, as well as guidelines on how to protect critical infrastructures and vulnerable elements from wildfire risk. Allowing some economic activities in forests and encouraging bioeconomy with the dual purpose of preventing fires and bringing additional revenues for forest owners could be considered. This includes the potential reintroduction of grazing as a tool to manage fuel growth in forest lands, or the use of firebreaks for other economic activities (i.e. vineyards, cork production).

In terms of landscape management, there are significant efforts underway in data collection and map development, which will be crucial not only for prevention but also for the overall DRMC. The National Forest Cadastre, currently

being finalised, is a key achievement that will support, among others, fuel management, damage assessment and post-disaster restoration.

Given that the territorial scope of application of the forestry law seems to be quite narrow, the establishment of a buffer zone around forests in which to apply preventive measures defined by the forest management authority could help in reducing risk. Also, considering the importance of landscape-wide fire management, there is currently the need for greater clarification on the responsibility for fire prevention outside forests.

Integrating forest protection against wildfires into forest management planning with actions to reduce fuel accumulation is recommended. Although very few human activities are currently allowed in national parks, these could instead be introduced as complementary to preventive actions, such as grazing along forest roads or in areas that can be used as firebreaks.

The existing network of firebreaks is designed to help contain surface fire fronts without spotting. However, it is necessary to acknowledge that, according to trends in wildfire behaviour, current and future fires will in most cases breach these types of firebreaks. Therefore, it is recommended to redesign and adapt the strategy for planning firefighting infrastructures. In this view, it is proposed to implement an infrastructure planning to support the containment of large fires based on confinement axes, with area treatments sized to contain fires with a spotting capacity of 500 metres at the head and lateral spotting 50 to 100 metres. These low fuel load areas can be supported in agricultural areas and must preserve forest structures that ensure low- or medium-intensity fire behaviour.

Moreover, establishing specific rules that allow forest owners to manage biomass without necessarily having to obtain permits could effectively reduce wildfire risk. The reintroduction of grazing as a tool to manage fuel growth in forest lands, currently under development, also needs to be accelerated, as it is a good opportunity to derive value from the land and make it easier for land owners to take responsibility for its management. Overall, the relationship between the local population and forests need to be further promoted by combining the socio-economic alternatives with the rural environment based on a forestry culture, in order to enhance sustainability and social participation.

The importance of prescribed burnings for fuel management is well understood, and efforts are being made to include this key instrument in the legislation, thereby incorporating it among the prevention measures in the Forest protection plans. Prescribed burning can be a very effective way of reducing fuel loads and thus the likelihood of extreme wildfires. Implementing prescribed fires would also be an opportunity for cooperation between the Forest Service and the Fire Brigade. The pilot project on Chios for prescribed burning proved to be an excellent initiative, with the active participation of the local community, the WWF, the Forest Service and Fire Brigade. Projects for other wildfire prevention measures could be promoted to engage local communities and boost resilience. In order to introduce prescribed burning effectively, a sound legal framework, inclusive of training provisions, procedures to follow, and guidelines on the pre-identification of areas to be treated will be necessary. Cooperatives of trained forest workers, listed on an official register, have already been established. This valuable resource is enhanced by the fact that most of the workers are local people.

In terms of innovation and knowledge management, the Greek scientific community has already developed several new tools, information and digital platforms that improve the understanding and management of wildfire risk. University educational programmes are also training a pool of experts, who form an invaluable resource to be recruited by key bodies involved in wildfire risk management. The excellent tools, analysis, and data from research and academia should be taken into consideration and possibly exploited to identify and implement effective preventive measures. To this end, a collaborative framework should be established to facilitate exchanges between public authorities and research institutions.

Concerning awareness-raising and risk communication, numerous successful initiatives are being conducted in parallel by key institutions and stakeholders at the different territorial levels. Some of these activities are conducted in different languages to cater for tourists. Adopting an overall wildfire risk communication strategy/guideline jointly defined with key actors at the national level would help to streamline key messages and adopt a common terminology. Risk awareness campaigns targeting vulnerable populations are already in place and need to be expanded to cover the entire national territory, especially in WUI and remote rural areas. Also, risk awareness campaigns should be focused on specific topics, according to the major causes of fire identified by post-event investigations.

Excellent educational materials have been developed for voluntary use in primary and secondary schools. The inclusion by the Ministry of Education, Religious Affairs and Sports of environmental education programmes in school curricula could strengthen the penetration of risk awareness messages and foster sustainability. The use of new tools and approaches such as short videos, social media, augmented reality, and mobile caravans could increase their effectiveness.

Investigation into the causes of wildfire is the first step to understand the reality of each territory, and therefore to build solid and effective prevention policies.

As a final remark, improving the investigation into the causes of wildfires is crucial to build solid and effective prevention policies, as the first step to understanding the reality of each territory and identifying the underlying causes of fires (see also Section 8.1 - Recovery and lessons learned and Box 16).

Box 10 - Good practices from Spain: "Plan42" of the Autonomous Community of Castilla y León

In 2002, the Autonomous Community of Castilla y León in Spain, launched "[Plan42](#)", a comprehensive programme for the prevention of wildfires in the most fire-prone municipalities. At the local level, meetings led by mediators were organised with all the stakeholders involved in the use and management of the territory to discuss the problems and solutions regarding wildfires. Following a constructive process, working tables were convened with forest managers to facilitate the reconciliation of interests concerning the use of the territory and to incorporate consensual proposals from the local population into forest planning. This approach integrates technical and educational measures to address both the structural and immediate causes of fires. The methodology established by this plan has been adopted by forest management and wildfire prevention strategies at the regional level, leading to a significant reduction in the number of fires.

6 Wildfire preparedness

6.1 - Legislative framework and processes

- The **IOLAOS 2** plan is a key multidisciplinary planning instrument for wildfire preparedness, setting objectives, roles and defining clear responsibilities for key actors, and coordinating procedures.
- The **State of Special Mobilisation** recently introduced in national legislation is a powerful and effective instrument to improve preparedness in the imminence of a disaster.
- An **alert system** using **broadcast messages** through the **112 number** is in place to disseminate timely information to the public during or in the imminence of a wildfire event (although thresholds need to be revised, to avoid an overload of alert messages). Several entities contribute to this system depending on their role (e.g. the Ministry of Foreign Affairs intervene if tourists are in danger).
- Robust protocols for citizen protection are in place, especially with regard to **preventive evacuation procedures** including logistical support.

Wildfire preparedness is regulated by Law 4662/2020 on the national crisis management and response mechanism and by amendments established by Law 5075/2023. The State of Special Mobilisation, recently introduced in national legislation, is a powerful and effective instrument to improve preparedness in the imminence of a disaster.

The GSCP is responsible for drafting and updating guidelines for the planning, prevention, preparedness and response actions to address risks, including wildfires, and for updating the general civil protection plan IOLAOS 2. The latter includes the main actions on preparedness for forest fires described in phase 1 - Standard Preparedness (preparatory actions) and phase 2 - Enhanced Preparedness (increased preparedness against forest fires) - of the "Stages of Mobilization of Civil Protection Capacity."

The involvement of the Fire Brigade in wildfire preparedness encompasses a number of activities, including the review and update of the Operational Plans of the Regional Fire Departments, inspection and maintenance of critical infrastructure such as the rural road network, fire watchtowers, and water tanks to optimise their functionality during firefighting efforts. Moreover, coordination with the Hellenic National Defense General Staff and the General Staff of the Army, Navy & Air Force ensures their assistance when needed during the firefighting period, using aerial means, ground vehicle patrols, and the management of Aerial Fire-Fighting Risk. Additionally, the Hellenic Police contributes to preparedness by participating in the preventive evacuation of citizens, investigating forest fires, implementing traffic measures, conducting aerial surveillance, and patrols. Finally, the ESKEDIK is staffed with personnel from the Armed Forces and the Forest Service to support both aerial firefighting and terrestrial operations as required – see also Section 7 - Response.

Early warning and alert systems

A group of fire experts established within the GSCP issues the Daily Fire Risk Map on a daily basis during the wildfire season, which is sent to all competent and local authorities involved in forest fires. The map shows the forecasted wildfire risk (on a 5-level scale: low, medium, high, very high, extreme) at the sub-regional scale (Forest Fire Administrations boundaries). In the event of very high or extreme risk in a given area, the GSCP issues a press release, warning civilians living in these areas to avoid anything that carries the risk of fire.

A daily forecast of fire risk is also performed by the Institute of Astronomy, Astrophysics, Space Applications and Remote Sensing and the National Observatory of Athens using innovative artificial intelligence methodologies. These forecasts are published on the Forest Fire Risk application. However, the use of these products is not currently regulated, so they are not considered in the operational chain by public authorities.

The GSCP is responsible for issuing alert messages via the emergency number 112 (cell broadcast messages) as well as using mass and social media (Unit 5 of the ESKEDIK). The 112 - Emergency alerts citizens in high-risk areas in the event of a fire and provides information on recommended behaviours to reduce risk before and during a fire. When a fire is imminent or has started, people receive a warning message on their smartphone in both Greek and English. The recent Law 5075/2023 includes specific provisions to strengthen the 112 Emergency number.

Patrolling

Significant efforts are currently devoted to patrolling, with the participation of numerous entities using various means and tools. Entities involved in patrolling activities include the Fire Brigade and Fire Service, which conduct daily patrols in their respective areas of responsibility. The NECCA has two permanent patrol units. Additionally, mixed patrols are conducted by the Armed Forces and the Hellenic Police, both by air and on land. During phase 4, patrols are active 24/7, involving over 1,000 people daily, particularly on days classified as risk level 4 or 5. There are also patrols by volunteer organisations under the guidance of local administrations. This involvement of numerous entities can create some degree of overlap, hence the need for an evaluation of the cost-effectiveness and efficiency of the overall patrolling system.

6.2 - Training, exercises and international exchanges

- Greece actively participates in opportunities provided within the **UCPM** in terms of exercises, training, and international exchanges.
- The importance of **conducting exercises** at the different territorial levels is very well understood. Whenever possible, **lessons learned** are communicated in the form of debriefing with key stakeholders. Otherwise, final reports are drafted and distributed among the stakeholders afterwards.

Training programmes and international exchanges

The National Civil Protection Planning Programme requires that a training and exercise programme be designed and implemented for each key risk, with the participation of the bodies involved in the DRM. The GSCP is responsible for emergency preparedness and provides advisory services to the government on the measures and actions needed to improve preparedness. Its specific roles include promoting and supporting research projects and providing education and training for civil protection authorities, volunteers and citizens through the Civil Protection Academy.

Established in 2022, but still limited in its functioning, the Civil Protection Academy is an educational facility with the aim of providing certified theoretical and practical education and training on topics related to civil protection and crisis management. It is made up of four Schools: School of Civil Protection Volunteering and Volunteer Organizations, School of Personnel and Managers, School of Public Administration Managers and School of Citizens. The training is based on three pillars of action of the MCCCC "Prevention, Preparedness-Readiness, Resilience", with a specific focus on prevention.

In addition to the training offered by the Civil Protection, the Hellenic Fire Academy offers higher education and postgraduate courses and professional training for in-service personnel. Specifically, it is the designated educational

authority for the Fire Service, assigned with the task of training firefighters. The course offering covers a wide range of topics relating to firefighting, civil protection and crisis management. There are also educational programmes for the general public to improve knowledge on the issues of fire and civil protection.

The Academy is equipped with smoke and fire simulators and composed of six schools, including the Officers' School, Sergeants' School, Firemen's School, School of Higher Education and Professional Training (vocational), School of Professional Postgraduate studies for Staff – Executives Officers and the Hellenic Fire Corps Training Center.

Specifically referring to the UCPM, since 2016, 105 Greek experts have been trained through the UCPM Training Programme funded and coordinated by the European Commission. Within the UCPM Exchange of Experts and the innovative Prepositioning Programme Greece hosted more than 200 firefighters from six European countries in 2022. In summer 2023, firefighters from UCPM countries were in Greece through the Prepositioning Programme.

