

THE SOME PRINCIPLES AND STRATEGIC OPERATING UNDER A MANAGEMENT BY FIRES IN NATURAL ECOSYSTEMS

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ABSTRACT. Recommendations determine international scopes, charts of inter-branch questions, go into detail principles and descriptions, necessary for balancing of social, cultural, nature protection and economic measuring of management fires and order key actions necessary for planning and management by fires.

Keywords: management, fire, ecosystem

The principles address various dimensions of fire management. Although the principles are grouped as social and cultural, economic, environmental, institutional and enhanced fire management capacity, they are closely interlinked. Some aspects are listed under more than one principle to reinforce these linkages.

Introduction

UNFCCC, UNCCD, CBD and UNFF recognize the critical role of fire – on the one hand, in maintaining fire dependent ecosystems, but on the other, in causing deforestation, forest degradation and destruction of livelihoods, biodiversity and infrastructure. FAO has been coordinating a multistakeholder process to prepare a global strategy to enhance international cooperation in fire management, including principle [1]. The principles address various dimensions of fire management. Although the principles are grouped as social and cultural, economic, environmental, institutional and enhanced fire management capacity, they are closely interlinked. Some aspects are listed under more than one principle to reinforce these linkages.

Social and cultural

Principle 1: Sustainable livelihoods. The appropriate use and management of fire will promote sustainable livelihoods. Aspects of the principle include:

- actively suppressing unplanned fires that threaten assets and sustainable livelihoods;
- allowing and promoting the appropriate management and responsible use of fire for sustainable silviculture, agriculture, livestock and watershed management and biodiversity conservation, while balancing these with the need to protect civilians, communities, organizations and governments from the unwanted and harmful effects of fire;
- actively planning and undertaking fuel reduction programmes as costeffective methods for fire prevention and reduced fire risk;
- promoting the use of planned fire across broad landscapes to restore or maintain natural fire regimes, facilitate land management and reduce the risk of large-scale, destructive wildfires;
- allowing natural fires to burn within an appropriate range of frequency, season and intensity in fire-dependent ecosystems for economic and social benefits, as well as for maintaining habitats and reducing the cost of suppressing unwanted fires;
- promoting effective monitoring and evaluation of the impacts of planned and unplanned fires.

Principle 2: Human health and security. Human health and security will be improved by minimizing the adverse effects of fire:

- providing for firefighter, fire manager and public safety in all fire activities;
- maintaining and supporting an effective fire prevention programme that minimizes the number and impacts of unwanted, destructive fires;

- developing or adapting an existing fire danger rating system, in conjunction with reliable weather forecasting, to provide hazard and risk assessments to agencies, landowners and communities;
- utilizing early detection and warning systems to reduce the health and security impacts of wildfire;
- providing education and training to at-risk communities and to communities of interest;
- conducting community-based risk-reduction activities during all stages of fire management activity: pre-fire, during fire events and post-fire;
- balancing the negative and positive effects of fire on communities when utilizing fire as a land management tool;
- empowering communities to accept responsibility for the management of fire and its effects on their health, safety and welfare.

Principle 3: Traditional uses of fire. The traditional uses of fire on the lands of indigenous peoples and traditional rural communities should remain as a practice for those communities and be adapted to the current environment:

- continuing the traditional use of fire provided that any potential negative impacts on communities and resources can be prevented or mitigated;
- gathering and maintaining the traditional lore and knowledge of indigenous and traditional peoples and integrating their practices into a modern fire management programme;
- maintaining a range of landscapes and environments that provide diversity of habitats, species, resources and opportunities for recreation, commerce, community enjoyment and cultural and religious practices.

Economic

Principle 4: Protecting lives and assets. The destructive impacts of unplanned fires on lives, property and resources should be minimized, if not totally prevented. Aspects of the principle include:

- minimizing or preventing the likelihood of unwanted, damaging fire through knowledge, training, participatory planning and preparation, and appropriate suppression and mitigation systems;
- responding promptly and safely to unwanted and unplanned fires;
- actively managing fire to protect lives, property and resources during fire suppression, including the use of fire as a suppressive agent;
- operating in an environmentally sensitive manner while suppressing fires and restoring altered or damaged lands in order to lessen severe, long-term impacts;
- influencing the planning, construction and location of new buildings and adjacent vegetation to minimize the risk of damage from fires, and discouraging inappropriate development in fire-prone ecosystems;
- influencing the planning and implementation of fire-prone activities in agriculture, forestry and other industries in order to minimize the risk of damage from unplanned fires to lives, property and resources;
- allocating resources based on the probability of ignition and expected fire behaviour, and balancing the costs of fire prevention, preparedness and suppression.

Principle 5: Economic impact. An effective and efficient fire management programme requires a balance between the benefits society receives from the use of fire and the costs, damages or undesirable impacts caused by unwanted fire:

- fully accounting for ecosystem benefits, costs and economic outputs from the use of fire for resource management and the public good;
- identifying the benefits of mitigating the unwanted effects or damages to lands and resources from unwanted fires;

- developing and implementing all fire management strategies and fire-use programmes in order to maximize both the ecological and environmental benefits and the economic return;
- developing methodologies and standards for quantifying positive and negative fire effects and assessing fire damage, including effects on noneconomic or non-commodity values, as well as on other social and environmental values.

