

**Community-based fire management:
case studies from China, The Gambia, Honduras, India,
the Lao People's Democratic Republic and Turkey**



Food and Agriculture Organization of the United Nations

Project FireFight South East Asia



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Community-based fire management:
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Democratic Republic and Turkey

Gestion communautaire des feux:
étude de cas en Chine, en Gambie, au Honduras, en Inde, en République
Démocratique Populaire Lao et en Turquie

Manejo del fuego por las comunidades:
estudio de casos de China, Gambia, Honduras, India, la República Democrática
Popular Lao y Turquía

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FOREWORD

The frequency and intensity of forest fires have increased dramatically in many parts of the world in recent years, resulting in major impacts on forests and on rural and urban people and economies. Faced with increasing fire occurrences and decreasing fire suppression budgets, government agencies, local organizations and forest users must consider the full range of fire management options from around the world. By considering proactive approaches – in particular those that engage local communities in the planning and implementing of fire management activities – fire management organizations may avoid the pitfalls and mistakes of the past. This publication features case studies documenting a range of local fire management scenarios, each with a diverse set of land uses and desired outcomes. The community-based fire management (CBFiM) approaches from China, The Gambia, Honduras, India, the Lao People’s Democratic Republic (Lao PDR), and Turkey presented in this publication illustrate a recent shift in direction; a movement away from centralized and state-driven forest fire management towards decentralized and mainly community-based management regimes. These approaches offer promise as more effective and more sustainable than conventional fire management and suppression approaches over the long term. However, they may operate effectively only where local populations are already adequately empowered to manage and use natural resources. It is imperative that practical steps are taken to capture the opportunities that CBFiM has to offer and to identify viable frameworks for moving these initiatives forward. It is hoped that this publication will serve to advance these measures wherever appropriate.

PREFACE

Dans de nombreuses parties du monde la fréquence et l’intensité des feux de forêts ont considérablement augmentées ces dernières années en entraînant des conséquences majeures pour les forêts, les populations rurales et urbaines et sur les économies nationales. Face à la multiplication des feux de forêt et à la réduction des crédits affectés à la lutte contre ces incendies, les services gouvernementaux, les organisations locales et les usagers des forêts doivent étudier toute la gamme de solutions appliquées dans le monde. En étudiant des approches dynamiques – en particulier celles qui font participer les communautés locales à la planification et à l’exécution des activités de gestion des feux – les services chargés de la lutte contre les feux peuvent éviter de répéter les erreurs passées. Cette publication présente des études de cas qui décrivent divers types de gestion locale dont les formes d’utilisations des terres et les objectifs recherchés diffèrent. Les méthodes de gestion des feux à base communautaire documentées dans cette publication et qui sont appliquées en République Démocratique Populaire Lao (RDP Lao), en Gambie, au Honduras, en Inde, en Chine et en Turquie témoignent d’une réorientation récente qui consiste à abandonner l’action centralisée et dirigée par l’État pour des méthodes de gestion des feux de forêt décentralisées et à base communautaire. Ces méthodes semblent prometteuses, plus efficaces et plus viables à long terme, mais elles ne peuvent donner de résultats que si les populations locales disposent au préalable de suffisamment de droits pour gérer et utiliser les ressources naturelles. Il

apparaît indispensable de prendre des dispositions pratiques pour profiter des possibilités qu'offre la gestion communautaire des feux de forêt et dégager des cadres viables pour mettre en œuvre des initiatives dans ce sens. Cette publication a pour but d'encourager ce genre de dispositions lorsque les circonstances le permettent.

PREÁMBULO

En los últimos años la frecuencia e intensidad de los incendios forestales se han visto considerablemente incrementadas en muchas partes del mundo provocando un impacto mayor en los bosques y en las poblaciones rurales y urbanas y sus economías. Ante el incremento de la ocurrencia de incendios y la disminución de los presupuestos destinados a la supresión de los mismos, las agencias gubernamentales, las organizaciones locales y los usuarios del bosque deben tomar en consideración una gama de soluciones para el manejo del fuego que han sido experimentadas en distintas partes del mundo. Al considerar los enfoques que parten de una participación activa – en particular modo, aquellos en donde las comunidades locales participan y ejecutan actividades de manejo de incendios – las instituciones responsables por el combate a los incendios pueden evitar las dificultades y errores del pasado. Esta publicación presenta algunos estudios de casos que ilustran una serie de escenarios locales en donde se realiza el manejo del fuego, cada uno de los cuales se caracteriza por un conjunto distinto de formas de utilización de la tierra y de resultados deseados. Los enfoques de manejo comunitario del fuego (MCF) de la República Democrática Popular Lao, Gambia, Honduras, India, China y Turquía, que se presentan en esta publicación, ilustran un cambio de dirección reciente; un desplazamiento del manejo del fuego centralizado y estatal, en dirección de formas de manejo descentralizadas y de índole comunitaria. Estos enfoques prometen ser más eficaces y sostenibles que los enfoques convencionales de manejo del fuego y supresión de incendios a largo plazo. Sin embargo, éstos pueden operar de manera eficaz únicamente cuando se han atribuido derechos y medios a las comunidades locales, para que utilicen y manejen sus recursos naturales. Es de fundamental importancia que se emprendan medidas concretas a fin de captar las oportunidades que el manejo comunitario de los fuegos puede ofrecer, así como identificar marcos de trabajo factibles para impulsar estas iniciativas. Se espera que esta publicación sirva para mejorar estas medidas donde sea apropiado.

TABLE OF CONTENTS

	<i>Page</i>
FOREWORD	ii
TABLE OF CONTENTS	iv
PROLOGUE	
Community-based fire management case studies from China, The Gambia, Honduras, India, Lao People’s Democratic Republic and Turkey by David Ganz, Peter Moore and Dominique Reeb	1
CASE STUDIES	
Community-based forest fire management in Wenyime Village, Sanchahe Township, Dayao County, Chuxiong Yi Autonomous Prefecture, Yunnan Province, China by Zhang Lichang, Wu Long, Zhao Yaqiao and Lu Caizhen.....	30
Management of forest fires through the involvement of local communities: The Gambia by Almami Dampha.....	45
El manejo de los incendios forestales y la participación de las comunidades locales por César Augusto Alvarado.....	63
Management of forest fire through local communities: a study in the Bolangir, Deogarh and Sundergarh Districts of Orissa, India by Pritam Kumar Nanda and Pravat Chandro Sutar.....	79
Community-based fire management in Lao People’s Democratic Republic: Past, Present and Future by Sharon London.....	98
Management of forest fires through the involvement of local communities in Turkey by Mustafa Kurtulmuslu and Ekrem Yazici.....	122

PROLOGUE

Community-based fire management case studies from China, The Gambia, Honduras, India, Lao People's Democratic Republic and Turkey

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THE CONTEXT

Fire is a disturbance that has played, and will continue to play, a major role in forest ecosystems throughout the world. In almost all of these ecosystems, humans have altered the natural fire regimes by changing the frequency and intensity of fires. In many parts of the world, local communities are often blamed for what are considered harmful forest fires. This view often encourages fire and forest management institutions to perceive local communities as part of the problem, and certainly not part of the solution. As reflected in these case studies, the underlying reason for the local population's failure to control fires is not a lack of awareness or carelessness but rather a lack of incentives to protect forest resources. Why protect forests when they are owned by the state and utilized by outsiders?