It is worth noting that several Greek universities offer postgraduate programmes relevant to the topic of wildfire risk management. The National & Kapodistrian University of Athens offers a postgraduate programme called "Environmental, Disaster, and Crisis Management Strategies", open to students and alumni from local governments, the Fire Brigade, the Army, Navy and Air Forces, the Central Government, the Hellenic Coast Guard, and other entities involved in wildfire management. This programme includes a series of thematic field trips and exercises, such as the Wildfire Emergency Drill in Petaloudes Rhodes in 2019. Additionally, the Harokopio University and the University of the Aegean offer MSc courses on DRM and DRR related topics, respectively titled 'Management of Natural and Human-Induced Disasters' and 'Natural Hazards and Disaster Mitigation,' with a special focus on forest fires. Finally, the International University of Greece and the Hellenic Fire Academy propose a MSc Programme – Interinstitutional Interdepartmental MSc on the "Analysis and Management of Manmade and Natural Disasters."

Exercises

Exercises are implemented on a regular basis at the national level, engaging almost all key stakeholders. Overall, the importance of conducting exercises is clearly recognised at the different territorial levels.

The Hellenic Air Force General Staff collaborates with the FB on an annual joint exercise and joint firefighting seminar entitled 'Fire Brigades-Aerial Firefighting Squadrons'. Table-top and full-scale exercises are also conducted, with a focus on testing and improving the interoperability of teams. These exercises are organised on the basis of the fire scenarios at different territorial levels. In addition, the Hellenic Army conducts exercises focusing on evacuation procedures. The "Prometheus 2014" exercise focused on an international fire scenario, the 2024 "Forest Guardian" exercise focused on a national fire scenario, and the "Dia Pyros 2019" exercise focused on a local municipality fire scenario are some of the most recent exercises on wildfire risk implemented at different levels.

Additionally, as part of its coordinating role, the GSCP co-organises exercises with emphasis on organised preventive evacuation in accordance with current legislation and updated guidelines (2023). These include: exercise ASPIDA 2023, Island of Kos, Region of South Aegean; exercise ENOSIXTHON 2023, Lamia, Region of Central Greece; exercise IFESTOS 2023, Sithonia, Halkidiki, Region of Central Macedonia; exercise IFESTOS 2023, Athens, Attica Region; exercise KAMINOS 2023, Lavrio, Attica Region; and exercise TROFONIOS 2023, Livadia, Region of Central Greece. A series of similar exercises is also planned for 2024 as well.

Greece also participates in international full-scale, table-top, and MoDEX exercises within the UCPM (e.g., MoDEX Croatia, 2019; MoDEX Spain, 2022; Balance, Montenegro 2022).

At the sub-national level, regional authorities are in charge of organising and implementing exercises with municipal authorities. During the peer review mission, representatives from the Attica Region presented a series of exercises they recently promoted and explained that exercises are conducted with the region's 66 municipalities on a regular basis. During these exercises, new tools are tested and the outcomes are used to improve and update action plans. They mostly use a top-down approach, where the regional authority proposes exercises to the municipal authorities that participate actively in the event (Box 11).

Box 11 - Exercises promoted by Attica Region.

The Attica Region designs and implements exercises on a regular basis engaging all the 66 municipalities under its jurisdiction. The region recognises the crucial importance of promoting exercises to test SOPs with the ultimate aim of improving its operational readiness and overall coordination between key actors.

In partnership with the University of Athens, the region identifies the areas at highest risk and then reaches out to municipalities to organise specific drills in the most vulnerable areas. The close collaboration with the University of Athens is not only limited to the identification and definition of scenarios, but also includes activities to disseminate risk knowledge and raise awareness among the general public and stakeholders. Overall, there seems to be active participation by the scientific community in the exercises and an effective collaboration with the regional authority.

A number of exercises are held each year based on different types of scenarios, focusing on different hazards, including wildfires, in order to test procedures, new tools and improve the interoperability of teams, which is recognised by the region as one of the main challenges.

A huge effort is devoted to engaging different types of stakeholders, including the journalists and school pupils. Recently, a special exercise was organised for people with disabilities, with the aim of assessing their needs and test specific procedures.

Each exercise is followed by a lessons learned process, including a questionnaire distributed to the participants to collect feedback and recommendations. The outcomes of the drill are taken into consideration for drafting the regional action plan.

Below are some examples of recent exercises conducted in the Region of Attica.

In 2022, an exercise called "AENEIAS Kanakia Salaminas 2022" for the Regional Unit of Piraeus and Islands was conducted in Salamina (Figure 11).



Figure 11 - The setting of the exercise in Salamina - "AENEIAS Kanakia Salaminas 2022". Source: Courtesy of Giannis Kapris from the Independent Direction of Civil Protection of the Region of Attica.



Figure 12 - The setting of the exercise on Mount Poikilos - "ANEIAS 2022". Source: Courtesy of Giannis Kapris from the Independent Direction of Civil Protection of the Region of Attica.

The same year, an exercise was conducted on Mount Poikilo, Municipalities of Agioi Anargyro-Kamaterou, a territory characterised by environmental degradation and abandoned agricultural activities (Figure 12) and on Mount Aigaleo, Municipalities of Agia, characterised by increased wildfire vulnerability.

In 2023, an exercise took place in the Hamolia seaside area, located in the Municipality of Markopoulos Mesogaia, whose population drastically increases during the summer tourist season (Figure 13).



Figure 13 - The setting of the exercise in the Hamolia area - "ANEIAS 2023". Source: Courtesy of Giannis Kapris from the Independent Direction of Civil Protection of the Region of Attica.

6.3 - Response capacities

- **Response capacities** for wildfires have improved consistently in recent years, in view of the increasing risk.
- There is an inventory of **private companies** that can support public authorities in case of emergency at the local level to facilitate response operations. There is also a **registry of equipment and means** available for leasing under contract.
- The development of the **EMODE** is an excellent initiative that should be further promoted. Their ability to reach and suppress wildfires quickly in remote areas is crucial. In addition, they are the only teams allowed to use backfires and are also involved in prevention activities, which demonstrates the holistic approach being pursued.
- A **Volunteer Registry** is managed and regularly updated by the Directorate of Volunteerism and Education at the GSCP. **Clear requirements** exist for registration as a volunteer group/member. Also, volunteers undergo physical/mental health checks before being accepted and then receive training.

Currently, the ground forces of the Fire Brigade are composed of 11,289 permanent firefighters, 2,351 five-year obligation firefighters, 2,471 seasonal firefighters, and 500 forest firefighters. In addition, Greece has 3,818 registered volunteer firefighters.

The number of vehicles now consists of 2,046 firefighting vehicles, 1,469 support vehicles, and 227 special-purpose vehicles. The ground forces are supported by additional resources from the Armed Forces (including, among others, earthmovers, patrols, armoured carriers, personnel transport vehicles), Local Government Organizations (involving earthmoving, water carriers, patrols, fire patrols, etc.), Forest Service, Forest Fire Safety Center (consisting of patrols, Support Teams for the Management of Forest Fires), Volunteer Organizations, and Volunteers (providing fire fighting vehicles, patrols, and staffing for fire patrols, etc.).

As for aerial means, in the 2023 wildfire season Greece also increased its assets, which consists of 52 aircraft leased compared to 47 in 2022, 43 aerial means leased through the national fleet. As for personnel, Greece has 9 Fire Brigade teams with 24 unmanned aerial vehicles available operating in 7 prefectures and operational airborne crews (seasonal since 1999). Furthermore, Greece has increased patrolling and aerial surveillance using "Air Tractor" and PZL light aircraft to ensure the initial attack during high-risk days.

The aerial assets of the national fleet also include 3 BK 117 for surveillance and coordination, 2 AS-332 SUPER PUMA for forest firefighting, drone units in 7 Regional Administrations. Additional helicopters for surveillance and coordination and drone units are provided by Hellenic Police and Armed Forces, including Air Force aircraft and personnel.

The Special Forest Fire Operational Units - EMODE, established in 2022 with the aim of tackling forest fires in remote areas in a holistic manner, including suppression, rescue, structural fires and prevention, works in cooperation with the Forest Service (e.g., clearing burnt areas), local communities and schools. Overall, it is already composed of 6 Units, 500 specialised firefighters, 14 PHOENIX teams, 14 helicopter crews, and 14 support teams. Currently, 650 additional firefighters have already joined the Hellenic Fire Corps, and after completing their training, will be ready for operations during the forthcoming season, increasing the number of the Special Forest Fire Operational Units - EMODE to 16. EMODE deployment consists of two 4x4 personnel transport vehicles, and type 1 and type 2 helicopters that can transport up to 15 or 9 firefighters respectively, equipped with external tanks. To enhance response capacity, a personnel rotation system is used, allowing for continuous 24/7 operation irrespective of the incident duration, facilitated by

a 1-1 work pattern for the crew. The EMODE units have seen an increase in deployment in other areas, other than wildfires, as part of an efficiency drive, mostly in winter. However, this approach could deviate these units from their primary goal, while also hindering their usefulness in supporting the Forest Service in prevention actions that, in turn, will pay off during the hot months.

The response capacity is also supported by the CP Voluntary Groups (VG). The Greek CP Volunteerism Registry managed by the Directorate of Volunteerism and Education at the GSCP consists of 3 individual sub-registries (registries of VG groups, CP volunteers, and equipment) and 2 Archives (archive of organisations and entities collaborating with the GSCP). Unfortunately, only half of the volunteers can participate in prevention activities, because not all of them have received adequate training.

Also, there are volunteer firefighting brigades and stations established under the Fire Brigade, which currently includes 23 stations across Greece. Overall, the volunteer system in Greece is a powerful resource that can be used to match resources to needs very quickly. However, there is the need to establish incentives and additional training (including on prevention) for volunteers in order to attract new young staff and employ them in both prevention and preparedness activities (Box 12).

Box 12 - Penteli Firefighting Voluntary Unit (field visit)

During the mission, the Peer Review team visited the facilities of the Penteli Firefighting Voluntary Unit. This is a typical volunteer station organised within the Fire Brigade. The response capacity of the unit consists of 2 firefighting vehicles, 43 volunteers, and 4 permanent staff. No remuneration is provided for volunteers, except for credits that are considered during participation in the competition for permanent staff positions. Volunteers undergo 3 months of theoretical and practical training, including small team exercises totalling 250 hours. Upon completion, they undergo an examination for ID certification. If they fail the exam, they still receive a certification confirming completion of the training.



Figure 14 and 15 - Field visit at the facilities of the Penteli Firefighting Voluntary Unit.

6.4 - Conclusions

The IOLAOS 2 is a key multidisciplinary planning instrument for wildfire preparedness, setting objectives, roles and responsibilities for key actors, and coordinating procedures. The State of Special Mobilisation recently introduced in national legislation is also a powerful and effective instrument to increase preparedness in the imminence of a disaster.

The preparedness of the overall system is based on a fixed wildfire season. However, this lack of flexibility could mean a less effective response when wildfires occur outside the traditional wildfire season, which is an increasingly frequent phenomenon in the context of climate change. In light of the above, abandoning the fixed fire season concept could pave the way for a more flexible approach based on other criteria, such as meteorological conditions or prolonged

periods of vegetation dryness or stress.

Currently, significant efforts are devoted to patrolling, involving several entities, using different kinds of means and tools. Therefore, an internal analysis incorporating cost-benefit considerations is required to evaluate the effectiveness of the overall patrolling system. Surveillance and patrolling activities need to complement each other to maximise early detection and ensure an efficient early attack. Also, the strategic use of watchtowers, teams and new technology (i.e. drones) is key for successful preparedness.

There are robust protocols for citizen protection, especially with regard to preventive evacuation procedures including logistical support. There is also an alert system to broadcast messages through the emergency number 112 to disseminate timely information to the public during wildfire events. Several entities contribute to this system depending on their role; for instance, the Ministry of Foreign Affairs intervenes if tourists are in danger. However, thresholds for such alerts need to be revised, to avoid an overload of alert messages.

