



8TH
INTERNATIONAL
WILDLAND FIRE
CONFERENCE

GOVERNANCE
PRINCIPLES:
Towards an
International
Framework



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Requirements of Countries participating in International Cooperation

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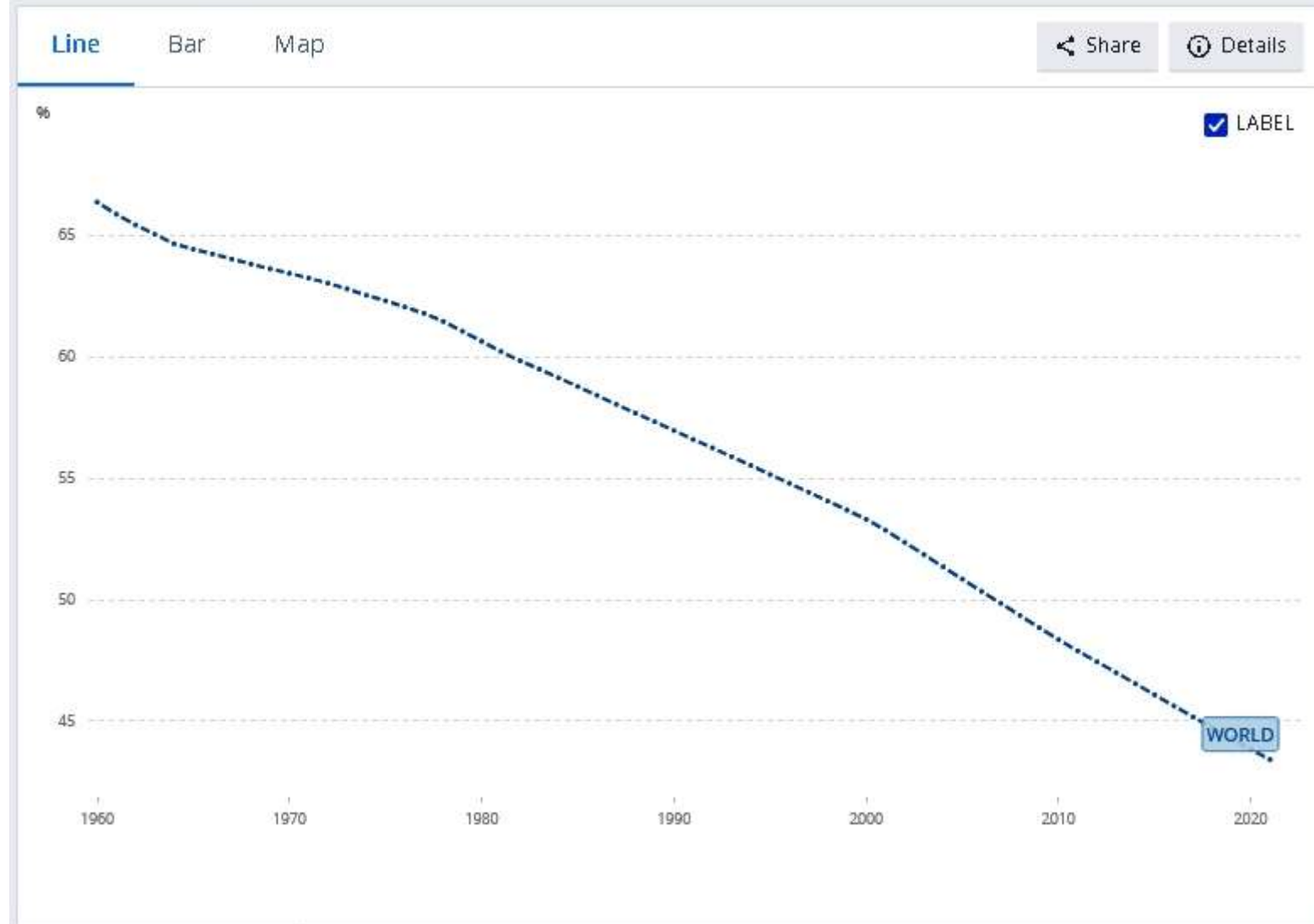
A worsening situation regarding forest fires

- An increasing trend in forest fire disasters around the world and an expansion of their occurrence in countries previously thought immune, signify the need for better fire management, based on a deeper understanding of the true underlying problems.
- The reasons for the worsening trend have been illustrated through numerous studies and include:
 - Increased occurrence of extreme fire weather conditions due to climate change
 - Increases in forest fuel quantity and continuity due to rural population decrease and land abandonment
 - Expansion of human activities (wildland rural interface (WUI) areas, recreation, agriculture) into forested areas
 - Changes of how fires are managed (professionally, seemingly effectively, but ultimately inefficiently, prone to the “fire paradox” phenomenon)

World rural population (% of total population)

World Bank staff estimates based on the United Nations Population Division's World Urbanization Prospects: 2018 Revision.

