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## CBFiM in practice

Indigenous communities have been using fire in varying degrees to manage and shape the landscapes they inhabit for millennia. Community involvement in the management of traditional lands and natural resources, therefore, is not a new concept. Many of the Native American tribes who inhabited the Great Plains of North America historically used fire to manage their landscape. Prairie fires occurred frequently in the spring and fall, and two primary causes were lightning and the use of fire as a land-management tool (Caitlin, 1848; Komarek 1964, 1966; and Anderson, 1972). Globally, native groups have a history of managing the forests and grasslands essential to their livelihood, health and security, in many cases through the use of fire.

Communities continue to use fire to improve livelihoods and protect resources, being quite familiar with fire in terms of its use for traditional livelihood activities such as clearing vegetation for agriculture, improving pastures for grazing, hunting and stimulating the growth of non-timber forest products (NTFPs).

In developing countries, communities that use fire are subject to fire-management policies that often conflict with their traditional fire-use practices. The result is often that fire is poorly managed and used inappropriately, which can lead to damaged ecosystems and altered fire regimes if too little, too much or the wrong kind of fire is applied. Demographic processes also contribute to increasing wildland fires. In developed countries, the number of wildland fires that threaten communities directly is increasing along with the development spurred by continuing population growth in those parts of landscapes in which structures and other human development meet or intermingle with undeveloped wildland.

In 2005, FAO reported that, globally, more than 350 million hectares (865 million acres) of land area were burned in 2000, 95 percent of which because of human activity. The report goes on to list some of the factors that contribute to the increasing global occurrence of wildland fire. These include: the continued expansion of agriculture and other forms of land conversion activities in developing countries; the increased use of forests for recreational purposes and tourism in both developed and developing countries; and the continued expansion of cities and suburbs in almost all countries (FAO, 2005). The increase in catastrophic wildfires has also been linked to climate change. Longer, warmer summers and reduced precipitation in forested ecosystems in many parts of the world create conditions ideal for large-scale fires.

CBFiM can support more effective fire management in the face of these land-management challenges. Analysis of CBFiM and its effectiveness began in Africa and Southeast Asia in the early 1990s. Information and lessons learned from this analysis have resulted in the increasing consideration of CBFiM as

a component of fire management efforts in those regions and in other parts of the world. CBFiM shares important links with many elements of CBNRM and cannot be implemented successfully in the absence of these existing frameworks (FAO, 2003).

Examples of CBFiM can be found globally in developing, transitioning and developed nations. The success of these efforts varies depending upon a number of factors, including the existence of: supporting policy and legislation, land tenure, and institutional and community capacity. It is essential that contemporary fire management approaches, if they are to be effective, consider not only the technical aspects of fire management, but also the communities and the environments in which they live.

Examples of CBFiM applied in Africa, Latin America, North America and Australia are presented in brief in this section and then in detail in the annexes to this publication. These case studies illustrate a variety of CBFiM strategies being used to achieve specific objectives for the communities engaged. The examples highlight, among others, hazardous fuel reduction in the wildland–urban interface (WUI) in the United States of America, fire and traditional livelihood activities such as agriculture in Namibia, the use of fire in Mexico for such objectives of sustainable forest management as conservation of biodiversity, and the combination of traditional and contemporary fire knowledge to facilitate effective fire management by indigenous groups in Australia. The case studies represent developing and developed countries. The who, what, when, where, how and why of CBFiM are demonstrated within the different developmental contexts.

The Caprivi Integrated Fire Management programme (Annex 1) in Namibia provides an example of CBFiM within a developmental context. The Caprivi programme has been implemented in approximately 10 000 km<sup>2</sup> of semi-arid tropical savannah in sub-Saharan Africa. The people that inhabit this region live a predominantly rural existence in which subsistence farming and direct dependence on the natural resources are important sources of livelihoods. Traditional use of fire includes slash and burn agriculture, management of livestock grazing, management of natural product harvesting, hunting, pest control, protection from wildlife and honey collection. National fire management policy focused primarily on fire prevention and suppression was consolidated in 1996–2001 through the East Caprivi Integrated Forest Fire Management Project. This project was effective at curbing the widespread application of many traditional uses of fire, however, every household employs slash and burn techniques to clear fields for planting between August and October. Coinciding with the late dry season uncontrolled crop field fires lead to extensive wildfires negatively impacting community livelihoods through loss of natural resources, property and life. In 2006 the Caprivi programme, by developing and implementing a fire management policy that takes into account the environment, community, current land use, capacity and available resources, has significantly changed the timing, distribution and effects of fire on the landscape. The use of controlled burning as a legitimate land-management tool and the decentralization of fire management to the community level are the key elements in the effectiveness of the Caprivi

programme. This goal was achieved through a pilot CBFiM policy implemented through a burning permit system regulated by the Directorate of Forestry.