Overall, the importance of conducting exercises at different territorial levels is widely acknowledged. Greece actively participates in opportunities provided within the UCPM in terms of exercises, training, and international exchanges. High-quality exercises are carried out on a regular basis with the participation of most of the relevant stakeholders. However, with a view to continuous improvement, it would be beneficial to increase the engagement of the private sectors (e.g. electricity providers) and include tests on health and safety aspects. There is also a need to strengthen the technical, administrative and financial capacities of local authorities in order to improve preparedness for severe wildfire events, given their key role in both preparedness and response phases. Increased local engagement in exercises, especially in areas with the highest fire risk, could help to empower citizens and communities, raise awareness, prevent wildfires and increase the preparedness of the overall system.

In terms of education and training, institutions such as the CP Academy and the Hellenic Fire Academy offer specialised programmes for CP personnel, firefighters and volunteers. The Fire Academy provides training and educational opportunities for students with diverse backgrounds. Clear requirements exist for registration as a volunteer group/member. Also, volunteers receive training and undergo physical/mental health checks before being accepted. However, the CP Academy currently appears to have limited operations; enhancing its operability and capacity would be a step forward in training activities for various stakeholders, including mayors, volunteers and citizens. Local entities, which often suffer from a lack of qualified personnel, could greatly benefit from such training. In addition, for more effective cooperation between Forest Service and HFC, joint training on fuel management and preparedness and response activities should be implemented on a regular basis to ensure interoperability and a common approach. Finally, specific training for incident commanders is implemented on a regular basis and should be further strengthened and promoted.

Greek universities and research institutions also provide a large number of education programmes, creating a strong pool of experts who can be employed in various governmental and non-governmental organisations.

Response capacities for wildfires have improved consistently in recent years, in terms of personnel, equipment and financial means. However, the underlying decision-making on the resources to be developed is unclear. In this scope, studies should be conducted to understand the type and volume of response capacities actually needed.

There is an inventory of private companies that can support public authorities in case of emergency at the local level to facilitate response operations. There is also a registry of equipment and means available for leasing under contract. The development of volunteer fire brigades and CP volunteer groups is an excellent initiative that needs to be further promoted. It is a powerful resource that can be used to match resources to needs very quickly. However, the voluntee-

ring system both in CP and in the Fire Service require improvements to the regulatory framework and concrete incentives to be offered to citizens to join the teams. Specific training on wildfire management could be further implemented among the volunteers, who could also contribute more to prevention activities in support of the Forest Service.

The Special Forest Fire Operational Units (EMODE) are a great resource that should be further developed and used both for preparedness and prevention purposes. Their ability to reach and suppress wildfires quickly in remote areas is crucial. In addition, they are the only teams allowed to use backfires and are also involved in prevention activities, which demonstrates the holistic approach being pursued. As such, deploying these units during winter time on other tasks should be very limited. Instead, it is recommended to make good use of their time and expertise in support of the Forest Service, contributing to reducing fuel loads and landscape vulnerability to wildfire hazards during the hotter months. However, the EMODE should be further strengthened with more trained staff and resources, also in order to increase the number of teams authorised to use backfires. Their wildfire prevention activities could be expanded, especially in winter, to support the Forest Service in landscape management.

7 Response

7.1 - Legislative framework and processes

- **ESKEDIK** is a crucial component of the disaster management system in Greece, ensuring 24/7 monitoring of the national situation and a good coordination mechanism in the response phase. The presence of representatives from different entities facilitates the flow of information and collaboration between the key actors.
- **New methods of cooperation** between the Forest Service and the Fire Corps have been recently established by Law 5075/2023 in the response phase. Specifically, the establishment of **Support Groups for the Management of Large-scale Forest Fires**, composed of technical experts from the Forest Service who support decision-making during major wildfire events, is an excellent opportunity to improve effectiveness and exchange of knowledge.

The main legislative instruments regulating response to wildfires include: Law 2612/1998 on the "Assignment of forest firefighting responsibility to the Hellenic Fire Corps"; Ministerial Decision 17961/1998 on the "Regulation of operational planning issues for addressing forest fires"; Joint Ministerial Decision 12030/1999 regulating the collaboration between the authorities involved in the prevention and suppression of forest fires; Law 4662/2020, especially Art. 26 on the Special Mobilization Status of Civil Protection, Art. 36 establishing the ESKEDIK, Art. 74 attributing responsibility for planning and conducting fire suppression operations to the Fire Brigade, Art. 27 and Art. 29 regulating the organised preventive evacuation of citizens; Art.38 of Law 4892/2022 on the establishment of Forest Firefighting Special Units-EMODE; Joint Ministerial Decision 167/2022 on the "Use of Backfire and Burnout by the HFC"; and Law 5075/2023, which strengthens the National Air Rescue and Airports Mechanism through the addition of air evacuations and establishes Support Groups for the Management of Large-scale Forest Fires during the fire-fighting period. Finally, general actions and measures for responding to forest fires are detailed in phase 3 ("Immediate Mobilisation-Intervention") and phase 4 ("Rehabilitation/Recovery") of the IOLAOS 2 for each of the key actors involved in wildfire response and short-term management of consequences. Guidelines for the evacuation of citizens are also contained in the IOLAOS 2, as well as in the regional and local plans of each region and municipality (Special Plans).

Besides the GSCP, the Fire Brigade and the Commander of the Civil Protection Coordination Body, whose actions are thoroughly described for phase 3 and 4 of the IOLAOS 2, other key actors in charge of actively supporting the Fire Brigade according to the IOLAOS and their operational plans include: the Hellenic Police, who are responsible for traffic measures to facilitate the movement of firefighting vehicles and vehicles of other stakeholders and for the maintenance of public safety during evacuation procedures; IPTO and HEDNO, responsible for the preventive interruption of electricity supply for the safety of forest fire suppression personnel²⁰; the Hellenic Defence General Staff, for the provision of personnel and equipment; the Forest Service, which provides on-site advisory support to the head of suppression forces, also through the newly established Support Groups for the Management of Large-scale Forest Fires; the National Centre of Emergency Care (EKAB), under the Ministry of Health, with the role of dispatching ambulances and mobile units to the site of the fire, to deal with any health incidents; the Directorate-General for Recovery from the Effects of Natural Disasters, recently transferred under the MCCCCP, providing temporary housing to the affected persons; the Hellenic Coast Guard, under the Ministry of Shipping and Island Policy, responsible for facilitating sea transport of personnel and vehicles and for Search and Rescue operations within its area of responsibility; and Civil Protection entities, including regional and municipal authorities, volunteers, and others, responsible for

²⁰ According to Law 5075/2023, a representative from the two services shall be present in the ESKEDIK to help coordinate issues related to telecommunication networks.

providing personnel and equipment. Other ministries, such as the Ministry of Culture, the Ministry of Infrastructures and Transportation and the Ministry of Foreign Affairs also have supporting roles during the response phase.

The Civil Protection Coordinating Bodies were established and deployed pursuant to Law 4662/2020, as amended by Law 5075/2023. They are divided into three categories, namely the Civil Protection Coordination Body-SOPP (national level), which is the highest operational body, the Regional Operational Coordination Bodies of Civil Protection - PESOPP²¹ (regional level) and the Local Operational Coordination Bodies of Civil Protection - TESOPP²², which are established in each municipality of the country.

The Regional Operational Centres for Civil Protection - PEKEPP are set to be established in each Greek region in the near future, for a total of 13 PEKEPP. They will be activated under the responsibility of the competent Regional CP Coordinator, and will take care of the coordination, planning, supervision, organisation and implementation of response actions as well as the collection, processing and transmission of information relating to ongoing events or an imminent emergency, in order to assess the situation comprehensively.

For the Fire Brigade, there are 13 Regional Fire Administrations and Operational Centres (ROC). At the local level, the relevant local services are responsible for operations in response to forest fires, in accordance with their operational plans. Support from other operational bodies involved in civil protection is provided at the request of the Chief Officer directing suppression operations. The mayors, regional governors and deputy governors are responsible for coordinating the allocation of local authority resources to support these activities.

7.2 - Response operations

- The regional and local **operational bodies** activated in case of disasters, including severe wildfire events, are key in ensuring that all the authorities and actors are engaged in response operations and act in a coordinated manner.
- Very specific procedures for **preventive evacuations** have been in place since 2008 and were updated in 2023. Moreover, specific procedures have been developed in cooperation with the Ministry of Foreign Affairs to assist **tourists** and **foreign citizens** during mass evacuations.

Forest fire response operations follow a seven-stage approach which is described in the IOLAOS 2 as follows:

1. Notification: at this first level, the verified information describing the location of the fire, the time it was detected and the type of burning vegetation is disseminated to all stakeholders.
2. Mobilisation of forces - Initial Status Assessment: linked to the escalation of the HFB's capacities and means required to deal with the fire, in accordance with the first assessment by the Chief Officer of the Fire Service who arrives on site. Based on the availability of the requested personnel and equipment, the chief officer will select the optimal Action Plan at the next level of operations.

21 The PESOPP are composed of: Regional Governor, Deputy Regional Governor, Head of Autonomous Directorate of CP, Director of Regional Fire Brigades, and the various directors of the relevant operational actors (Police, Coast Guard, EKAB, etc). As of early 2024, not all regions have a PESOPP yet.

22 Similarly to the PESOPP, the TESOPP are composed of relevant authorities for the local level, with the Mayor as President.

3. Force Development - Intervention: the optimal Action Plan is selected and implemented with the corresponding deployment of forces and intervention at the site of the fire.
4. Partial Control: when most of the perimeter of a fire has been fully extinguished and a further increase in the perimeter of the fire is not expected. The work of extinguishing continues so as to delineate the perimeter.
5. Control - Guarding: when the perimeter of the fire has been completely extinguished and the area is guarded for any resurgences and partial de-escalation of the available means, upon recommendation of the Chief Officer of the Fire Service. The duration of this phase varies depending on the type of fuel found on the perimeter of the fire, the extent of the fire, the morphology of the ground and the weather conditions, which may or may not be conducive to resurgence.
6. Complete Fire Extinguishing: the incident is judged to have ended and a complete de-escalation of the firefighting personnel and equipment and guarding personnel and equipment is carried out following the decision of the Chief Officer of the Fire Service.
7. Evaluation: all agencies and services involved in addressing emergency needs and managing the consequences of forest fires carry out an assessment based on their respective plans.

Evacuation Decision Procedure²³

The organised evacuation of citizens in response to a local disaster is the responsibility of local mayors. In cases where an ongoing or imminent wildfire disaster extends beyond the boundaries of a single municipality, the decision-making authority is the relevant Regional Governor, while for major wildfires affecting more than one region, it is the Secretary General of Civil Protection. In accordance with IOLAOS 2, the responsibility for proposing procedures dealing with the organised preventive evacuation of citizens lies with the Command Fire Officer and is directed to the mayor after a thorough evaluation which includes an analysis of the expected path of the fire in the direction of the residential area. If the Command Fire Officer recommends the preventive evacuation of citizens, which can be either partial or total, the competent mayor shall convene the Command Committee to decide on whether to order the evacuation; this ensures communication between the relevant stakeholders, the collection and exchange of information related to the current situation, and their coordination.

The decision for complete/total evacuation is made in situations where settlements are within forest areas or when there are buildings in close proximity to forest areas. If citizens are in close proximity or within the burning area, rescue operations are initiated under the direction of the Command Fire Officer, who serves as the coordinator of the fire services responsible for evacuation. Evacuation is not mandatory, and citizens can choose not to leave under their own liability, after being officially informed of the risk they are facing.

Evacuation Decision Procedures include three messages broadcast to citizens by Unit-5 (Emergency Number 112): the first 112 message contains the fire warning; the second message contains notification of the decision to evacuate and details on the evacuation; the third message informs those evacuated when it is safe to return to the evacuated area²⁴. The mayor liaises with the GSCP on the message details, which include specific information such the gathering place and where people will be taken²⁵, such as equipped temporary shelters. Parallel to the 112 messages, the Police go door to door, and the warning is also broadcast via mass media (TV, Radio). When foreign people are involved, a special gathering point is defined.