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Paradigm change needed in wildfire management

- Forest fire management necessarily includes the need for effective fire suppression but should not be limited to it, as by itself it cannot solve the problem.
- Policy and expenditures should be rebalanced between suppression and mitigation of the negative impacts of fire.
- Policy effectiveness should not be primarily measured as a function of area burned (as it usually is), but rather as a function of avoided socio-ecological damage and loss.

Moreira, F., Ascoli, D., Safford, H., Adams, M. A., Moreno, J. M., Pereira, J. M., ... & Fernandes, P. M. (2020). Wildfire management in Mediterranean-type regions: paradigm change needed. *Environmental Research Letters*, 15(1), 011001.

Level of preparedness for forest fires

- The extreme fires of the last few years, have clearly demonstrated that such disasters cannot be avoided altogether. The concept of megafires, coined in the 2000s, attests to that:
 - A megafire is an intense wildland fire that because of extreme intensity, rate of spread and resistance to control, remains beyond the suppression capacity of any firefighting resources until the conditions change. Such fires usually pose great risk to human lives and resources.
- No country can be prepared for the 100% worst case because building and maintaining an extremely large and technologically advanced firefighting mechanism requires a huge cost.
 - The cost grows exponentially for each percentage point improvement towards 100%, while at the same time much of the mechanism is under-used
 - Effectiveness increases but efficiency drops sharply
 - Alternative uses of the funds must also be considered


Need for international cooperation in fire suppression


- Any intense wildfire may exceed the local firefighting capacity
- Within a country, this is “naturally” handled by bringing-in firefighting resources from the neighboring towns, counties, prefectures, or regions or from other agencies.
- Large countries can do more of this response than smaller ones. However, there can always be a capacity limit, often as a result of multiple fires that bring the firefighting requirement beyond the “break-point” of the suppression organization.
- That is when the countries resort to help from abroad.
- This has happened many times in recent history, including not only smaller countries (such as Greece in 2007 and 2021), but also the USA, Canada, and Australia.
- The European Union has established “**rescEU**”, a new European reserve of resources, that aims to strengthen European preparedness for disasters through mutual help. It includes a fleet of firefighting planes and helicopters.


Mutual aid Example


Alberta, Canada, 7 May 2023

Wildfire Status Terms

 Out of control (OC): the wildfire is burning and is expected to continue growing

 Being held (BH): given current weather conditions and resources, the wildfire is not anticipated to grow past expected boundaries.

 Under control (UC): the wildfire is completely contained and will be extinguished.

 Mutual aid: the wildfire is outside of the Forest Protection Area and assistance is being provided to the lead agency.



