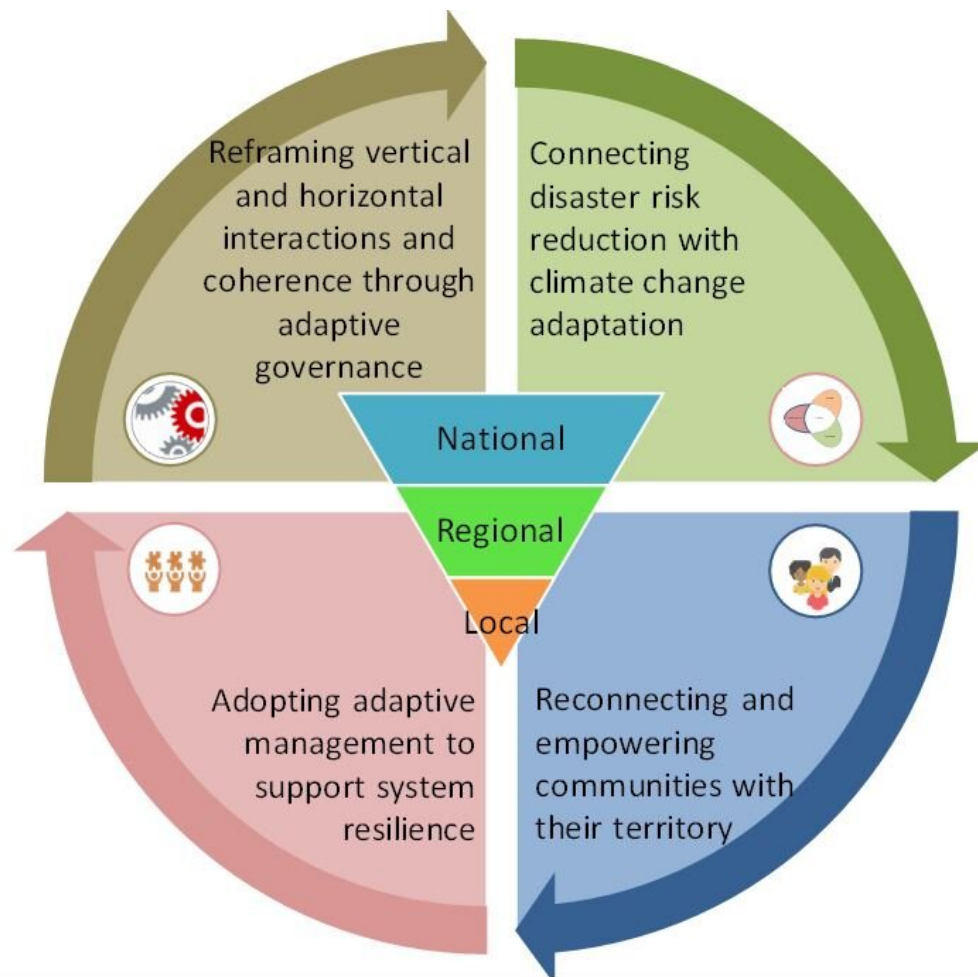


Europe and wildfires: From science to governance, adaptation is the key

March 7 2022



Credit: V. Bacciu

Extreme weather events, including drought and associated wildfires together with others—such as heatwaves, heavy rain, and coastal flooding—are recognized by the IPCC as one of the five 'reasons for concern' related to climate change since the IPCC Third Assessment Report (2001).

"The data of future projections summarized in the recent IPCC Report show an aggravation of the impact of drought over the Mediterranean," highlights Donatella Spano, Professor at the University of Sassari and member of the Strategic Committee of the CMCC Foundation, an expert in [risk analysis](#) and [management](#) related to forest fires, drought, and [climate change](#). "This puts the functionality and health of forests and woods at risk, exposing them to further biotic and abiotic disturbances, such as wildfires. Moreover, there is a gradual but inexorable change in [fire](#) regimes year after year. Both the length of fire seasons and 'megafire' events are increasing. These are events of catastrophic proportions, with very high social, economic and environmental impacts, which are increasingly difficult to extinguish due to extreme weather conditions that will be exacerbated by current and future climate change."