²³ Guidelines for the implementation of organised preventive evacuation were updated in 2023 by the GSCP and are available on its website.

²⁴ Further functionalities are going to be added to the 112 Emergency Number in the short future, including a new app for communication.

²⁵ In the Special Plan of each municipality, there are safe places for evacuation designated inside the urban areas.

The GSCP may use any appropriate means of transport to coordinate the rescue or provide assistance of any kind, including, for instance, the private vehicles of any natural or legal persons, in accordance with the new Law 5075/2023.

7.3 - Response coordination

- The National Coordination Center for Operations & Crisis Management - **ESKEDIK** is a crucial component of Greece's disaster management system, ensuring 24/7 monitoring of the national situation and a good coordination mechanism in the response phase.
- The **ENGAGE** software is a good IT tool to support the coordination of on-site operations and share geo-referenced information between entities at the different territorial levels.
- With regard to **Host Nation Support**, a pool of trained liaison officers has been established to support international teams deployed to Greece through the UCPM and/or bilateral agreements, whose efficiency was demonstrated during the UCPM activations in summer 2023.

The National Coordination Center for Operations & Crisis Management - ESKEDIK, is supervised by the Secretary General for Civil Protection and the MCCCCP (in accordance with Articles 3 and 36 of Law 4662/2020). It is responsible for situation monitoring and response activities, ensuring the coordination between key actors. The ESKEDIK, which operates 24/7, 365 days a year, is composed of five units: Unit 1 (SEALOPS), in charge of coordinating the mobilisation and deployment of firefighting, land and maritime forces for large-scale events – it stays in 24-hour contact with the 13 ROCs; Unit 2 (ATROPS), responsible for planning aerial surveillance and coordinating the utilisation of aerial assets (both national and coming from abroad); Unit 3 (COMRES), mobilising civil protection forces for significant events at every level; Unit 4 (UCPM/RescEU), the operational contact point for the GSCP and manages interactions with the UCPM; Unit 5 (Emergency Number 112), which oversees the implementation of the Emergency Communication Service within the GSCP, managing all calls to 112, and dispatching outgoing emergency messages and alerts. As one of the main provisions of Law 5075/2023, a new unit called Unit 6 for Aerial Search & Rescue shall be established – at the time of the peer review mission, this unit is not yet operational.

Coordination procedures in view of an expected event start with the gradual activation of the Nat-CHAMM, which is based on the Daily Fire Risk Map, through different codes that define its activation status depending on the expected/ongoing event. The codes are labelled with different colours ranging from green to red, where green corresponds to the State of normal readiness, yellow to the State of increased preparedness, orange to the State of alert, and red to the Mobilisation status. In the latter, the Nat-CHAMM is fully mobilised and actions are taken by decision of the Secretary General of Civil Protection, who may declare the State of Special Mobilisation for Civil Protection, so that additional means are activated at the local or regional level. In this Special State, specific measures are implemented of a set duration, corresponding to those enacted after the declaration of a state of Civil Protection Emergency. In the case of a local emergency, the affected municipality may be declared in a state of emergency by decision of the Secretary General of Civil Protection, at the request of the competent mayor. If the state of emergency occurs at regional or inter-regional level, the declaration is issued upon decision of the MCCCCP, following the specially reasoned recommendation of the Secretary General of Civil Protection. If the state of emergency occurs at national level or has particularly severe consequences that require immediate measures to be applied nationwide, it is declared by an Act of the Council of Ministers following the specially reasoned recommendation of the MCCCCP (Law 5075/2023).

Mobilisation

Following the outbreak of a wildfire, the local fire services are mobilised to manage and suppress the fire in alignment with their operational plan. After an analysis of the situation, the Fire Command Officer submits a request for

additional response capacities to the GSCP, through the ROCs. Figure 16 shows the information flow of the request for fire suppression support. The Special Units EMODE can also support fire suppression activities.

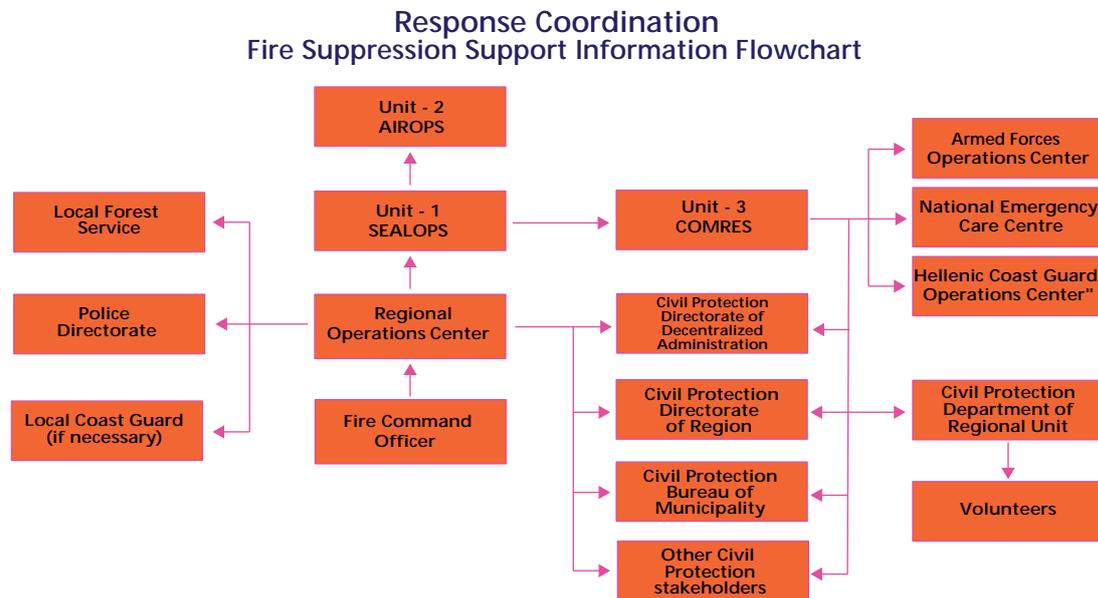


Figure 16 - Fire Suppression Support Information Flowchart. Source: Courtesy of the Fire Brigade.

Where foreign people are affected by the emergency, the Ministry of Foreign Affairs activates the Crisis Management Unit to notify the various embassies and set up a 24/7 call centre or a help desk at the airport to provide foreigners with information.

The recent Law 5075/2023 establishes that, in case of major wildfires, Support Groups composed of three specialised scientists from the Forest Service may support operations by providing technical advice for ground and aerial suppression operations. They can be convened in the field upon request of the Fire Service to the Forest Service. These groups are an excellent opportunity to include experts with advanced skills on wildfire behaviour analysis, who can provide essential information for planning suppression strategies and tactics, anticipating future scenarios by identifying opportunities and safety issues.

If resources and means at the national level are insufficient to deal with ongoing wildfires, the GSCP issues a request for international assistance through the UCPM (via Unit 4/ESKEDIK) and/or activates bilateral agreements, for which a pool of trained liaison officers has been established to provide Host Nation Support to international teams deployed to Greece, whose efficiency was demonstrated during the UCPM activations in summer 2023.

As a Decision Support System, Greece uses an Integrated System for Incident, Resource and Telematic Data Management called 'Engage'. The platform, operational since 2018, includes the following key functionalities: emergency call management; incident management; operational resource management; operational resource availability; telematic integration of operational resources; statistics management; geographic data in 3D environments; and integration with third-party applications and systems. Specifically, Unit 1/ESKEDIK monitors every incident through Engage, which provides detailed operational information in real time coming from the ROCs – Engage is used in all Fire Services/ Stations and Operational Centres of the country – as well as a variety of significant data from the ground, such as winds, temperature, and topography. Additional data can also be provided from the firefighting drones, when activated. In case of escalation, Unit 2 supervises the mobilisation of aerial means through this system. Additionally, the record of damages can be stored in the system for 60 years.



Figures 17 and 18 - Visit to ESKEDIK at the GSCP during the peer review mission.

Box 13 - Response operation and coordination during the Penteli fire (field visit).

During the Peer Review mission, the team visited the Firefighting Museum, the 12th Athens Fire Station, and the fire incident area at Penteli Children's Hospital. The Fire Station is responsible for responding to both urban and forest fire incidents and includes 70 professional and 60 volunteer firefighters, 9 fire trucks and chemical, biological, nuclear vans.

The discussion focused on response operations and coordination among stakeholders during the Penteli fire that occurred in July 2022. The warning was issued due to the wildfire conditions of strong winds (56 km/h), topography (slopes and steep terrain), and fuel type, all contributing to the rapid spread of the fire. Initially, the forces were divided to address multiple fire fronts simultaneously. Almost immediately, instructions were given for preventive evacuations. A total of 10,000 people were evacuated. Later that night, a particularly intense fire threatened the children's hospital in Penteli.

Additional forces were deployed to this critical area, where oxygen tanks were stored. Throughout the operation, data was evaluated continuously, leading to recommendations to close the area due to poor visibility from smoke and to initiate preventive evacuations in other at-risk areas. Considering the circumstances, with the wildfire advancing against the wind, the commander emphasised the priority of protecting human lives and critical infrastructure, such as the hospital and military facilities.



Figure 19 - Field visit to the Firefighting Museum, the 12th Athens Fire Station.

Overall, the response operation involved 485 firefighters with 120 engines, 20 aerial firefighting units in rotation, drones, numerous volunteer firefighters, police forces, mobile operational centre units from the forest service (Figure 20), and local and regional responders, along with 20 Romanian firefighters from the rescue prepositioning project. The operation was concluded with no loss of life and a few partly damaged houses.



Figure 20 and 21 - Visit to mobile post and the fire incident area at Penteli Children's Hospital.

7.4 - Conclusions

The Greek wildfire risk management system is well established by law and informed by good data and information. However, alternative strategies to unconditional suppression of all fires need to be explored to improve the effectiveness of the overall system and enable people to coexist with fires. From this perspective, it could be useful to explore the feasibility of including additional fuel management methods in legislation.

The operational coordination bodies at the regional and local levels, established by Law 4662/2020 and activated in the event of disasters, are crucial for ensuring that all authorities and actors are engaged in response operations and act in a coordinated manner. To increase the efficiency of this mechanism, it is important to ensure the engagement of all key entities and stakeholders needed to manage the emergency, including the private sector and CSOs. As for the national level, it is absolutely essential that the SOPP – namely the Civil Protection Coordination Body of the national level – becomes fully operational to guarantee a unified and effective response at all levels. Finally, the implementation of one coordination centre (PEKEPP) in each region, which is already planned and being financed, will improve dramatically the effectiveness of the overall response system, ensuring vertical and horizontal coordination as well as better information flows.

The ESKEDIK is a crucial component of the disaster management system in Greece, ensuring 24/7 monitoring of the situation in the country and providing efficient coordination in the response phase. The presence in the ESKEDIK of representatives from different forces and authorities, such as personnel from the Forest Service during the wildfire season, facilitates the flow of information and collaboration between the key actors. Serving as software of the Coordination Centre, ENGAGE is a valuable IT tool supporting on-site operation coordination and facilitating the sharing of geo-referenced information among entities operating at various territorial levels. Overall, it is highly recommended to design and implement stress tests for the ESKEDIK to assess the business continuity of the operational room, information flow, and coordination procedures under extreme conditions, such as potential blackouts.

Specifically referring to response operations, Law 5075/2023 establishes Support Groups composed of technical experts from the Forest Service who help in the decision-making during major wildfire events. Besides increasing cooperation between the Fire and Forest Service in the response phase, these support groups are an excellent opportunity to improve effectiveness and exchange of knowledge. Another good practice characterising the response phase is preventive evacuation, for which procedures have been in place since 2008. For tourists and foreign citizens, targeted evacuation procedures have also been developed in cooperation with the Ministry of Foreign Affairs to assist them during mass evacuations. In terms of communication to the public during emergencies, it could be useful to set up a board under the coordination of the civil protection authority to ensure that relevant authorities disseminate clear and joint messages.