Greece

2007

International assistance

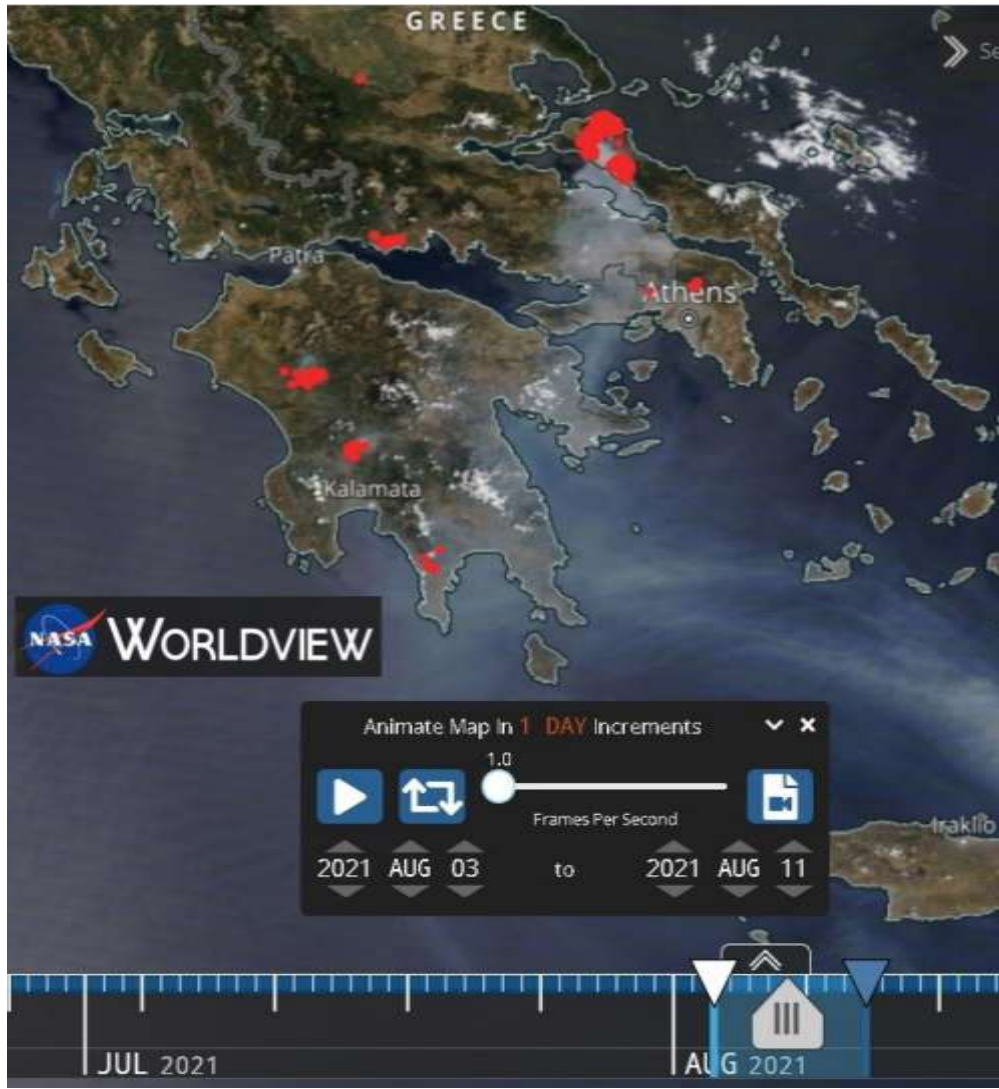


Country	Aerial resources		Ground resources	
	Airplanes	Helicopters	Personnel	Vehicles
France	4		72	
Spain	4			
Italy	1			
Croatia	1			
Turkey	1			
Portugal	1			
Russia	1			
Romania		1		
Serbia	7		55	7
Germany		5		
Switzerland		4		
Netherlands		3		
Austria	3	2		
Norway		1		
Sweden		1		
Slovenia		1		
Cyprus			139	14
Israel			60	
Hungary			19	5
Albania			4	1
Bulgaria			46	5
Int. Volunteers			7	
Total	23	18	402	32

