



United Nations
International Strategy for Disaster Reduction



Global Fire Monitoring Center (GFMC)



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UNFCCC COP-16 Cancun Statement by the UNISDR Global Wildland Fire Network Through the Global Fire Monitoring Center (GFMC) on

Global Change and Wildfire in the Post-Kyoto Era: Contribution of Fire Management to Reducing Emissions from Deforestation and Degradation (REDD)

The Global Fire Monitoring Center (GFMC) in its function of Secretariat of the UNISDR Global Wildland Fire Network, the UNISDR Wildland Fire Advisory Group and United Nations University (UNU) is currently preparing a White Paper "Vegetation Fires and Global Change". This global analysis on the role of vegetation fires in the Earth System is a collective endeavor of the world's most renowned scientists and research groups working in fire science, ecology, atmospheric chemistry, remote sensing and climate change modeling.



The most recent findings and conclusions of the science community, including members of the UNISDR Global Wildland Fire Network, on the consequences of climate change, land use and land-use change on fire regimes, environment and society, and the role of fire as a major disaster risk in some ecosystems and societies, as included in the White Paper, are summarized as follows:

- Fire is the most important disturbance agent in global vegetation cover worldwide, affecting between 3 and 4 million square kilometers annually.
- While there is clear evidence of the historic role and timescale of fire in many ecosystems, along which many fire-dependent ecosystems evolved, the current trend provides evidence of increasing use of fire in land use and land-use change as well as an increase of destructive wildfires (uncontrolled and unwanted fires).
- Burning of forests and other vegetation is a major driver of transferring carbon from the terrestrial sphere to the atmosphere.
- Globally vegetation fires, including burning of peatlands, consume about 5% of the net annual terrestrial primary production per annum, thus constituting a significant source of radiatively active (greenhouse) gases and aerosols.
- The prompt (gross) release of about 2-4 billion metric tons of carbon (C) per year is equivalent to about 20-30% of global carbon emissions from fossil fuel burning.
- Approximately 0.6 billion tons of carbon emitted to the atmosphere come from tropical deforestation, forest degradation and peat fires and constitute a net release due to ecosystem degradation or destruction.
- Increasing amount of people, property, and infrastructures are affected by wildfires globally due to increasing vulnerability of humans at the interface or inside of wildlands.

- The fatalities and economic losses in extreme wildfires burning recently in places like Australia, California or Greece, or the massive burning of peatlands in Indonesia, are well reported and perceived by media and politics. However, fires affecting ecosystems and society in other regions of the world remain unreported, including numerous fatalities recorded by the Global Fire Monitoring Center. This also refers to the effects of fire on human health and security, notably through smoke pollution and problems related to industrial and radioactive pollution and from armed conflicts and their heritages (unexploded ordnance, land mines).
- Secondary effects of fire include sudden-onset disasters such as landslides, mudslides, rock falls and flash floods. Creeping disasters triggered by fire include post-fire soil erosion, ecosystem degradation, and reduced carrying capacity for human populations and their livelihood.
- Despite the efforts of governments and civil society the majority of countries does not have sufficient human and technical resources for sustainable fire management
- Systems for early warning of fires, early detection and monitoring of fires are available or used in some countries. However, the majority of countries does not have systems in place or access to existing systems in place. The development of a “Global Wildland Fire Early Warning System” is currently underway.
- A full-scale satellite-supported global inventory of vegetation fires that would evaluate satellite and in situ data of the last decade, and to be continued in the coming years, is urgently needed for obtaining comprehensive information and data on the impact of fires in the global system, especially on vegetation degradation and fire emissions, and on change of fire regimes over time.
- Since fire is one of the defined 44 “Essential Climate Variables” (ECVs) the Conference of the Parties to the UNFCCC is urged to include fire management as one of the options for reducing emissions from deforestation and forest degradation in developing countries (REDD concept).
- Besides the role of climate extremes (droughts) as an aggravating condition for destructive fires, the majority of fires that are resulting in degradation of forests and other vegetation, are caused by human activities in the rural space. Since local communities will benefit first from reduced occurrence and severity of fires participatory approaches in fire management (community-based fire management) are imperative.
- Concluding that vegetation destruction by fire is a cross-sectoral theme and disaster risk affecting human health, security and livelihood in many countries, and contribute to destabilization of land cover and to climate change, policies addressing the pressing fire problems are needed at national to international levels.
- Policy makers at national and international levels should utilize the White Paper on “Vegetation Fires and Global Change” as a best science- and management experience-based reason, rationale and justification for enhancing capability in fire management from international / global to local levels, aiming at increasing the resilience of ecosystems and people to fire and mitigate the consequences of and adapt to the new equilibrium conditions to climate change.

Note: The Global Fire Monitoring Center (GFMC) in its function of Secretariat of the UNISDR Global Wildland Fire Network, the UNISDR Wildland Fire Advisory Group and United Nations University (UNU) is presenting this information through the joint booth of the German Committee for Disaster Reduction (DKKV), the German Red Cross, Welthungerhilfe and GTZ.

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