Overall, to improve the efficiency of response operations, the use and definition of specific tactical maps and fire behaviour analysis to support response activities during major wildfire events could be further explored. Also, an additional unit/function dedicated to aerial monitoring and surveillance could be set up to help inform the decision making in command centres and provide ground teams with data and information in real time.

A pool of trained liaison officers has been established to provide Host Nation Support to international teams deployed to Greece, whose efficiency was demonstrated during the UCPM activations in summer 2023. However, in case of UCPM activations, it is strongly recommended to draft and send to the ERCC comprehensive requests for international assistance which, most importantly, are based on real needs. A precise and clear request is crucial to receive timely assistance adapted to actual needs in terms of modules, number of personnel and type of means. Accordingly, there should also be an internal procedure and tools such as checklists to activate the mechanism. Also,

when international assistance is needed, it is important that the procedures for activating the UCPM and bilateral agreements are followed and that political considerations do not undermine the standardised processes in place.

To conclude, a comprehensive incident management system is needed to clarify roles and responsibilities, procedures, planning processes, logistics, safety aspects, financing, required personnel, and how the chain of command evolves over time during incidents. On this basis, specific personnel profiles need to be defined and training programmes implemented to ensure that all areas of the incident management system are staffed with the most qualified personnel.

Box 14 - Good practice from Portugal: 'Managed fires' for wildfire response

The Portuguese [Decree-Law 82/2021](#) establishes the Integrated Management System for Rural Fires and its operational guidelines. Specifically, Article 64 addresses what are known as 'managed fires' or 'management fire' (*Fogo de Gestão*), a good example of legislation to allow controlled burning in certain areas. Compared to prescribed fires, which are conducted outside of wildfire events during prevention periods, the option of 'managed fires' entails allowing controlled and monitored burning to occur within what would otherwise be considered an immediate wildfire situation, traditionally dealt with using suppression methods from the outset.

The law mandates that the Portuguese Civil Protection Agency (*Autoridade Nacional de Emergência e Proteção Civil - ANEPC*) and the Nature and Forest Conservation Service (*Instituto da Conservação da Natureza e das Florestas - ICNF*) jointly adopt the classification 'management fire' in areas outlined in regional and sub-regional action plans designated for this purpose. The classification includes establishing a fire containment perimeter, mapping of the classified areas, and recording the assessment of weather conditions enabling classification as a prescribed fire in the fire logbook.

The law emphasises the need for continuous oversight by the ANEPC command structure or the local fire brigade, as well as by ICNF, ensuring that the conditions initially specified for its application are maintained. Such activity is not allowed in the areas designated as 'very high' or 'extreme' on the rural fire risk rating.

Box 15 - Example of good practice from Spain: Forest Fires Assessment and Advisory Team (FAST)

In 2018, the Spanish Ministry for the Ecological Transition and Demographic Challenge established the [Forest Fires Assessment and Advisory Team \(FAST\)](#) to channel technical support for wildfire management at both national and international levels. Coordinated and financed by the ministry, this team comprises experts from organisations involved in forest fire management all over Spain. FAST offers support to countries or organisations in need, including:

- carrying out specific assessments during ongoing wildfire emergencies;
- offering knowledge and expertise in suppression strategies, risk assessment, wildfire behaviour analysis prevention policies, training and research, among others.

FAST is certified as a capacity within the UCPM pool and maintains a database of over 150 experts. The composition of the team can be adapted to meet the specific objectives of each mission.

8 Recovery and lessons learned

8.1 - Legislative and institutional framework and processes

- The **Hellenic Fire Corps** plays a crucial role in fire investigations and is supported by other forces, such as the Hellenic Police.
- Having recognised the importance of identifying the causes of wildfires, the **Arson Crimes Response Directorate** (ACRD) was established within the Hellenic Fire Corps and is fully operational.
- A number of **lessons learned** processes are in place to identify good practices and areas for improvement. Specifically, two lessons learned meetings – one before and one after the wildfire season – are held by the parties involved in forest fire fighting.

In Greece, there are no specific post-fire recovery and reconstruction policies established within a particular Build Back Better (BBB), climate adaptation or climate proofing framework. The existing legislation refers to potential post-disaster recovery and reconstruction efforts and includes the following: Art. 10 of Law 2576/1998 which extends the provisions of the previous laws (867/1979; 1048/1980; 1133/1981; 1190/1981) on the restoration of buildings affected by earthquakes also to fires (and to other natural disasters); Presidential Decree 3/2000 establishing the Arson Crimes Response Directorate (ACRD) under the HFB as the authority responsible for the investigation and handling of extremely serious incidents of arson; Law 4662/2020, which transformed the ACRD into one of the central services of the Fire Brigade (Special Central Agency); Law 4685/2020 on the roles and responsibilities of the NECCA, which include the conservation of biodiversity (including in the aftermath of a wildfire event); Law 4797/2021 on 'State support to businesses and non-profit organisations for natural disasters', introducing an advance payment method in cases of extensive damage; Law 5075/2023, which reinforces the State Aid to be allocated to the agricultural holdings affected by the 2023 fires; Parliamentary Decree 77/2023 which transfers the Directorate-General for Natural Disasters and Response Recovery under the MCCCCP.

The main institutional actors involved in the recovery phase in the aftermath of a wildfire include the Directorate General for Natural Disasters Response and Recovery (under the MCCCCP), the Secretary General of Spatial Planning and Urban Environment (under the MEE), NECCA, the Forest Service and the ACRD. The Directorate and Secretary General deal with restoration of urban areas or buildings; the former is responsible for the restoration of buildings damaged by wildfire events, while the latter sets the guidelines and approves the specific urban master plans, which are also drafted for areas affected by a disastrous event (e.g. the Mati fire). NECCA and the Forest Service, instead, have a crucial role in the restoration and conservation of degraded ecosystems. Specifically, NECCA is responsible for planning and implementing post-fire measures for the restoration and conservation of biodiversity – mostly fauna – over the areas of the Natura 2000 network. The Forest Service, instead, is responsible for the restoration of all the Greek ecosystems in the long-term, which include anti-erosion measures and reforestation. In specific cases, the Forest Service is supported by the EMODE units, which also play a role in managing burned areas and clearing away burned fuels.

As part of the adaptation measures and in accordance with the National Climate Law, discussions are ongoing on climate-proofing private assets and infrastructure in areas exposed to climate risks, including wildfires. To date, a

framework for climate proofing infrastructure has been developed and capacity building activities for licensing authorities are in place.

The ACRD is in charge of investigating arson incidents²⁶ (both in wildland/forest and built/urban areas), in particular those caused by organised criminal activity, which threaten a wider circle of legal goods, the community, have a political objective or are intended to disrupt the public order. It seeks to identify and detain persons thought to have committed arson and send them to the competent Criminal District Attorney. The latter is responsible for giving the order to the Special (fire) Investigation Officers to launch a preliminary investigation; under the attorney's directions, investigations can be supported by the magistrates, the Officers of Hellenic Police and Hellenic Coast Guard, civil servants (where provided for by special laws - 'Special Investigators'), or, in special cases, by a justice interrogator. Generally, after the criminal investigation is launched (that is, after every fire event), the Fire Service responsible for the area affected by the fire is obliged to investigate the causes of the fire, even without an order by the Criminal District Attorney. In the investigation cannot be carried out, or if local capacities are exceeded, the ACRD or the regional ACR can be activated to support the process²⁷. To carry out its mission, the ACRD cooperates and exchanges information and data with other competent services, such as National Intelligence Service, Police Anti-Terrorism Division, Organized Crime Subdivision, CSI Division etc. All firefighters recruited in the Fire Brigade with the provisions of Law 44/2016, and the Officers of Fire Brigade, can perform special investigation duties for arson crimes according to Art. 31 of the Criminal Procedure Code and Art. 166 of Law 4662/2020.

With regards to lessons learned, there is currently no formal or regulated process. However, Joint Ministerial Decision 12030/1999 on 'the Cooperation between the Hellenic Fire Corps and the Armed Forces, the Hellenic Police, the Forest Service, local authorities, health services, and other entities and individuals' requires the involved parties to gather in two annual meetings – one before and one after the fire season – to discuss any lessons learned or problems regarding the cooperation between the parties involved and the effectiveness of the wildfire management system. Some of these discussions, especially those taking place after major fire events, have led to concrete results and changes in the legislation – e.g. the establishment of a basic evacuation framework (Art. 18 of Law 3613/2007); the establishment of the MCCCCP; the special urban master plans drafted in 2020 after the Mati fire to create more sustainable residential areas and dealing with forestry legislation and spatial planning problems.

At the international level, Greece participates actively in the UCPM Lessons Learned Meetings held regularly in Europe under the UCPM Lessons Learned programme.

²⁶ The term 'accidental fire' does not appear in the legislation.

²⁷ The ACRD has offices at the regional level (12) and local level (8 major city investigation offices; 108 local fire services/130 fire echelons).

Box 16 - The importance of investigating the causes of fire

Knowledge of the causes of wildfires is crucial for several reasons. Most importantly, it should be considered a key source of information for developing effective measures to reduce the probability of fire ignitions and, if a fire breaks out, to mitigate its impact. Secondly, it is essential for guiding proper prevention actions. For these reasons, a systematic investigation of the causes of fires must be a primary action within a country's wildfire risk management system. The investigation must aim to identify the perpetrators, with the ultimate goal of changing the social perception that people who start fires go unpunished. A detailed database with causes makes it possible to identify risk situations at the local level and apply integrated educational, technical and legislative measures to manage these situations. To optimise this database, it must include all the information about the wildfire event, such as the exact location, response statistics, damage, cause, etc.

The most effective way to gather information on the causes of fire is through collaboration between foresters, whose in-depth knowledge can be applied to guide prevention actions, and the police forces, responsible for identifying the suspects. At the same time, reliable, precise and proven information about the causes of the fires must be disseminated among citizens, so as to avoid social confusion, which is generally based on certain myths and unfounded hypotheses, sometimes influenced by the media. Indeed, this unpleasant situation usually results in requests by citizens to implement public policies that are not specifically aimed at solving the structural causes of fires.

In summary, there is the strong recommendation for developing an official integrated forest fire database, whose content should also be used for awareness campaigns on the true causes of wildfires.

8.2 - Conclusions

The post-fire recovery and lessons learned phase in Greece is regulated by a series of legislative instruments governing post-disaster recovery and reconstruction, which, however, are not placed within a Build Back Better adaptation and climate proofing framework.

The Joint Ministerial Decision 12030/1999 provides for the planning of two annual meetings to be held by the parties involved in forest fire fighting. During the meeting in October, participants discuss the (formally) just-ended wildfire season, reflecting on lessons learned or issues regarding the cooperation between the parties involved and the effectiveness of the wildfire management system. A systematic lesson learned process engaging all the key entities involved in wildfires needs to be established by law and conducted after each wildfire season and major wildfire events at each territorial level. The topics to be covered include the costs of suppression operations after wildfire events, which should be assessed and analysed so as to be able to conduct cost-benefit analysis and identify appropriate risk reduction policies and measures. Finally, results gathered in terms of good practices, recommendations and lessons learned should be disseminated to improve the system continuously.

The importance of identifying the causes of wildfires is fully recognised nationwide, and a specific directorate investigating the causes of fire, the ACRD, was established within the HFB for this purpose and is now fully operational. At the local level, the Fire Service is the relevant authority in charge of conducting fire investigation, supported by other actors, especially the Hellenic Police. In general, there is a clear need to increase knowledge of the causes of fires – currently, 25% of the fires are classified as undetermined – and to examine more closely the underlying causes. Since one of the main goals should be to reduce the number of ignitions, the collection, analysis, evaluation and sharing of information and data about the real causes of fires at different spatial scales is crucial to informing the overall wildfire risk management system and implementing targeted awareness campaigns. At the same time, it is crucial to establish an adequate number of multidisciplinary teams of qualified staff from the Forest Service, Fire Service, and Hellenic Police in order to conduct thorough investigations into the causes of fire that consider all types of evidence. SOPs and regular certified training programmes are needed to improve the investigation analyses. As a

final comment, since the analysis of fire causes is not limited to forestry, it would be more appropriate to adapt the terminology and adopt the terms 'rural' or 'landscape' fire instead of forest/agricultural fire in the statistical data currently collected and analysed.