Greece

2021

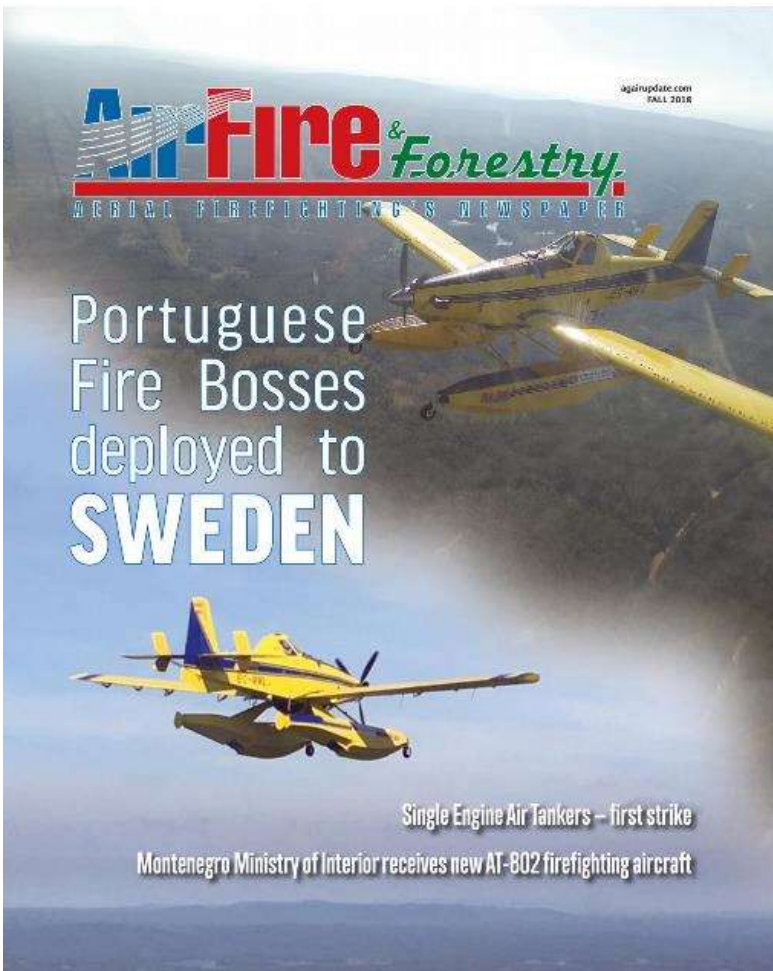
International assistance



- [Australia](#) – 4 helicopters
- [Austria](#) – 35 firefighters and 11 vehicles
- [Croatia](#) – 1 aircraft
- [Cyprus](#) – 40 firefighters and 2 aircraft
- [Czech Republic](#) – 34 firefighters and 13 vehicles
- [Egypt](#) – 3 airplanes
- [France](#) – 243 firefighters, 59 vehicles and 3 airplanes
- [Germany](#) – 216 firefighters and 44 vehicles
- [Israel](#) – 16 firefighters and 3 airplanes
- [Kuwait](#) – 45 firefighters, 6 trucks and firefighting equipment
- [Moldova](#) – 25 firefighters and 4 vehicles
- [Poland](#) – 286 firefighters and 46 trucks
- [Qatar](#) – 66 firefighters, 3 vehicles and 1 [Search and Rescue](#) team
- [Romania](#) – 254 firefighters and 23 trucks
- [Russia](#) – 2 aircraft and 2 helicopters
- [Serbia](#) – 37 firefighters, 14 members of the Helicopter Unit,
 - 3 helicopters and 13 vehicles
- [Slovakia](#) – 75 firefighters and 30 vehicles
- [Spain](#) – 2 aircraft
- [Sweden](#) – 2 airplanes
- [Switzerland](#) – 3 helicopters
- [Turkey](#) – 2 airplanes (EU airplanes originally sent to Turkey)
- [Ukraine](#) – 100 firefighters
- [UAE](#) – 1 group of firefighters and firefighting equipment
- [UK](#) – 21 firefighters
- [USA](#) – 1 airplane
- [NATO](#) – 20 helicopters

Source: Wikipedia

International cooperation is immediately thought of as firefighting assistance at the time of crisis



Firefighters from across Europe rush to help Sweden battle blaze



1 of 2 The French Bombardier 415 firefighting aircraft landing as part of an international effort to battle a wildfire that has been raging for more than a week in Sweden, on July 21, 2018. PHOTO: REUTERS



18 Feb 2019

Sweden wants to acquire their own water bombers after last year's wildfire disasters across Europe

Requirements regarding firefighting (1)

- Without proper preparation, international assistance may become more of a nuisance than true help, and end-up as a publicity stand in the Mass Media by a government being in a tight spot.
- For each country, it is important to determine **when** help is needed as well as **what type** of help, in order to maximize benefits, as it may often carry significant cost. This requires:
 - Willingness to receive international help
 - Clear criteria (thresholds)
 - Meeting certain basic requirements to really benefit from the help
- Timing is very important.
- Neighboring countries are in better position to help.
- Long-distance help is only relevant in case of a critical fire season developing.