Because local people usually have most at stake in the event of a harmful fire, they should clearly be involved in mitigating these unwanted events. Community-based forest fire management (CBFiM) is increasingly considered a component of participatory community development strategies and forest fire management. In addition, community-based forest management has recognized the integral contribution that CBFiM has to offer participatory forest management. CBFiM promoters have always maintained that there are potential and important linkages among CBFiM, land-use planning, natural resource management and overall community development processes. CBFiM cannot function independently from these other processes.

To varying degrees, governments around the world have begun to adopt collaborative or community-based forest management strategies. The term "community-based" in the context of fire covers a wide spectrum of situations: from potentially forced engagement in an activity (coercion), to free and willing participation in actions that have been developed by the actors themselves (empowerment). The emphasis is not only on community involvement, but also on a community capacity that has been recognized and supported by external agencies (governments, non-governmental organizations [NGOs], projects and others). Such recognition may include supporting an existing indigenous system through formalizing, modifying or otherwise elaborating on it, or instituting new systems. Many of these systems and approaches are

considered more effective in tempering uncontrolled burns, more beneficial to local ecosystems and more cost-efficient over the long term.

There is a large body of knowledge on, and examination of, the definition of communities and community-based approaches in other fields such as anthropology, community-based forest management and other social science disciplines. However, the technical and organizational capacity of communities in relation to managing fire, historically and culturally, is poorly understood and rarely studied. As a result, it is very difficult to transfer lessons from one community to another, in different provinces, nations and regions. This compilation of CBFiM approaches from Lao PDR, The Gambia, Honduras, India, China and Turkey is a valuable first step contributing to the body of knowledge on communities and their fire. Although this step has the potential to identify some general models of CBFiM for others to experiment with in their own countries, the cases' diversity, unique circumstances and varying contexts make it extremely difficult to extrapolate principles, common themes and aspects that would lend themselves to building a transferable model.

Some of the initiatives documented in this compilation, such as the Cooperazione e Sviluppo (CESVI) project in Sayaboury Province, Lao PDR, come from government or donor-initiated projects with a focus on fire prevention and preparedness. As forest fires are not seen as a major threat in most of the ecosystems documented, except for The Gambia, only a portion of these donor-driven and government projects are based solely on forest fire management. Appropriately, most projects consider fire management as one component of broader forest management initiatives. The projects view resource management more holistically and tend to be effective at addressing the root cause of unwanted fires.

More common are instances in which CBFiM has resulted from the formation of community institutions and mechanisms that support more efficient fire management entities (such as the two cases documented from Çal and Bergama in Turkey). Here, the lead institutional transformations occur at the local level, with government and non-governmental agencies accordingly reshaping their own functions away from direct management functions towards more technical and advisory roles. The nature of institutional change varies from place to place, as does the speed at which it occurs. Nonetheless, the movement towards CBFiM as a part of community forestry initiatives in countries such as The Gambia is startling.

The driving forces in this shift to CBFiM are further propelled by overall forest conservation objectives. While acknowledging the roles that governments have played in the past as forest conservators (mainly through the creation of reserves), there is also a growing recognition that government agencies have not ultimately proved the most effective agents for preserving forests. Even where government entities have successfully managed forests for conservation objectives, they have not always done so in the most participatory manner.

Of particular concern are the policing strategies that form the core of most government-sponsored fire management programmes. The institutions required to operate these policing regimes are no longer financially viable, and the principles of state protection they embody actually encourage conflict and thus, paradoxically, more expense. Rather than alleviating forest fire problems, these regimes often increase the scale and magnitude of forest fires. Furthermore, they largely ignore the human dimensions of fire, as well as the positive social and ecological benefits of smaller prescribed and managed fires.

In other countries, the driving force behind CBFiM approaches is indigenous land and/or use rights, including the right to use fire as a management tool. The retention of traditional practices

through adequate empowerment of local populations to manage and use fire is one of the key components of CBFiM that is receiving more international attention. The securing of land and use rights may ultimately help maintain the beneficial uses of managed fires for such objectives as controlling weeds, reducing the impact of pests and disease and generating income from non-timber forest products (NTFPs). The case study presented from Orissa, India, documents the importance of traditional uses of fire for cultivating kendu and mahua flowers. The dearth of documentation on these and other practices threatens to erode the stores of cultural knowledge.

Some elements of CBFiM and other community-based strategies represent a revival and formalization of traditional natural resource management regimes. The authors seek, however, to caution against the overemphasis of this aspect. Although there is consistency in the overall framework (community or *kafoos*)¹ and key actors (leaders, Alkalos² or Muhtars)³ between the pre-colonial use of fire and modern fire regimes (based on fire suppression), present conditions require caution when reintroducing a traditional fire regime. With the current population growth and resulting migratory flows, some communities have become more heterogeneous than they were in the past, and in some cases are subjected to institutional arrangements and power struggles that are not favourable for community-based management activities.

A similar caution is urged in respect to overemphasizing the role and capacity of local communities to fight fires that are larger and of higher intensity than those of the pre-colonial (or pre-suppression) regimes. Given the fire regimes in many parts of the world, communities and their members can be an important, perhaps a pivotal, component but should not shoulder the entire burden for fighting fires.

Several of the CBFiM programmes documented in this compilation occur in remote locations where the government's fire control and suppression approaches are severely hindered by access and response time. In such remote locations, communities have a significant role to play in the prevention and suppression of harmful fires that have a detrimental impact on their lives. Yet again, while CBFiM recognizes the local community's capacity to help prevent catastrophic blazes, the government must not relinquish all responsibility, even in these remote locations. In the event of larger, more intense fires that require significant resources, the community should not bear the sole responsibility for extinguishing them.

Similarly, fire should not be completely excluded from the daily lives of people and the ecology of the landscapes that they inhabit. The case studies illustrate the ways that communities use fire to cultivate crops and NTFPs, to hunt, to create forage and to manage pests and disease (as in the case presented from Honduras). These smaller, intentional fires need to be distinguished from uncontrolled or unwanted fires.

These case studies illustrate examples where communities have a clear role in fire management – in some cases with full responsibility and in others with joint responsibility as co-owners and co-managers of the resource. Moreover, there are a few examples (such as the Community-Controlled State Forests [CCSFs] and community forestry approaches in The Gambia) in which local people legitimately use and manage forests in traditional ways through the establishment of use zones on the periphery of government-owned forests. In these areas, local users are beneficiaries of revenue-generating agreements or recipients of accelerated investments into areas that are directly adjacent to forests. These are all limited forms of community involvement.

¹ Village associations in the Gambia.

² Local village heads in the Gambia.

³ Local village heads in Turkey.