Box 17 - Example of good practice from Spain in cause investigation techniques and procedures

In 1994, the General Directorate of Nature Conservation within the Ministry of Agriculture and Fishing – responsible for wildfire management at that time – organised the first training courses for public authorities to improve investigation into the causes of wildfire ignition. Since then, both the Ministry and several Autonomous Communities have intensified these training initiatives.

Over subsequent years, the autonomous communities began forming cause investigation teams primarily composed of forestry agents and expanding these training initiatives. Forest Fire Investigation Brigades began to be established from that year onwards, with varying degrees of implementation across the national territory.

Collaboration between these teams and police forces was strengthened from the outset, leading to widespread joint efforts. For example, in the Autonomous Community of Castilla y León, the percentage of fires with unknown causes in 1997 was 31%. By 1999, thanks to these concerted efforts, this figure fell to 11% and further to 2% in 2001. Currently, the percentage of fires with unknown causes is approximately 1% (source: National Wildfire Database EGIF - Estadística General de Incendios Forestales).

Box 18 - Example of the Lessons Learned process in Portugal

The need for a Lessons Learned System under the Portuguese system for integrated rural fire management (SIRFM) was formally referred to in the report of the Independent Technical Commission, after the 2017 fires, and included in the National Action Programme 20-30. As such, agencies under the SIRFM signed a declaration of commitment for the implementation of the Lessons Learned Capacity with NATO methodology (The NATO Lessons Learned Handbook), already used by the Armed Forces in several countries, including the Portuguese Armed Forces, and now also in use in the SIRFM as a tool for identifying opportunities for improvement.

A Lessons Learned Subcommittee was created for leaders to deliberate on proposals resulting from the lessons learned process, allowing continuous improvement. Having started in 2022, to this date 31 lessons have been identified, resulting in 88 remedial actions, of which 17 are fully implemented, with the remaining under implementation.

Bibliography: documents analysed

Aristotle University of Thessaloniki (AUTH). 'Post-Fire Biodiversity and Biotic Natural Capital Recovery: Framework Development in the Case of Evia (Greece) N° REFORM/MVC2021/007', 2022.

Casartelli Veronica, and Jaroslav Mysiak. 'Union Civil Protection Mechanism - Peer Review Programme for Disaster Risk Management: Wildfire Peer Review Assessment Framework (Wildfire PRAF)', 2023.

Chuvieco, Emilio, and al. 'Towards an Integrated Approach to Wildfire Risk Assessment: When, Where, What and How May the Landscapes Burn', n.d.

CTIF - International Association of Fire Services for Safer Citizens through Skilled Firefighters. '200 Firefighters from Six EU Countries in Greece to Help Prevent Another Forest Fire Disaster in 2022', 11 July 2022. <https://ctif.org/news/200-firefighters-six-eu-countries-greece-help-prevent-another-forest-fire-disaster>.

European Commission. 'Economic Forecast for Greece - European Commission'. Economy and Finance. Accessed 8 March 2024. https://economy-finance.ec.europa.eu/economic-surveillance-eu-economies/greece/economic-forecast-greece_en.

European Commission. 'Greece - 2022 Country Report'. Commission Staff Working Document. Brussels, 2022.

European Commission. 'Greece - Civil Protection Profile', 2023.

European Union. 'Facts and Figures on Life in the European Union'. Accessed 22 February 2024. https://european-union.europa.eu/principles-countries-history/key-facts-and-figures/life-eu_en.

European Union. 'Union Civil Protection Knowledge Network - Newsletter', October 2022.

Expertise France Group AFD. 'Good Practice Analysis and Recommendations'. Capacity Building of the Ministry for Climate Crisis and Civil Protection: Coordinating Emergency Preparedness, Response and Climate Change Adaptation Actions, 2022.

Expertise France Group AFD. 'National Disaster Risk Management Action Plan 2023-2027'. Capacity Building of the Ministry for Climate Crisis and Civil Protection: Coordinating Emergency Preparedness, Response and Climate Change Adaptation Actions, 2023.

Forest Fires Assessment and Advisory Team - Spain. 'Alexandroupolis and Dadia-Soufli Forest Fires (Greece 2023)'. Technical Report, 2023.

General Secretariat for Civil Protection of the Greek Republic. Guidelines for the organized preventive removal of citizens for reasons of protection against evolving or imminent destruction due to forest fires and instructions for the drafting of special plans. (2023).

Hellenic National Meteorological Service. 'Annual Bulletin on the Climate in Greece', n.d.

Hellenic National Meteorological Service. 'The Climate of Greece'. Accessed 22 February 2024. <http://www.emy.gr/emv/en/climatology/climatology>.

Joint Research Centre. 'Forest Fires in Europe, Middle East and North Africa 2018'. JRC Technical Report. European Union: European Commission, 2019.

Ministry of Climate Crisis and Civil Protection. 5th adoption of the General Plan for the Response of Forest Fire Emergencies under the code 'IOLAOS 2', as part of the General Civil Protection Plan with the password 'Xenocrates', A1309 § (2023).

Ministry of Climate Crisis and Civil Protection and Ministry of Culture. 'Memorandum of Cooperation between the Ministry of Culture and the Ministry of Climate Crisis and Civil Protection', 2023.

Ministry of Environment and Energy. 'National Reforestation Plan 2020-2030 - Global Forest Goals'. n.d.

'National Platform for Disaster Risk Reduction | UNDRR'. Accessed 22 February 2024. <https://www.undrr.org/terminology/national-platform-disaster-risk-reduction>.

'New Ministry of Social Cohesion and Family in Greece - ELFAC'. Accessed 22 February 2024. <https://www.elfac.org/new-ministry-of-social-cohesion-and-family-in-greece/>.

OECD.org. 'Greece Economic Snapshot'. Accessed 22 February 2024. <https://www.oecd.org/economy/greece-economic-snapshot/>.

Official Gazette of the Government of the Hellenic Republic. National Mechanism for Crisis Management and Response, restructuring the General Secretariat for Civil Protection, upgrading the civil protection volunteer system, reorganising the Fire Brigade and other provisions, Pub. L. No. 4662 (2020).

Official Gazette of the Government of the Hellenic Republic. Restructuring of Civil Protection – National Air Rescue and Airports Mechanism and other urgent provisions on state assistance., Pub. L. No. 5075 (2023).

'TH. Skylakakis: The Green Invoice Is Already Mobilizing Competition'. Ministry of Environment and Energy, 14 December 2023. <https://ypen.gov.gr/th-skylakakis-to-prasino-timologio-kinitopoei-idi-ton-antagonismo/>.

The World Bank - IBRD IDA. 'Greece | Data'. Accessed 22 February 2024. <https://data.worldbank.org/country/GR>.
UCP Knowledge Network: Applied knowledge for action. 'The EU's Response to Wildfires in Greece', 12 September 2023. <https://civil-protection-knowledge-network.europa.eu/news/eus-response-wildfires-greece>.

UNDP. 'Specific Country Data | Human Development Reports'. Accessed 22 February 2024. <https://hdr.undp.org/data-center/specific-country-data>.

World Bank. 'Inputs and Recommendations for the Development of a Draft NDRM Plan for Greece', 2021.
Xanthopoulos, Gavriil and al. 'Innovative Action for Forest Fire Prevention in Kythira Island, Greece, through Mobilization and Cooperation of the Population: Methodology and Challenges. Sustainability' Sustainability 14 (2022). <https://doi.org/10.3390/su14020594>.

Annex 1: Greece Country Profile

Overview

Greece is located in the far south of the Balkan peninsula and is the southernmost country in Europe (Figure A). It shares borders with Albania to the northwest, North Macedonia and Bulgaria to the north, and Turkey to the east, and its coasts touch various seas from east to west, namely the Aegean Sea (east), the Mediterranean Sea and the Sea of Crete (south), and the Ionian Sea (west). It is a parliamentary republic that has the prime minister as head of government and with most political power, and the president, which has mainly ceremonial duties, as head of state. The Hellenic Republic comprises two levels of governance, the central-State governance and the local self-government. The central governance (executive power) is exercised both centrally by the government and line ministries and at a decentralised level (Decentralised Administrations), while the local self-government is exercised at the regional and municipal levels. Specifically, the administrative organisation of Greece consists of 7 Decentralised Administrations, 13 Regions and 332 Municipalities. The Monastic community of Mount Athos is an autonomous territory with special status. Athens is the capital of Greece and of the Decentralised Administration of Attica²⁸. Greece has a total surface area of 130 048 km² and a population of 10,394,055 as in January 2023 (Eurostat)²⁹.



Figure A - Map of Greece. Source: European Commission

Greece is a developed country with an advanced high-income economy, the second largest in the Balkan peninsula. The country was hard hit by the COVID-19 crisis but it recovered rapidly, mainly thanks to the reopening of the economy after the pandemic. Nonetheless, the energy crisis and other macroeconomic challenges faced by the country – high level of public debt, a widened current account deficit (in part driven by the energy crisis), a large stock of non-performing loans, and high unemployment – are currently slowing down the economic growth of the Hellenic Republic. Despite this economically challenging environment, the country is becoming more energy efficient and

²⁸ The other six Decentralised Administrations are: Macedonia and Thrace; Epirus and Western Macedonia; Thessaly and Central Greece; Peloponnese, Western Greece and the Ionian; Aegean; and Crete.

²⁹ 'Facts and Figures on Life in the European Union', European Union, accessed 22 February 2024, https://european-union.europa.eu/principles-countries-history/key-facts-and-figures/life-eu_en.

adjusting to higher energy prices, in part because it started to diversify its sources of energy and thanks to the support measures adopted to cushion the impact of inflation on households and businesses. With the support of EU funds, Greece is making progress towards the adoption of a more sustainable development model³⁰. In 2022, the GDP of the Hellenic Republic was USD 219,07 billion³¹.

Greece was a founding member of the United Nations, and the tenth member to join the European Community (before the establishment of the European Union). It has been part of the eurozone since 2001. Furthermore, it is a member of many international institutions, including the Council of Europe, NATO, the OECD, the WTO, and the OSCE.

Greece has a unique cultural heritage and is home to 19 UNESCO World Heritage Sites.

Greece

Population	10,566,531 (2022)
Capital city	Athens
Life expectancy at birth	80 (2021)
Language	Greek
National currency	euro
Time difference	UTC+2

The Hellenic Republic is characterised by diverse territories, ranging from mountains, hills, forests, rivers, lakes and cultivated land. It has a highly indented coastline, the longest of the Mediterranean Basin, featuring peninsulas, such as the large Peloponnese in the south, and thousands of islands, of which the largest is Crete. The Greek territory is 80% mountains and hills, making Greece one of the most mountainous countries in Europe. The highest mountain, Mount Olympus, rises to 2,918 m above sea level, while the Pindus range reaches a maximum elevation of 2,637 m and is a continuation of the Dinaric Alps that stretch across the Peloponnese peninsula; the islands of the Aegean are peaks of underwater mountains that were an extension of the mainland. The regions of Thessaly, Central Macedonia and Thrace extend over vast plains and are key economic areas thanks to their arable lands, the few existing in the country.