Environmental

Principle 6: Interactions between climate change and fire. The interactions of climate change with vegetation cover and fire regimes should be understood and appropriately considered in the planning and implementation of fire use. Aspects of the principle include:

- defining the impacts of regional climate change on ecosystem properties and fire regimes;
- modifying fire management plans and policies to take into account observed and anticipated changes in fuel and vegetation type, burning conditions and additional fire risk as a result of climate change;
- utilizing forest and other fuels for energy production, with the dual goals of reducing the threat from fire and the consumption of fossil fuels;
- maximizing the storage of carbon in ecosystems – especially during restoration of degraded ecosystems – without increasing the likelihood of unwanted fire risk and promoting the regeneration of carbon sinks;
- minimizing greenhouse gas emissions that occur as a result of large-scale, unwanted fire by restoring and maintaining ecologically appropriate fire regimes;
- minimizing and mitigating the short- and long-term consequences of fire-induced vegetation depletion, such as soil erosion, landslides, floods, waterway pollution and desertification.

Principle 7: Fire effects on ecosystems. Fire should be managed in an environmentally responsible manner to ensure properly functioning and sustainable ecosystems into the future:

- maintaining or restoring appropriate fire regimes to enhance the vigour and diversity of populations of species and communities of native flora and fauna in fire-dependent ecosystems;
- protecting fire-sensitive ecosystems;
- recognizing that strategically placed, planned burning with some short-term negative environmental impacts may be necessary for long-term landscape and community asset protection;
- applying principles of environmental management and care to the prevention of environmental disturbances resulting from fire management activities;
- planning fire preparedness and suppression operations within a holistic landscape view that considers archaeological, historical, cultural and traditional heritage values;
- promoting the re-establishment of ecological processes, with the restoration of native flora and fauna that may have been compromised, damaged or eliminated by fire suppression actions;
- minimizing and preventing the introduction and spread of pest or invasive plants and animals, plant diseases, insect pests and biological contaminants after fires or fire suppression activities;
- conducting planned burns in a manner that minimizes the spread of unwanted alien species and promotes or re-establishes natural or other preferred species.

Institutional

Principle 8: Legislation and governance. All fire management activities should be based on a legal framework and supported by clear policy and procedures:

- using the principles and strategic actions as a basis for developing and implementing national or local legislation;
- implementing all aspects of the principles and strategic actions appropriate in each fire regime;

- developing guidelines for planned burning that fit within the legal framework and policies;
- recognizing that implementation of the strategic actions may impact on, or be impacted by, other sectors, such as forestry, agriculture, conservation and protection of the environment, air-quality management, climatology, hydrology and broader land-use management, and emphasizing coordination with those sectors.

Principle 9: Multistakeholder approach. Successful fire management requires participatory approaches to leadership and management that are appropriately shared by public and private landholders, the fire services and communities of interest:

- minimizing the incidence of unwanted, human-caused fires;
- meeting integrated land management objectives such as safety and environmental and resource management;
- recognizing the leadership role of land managers in fire and other land-use issues;
- ensuring a coordinated approach to effective fire management in areas where multiple organizations and stakeholders have responsibilities and interests in the fire programme;
- recognizing and using the knowledge, leadership and expertise of local citizens and community groups;
- involving community members at the local, subnational, national, regional and international level to ensure that processes are open and accessible to people of different backgrounds and cultures (especially indigenous and traditional rural communities);
- encouraging cross-sectoral participation in the development and implementation of plans, including community members, land managers, fire agencies, emergency services, enforcement and medical agencies, nongovernmental organizations and the media;
- acknowledging that fire management plans and fire occurrence at the local level can have international and global impacts on the environment;
- understanding the different backgrounds and roles of the urban, structural fire services and the land management and rural fire services, and utilizing each of them to the best advantage, based on the strengths of each;
- training and equipping volunteer groups, community members and rural workers in order to enhance their role and effectiveness in fire management activities.

Enhanced fire management capacity

Principle 10: Cooperation. Few nations and no single agencies or communities have the ability to manage every situation. As fires routinely affect multiple jurisdictions, agencies should develop cooperative arrangements to mitigate transboundary impacts.

- encouraging the use of common terminology, systems and standards to enhance international cooperation;
- promoting an ongoing exchange of knowledge, technology and resources to facilitate rapid international response to fires;
- participating in international organizations, networks, fora and activities to enhance domestic and international capacity and rapid international response;
- using available guidelines and examples of successfully implemented agreements as a framework for the development of binding and non-binding international instruments.

Principle 11: Knowledge transfer. Access to and appropriate application of knowledge are essential in all fire management activities:

- engaging in quality scientific research for the creation of new knowledge and confirming the utility of firefighters' practical knowledge in order to support the creation or improvement of policies, regulations, guidelines and practices;
- developing a two-way flow of information so that local knowledge of the environment and the historical uses of fire can be considered and used by managers and researchers;
- providing appropriate knowledge and skills development for personnel involved in fire activities to render them competent for their roles and tasks;

- incorporating effective communication and providing community education on fire management issues in order to enhance community preparedness and response;
- collecting traditional, local knowledge and using that knowledge in appropriate aspects of the fire management programme;
- communicating to members of local communities and communities of interest that properly applied and managed fire can result in positive ecological, cultural and economic benefits;
- translating scientific, research and technical materials and making them accessible, at the appropriate technical level, to local managers, firefighters and communities.

Conclusion.

Aspects of the principles described here can be extended. These priority principles will aid in the formulation of policy, legal, regulatory and other enabling conditions and strategic actions for more holistic approaches to fire management.

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