They do, however, at least acknowledge the importance of local communities in protecting and sustainably managing forest resources. More important, these examples provide a stepping stone for transferring the authority of fire management from being a solely government function towards becoming a more collaborative, ecologically coherent and sustainable model.

It is clear that there are many important components involved in fire management at the policy and field levels, many of which are not captured by the case studies documented in this report. A recurring theme is the fundamental question of who should control the use of fire and manage it appropriately. As the world's population has grown, the rural landscape has absorbed millions of people, both indigenous inhabitants and migrants (voluntary and forced). Burgeoning rural communities inevitably compete with internal and external factors for access to natural resources and the right to use fire as a management tool. Thus, increased competition for land, water and forest resources is often an important force driving the need for more clearly defined systems of fire management.

In summary, CBFiM is concerned with ensuring local people's access to, and management of, forest resources. The catalysts behind CBFiM approaches are indigenous land and/or use rights, including the right to use fire as a management tool. The retention of traditional practices is strongly dependent on an adequate level of empowerment of local populations to manage and use fire and forest resources. CBFiM recognizes the human dimensions of fire, as well as the positive social and ecological benefits of smaller prescribed and managed fires. The case studies in this report demonstrate how villagers manage fire for local daily subsistence needs. By placing tighter local controls on how fire is used and reaching clearer consensus on resource use and territorial rights agreements with their neighbours and government agencies, local people can minimize the destructive effects of fire and maximize its benefits.

THE SIX CASE STUDIES

The case studies present unique perspectives and experiences with CBFiM that have emerged simultaneously in different parts of the world. Reflecting the dynamic fire contexts within each country, each of the studies was carried out by a local partner organization. The six cases, their locations, respective emphases and affiliations included the following:

China

The research was conducted by the Center for Community Development Studies (CDS) with technical editing and support from the Regional Community Forestry Training Center for Asia and the Pacific (RECOFTC). CDS is a non-profit institution that aims to promote sustainable community development in China through effective empowerment processes based on community needs. Because its residents had a profound understanding of fire prevention and control, this case study investigated the village of Wenyime, a natural village in Dayao county, Chuxiong Yi Autonomous Prefecture. The village participated voluntarily in fire management with the financial and technical support of government agencies. This collaborative effort between government and local communities achieved significant results and was recently awarded a prize by the Yunnan Provincial Government.

This case demonstrates the importance of linking CBFiM to efforts to alleviate poverty and improve a region's overall living conditions. To remove the incentive to use fire as a land

clearing tool, a key recommendation from this study was the diversification of income sources for rural people.

The Gambia

The Forestry Department, in collaboration with The Gambian–German Forestry Project, investigated three of the five divisions of The Gambia to determine whether community forestry practices have increased the ability of local communities to manage fire more effectively. Fire in The Gambia, as in other countries documented in this series, is the primary local tool for clearing land. Although community forestry practices have not been able to reduce the frequency of forest fires nationwide, there have been some indications that local forest ownership (and/or a sense of ownership) has positively changed attitudes towards collaboration with government agencies. These areas have seen fewer damaging or unwanted fires, suggesting that increased participation and access to forest ownership may lead to more effective fire prevention. This was confirmed by a nationwide comparative survey of villages with and without involvement in community forestry.

The new concept of Community-Controlled State Forests (CCSFs) was introduced in this case study. CCSFs, in which communities are responsible for the management of state-owned lands adjacent to their community forests, demonstrate The Gambia's shift from centralized and state-driven forest fire management towards decentralized and mainly community-based management regimes.

Honduras

Research on CBFiM in Honduras was undertaken by the Forest Protection Department and the National School of Forest Science. As in most of these cases, 99 percent of the forest fires in Honduras are human-caused, mainly for land clearing for agriculture. In general, people view forests as an impediment to agricultural activities, and do not consider the additional income that they may yield. In other areas, fires are used as a means to retard succession, by keeping grasslands in an arrested state suitable for animal foraging. On communal forest lands, which are perceived to have economic value, local people often resort to clearing and burning. When a fire escapes control, the local community is asked to help put it out. Many of local people resent this type of activity because it takes them away from their agricultural activities. Without adequate compensation, there is a feeling that it is not in their best interest to help control fires.

The case study recommends the implementation of training and awareness-raising programmes in the communities. It also recommends the extension of legal independence and jurisdictional rights to the municipal governments so that they can define their own strategies for fire management.

India

Research on CBFiM in Orissa, India, was undertaken by Vasundara, an NGO with extensive involvement in Orissa's forests, and with technical support from the Regional Community Forestry Training Center for Asia and the Pacific (RECOFTC). Vasundara works to improve community–state collaboration and to orient policy towards community-based forest management systems. The local community in this part of India has a strong incentive to protect

forests and prevent or manage forest fires because a significant proportion of the rural population depends on forests for subsistence and income. By focusing the investigation on several diverse districts of Bolangir, Deogarh and Sambalpur in the state of Orissa, the case study offers a wide range of fire/resource management issues including inter-village conflicts, fuelwood collection and budgetary considerations.

This study offers one of the few documented cases in which fire is used by communities to facilitate the collection of NTFPs. It found links between the frequency of fires and the availability of natural resources, the extent of dependency on the resource and the traditional uses of fire for various income-generating activities.

Lao PDR

The research in Lao PDR was performed by a consultant to Project Firefight South East Asia, a global programme of the World Conservation Union (IUCN) and the World Wide Fund for Nature (WWF), working to identify stakeholders, their fire use and management practices and ways to improve fire management. The study provides several examples of CBFiM strategies, primarily from government or donor-initiated projects that focus on fire prevention and preparedness. Many of the key elements necessary for establishing CBFiM already exist in Lao PDR or are in the process of becoming established. Provincial government entities in Sayabouri are relinquishing fire management authority to the district level and maintain an ongoing interest in developing CBFiM as a viable approach in this part of Lao PDR.

Contrasting with this government-sponsored, donor-driven example, another study in Salavan represents a more integrated community forestry approach. From this case, it is concluded that, in order to fulfil commitments and implement collaborative resource management effectively, additional financial and technical support is necessary in Lao PDR.

Turkey

The Ministry of Forestry performed a review of the mechanisms for active community participation in fire management. Variations in these mechanisms depended according to localized socio-economic and political situations (government-driven as against community-driven). Two cases of community involvement, from Çal and Bergama Forest District Directorates, were assessed and compared with fire statistics from five neighbouring villages. Both cases provide solid examples in which the active participation of local people increased the success of forest fire prevention and control measures. The rate of intentional forest fires in Çal and Bergama was 12.1 and 10.8 percent, respectively, while the national average over the last decade was 14 percent. Other statistical claims validate the effectiveness of this community involvement and the two sites are suggested as models to be applied elsewhere in Turkey for further testing on the efficacy of CBFiM approaches.

