

COMMENT OPEN



Urgent call for comprehensive governmental climate action against wildfires in Greece

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This commentary underscores the need for immediate climate action following recent Greek wildfires. It outlines a comprehensive fire management strategy, emphasizing collaboration and the Sustainable Development Goals (SDGs) as essential components.

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INTRODUCTION

As the leader of the AE4RIA (Alliance of Excellence for Research and Innovation on Aeiphoria, <https://ae4ria.org/>), an initiative promoting collaboration between research institutions, business sector, and policymakers, I am actively involved in coordinating numerous research projects that facilitate the transformations necessary for achieving the objectives of the 17 Sustainable Development Goals, the Paris Agreement, and the European Green Deal, which involve climate action and environmental protection against any threat, among other commitments.

In recent decades, Greece has experienced devastating wildfires, particularly during the summer months. These wildfires have intensified in frequency and severity, largely attributed by experts to the impacts of climate change. Extended periods of drought, soil aridity, persistent heatwaves, and intensified winds have transformed forests into highly vulnerable areas susceptible to even the minor spark. In many cases, the fires have been uncontrollable and can be described as “megafires.” These megafires, are enormous in scale and intensity, and pose an increasingly severe threat to Greece’s landscape, necessitating a comprehensive response to protect both the environment and citizen’s safety and well-being.

This commentary highlights the need for comprehensive governmental climate action in response to Greece’s wildfires. It discusses the destruction of biodiversity and presents a holistic approach to fire management. Collaboration and the SDGs are emphasized as key elements in addressing climate change’s consequences.

WILDFIRES IN GREECE

The increasing severity of the effects of the climate crisis, a catastrophe exaggerated by human activity, is evidenced worldwide by events like increased temperatures, prolonged periods of droughts and heatwaves, which relate to subsequent extreme storm events that are likely to cause disastrous floods, further stressed by the burned landscapes. The urgent situation in Greece in the aftermath of the summer of 2023 wildfires, remind us of the pressing need for immediate and coordinated climate action.

This summer, the fire in Mount Parnitha, one of the mountains surrounding Athens, the capital of Greece, burned and affected a vast area of the National Park. Out of the 61,000 acres burned, the 31,230 acres was a NATURA protected area, and an additional

6000 acres used to be a wildlife ecosystem. Thus, approximately half of the affected area pertains to protected zones. Furthermore, the destroyed thousands of acres of forest in this National Park resulted in the extinction of protected deer population of Mount Parnitha.

Moreover, at the time of writing this paper, the Evros region in northeast Greece is being burned over the past 21 days, witnessing one of the largest wildfires in recent European history, burning more than 247,000 acres. The destruction of Dadia forest in the Evros region highlights the tangible consequences of these ecological disruptions. Dadia forest, a haven for numerous animal populations, represents a vital ecosystem within the Balkans. The forest’s trees provided shelter to numerous species of birds, that in many cases were sole representatives of their kind in Greece and the wider area. The impact of this destruction extends beyond the immediate environment, reaching into the area of biodiversity. Furthermore, the forest was a migratory stop for rare birds such as the Egyptian vulture, contributing to the broader biodiversity of the area. Moreover, the significance of the trees in Dadia forest, some aged over a century, cannot be overstated, as they provided nesting grounds for vultures and other species.

The huge wildfires of the past months in Greece, are of particular concern because they do not only destroy the natural capital, the biodiversity and animal stock at regional level, but also contribute to elevated CO₂ emissions, further accelerating the consequences of climate change. The urgency of the situation demands that we no longer delay effective strategies for mitigation, as further delays will worsen the severity of these disasters.

A HOLISTIC APPROACH TO WILDFIRE MANAGEMENT IN GREECE

Governments need to adopt a holistic approach that not only addresses the immediate threat of wildfires but will also serve as a comprehensive national strategy for Greece to effectively cope with these increasingly devastating events in the future. The following stages of fire management encompass prevention, preparation, response, and restoration, emphasizing the importance of proactive measures, technological integration, collaboration, and adaptive learning to safeguard both our environment and communities:

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- **Prevention:** to effectively manage the threat of wildfires, Greece must adopt a comprehensive strategy that addresses both the root causes and immediate risks. This approach involves substantial investments in combatting climate change and minimizing fire hazards. Mitigation of greenhouse gases emissions, ecosystem preservation, promotion of renewable energy sources, and development of environmentally responsible farming methods are all included in these actions. Activities such as clearing fallen trees, cutting low branches, and controlled burning of dry plants to minimize fuel loads are all part of year-round forest management. Citizen involvement is crucial as well, particularly in communities residing near forested areas, as fostering awareness and engagement can contribute significantly to maintaining clean and safe environments. Economists can develop incentive-compatible financial and social instruments to facilitate the implementation of local early warning systems efforts that are participatory in nature, engage local stakeholders, and are supported by blended finance and technology.
- **Preparation:** embracing technology becomes imperative in the preparation phase. Establishing early warning systems that promptly detect and respond to the beginning of a fire can benefit greatly from the integration of satellite images, drone monitoring, and artificial intelligence. It is crucial to protect the safety of individuals and the efficacy of response efforts to teach them how to react effectively in the face of an expanding fire. By equipping individuals with knowledge about evacuation procedures, emergency contacts, and safety protocols, communities can better coordinate their actions during a crisis. We also need local teams, whether voluntary or not, ready to act immediately.
- **Response:** collaborative efforts between professional fire-fighting units and well-equipped local volunteer groups are central to an effective response during a wildfire event. For example, the implementation of the rescEU mechanism, established by the European Union, greatly enhances a country's capacity to manage large-scale fires by providing additional resources and support when national capacities are exceeded. The combined expertise and resources of various stakeholders in this phase are critical to swiftly containing and extinguishing wildfires while minimizing damage and risk to both human life and natural resources.
- **Restoration:** the aftermath of a wildfire demands a rapid and comprehensive approach to recovery. To begin recovering, affected communities should get assistance as quickly as possible. Also, reforestation could help restore ecological harmony, slow down the biodiversity collapse, reduce the likelihood of flooding, extreme sediment transport and soil erosion, and water quality protection.

Each wildfire incident serves as an opportunity for learning and improvement, prompting the refinement of strategies and tactics based on observed outcomes. By continuously evaluating the effectiveness of fire management practices and adjusting them accordingly, the system becomes more adaptable and resilient in the face of future challenges.

THE CRUCIAL ROLE OF SDGS AND GLOBAL COLLABORATION IN HOLISTIC CLIMATE CHANGE SOLUTIONS

Wildfires have also serious negative effects on the economic and social stability, resulting from the damaged public and private properties and the disruption of vital ecosystem functions from the natural world. A holistic and comprehensive approach that incorporates prevention, planning, fast response, and sustainable restoration is necessary to effectively manage the many challenges posed by forest wildfires.

Studies show that the best strategy for climate change mitigation through lowering carbon emissions is the worldwide adoption of Agenda 2030 and its 17 SDGs^{1,2}. It is currently the most widely accepted framework for sustainable development because it gives a precise roadmap to a more sustainable future for our planet and all of us.

However, midway into the 2030 Agenda's implementation, the Global Sustainable Development Report 2023 highlights a critical reality: the international community is still far from meeting the SDGs. Data from 2022³ reveals limited progress, particularly in key areas such as responsible consumption (SDG 12), climate action (SDG 13), life below water (SDG 14), and terrestrial ecosystems (SDG 15). It's noteworthy that these challenges persist even in countries considered significant contributors to the ongoing climate and biodiversity crises. Overall, the SDGs serve as a crucial framework for wildfire management by providing a comprehensive roadmap to mitigate climate change, protect biodiversity, and foster resilient ecosystems, ultimately contributing to the reduction of wildfire risks.

Recognizing the need for international collaboration and a comprehensive approach extends beyond climate change to crises like wildfires. Addressing the complex challenge of climate change demands multifaceted solutions due to the complicated nature and global scale of associated issues.

The United Nations Sustainable Development Solutions Network (UN SDSN) Global Climate Hub (<https://unsdsn.globalclimatehub.org/>), which I lead, demonstrates the collaborative relationship between innovation and research, as it attempts to develop adaptive and resilient strategies customized to the evolving environmental landscape. It enables the development of adaptive and sustainable strategies, incorporating cutting-edge technologies and data-driven insights to reduce environmental impact, and promote global resilience. It also serves as a platform for fostering global cooperation and generating informed recommendations to tackle the climate crisis and its multiple consequences. Leveraging a diverse range of data, knowledge, and technology, we methodically develop pathways to mitigate the risks posed by climate change and enhance nations' capacity to become more resilient against various catastrophes, including the increasingly prevalent phenomenon of forest wildfires.

CONCLUSION

In conclusion, the escalating wildfires in Greece underscore the urgency of climate action and coordinated and timely response and recovery. The imperative for immediate measures to combat climate change, coupled with comprehensive fire management strategies, forms a blueprint for a more sustainable future. As we navigate these challenges together, the collective efforts of research institutions, businesses, policymakers, and global collaborations become pivotal in forging a path toward a resilient and thriving world for generations to come.

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COMPETING INTERESTS

The author declares no competing interests.

ADDITIONAL INFORMATION

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