The new IPCC report—which highlights the role of wildfires and their impacts on terrestrial ecosystems and species, people and their built assets, [economic activity](#), and health –focuses on adaptation, defined by the Summary for Policymakers as "the process of adjustment to actual or expected climate and its effects in order to moderate harm or take advantage of beneficial opportunities".

By putting wildfires at the center of the debate, in what terms can we best act on climate change adaptation?

Fire-fighting is not enough

The IPCC calls for fire and [forest management](#) among the adaptation actions that can increase the resilience of ecosystems and their services.

"The current system of fire management, which is essentially based on fire extinction and [emergency response](#), was—and still is—effective in mild weather conditions with low and medium intensity fires," explains Dr. Valentina Bacciu, a researcher at CNR- IBE, affiliated with the CMCC Foundation. "But in extreme conditions favoring the spread of fires such as those described by the IPCC report—which sees the intensification of extreme events such as prolonged heat waves and droughts—this system does not hold up. Unfortunately, we have already experienced this in the Mediterranean. Just think of the summer of 2021, or 2017, or again in 2009... Fire-fighting, even in the most efficient cases, is not enough in these conditions."

Fire-fighting concerns the emergency response strategies for fire extinction and includes activities of reconnaissance, surveillance, sighting, alarm and extinguishing fires with ground and air means.

"In the case of megafires occurring in [extreme weather conditions](#), there are no means that can be scaled to face these types of events," Spano explains. "If fires change in behavior, we have to change the strategy with which we govern them. Indeed, fire risk management is at a crossroads. The context requires a rethinking of fire management strategies compared to the current ones. We need to shift the focus from fire emergency management to fire risk management and prevention through approaches that integrate short-term goals with medium-to-long-term goals to respond to climate challenges."

Wildfires and adaptive governance

In the recent study published in *Environmental Science & Policy*, CMCC Foundation researchers propose a new systemic approach based on

policies and actions aimed at adaptive forest and land management, aimed at reducing risk and damage from [forest fires](#) and, at the same time, at adapting forest and natural ecosystems to climate change.

"The central and distinctive point of our proposal is adaptation," explains Bacciu, lead author of the study. "We need to consider that we are totally 'immersed' in climate change. Adaptation must therefore be pervasive and involve the entire territorial governance, going beyond the strategies to mitigate risks and preserve the health of ecosystems. Adaptation must become the transversal element of every policy and strategy, and it is necessary that the different policies—from urban planning and climate policy to those addressing fire prevention and management—are integrated with each other. Thus, in our approach, we recognized that, among various decision-making tools and approaches, adaptive management and adaptive governance have emerged as approaches towards the holistic, integrated, and sustainable management of complex environmental problems mediating multiple stakeholder interests. Furthermore, we believe it is of paramount importance to promote resilience planning through [community engagement](#) and social process, thus reformulating the relationship between fire and society through more collaborative and process-oriented decision-making".

"Talking about prevention," adds Dr. Costantino Sirca, Researcher at the University of Sassari and affiliated with the CMCC Foundation, among the authors of the work, "we believe that integration is another keyword, because it allows us to go beyond the current sectoral approach and towards a multisectoral, multidisciplinary and multilevel approach, working at various political and administrative levels."

From this perspective, fire management is a goal that can be achieved through greater care of the territory and greater involvement of communities. Communities no longer represent merely an element that needs to be evacuated in critical conditions: they are an actor capable of

contributing to prevention in their regions, in a governance process that balances benefits, costs and trade-offs.

"The proposed approach," concludes Spano "aims to go beyond the short term and sectoral governance toward a more sustainable long term perspective, promoting a multifunctional, fire-resistant, and resilient mosaic landscape based on sustainable development processes."

More information: Valentina Bacciu et al, Towards a systemic approach to fire risk management, *Environmental Science & Policy* (2021). [DOI: 10.1016/j.envsci.2021.12.015](https://doi.org/10.1016/j.envsci.2021.12.015)

Provided by CMCC Foundation - Euro-Mediterranean Center on Climate Change

Citation: Europe and wildfires: From science to governance, adaptation is the key (2022, March 7) retrieved 1 May 2024 from <https://phys.org/news/2022-03-europe-wildfires-science-key.html>

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