The climate of Greece is mostly Mediterranean, with mild to cool rainy winters and hot, dry summers. The western peaks of the Pindus mountain range are exposed to considerably wetter climates than the areas to the east (including Athens), which have hot semi-arid climate. In winter, mean minimum temperatures range between 5-10 °C on the coast, 0-5 °C on the mainland, and below freezing in the north, with heavy snowfall characteristic of the Alpine climate. During the warmest period (July-August) the mean maximum temperature lies between 29.0 °C and 35.0 °C. This heat is attenuated by fresh sea breezes along the coast and the 'Etesian', north winds that blow mainly in the Aegean³². The annual bulletin of 2022 drafted by the HNMS reports significant weather and climate events occurring in 2022, including heavy rainfall, floods, heavy snowfall and abnormally high temperatures: 2022 was one of the warmest years on record with a mean annual temperature of 0.7 °C above the 1981-2010 average and 0.4 °C above the 1991-2020 average. December 2022 was the warmest December on record in the last 62 years, while maximum daily temperatures reached 38 °C in June³³.

30 European Commission. 'Greece - 2022 Country Report'. Commission Staff Working Document. Brussels, 2022.

31 The World Bank - IBRD IDA. 'Greece | Data'. Accessed 22 February 2024. <https://data.worldbank.org/country/GR>.

32 'The Climate of Greece', Hellenic National Meteorological Service, accessed 22 February 2024, <http://www.emy.gr/emy/en/climatology/climatology>.

33 Hellenic National Meteorological Service (2022). Annual Bulletin of the Climate in Greece. Available at [link](#) (last accessed 11/12/2023)

Disaster risk profile and wildfire risk profile

Due to its location and geodynamic status, Greece is highly exposed to a wide range of risks, including earthquakes, wildfires, drought, heatwaves, floods, damage caused by snowfall and frost, and landslides.

Earthquakes. Greece is the most seismically active country in Europe, and among the most active in the whole world. Despite the number of deaths being low compared to the number of earthquakes, Greece is one of the countries worst affected by devastating seismic events – 31 between 1900-2015 –, with a large number of victims and causing severe damage (Figure B). To give some examples, in the 1953 Kefalonia earthquake 576 people died, while the 1999 Athens earthquake recorded 143 deaths.

Heatwaves. In Greece, heat waves usually last at least 3 days, where temperatures reach 37 °C in the lowland areas of the mainland and the average daily temperature is at least 31 °C. These extreme temperatures are mostly caused by the hot gas masses arriving from Africa. Since 1987, 1,300 people have died due to heat waves, and a large number of people have also suffered distress and heat shocks.

Floods. Floods are one of the most frequent and destructive disasters occurring in Greece. River floods, urban floods and sudden floods have been recorded in recent years, with devastating consequences on the environment and the population (the Mandra 2017 – 25 deaths; Evia 2020 – 8 deaths).

Landslides. Some areas of the country are at high risk of landslides due to several factors, including seismic activity, climate-related extreme events, geological variations and others. The recent 2020 ‘Storm Evia’, which brought heavy rainfall, and the Kefalonia earthquakes of 2014 were also factors behind the landslides in Greece in the same years.

Disaster	Year	Total deaths	Disaster	Year	Affected people	Disaster	Year	Damage (US\$)
Extreme temperature	2022	3,092	Earthquake	1999	115,139	Earthquake	1999	7,378,960
Earthquake	1999	143	Earthquake	2014	75,002	Wildfire	2007	2,470,049
Wildfire	2018	100	Extreme temperature	2023	19,011	Drought	1990	2,239,848
Wildfire	2007	65	Wildfire	2022	55,000	Wildfire	1998	1,211,852
Extreme temperature	2000	27	Earthquake	1995	15,060	Flood	2003	954,525

Figure B - Top five Natural Disasters reported in Greece for the period 1990 to 2023, sorted by number of persons killed / affected / economic damage. Source: Greece civil protection profile - Nov 2023, European Commission

Wildfires. Since the 1970s, the expansion of human activities within and near forests and the inadequate management of fuel have led to significant wildfire events: the burnt area in Greece tripled from 1980. Other factors, such as climate change and the accumulation of flammable biomass, have contributed to the increase in the number of extreme and destructive events in Greece, with significant impacts also in terms of casualties³⁴. The fire season in Greece is considered to run from 1 May to 31 October; however, longer wildfire seasons are becoming the norm.

The graph below (Figure C) shows the annual statistics relating to the number of fires and total burnt area in Greece from 2006 to 2023. As illustrated in the figure, in 2023 the Hellenic Republic was affected by 53 wildfires³⁵ (updated to November 2023) which were responsible for 174,696 hectares of burnt areas (1746.96 km²). Attica, Corfu, Evia, Magnesia, Rhodes, Kavala, Parnitha, and Alexandroupolis were ravaged by fire events that killed and injured several people.

³⁴ Expertise France Group AFD, ‘Good Practice Analysis and Recommendations’, Capacity Building of the Ministry for Climate Crisis and Civil Protection: Coordinating Emergency Preparedness, Response and Climate Change Adaptation Actions, 2022.

³⁵ Fires mapped by EFFIS in the graph are of approximately 30 ha or larger.

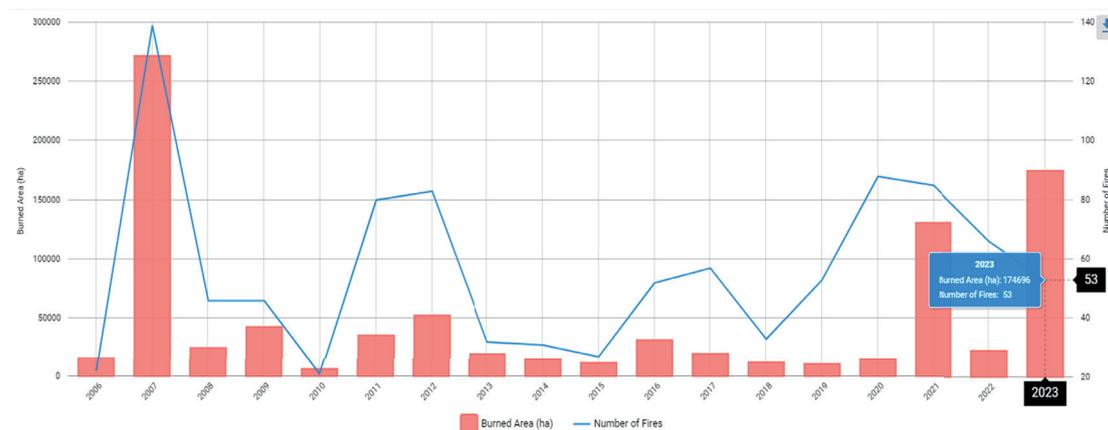


Figure C - EFFIS Annual Statistics for Greece - Statistics in the charts up to 2022 show full year statistics, while 2023 is updated to November. Source: [EFFIS Copernicus](#)

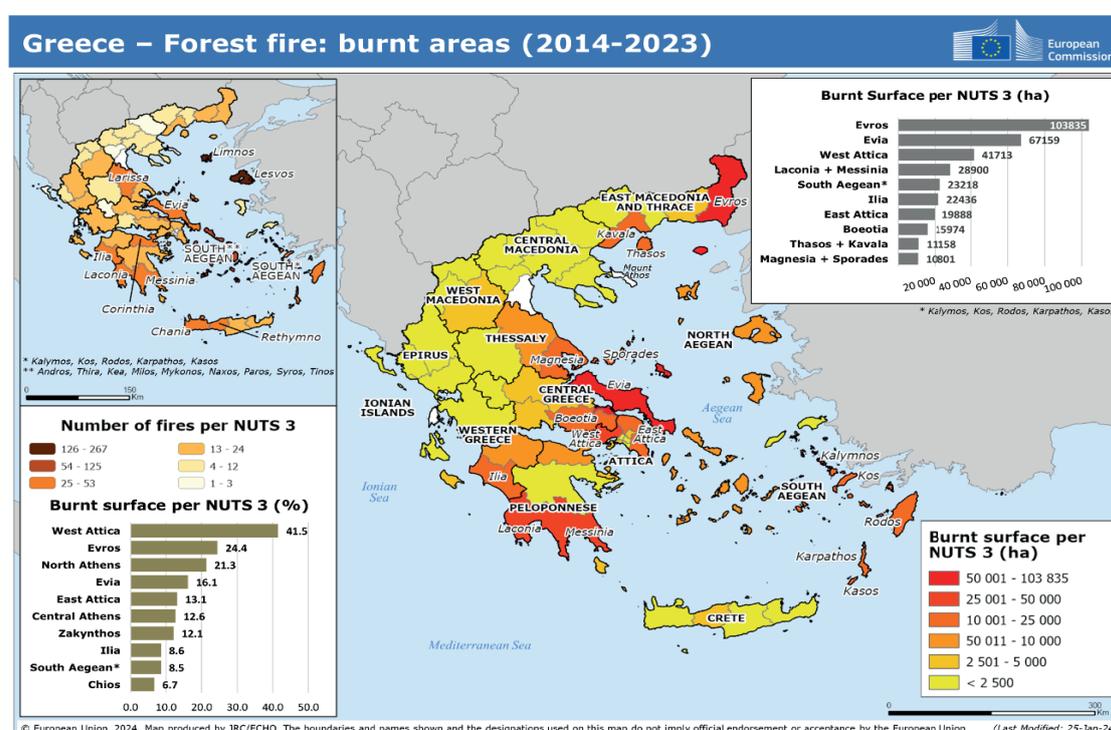


Figure D - Forest fire: burnt areas (2014-2023). Source: [JRC/ECHO \(2024\)](#).

Specifically, in 2023 Alexandroupolis was hit by the largest wildfire ever recorded in the EU, with around 938.8 km² (93,880 ha) of burnt area. The fire had been active for 15 days starting from 19 August. The wildfire that originated in the forest Dadia-Soufli on 21 August was characterised by estimated average flame lengths at the head of over 40 metres with 90,000 kW/m of front intensity: these values were beyond the suppression capacity of any forest fire or emergency service, according to the 'Technical Report on Alexandroupolis and Dadia-Soufli forest fires (Greece 2023)' drafted by the Forest Fires Assessment and Advisory Team (FAST) of Spain. As reported, the fire maintained its activity and even increased its intensity during the night, which is considered to be a rare phenomenon. The lack of precipitation in the previous months, which had been significantly lower than previous years, and the rise in temperatures only served to exacerbate the situation. Additionally, the drying out of the surface, the several heatwaves, the drying of the atmosphere and the strong winds in Alexandroupolis in the second half of August 2023 created favourable conditions for the outbreak of this huge wildfire (Figure E).



Figure E - Wildfire and smoke plume in Alexandroupolis on 20 August 2023 captured by the Hellenic Fire Service. Source: "Technical Report on Alexandroupolis and Dadia-Soufli forest fires (Greece 2023)", FAST.

On 18 July, 2023, Greece activated the UCPM with a request for assistance (Figure F).

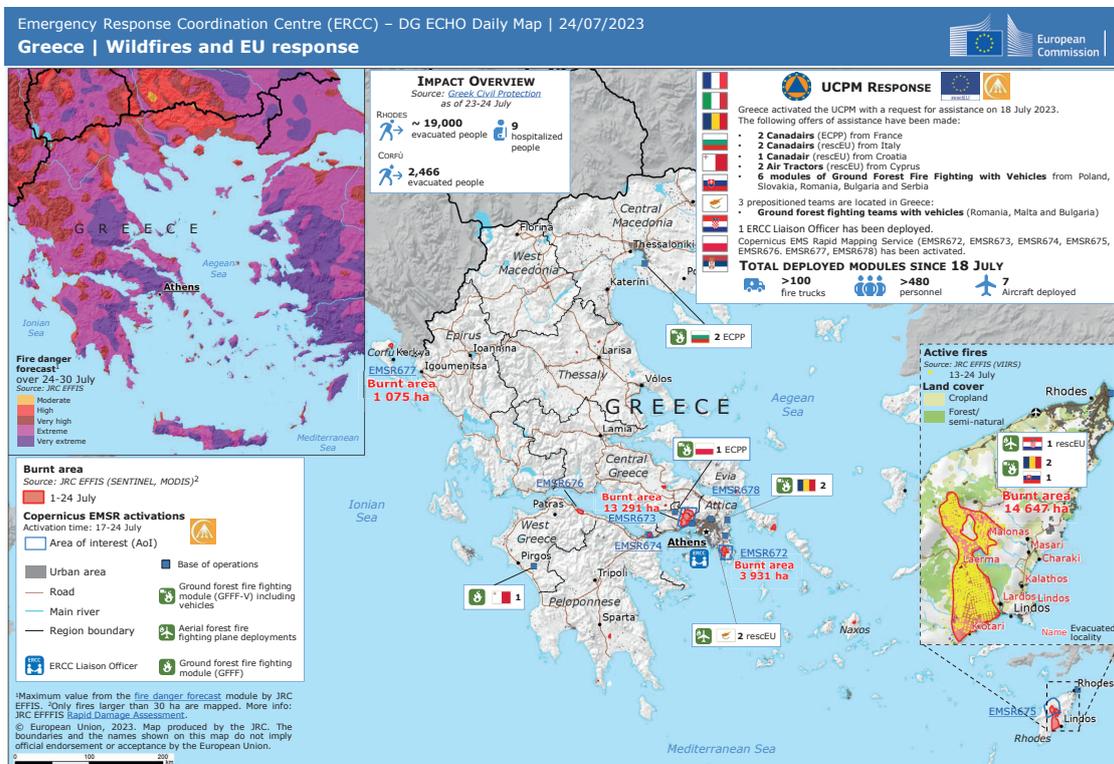


Figure F - DG ECHO daily map of 24 July on the wildfires in Greece and UCPM response produced by the Emergency Response Coordination Centre (ERCC).