THE WAY FORWARD

Several conclusions arise from a review of the cases presented here. First, a shift in focus by government and non-governmental agencies towards a supporting technical and advisory role was generally a positive trend in these case studies. Longstanding institutional frameworks for fire control and suppression are increasingly proving inadequate in today's conditions, even in

highly developed countries with large budgets. This widespread fire control model is subject to growing criticism from concerned government foresters and fire managers, academics and people living in and around the forests themselves.

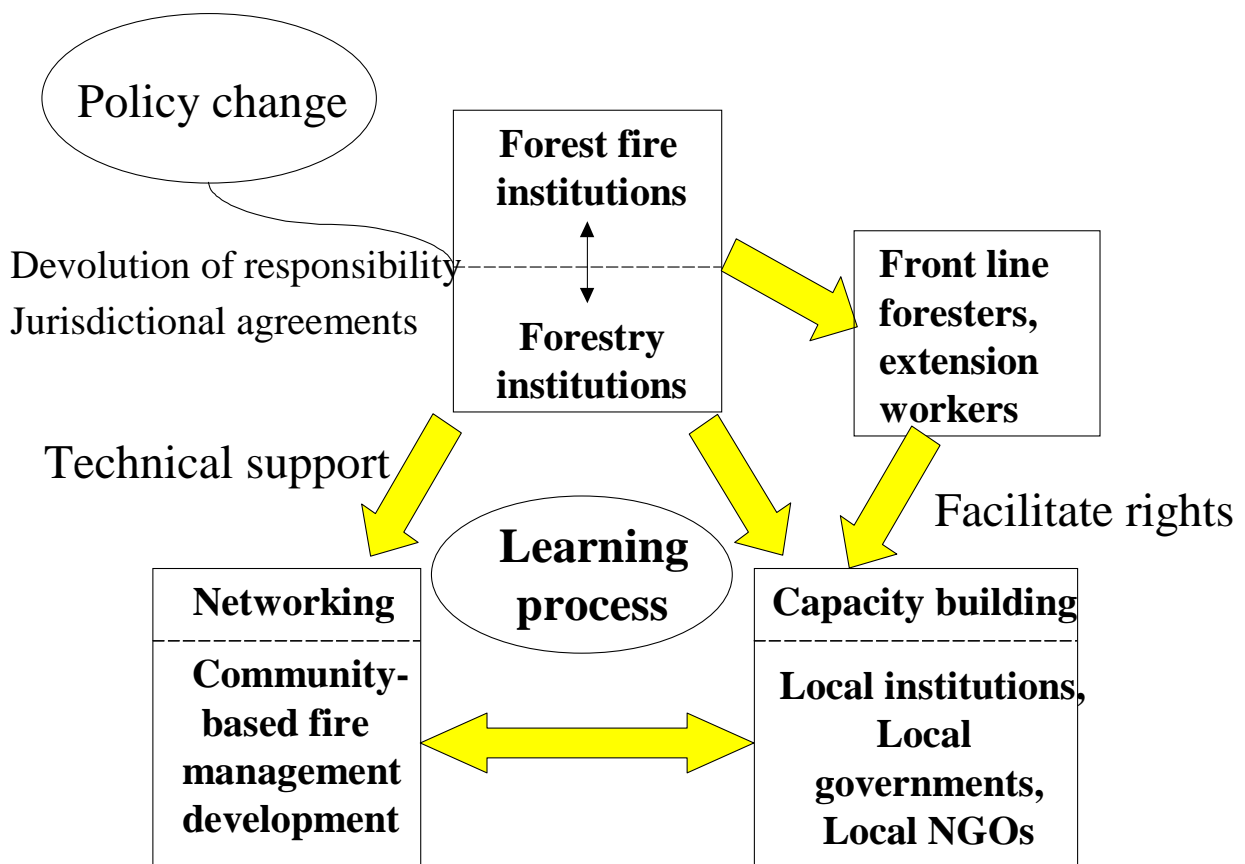
There are very few statistics on the extents or types of forest fires. Although most fires in the developing world are attributed to shifting cultivation, escaped fires for hunting, grazing, gaining access or clearing fields may cause more damage than shifting cultivation. Fire use in the processes of large-scale agriculture and commercial agribusiness activities cannot be identified separately in many cases. Fires used as an expression of social inequity or as a manifestation of inter-village conflict (as in the case study documented in Sundergarh, India) are also rarely distinguished from beneficial fire uses. There is not only a strong and critical need to collect the basic data required to identify and analyse the underlying causes of forest and land fires, but also a need to understand the impact of current institutional frameworks on such fires. Addressing the underlying causes of these fires (e.g. inequitable tenure arrangements and conflict management) can improve the efficacy of fire management. Better accounting is necessary to distinguish between wanted and unwanted or uncontrolled fires (such as the distinctions made in the Turkish and Gambian examples). In order to establish where and when fire is desired, a series of approaches and guidelines are needed that first take into account multiple stakeholders and their diverse interests.

As well as avoiding the potential financial drain of concentrating solely on suppression-focused fire management strategies, a movement towards CBFiM will also help governments to resolve the very conflicts in institutional rights and authority that have inhibited forest conservation and the sustainable utilization of natural resources. The fundamental elements of institutional change needed in fire management include:

- a shift in the locus of control from central government to the local level;
- a change in the institutional framework within which fire management is administered, from state institutions to local institutions (Figure 1);
- a recognition that forests cannot satisfactorily be retained, conserved or managed by governments without considering the potential impacts – positive or negative – of fire on local institutions;
- a change in the conceptual framework (Figure 1) within which fire management is conceived and developed, away from the dominance of state or commercial concerns towards one that acknowledges and supports the capacity of local institutions to plan and manage desired fire collaboratively, while preventing and reducing the destructive effects of unwanted fires;
- a change in the mode of day-to-day forest fire management, away from conflict-inducing regimes of police against user, towards one in which the local user is both self-regulating and partly responsible for protection activities (as in the cases presented from Dayao Country, Yunnan Province, China);
- a shift in forestry and fire management academic/training institutions, away from training foresters and resource managers as technical experts towards training facilitators to broker collaborative management arrangements between villages (as in the case presented from Salavan, Lao PDR), local institutions and government agencies (as in the case presented from The Gambia);

- a range of supporting activities will increasingly be required to invoke institutional change, including: policy reform; enabling legislation; institutional development and capacity building at the most local level; CBFiM authority and implementation; and investment in documentation and public awareness campaigns for communicating the efficacy of these approaches.

FIGURE 1: Country-level analysis with relationships among key actors and how changes in these relationships can lead to positive outcomes for CBFiM⁴



There are ample opportunities to learn from within community forestry and other associated disciplines. The six cases presented here offer a few examples from various regions of the world. There are likely to be numerous other examples in which local communities manage fires for a range of reasons. There was significant diversity in these community-based approaches. In order for CBFiM to progress, it must embrace this diversity and draw out similarities from the different community contexts in which it is found.