The High Knob community in the state of Virginia in the eastern United States of America provides an example of CBFiM implementation in an industrialized or developed nation (Annex 2). The community of High Knob is a gated subdivision consisting of approximately 400 homes located on a mountainside with surrounding vegetation, which consists of dense hardwoods with scattered conifers. In addition, there is a large amount of downed fuel and heavy undergrowth in some areas. High Knob represents an example of a community that exists where human development interfaces with undeveloped wildland and where the consequences of wildfire are potentially catastrophic. The primary objective of the community is thus the protection of their homes and property from wildfire.

The process of establishing a CWPP by the community results not only in meeting the community's primary objective, but also in increasing collaboration with partners both within and outside of the community. Cooperation can include the sharing of resources ranging from scientific and traditional knowledge to contemporary strategies for fire management and conflict resolution. Increased collaboration and the increased understanding that collaboration brings can also lead to the development of policy approaches that make sense and are relevant to a particular community.

Another case study involves two *ejidos* (communal lands managed by rural villages) within the buffer zone of the La Sepultura Biosphere Reserve in Chiapas, Mexico (Annex 3). The La Sepultura project is one of the few examples that goes beyond local prevention efforts and community-run suppression brigades to include fire use (prescribed burning) to restore and maintain native fire-dependent ecosystems. It also illustrates that success at the community level requires that the broader (national and regional) scientific, technical, social and political issues related to fire be addressed simultaneously. The primary interests of the communities were focused on burning to improve the forage quality of understory grasses for their livestock and also to reduce fuels to limit fires damaging to the forest and their property. They were also concerned about a noted lack of pine regeneration, which is needed to sustain the forest in the long term. Concurrent with this project, fire management in Mexico took a huge step forward with the approval, in 2006, of a National Strategy for Fire Protection and Fire Management, which recognized the important ecological role that fire plays in fire-dependent ecosystems and the important economic role that it plays in agriculture and rural communities. These policy and rule changes that recognize the ecological role and importance of fire were the direct results of the efforts of many of the people involved in funding, promoting and guiding the community-based fire project at La Sepultura Biosphere Reserve.

Another case study looks at the Aboriginal people of the Tanami Desert in Central Australia, who have applied fire to their land to serve a myriad of purposes for millennia (Annex 4). Through this practice, a central strand of

the culture and connection with “country” are maintained.<sup>4</sup> Whereas fire has always been a part of life in desert communities, it is also gaining recognition in mainstream Australia as a critical tool for the maintenance and protection of biological and cultural assets. Over the past twelve years, the Central Land Council (CLC) has actively encouraged and supported Aboriginal peoples’ involvement in CBFiM in the Tanami region. To an increasing degree over the past five years, this programme has had, at its core, an evolving participatory process that involves traditional owners of the region and that combines traditional and contemporary fire knowledge, practices and technologies in annual cycles of planning, implementation, monitoring and review.

Each of these four case studies illustrates differing strategies and approaches in the implementation of effective CBFiM to achieve specific fire management objectives. However, similarities exist between the approaches applied. The existence of sound policy and legislation that promote community involvement in fire management is a key element in effective fire management in locations where people use fire or are directly impacted by it. Further, in each of the examples, increased community involvement in fire management has provided an environment for improved collaboration among communities, government agencies, the private sector and other stakeholders at the local level.

As a result, resources are shared more effectively, traditional and contemporary knowledge is more easily transferred, and mutually beneficial fire management objectives can be developed that are more likely to be achieved.

These case studies, as well as the Sofala Community Carbon project case (Annex 5), illustrate the key characteristic of CBFiM: the active engagement of the community in the development and implementation of fire management strategies. Each community has substantial involvement in decision-making. The cases also demonstrate enabling policy and laws; access and use rights to land and institutional and community capacity; or at least enough of these key elements for CBFiM to be a viable option.

It is notable that in each case there has been an external influence, as an actor, catalyst, convenor or circuit-breaker. These external inputs have been stimulated by interests from outside that include the testing of policy implementation (Namibia); self-protection (High Knob); the restoration of the ecological balance (La Sepultura) and cultural re-engagement (Tanami Desert). The motivations may vary; however, the common theme of external intervention suggests an important role for third parties in triggering the steps towards CBFiM.

The requirement of open engagement, ensuring the consideration of both the full context and the complete suite of actors, is clear. This engagement can be supported by applying or adapting tools, checklists and other approaches as described later in this review. Critically, the engagement of external actors, as in any case, should be sensitive, appropriate and transparent. Effective implementation could usefully benefit from further consideration and development of guidance for the assessment, evaluation and engagement of CBFiM.

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<sup>4</sup> The term “country” has a richer meaning in the Aboriginal language than is implied by its English definition. It indicates spiritual, physical, emotional and cultural connection to land and its functionality, stewardship and use.