Greece also activated the UCPM in 2018 and 2021, which, along with 2023, are two of the most significant years in the history of wildfires in the country³⁶. Despite the low number of fires occurring in the fire season of 2018, Greece was hit by one of the deadliest wildfires worldwide. In total, 102 people – including one firefighter – died, and seven firemen and 113 citizens were injured. Despite the relevant reduction in the number of fires compared to 2017 (Fig A), the impacts of the 2018 fire season were much heavier than the previous year³⁷. In 2021, further insistent and extreme wildfires ravaged the country during a fire season that was, strangely enough, one of the least windy in the last two decades. Nonetheless, the average temperature of 1.6 °C higher than usual, which was accompanied by two very long heat waves, and the little amount of rainfall during the year led to very low humidity levels which in turn caused enormous wildfires that burnt more than 101,000 hectares of land. 24 firefighting aircrafts, 1,301 firefighters and 277 vehicles from 22 countries were mobilised to combat these extreme events in Greece – it was one of the largest European deployments of firefighters in aircrafts ever occurred³⁸.

In total, since 2016, Greece has issued a number of requests for international assistance through the UCPM to deal with different emergencies, including wildfires. At the same time, since 2016, the Hellenic Republic has also supported several countries that asked for assistance to respond to a variety of emergencies: forest fires; migration influxes; earthquakes; floods; Russia's invasion of Ukraine; COVID-19; a fuel tank explosion; a volcano eruption; and the Beirut blast. Specifically, Greece provided assistance in Albania, Cyprus, Portugal, France, Italy, Lebanon, and Israel in responding to forest fires events³⁹.



Figure G. Finnish firefighters intervene during a wildfire in Greece, in 2022. Source: [Finnish Government](#)

Greece hosted the first ever pre-positioning pilot project during the summer of 2022. Through the Exchange of Experts programme, this pilot project involved the displacement of more than 200 firefighters from Bulgaria, Finland, France, Germany, Norway and Romania. Once they arrived in Greece in July and August 2022, they were positioned in three specific locations in order to provide rapid assistance in case of wildfire events. According to the different firefighting authorities, this project has been of immense value, since it was an opportunity for exchanging expertise

36 In July 2018 and August 2021, Greece requested UCPM assistance to deal with extreme wildfire events.

37 Joint Research Centre, 'Forest Fires in Europe, Middle East and North Africa 2018', JRC Technical Report (European Union: European Commission, 2019).

38 CTIF - International Association of Fire Services for Safer Citizens through Skilled Firefighters. '200 Firefighters from Six EU Countries in Greece to Help Prevent Another Forest Fire Disaster in 2022', 11 July 2022. <https://ctif.org/news/200-firefighters-six-eu-countries-greece-help-prevent-another-forest-fire-disaster>

39 European Commission, 'Greece - Civil Protection Profile', 2023.

and knowledge, to reinforce collaboration and mutual assistance among countries, to expand the 'firefighting family', and to reduce response times in case of emergency⁴⁰. During the Forest Fire Season of 2023, Greece received prepositioning assistance from Bulgaria, Finland, France, Germany, Norway and Romania (Figure F)⁴¹. Hence, when the country requested assistance to combat wildfires in July and August 2023, the countries' firefighting teams that responded to the call complemented the pre-positioning teams already present on Greek territory⁴².

Greece activated the Copernicus Emergency Management Service for dealing with wildfires each year starting from 2016. While prior to 2021, there had never been more than four satellite activations in Rapid Mapping mode, in 2021, 2022, and 2023 the country activated Copernicus 13, 12, and 13 times, respectively. Similarly, the satellite activations in Risk and Recovery Mapping mode rose from zero (2017-2021) to five in 2023 for wildfire and post-wildfire damage assessments⁴³.

40 European Union, 'Union Civil Protection Knowledge Network - Newsletter', October 2022.

41 European Commission, 2023

42 European Union, October 2022.

43 European Commission, 2023.

Annex 2: List of stakeholders consulted in the Peer Review mission

Agricultural University of Athens

Aristotle University of Thessaloniki

Arson Crimes Response Directorate / HFC

Association of Greek Regions

Association of Municipalities and Communities for the Protection of Mount Parnitha

Association of Municipalities for the Protection and Redevelopment of Pentelikon

Attica Region Administration

Civil Protection Department of the Municipality of Penteli

Civil Protection of the Municipality of Acharnes

Directorate of Civil Protection of the Attica Region

Directorate of Forest Management - Department of Public Forestry and Grassland Ecosystem Management / MEE

Directorate of Forestry Works and Infrastructure - Department of Forest Maps, Forestry, Census and Thematic Support of Public Rights / MEE

Forest Service of Parnitha

Forestry Policy Implementation Inspection of Attica / Forestry Directorate of East Attica

General Directorate of Forests and Forest Environment / MEE

General Directorate of Financing / GSCP

General Secretariat of Civil Protection

General Secretariat of Natural Disasters Recovery and State Aid

Green Fund

Harokopio University

Hellenic Air Force General Staff

Hellenic Army General Staff

Hellenic Electricity Distribution Network Operator

Hellenic Fire Corps (or HFB)

Hellenic Firefighting Academy

Hellenic National Defence General Staff

Hellenic National Meteorological Service

Hellenic National Public Health Organization

Hellenic Police

Hellenic Republic Asset Development Fund
Independent Directorate of Volunteerism and Education / GSCP
Independent Power Transmission Operator
Institute of Mediterranean Forest Ecosystems
International University of Greece
Local Forest Service of Pyrgos
Ministry of Culture
Ministry of Foreign Affairs
Ministry of Health
Ministry of Infrastructure and Transportation
National and Kapodistrian University of Athens
National Center for Emergency Care
National Coordination Centre for Operations and Crisis Management
National Observatory of Athens
Natural Environment and Climate Change Agency
Penteli Firefighting Voluntary Unit
Penteli Forest Service
Police Station of Penteli
Special Forest Fire Operational Unit
Sterea Ellada Region Administration
University of the Aegean
WWF Hellas

Annex 3: Acronym Table

ACRD	Arson Crimes Response Directorate
ANAFRE	National Association of Parishes
ANEPC	National Authority for Emergency and Civil Protection
ANMP	National Association of Portuguese Municipalities
BBB	Build Back Better
CAP	Common Agricultural Policy
CCA	Climate Change Adaptation
CEMS	Copernicus Emergency Management Service
CLIF	Spanish national wildland firefighting Committee
CMCC	Euro-Mediterranean Centre on Climate Change
CoLAB	Collaborative Laboratory for Integrated Forest and Fire Management
CP	Civil Protection
CSO	Civil Society Organisation
DG ECHO	Directorate-General for European Civil Protection and Humanitarian Aid Operations
DRM	Disaster Risk Management
DRMC	Disaster Risk Management Cycle
DRR	Disaster Risk Reduction
DSA	Directorate for State Aid
EKAB	National Emergency Centre
EIB	European Investment Bank
ELGA	Greek Agricultural Insurance Organization
ELGO DIMITRA	Hellenic Agricultural Organization DIMITRA
EMODE	Special Forest Fire Operational Units
EMS	Emergency Management Service
ENGAGE	Integrated System for Incident, Resource, and Telematic Data Management
EODY	National Public Health Organization
ERDF	European Regional Development Fund
ESKEDIK	National Coordination Centre for Operation and Crisis Management
EU	European Union
EWS	Early warning system
FAST	Forest Fires Assessment and Advisory Team
FMRS	Laboratory of Forest Management and Remote Sensing
GDP	Gross domestic product
GII	Gender Inequality Index
GIS	Geographic information system
GOFFI	Greek Observatory of Forest Fires
GSCP	General Secretariat for Civil Protection
HDI	Human Development Index
HEDNO	Hellenic Electricity Distribution Network
HFC/HFB	Hellenic Fire Corps/Fire Brigades
HNMS	Hellenic National Meteorological Service
HNP-DRR	Hellenic National Platform for Disaster Risk Reduction
HSPN	Hellenic Society for the Protection of Nature
ICNF	Portuguese Nature and Forest Conservation Service
FRIA	Institute of Mediterranean Forest Ecosystems
IOLAOS 2	General Plan for Dealing with Emergencies Due to Forest Fires
IPTO	Independent Power Transmission Operator

IRIS	Rapid response fire spread forecasting system
KEMEA	Center of Security Studies
MCCCCP	Ministry of Climate Crisis and Civil Protection
MEE	Ministry of Environment and Energy
MIT	Ministry of Infrastructures and Transportations
MIS	Integrated Risk Management and Prevention Information System
NAP	National Action Programme
NAS	National Adaptation Strategy
Nat-CHAMM	National Crisis and Risk Management Mechanism
NDRM	National Disaster Risk Management
NECCA	Natural Environment and Climate Change Agency
NECP	National Energy and Climate Plan
NFS	National Forest Strategy
NOA	National Observatory of Athens
NOFFi	National Observatory of Forest Fires
NOFFi-FTM	remote sensing-based fuel type mapping
NOFFi-MFDI	dynamically updatable fire danger index
NOFFi-OBAM	semi-automatic burned area mapping
NPIRFM	National Plan for Integrated Rural Fire Management
NRA	National Risk Assessment
OECD	Organisation for Economic Co-operation and Development
OCHA	Office for the Coordination of Humanitarian Affairs
OSCE	Organisation for Security and Co-operation in Europe
PD	Presidential Decree
PEKEPP	Regional Operational Centres for Civil Protection
PESOPP	Regional Operational Coordination Bodies of Civil Protection
PIP	Public Investment Program
PRAF	Peer Review Assessment Framework
PREVAIL	PREvention Action Increases Large fire response preparedness
RDP	Rural Development Programme
ROC	Regional Fire Administration and Operational Centre
RRF	Recovery and Resilience Facility
SCI	Sites of Community Importance
SDUs	Special Disaster Response Units
SOPs	Standard Operating Procedures
SOPP	Civil Protection Coordinating Body
SPAs	Special Protection Areas
SWOT	Cost Accounting Information System
SYNPA	Association of Municipalities and Communities for the Protection of Mount Parnitha
TESOPP	Local Operational Coordination Bodies of Civil Protection
UCPM	Union Civil Protection Mechanism
UN	United Nations
UNDRR	United Nations Office for Disaster Risk Reduction
UNESCO	United Nations Educational, Scientific and Cultural Organization
VG	Civil Protection Voluntary Groups
VMS	Variable message sign
WTO	World Trade Organization
WUI	Wildland Urban Interface
WWF	World Wildlife Fund
XENOKRATIS	National General Civil Protection Plan