In an overall context of decentralization, there is a clear need for countries to determine the best approach to CBFiM through experimentation with local examples. Legal frameworks cannot satisfactorily be amended without the guidance of policy. Moreover, policies themselves will be

⁴ Adapted from Hobley and Shields, 2000. DFID-supported Western Ghats Forestry Project in India.

most productively reconstructed on the basis of example and the clarity of experience, not hypothesis. As with community forestry, CBFiM lacks well-documented cases for driving policy reconstruction. With the aim of addressing this lack, this compilation of case studies provides some practical steps in the shift towards CBFiM.

ACRONYMS

CESVI	Cooperazione e Sviluppo (Cooperation and Development)
CDS	Center for Community Development Studies
CCSFs	Community-Controlled State Forests
NWFP	Non-wood forest products
RECOFT	Regional Community Forestry Training Center for Asia and the Pacific
IUCN	World Conservation Union
WWF	World Wide Fund for Nature

PROLOGUE

Études de cas sur la gestion à base communautaire des incendies de forêt en Chine, en Gambie, au Honduras, en Inde, en République Démocratique Populaire Lao et en Turquie

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CONTEXTE

L'incendie est un phénomène perturbateur qui a joué et continuera de jouer un rôle très important dans les écosystèmes forestiers du monde entier. Dans presque tous ces écosystèmes, l'homme a changé le régime naturel des incendies en modifiant leur fréquence et leur intensité. Dans de nombreuses régions, les communautés locales sont souvent accusées de provoquer des incendies de forêt considérés comme néfastes. Ainsi, les institutions chargées de la gestion des forêts et des incendies sont souvent amenées à considérer les communautés locales comme un élément du problème et non de la solution. Comme le montrent les études, l'incapacité des populations locales à maîtriser les incendies a pour cause profonde non pas l'ignorance ou la négligence mais l'absence d'incitations à protéger les ressources forestières: en effet, pour quelle raison ces populations devraient-elles protéger des forêts qui appartiennent à l'État et sont utilisées par des gens de l'extérieur?

Les populations locales sont en général les premières touchées en cas d'incendie néfaste et devraient donc de toute évidence participer à la lutte contre ces phénomènes indésirables. La gestion à base communautaire des incendies de forêt est de plus en plus considérée comme un élément des stratégies participatives de développement communautaire et de la gestion des incendies de forêt. En outre, on reconnaît que la gestion communautaire des incendies a une contribution à apporter à la gestion participative des forêts et en fait partie intégrante. Les partisans de la gestion communautaire des incendies ont toujours soutenu qu'il existe d'importants liens potentiels entre la gestion communautaire des incendies, la planification de l'utilisation des terres, la gestion des ressources naturelles, et les processus globaux de développement communautaire. La gestion communautaire des incendies de forêt ne peut être mise en œuvre qu'en liaison avec tous ces autres processus.

De façon plus ou moins poussée, les gouvernements du monde entier ont commencé à adopter des stratégies de gestion des forêts à base communautaire ou en collaboration avec les communautés. L'expression "à base communautaire" englobe une vaste gamme de situations dans le cas des incendies: ces situations vont de la participation quasi forcée à une activité

(coercition) à la participation libre et volontaire à des actions conçues par les acteurs eux-mêmes (émancipation). On met l'accent non seulement sur l'intervention des communautés mais aussi sur leurs capacités qui doivent être reconnues et soutenues par des organismes extérieurs (gouvernement, organisations non gouvernementales, projets, etc.). On peut, par exemple, soutenir un système indigène existant en lui donnant un caractère officiel, en le modifiant ou en le perfectionnant; on peut aussi créer de nouveaux systèmes. Bon nombre de systèmes et de méthodes existants sont considérés comme plus efficaces pour limiter les feux non maîtrisés, plus bénéfiques pour les écosystèmes locaux et plus rentables à longue échéance.

Les communautés et les approches à base communautaire ont été largement étudiées par d'autres disciplines sociologiques comme l'anthropologie, la gestion des forêts à base communautaire. Toutefois, les capacités techniques et d'organisation des communautés en matière de gestion des incendies sont mal connues et ont rarement été étudiées d'un point de vue historique et culturel. Il est donc très difficile de transférer les enseignements dégagés d'une communauté à une autre située dans une province, une région ou un pays différent. Cette série d'études sur les méthodes de gestion à base communautaire des incendies de forêt au Laos, en Gambie, au Honduras, en Inde, en Chine et en Turquie constitue une première contribution utile pour connaître les communautés et leur mode de gestion des incendies. Elle devrait permettre d'identifier certains modèles d'intérêt général qui pourraient être mis à l'essai dans d'autres pays mais la diversité des cas, les conditions particulières et les contextes variables ne permettent guère d'établir par extrapolation des principes, des thèmes et des aspects communs qui se prêtent à l'élaboration d'un modèle propre à être reproduit.

Certaines initiatives présentées ici comme le projet de "Cooperazione e Sviluppo" (CESVI) de la province de Sayabouri, (RDP Lao) émanent de projets lancés par le gouvernement ou des donateurs qui sont axés sur la prévention des incendies et la préparation à la lutte. Comme les incendies de forêt ne sont pas considérés comme une menace majeure dans la plupart des écosystèmes étudiés, sauf dans le cas de la Gambie, certains seulement de ces projets sont axés exclusivement sur la gestion des incendies de forêt. La plupart des projets font à juste titre de la gestion des incendies un des volets d'actions de gestion forestière plus larges. Ils ont une optique globale de la gestion des ressources et visent à attaquer efficacement la cause profonde des incendies non désirés.

Dans la majorité des cas, la gestion à base communautaire des incendies s'est mise en place à la suite de la création d'institutions et de mécanismes communautaires qui favorisaient l'organisation de services plus efficaces de gestion des incendies (voir les deux exemples de Çal et de Bergama en Turquie). Les changements institutionnels initiaux se font alors au niveau local et les organismes gouvernementaux et non gouvernementaux se réorientent leur action pour passer de la gestion directe à un rôle plus technique et consultatif. La nature des changements institutionnels varie selon les endroits, comme d'ailleurs le rythme auquel ils se produisent. Néanmoins, l'adoption de la gestion à base communautaire des incendies de forêt dans le cadre d'initiatives de foresterie communautaire constitue un phénomène frappant dans des pays comme la Gambie.

Ce passage à la gestion à base communautaire des incendies de forêt est en outre favorisé par les objectifs généraux de conservation des forêts. Si l'on reconnaît que les gouvernements ont joué dans le passé un grand rôle dans la conservation des forêts (principalement en créant des réserves), on admet aussi de plus en plus qu'en fin de compte les organismes gouvernementaux ne se sont pas révélés les agents de sauvegarde des forêts les plus efficaces. Même les organismes gouvernementaux qui ont bien géré les forêts à des fins de conservation, ne l'ont pas toujours fait sur des bases vraiment participatives.

Il faut porter une attention particulière aux stratégies de maintien de l'ordre qui constituent la base de la plupart des programmes de gestion des incendies parrainés par les gouvernements. Les institutions nécessaires pour appliquer ces régimes de maintien de l'ordre ne sont plus financièrement viables et les principes de protection de l'État dont elles s'inspirent ont paradoxalement pour résultat de favoriser les conflits et donc l'accroissement des dépenses. Au lieu de réduire les problèmes posés par les incendies de forêt, ces régimes ont souvent pour effet d'accroître l'ampleur de ces incendies. En outre, ils négligent généralement les dimensions humaines des incendies ainsi que les avantages sociaux et écologiques positifs que peuvent apporter de petits incendies organisés et bien gérés.