Requirements regarding firefighting (2)

- There should be at least an understanding of the organizational systems used in the countries involved (e.g. ICS). Common exercises and personal knowledge of each other of selected officers are valuable
- Sharing examples and common training in advance can improve cooperation
- There need to be pre-arranged steps for receiving the incoming resources and assigning them cleverly to the fire fronts, e.g.
 - Liaison officers speaking the language (or English)
 - Air bases to be used, fuel, spare parts, communications
 - Accommodation and food are important considerations

Requirements regarding firefighting (3)

- Cost is a serious consideration and should be known (in the rescEU mechanism it is covered by the European Commission)
- Existence of an agreement for mutual help, signed in advance, can foresee and solve many issues.
- There should be a debriefing of the experience and an assessment of the final contribution for future improvements

International cooperation **beyond fire suppression**

- International cooperation can be much broader than firefighting.
- Cooperation outside of the time of crisis, can be very effective in upgrading a country's capacity to manage forest fires, but also can increase efficiency.
- It may include:
 - Knowledge exchange on overall fire management paradigms (understanding integrated fire management, learning about best practices (and failures), making comparisons, etc.)
 - Fire prevention (problem analysis, planning, designing measures, legislative solutions, dealing with the public, best practices)
 - Sharing resources (e.g. models & informatics tools, satellite data, etc.)
 - Post-fire practices, etc.
 - Scientific knowledge exchanges (conferences, workshops, publications)
 - Exchange of expertise, especially regarding independent assessments

Specific considerations

- In many countries “silos” exist that do not allow for the development of an integrated fire management policy.
- Without the development of a scientifically-based, politically neutral, national fire risk management policy, it is difficult to reach a long-term solution to the forest fire problem.
- International expert guidance, may provide an alternative point of view, helping to solve “silo” problems and local conflicts, as long as there is an open mind on the side of the inviting country, and a true will to change.
- Obviously, selection of appropriate international expertise is critical.
- Appointment of appropriate, open-minded, truly qualified personnel to cooperate with the international experts, providing data and local knowledge, can help to maximize interaction and benefits.

Specific considerations (2)

- One of the main problems requiring international cooperation, in order to curb the growing fire risk on the landscape, is to promote the involvement of local stakeholders, farmers and foresters, on judiciously using the land in ways that will make it more resilient. Such cooperation can contribute to:
 - Break silos, where state agencies act according to what they **think** as correct, without understanding many social issues
 - Improve legislation (e.g. at EU level) and design funding schemes, for example:
 - Aiming to curb drainage of rural population towards the cities
 - Empower people to make a living using traditional practices (such as open space grazing, agroforestry, and using fire) and to organize locally for self protection
 - Disseminate knowledge and train the public providing examples of good practices

Specific considerations (3)

Requirements (in brief):

- Open mind and belief in the value of the international cooperation
- True willingness to share, disseminate, learn, teach
- Organized approach with formal background and clearly set rules and principles. This can help to create trust between all stakeholders and curb internal competition/resistance between agencies and within agencies
- Stakeholders clearly include and require the contribution of the civil society. Main aim is the creation of fire resilient landscapes.
- Continuous evaluation of the outcome of each activity, regarding the level of adoption and the results of application of innovations

The example of Greece

- The Government of Greece, following the devastating fire of East Attica of July 23, 2018, with 100 fatalities appointed an “Independent Committee tasked to Analyze the Underlying Causes and Explore the Perspectives for the Future Management of Landscape Fires in Greece”:
 - Prof. Johann Goldammer (chair)
 - Dr. Gavriil Xanthopoulos
 - Prof. Alexander Dimitrakopoulos
 - Prof. Giorgos Mallinis
 - Dr. Ioannis Mitsopoulos, and
 - George Eftychidis



Επιτροπή για τις Προοπτικές
Διαχείρισης Πυρκαγιών
Δασών και Υπαίθρου
στην Ελλάδα

Έκθεση της Ανεξάρτητης Επιτροπής που έχει συσταθεί με την Πρωθυπουργική Απόφαση Υ60 (ΦΕΚ 3937/Β/2018) για την ανάλυση των υποκείμενων αιτιών και τη διερεύνηση των προοπτικών διαχείρισης των μελλοντικών πυρκαγιών δασών και υπαίθρου στην Ελλάδα





A year after Greece's wildfire disaster

In 2018, Greece experienced the second deadliest fire of the 21st century - with 102 fatalities, 150 injuries and extensive damage. The Government appointed an independent committee of wildland fire experts to look at what went so badly wrong, and prevent the repetition of such a tragedy. Here, the committee summarises its findings for CRJ readers

On July 13, 2018, at 15:01, a wildfire broke out in the western slopes of Parnis' mountains, 20 km north east of the town of Athens and 5.2 km from the eastern coast of Attica.