Dans d'autres pays, la gestion à base communautaire des incendies de forêt tire son origine des droits indigènes sur la terre ou sur son utilisation, notamment le droit d'utiliser le feu comme instrument de gestion. Le maintien des pratiques traditionnelles grâce à l'attribution aux populations locales de pouvoirs appropriés de gérer et d'utiliser le feu est l'un des éléments clés de la gestion à base communautaire des incendies de forêt qui suscite de plus en plus d'intérêt au niveau international. L'obtention de droits sur la terre et son utilisation peut en dernier ressort contribuer à maintenir l'utilisation bénéfique de feux dirigés à des fins comme la lutte contre les mauvaises herbes, les ravageurs et les maladies et la création de revenus à partir de produits forestiers non ligneux. L'étude concernant l'État d'Orissa (Inde), expose bien l'importance des emplois traditionnels du feu pour la production de kendu et de fleurs de mahua. L'absence de documentation sur ces pratiques et d'autres du même genre risque de compromettre la sauvegarde des savoirs traditionnels.

Certains éléments de la gestion à base communautaire des incendies de forêt et d'autres stratégies à base communautaire correspondent à une relance et une officialisation des modes traditionnels de gestion des ressources naturelles. Les auteurs notent cependant qu'il ne faudrait pas donner trop d'importance à cet aspect. Même si le cadre global (communauté ou *kafoos*)¹ et les principaux agents (dirigeants, *Alkalos*² ou *Muhtars*)³ de l'emploi du feu pendant la période précoloniale restent en place dans les modes modernes de gestion des incendies (fondés sur la suppression), il faut faire preuve de prudence pour réintroduire un mode traditionnel de gestion des incendies dans les conditions actuelles. À la suite de l'accroissement démographique et des migrations qui s'ensuivent, certaines communautés sont devenues plus hétérogènes et sont parfois dotées de cadres institutionnels ou sujettes à des luttes de pouvoir qui ne favorisent pas les activités de gestion à base communautaire.

Il faut également éviter de surestimer le rôle et les capacités des communautés locales de lutter contre des incendies qui sont aujourd'hui plus importants et plus intenses que pendant la période précoloniale (antérieure à la stratégie de suppression des incendies). Compte tenu des régimes des incendies dans de nombreuses régions du monde, les communautés locales et leurs membres peuvent jouer un rôle important, voire essentiel, dans la lutte contre les incendies mais ne sauraient en assumer entièrement la charge.

Plusieurs programmes de gestion à base communautaire des incendies de forêt présentés ici sont appliqués dans des régions reculées où l'action de lutte contre les incendies des pouvoirs publics est gravement entravée par les problèmes d'accès et les délais d'intervention. Dans ces régions

¹ Associations villageoises de Gambie.

² Chefs de village de Gambie.

³ Chefs de village de Turquie.

reculées, les communautés doivent jouer un rôle important dans la prévention et la suppression des feux nuisibles qui ont un effet néfaste sur leur vie. Cependant, si la capacité des communautés locales de contribuer à éviter des grands incendies catastrophiques est reconnue, le gouvernement ne doit pas abandonner toutes les responsabilités, même dans les régions reculées. Si des incendies plus vastes et plus intenses qui exigent la mobilisation de ressources importantes ont lieu, la communauté concernée ne peut prendre seule la responsabilité de les éteindre.

De même, les feux ne sauraient être entièrement exclus de la vie quotidienne des populations et de l'écologie des zones qu'elles habitent. Les études montrent comment les communautés emploient le feu pour la culture, la collecte de produits forestiers non ligneux, la chasse, la production de fourrage et la lutte contre les ravageurs et les maladies (voir le cas du Honduras). Il faut bien faire la distinction entre ces petits incendies intentionnels et les grands incendies non maîtrisés ou non désirés.

Les études donnent des exemples du rôle précis que les communautés peuvent jouer dans la gestion des incendies – en ayant l'entière responsabilité dans certains cas et en partageant cette responsabilité en qualité de copropriétaire et de co-gestionnaire de la ressource dans d'autres. En outre, il existe quelques exemples (par exemple les forêts domaniales contrôlées par les communautés et les méthodes de foresterie communautaire en Gambie) de populations locales qui utilisent et gèrent légitimement les forêts selon des modalités traditionnelles en créant des zones d'utilisation à la périphérie des forêts domaniales. Dans ces zones, les usagers locaux sont les bénéficiaires d'accords de fourniture de revenus ou d'investissements accélérés dans des zones limitrophes des forêts. Il s'agit là de formes limitées d'intervention des communautés. En outre, ces régimes reconnaissent au minimum l'importance des communautés locales pour la protection et la gestion durable des ressources forestières. L'important, c'est que ces exemples ouvrent la voie au passage du pouvoir de gérer les incendies attribué exclusivement au gouvernement à un modèle de collaboration plus cohérent du point de vue écologique et plus durable.

De toute évidence, de nombreux éléments importants interviennent dans la gestion des incendies au niveau de la politique générale et au niveau du terrain et bon nombre d'entre eux n'apparaissent pas dans les études de cas présentées ici. La question fondamentale de savoir qui doit être maître de l'emploi du feu et le gérer convenablement est abordée à plusieurs reprises. À mesure que la population mondiale augmente, le milieu rural doit accueillir des millions d'êtres humains, indigènes ou migrants (volontaires ou forcés). Les communautés rurales en plein essor font inévitablement concurrence avec les facteurs internes et externes pour avoir accès aux ressources naturelles et au droit d'utiliser le feu comme outil de gestion. Ainsi, la concurrence croissante pour utiliser la terre, l'eau et les ressources forestières contribue souvent fortement à susciter la nécessité d'établir des systèmes mieux définis de gestion des incendies.

En bref, la gestion à base communautaire des incendies de forêt vise à assurer l'accès des populations locales aux ressources forestières et la gestion de ces ressources. Ces méthodes de gestion reposent souvent sur les droits indigènes sur la terre ou sur l'utilisation de la terre, notamment le droit à utiliser le feu comme outil de gestion. Le maintien des pratiques traditionnelles est fortement conditionné par l'attribution aux populations locales d'un pouvoir suffisant de gérer et d'utiliser les incendies et les ressources forestières. La gestion à base communautaire prend en compte la dimension humaine de l'incendie ainsi que l'utilité sociale et écologique des petits incendies délibérés et dirigés. Les études présentées dans ce rapport montrent comment les villageois gèrent le feu pour répondre à leurs besoins de subsistance journaliers. En imposant des contrôles locaux plus rigoureux sur l'utilisation du feu et en réalisant un consensus plus clair sur les accords relatifs à l'utilisation des ressources et aux droits

territoriaux avec leurs voisins et les organismes gouvernementaux, les populations locales peuvent limiter au minimum les effets destructeurs du feu et accroître au maximum son utilité.

LES SIX MONOGRAPHIES

Ces études présentent des conceptions et des expériences originales en matière de gestion à base communautaire des incendies de forêt qui sont apparues simultanément dans diverses régions du monde. Compte tenu de la dynamique des incendies dans chaque pays, chaque étude a été confiée à une organisation partenaire locale. Les six cas suivants sont présentés avec indication de l'endroit concerné, des orientations et des liaisons.

Chine

La recherche a été menée par le Centre d'étude du développement communautaire avec l'appui technique pour la rédaction et le soutien du Centre régional de formation à la foresterie communautaire pour l'Asie et le Pacifique (RECOFTC). Le Centre CDS est un organisme à but non lucratif qui cherche à promouvoir le développement communautaire durable en Chine au moyen de processus d'émancipation réelle fondés sur les besoins des communautés. L'enquête a porté sur Wenyime, village naturel du canton de Dayao, préfecture autonome de Chuxiong Yi parce que ses habitants connaissaient bien la prévention des incendies et la lutte. Le village a participé volontairement à la gestion des incendies avec l'appui financier et technique d'organismes gouvernementaux. Cette collaboration entre les pouvoirs publics et les communautés locales a donné de bons résultats et a récemment obtenu un prix du gouvernement de la province de Yunnan.

Cet exemple démontre combien il est important de lier la gestion à base communautaire des incendies de forêt à l'action visant à atténuer la pauvreté et à améliorer les conditions de vie générales dans une région. Il est recommandé de diversifier les sources de revenus des ruraux afin qu'ils n'aient plus de raison de recourir au feu pour défricher des terres.

Gambie

Le Département des forêts a, en collaboration avec le projet forestier Gambie-Allemagne, mené une enquête dans trois des cinq divisions que compte le pays pour déterminer si les pratiques de foresterie communautaire ont renforcé la capacité de gérer les incendies des communautés locales. En Gambie comme dans les autres pays étudiés dans cette série, le feu est le principal instrument local de défrichage des terres. Même si les pratiques de foresterie communautaire n'ont pas permis de réduire la fréquence des incendies de forêt au niveau national, il semble d'après certains signes que le fait que les populations locales sont propriétaires des forêts (ou aient le sentiment de l'être) a favorisé la collaboration avec les organismes gouvernementaux. Les zones en question ont enregistré un plus petit nombre d'incendies destructeurs ou non désirés de sorte qu'on peut penser que l'accroissement de la participation et l'accès à la propriété des forêts pourraient se traduire par une prévention plus efficace des incendies. Cette idée a été confirmée par une étude comparative à l'échelon national des villages pratiquant la foresterie communautaire ou non.

La notion nouvelle de forêts domaniales contrôlées par les communautés est présentée dans cette étude. Cette formule, selon laquelle les communautés sont responsables de la gestion des terres domaniales limitrophes de leurs forêts communautaires, montre que la Gambie passe d'une gestion des incendies de forêt centralisée et dirigée par l'État à des méthodes de gestion plus décentralisées à base communautaire.

Honduras

Au Honduras les recherches sur la gestion à base communautaire des incendies de forêt ont été effectuées par le Département de la protection des forêts et l'École nationale des sciences forestières. Dans ce pays, comme dans la plupart des autres, 99 pour cent des incendies de forêts sont causés par l'homme, principalement à des fins de défrichement de terres à mettre en culture. En règle générale, les populations considèrent les forêts comme un obstacle aux activités agricoles sans prendre en compte les revenus supplémentaires qu'elles peuvent fournir. Dans d'autres zones, le feu est utilisé pour retarder la régénération de la végétation en maintenant les herbes dans un état stable adapté à l'alimentation animale. Sur les terres boisées communales qui sont considérées comme ayant une valeur économique, les populations locales ont souvent recours à l'abattage et au brûlis. Lorsqu'un incendie échappe à leur contrôle, les communautés locales sont invitées à aider à l'éteindre. Bon nombre d'habitants acceptent mal ce genre de corvée qui les empêche d'exécuter les travaux agricoles. En l'absence de rémunération convenable, ils estiment qu'ils n'ont pas vraiment intérêt à participer à la lutte contre les incendies.

Les auteurs de l'étude recommandent de mettre en œuvre des programmes de formation et de sensibilisation au sein des communautés. Ils recommandent également d'élargir l'indépendance juridique et les droits de juridiction aux autorités municipales afin qu'elles puissent définir elles-mêmes leurs stratégies de gestion des incendies.

Inde

Les recherches concernant la gestion à base communautaire des incendies de forêt dans l'État d'Orissa (Inde) ont été effectuées par Vasundara, ONG qui s'intéresse activement aux forêts de cet État, avec l'appui technique du Centre régional de formation à la foresterie communautaire pour l'Asie et le Pacifique (RECOFTC). Vasundara s'efforce d'améliorer la collaboration entre les communautés et les pouvoirs publics et d'orienter la politique vers des systèmes de gestion forestière à base communautaire. Les communautés locales de cette région de l'Inde sont tout à fait disposées à protéger les forêts et à prévenir ou gérer les incendies de forêt parce qu'une part importante des ruraux tirent leurs produits de base et leurs revenus des forêts. L'étude qui portait sur plusieurs districts de Bolangir, Deogarh et Sambalpur de l'État d'Orissa différents entre eux, traite ainsi d'une large gamme de questions intéressant la gestion des incendies/ressources forestières, notamment les conflits entre villages, le ramassage du bois de feu et les problèmes financiers.

Cette étude présente un des rares cas bien établis d'utilisation du feu par les communautés pour faciliter la collecte de produits forestiers non ligneux. Elle fait ressortir les liaisons entre la fréquence des incendies et les disponibilités de ressources naturelles, le degré de dépendance vis-à-vis de ces ressources et l'utilisation traditionnelle du feu pour diverses activités lucratives.

République Démocratique Populaire Lao

Les recherches au Laos ont été exécutées par un consultant du projet de lutte contre l'incendie en Asie du Sud-Est, programme global de l'Alliance mondiale pour la nature (UICN) et du Fonds mondial pour la nature (WWF) qui a pour objectif d'identifier les parties prenantes, leurs pratiques d'utilisation et de gestion des incendies et les moyens d'améliorer la gestion des incendies. L'étude donne plusieurs exemples de stratégies de gestion à base communautaire des incendies qui proviennent principalement de projets lancés par les pouvoirs publics ou des donateurs qui sont axés sur la prévention des incendies et la préparation à la lutte. Bon nombre des éléments indispensables pour mettre en place ce type de gestion existent déjà ou seront prochainement mis en place au Laos. À Sayabouri les pouvoirs publics provinciaux transfèrent le pouvoir de gestion des incendies aux autorités de district et s'intéressent en permanence à la mise en place de la gestion à base communautaire considérée comme une solution viable dans cette zone du pays.