It happened on a day when very high fire danger was predicted for Attica, owing to an unusually strong westerly wind. Another wildfire had started earlier near the town of Eleusa to west Attica, 50 km west of the coast of Athens, and was burning in full force, spreading through the area and threatening the largest industry in the country.

The combination of rapid fire spread in a populated area, lack of a common operational overview and poor coordination between the assets involved, combined with incorrect assessment and an initial underestimation of the situation, led to a delayed and inadequate response. Many measures had been started in the Eleusa fire, which allowed the western Attika Mass to grow rapidly.

Spreading through the fringes of the Attika metropolitan area - the wildland-urban interface (western side of the coastal strip, from Neos Vrasias and then Mazi) - the fire reached the sea in little less than two hours. In case of spread, especially to the east towards the coast, reached less to the kilometre per hour for short periods of time.

In its path, it burnt the nearby pine (Pinus halepensis) vegetation in small forest stands or gardens, destroyed or damaged more than 1,500 buildings, caused 102 fatalities and seriously injured about 150 people. Many of the victims were trapped in a traffic jam that developed in a narrow street while trying to escape to their cars (Image 1), while several others were trapped by the flames on a steep cliff above the sea (Image 2) as they tried to reach the sea. Others, who managed to get to the coast, were trapped in heat and smoke for hours before rescue boats could reach them. Many of the fatalities were from boats, unable to get out of harbour, or through drowning while attempting to swim away from the coast to escape the unbearable conditions (Image 3, p.28).

The total human cost was 1411 lost lives, including the 1400 who were trapped by the sea (Image 4) - a tragedy to digest, as it could have been much worse.

This is the second deadliest wildfire event in the 21st century, after the 2007 Black Saturday bushfires in Australia, and it brings a Greek tragedy to a close of

check, making headlines around the world with images of survivors hauled out of the sea. The initial goal was followed by political finger pointing and confused efforts by experts and non-experts to fence fire-affected areas and the to make roads, before and during the event, which led to this unprecedented disaster.

In September 2018, while witnesses continued to identify losses to be learnt and the justice system was investigating, trying to pin-point blame to avoid or charge those responsible, the government moved a step ahead. This large-scale tragedy followed the disastrous years of 1998, 2004 and 2007. Against the backdrop of an increasing trend in damage and fatalities, the Prime Minister appointed an Independent Committee of wildfire experts, titled the 'Committee on Perspectives of Landscape Fire Management in Greece'. Its aim was to shed light on the deeper causes of the mounting wildfire problem in the country and to propose potential solutions. The committee consisted of the authors of this paper.

During its first five months of work, the

Image 1: Many of the victims were trapped in traffic jams that developed in narrow streets.



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ΔΙΑΡΚΕΙΑ ΕΠΙΤΡΟΠΗΣ ΔΗΜΟΣΙΑΣ ΔΙΟΙΚΗΣΗΣ, ΔΗΜΟΣΙΑΣ ΤΑΞΗΣ ΚΑΙ ΔΙΚΑΙΟΣΥΝΗΣ, ΠΑΡΑΓΩΓΗΣ ΚΑΙ ΕΜΠΟΡΙΟΥ ΚΑΙ ΕΙΔΙΚΗ ΜΟΝΙΜΗ ΕΠΙΤΡΟΠΗ ΠΡΟΣΤΑΣΙΑΣ ΠΕΡΙΒΑΛΛΟΝΤΟΣ (17-4-2019). Έγκριση για την Έκθεση της Ανεξάρτητης Επιτροπής για ανάληψη υποχρεώσεων από και διερεύνηση προοπτικών διαχείρισης μελλοντικών πυρκαγιών δασών και υπαίθρου στην Ελλάδα

After the North Evia fire, August 2021 (52,000 ha)

- The Independent Committee was asked by Mr S. Benos, the person appointed by the Prime Minister to lead a large rehabilitation effort for the destroyed area, to help by proposing measures for future fire management.
- The committee responded positively, presented its proposals, but so far no concrete application...



Conclusions

- International cooperation in the field of forest fire is clearly necessary, especially in view of the worsening fire problem.
- There are many requirements in order to achieve effectiveness and efficiency
- However, many times it is only used by stressed governments as a way to show that they are doing the maximum possible.
- Without true belief in its value, and without trying to maximize the benefits, the money and the effort spent can easily go to waste.

Thank you