Une autre étude concernant Salavan présente une approche de foresterie communautaire plus intégrée par opposition aux projets lancés par les pouvoirs publics et les donateurs. L'étude conclut que, pour tenir les engagements et bien mettre en œuvre la gestion coopérative des ressources, un appui financier et technique supplémentaire est nécessaire au Laos.

Turquie

Le Ministère des forêts a passé en revue les mécanismes de participation active des communautés à la gestion des incendies. Ces mécanismes varient en fonction de la situation socio-économique et politique locale (action lancée par le gouvernement ou par la communauté). Deux cas de participation des communautés dans les directions des districts forestiers de Çal et Bergama ont été évalués et comparés avec les statistiques d'incendie de cinq villages voisins. Ce sont deux excellents exemples de participation active des populations locales propre à améliorer l'effet des mesures de prévention et de lutte contre les incendies de forêt. Le taux d'incendies de forêt volontaires s'établissait à 12,1 et 10,8 pour cent respectivement à Çal et à Bergama, contre une moyenne nationale de 14 pour cent sur les dix dernières années. D'autres statistiques confirment l'efficacité de cette participation des communautés et les deux sites pourraient servir de modèle à imiter dans d'autres régions de Turquie pour vérifier l'efficacité de la gestion à base communautaire des incendies de forêt.

L'AVENIR

L'examen des cas présentés ici permet de formuler diverses conclusions. En premier lieu, la plupart des études font ressortir une tendance positive des gouvernements et des organismes non gouvernementaux à s'orienter vers un rôle d'appui technique et de conseil. Les cadres institutionnels de lutte contre l'incendie établis depuis longtemps se révèlent de plus en plus mal adaptés à la situation actuelle, même dans les pays très développés disposant de budgets considérables. Ce modèle de lutte contre les incendies largement adopté suscite de plus en plus de critiques de la part des forestiers et des spécialistes des incendies des services publics, des universitaires et des habitants des forêts et de leurs environs.

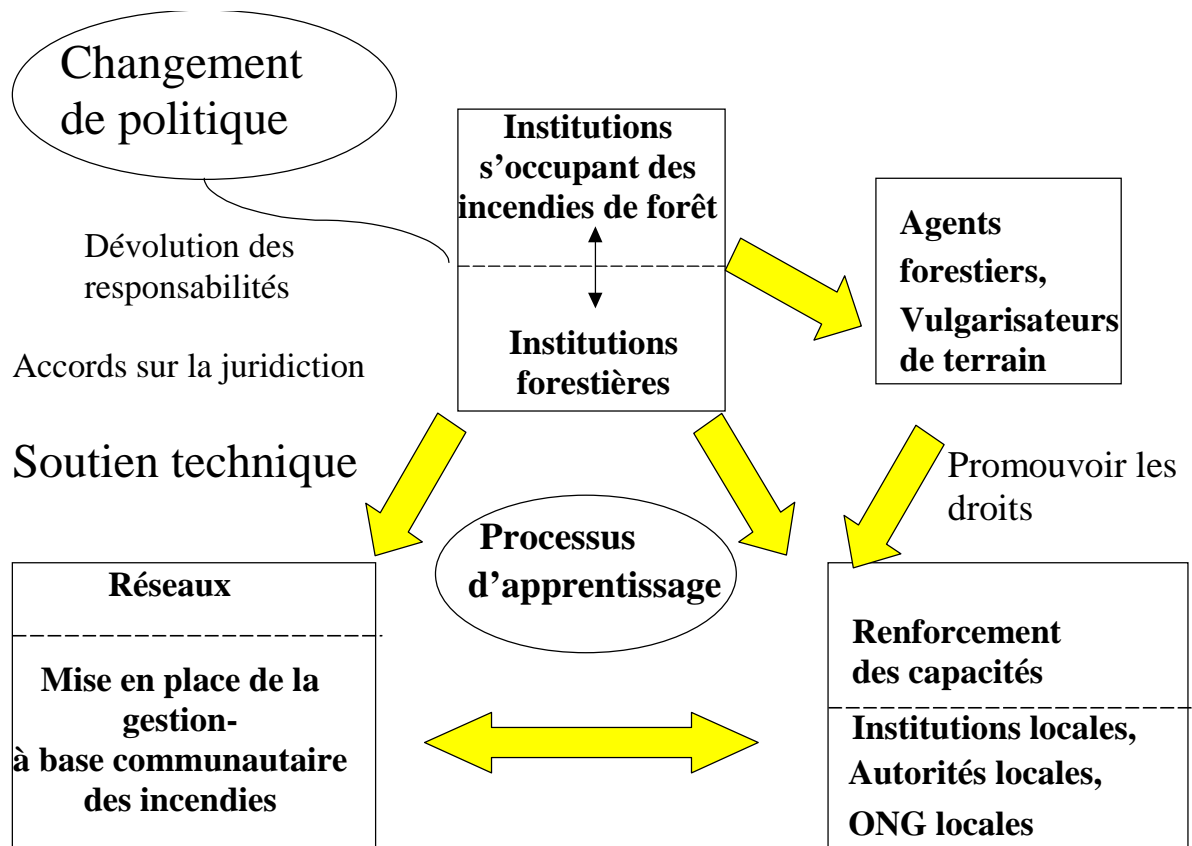
Il existe très peu de statistiques sur l'ampleur ou les types des incendies de forêt. La plupart des incendies survenant dans les pays en développement sont attribués à la culture itinérante, mais

les feux allumés à des fins de chasse, de pâturage, d'ouverture d'accès ou de défrichage qui échappent à leurs auteurs, provoquent peut-être plus de dégâts que la culture itinérante elle-même. Il n'est souvent pas possible d'identifier séparément les incendies provoqués par les processus de grande agriculture et d'agriculture commerciale. Les feux qui sont la manifestation d'iniquités sociales ou de conflits entre villages (comme à Sundergarh en Inde) sont aussi rarement distingués des incendies à effet bénéfique. Il est absolument nécessaire de rassembler les données de base requises pour identifier et analyser les causes profondes des incendies de forêt et de champs, mais aussi de comprendre l'influence des cadres institutionnels existants sur ces épisodes. La gestion des incendies peut gagner en efficacité si l'on s'attaque aux causes profondes de ces incendies (par exemple régimes fonciers et gestion des conflits inévitables). Il est nécessaire d'améliorer la collecte des données pour distinguer les incendies désirés et non désirés ou non contrôlés (comme cela est fait en Turquie et en Gambie). Pour établir où et quand un incendie est désiré, il est nécessaire d'établir une série d'approches et d'orientations qui prennent d'abord en compte les multiples parties intéressées et leurs intérêts différents.

Tout en évitant les charges financières que pourrait entraîner l'application exclusive de stratégies de gestion des incendies de forêt axées sur la suppression, le passage à la gestion à base communautaire pourrait aussi aider les gouvernements à résoudre précisément les conflits de droits et de pouvoirs entre institutions qui ont entravé la conservation des forêts et l'utilisation durable des ressources naturelles. Les changements essentiels à apporter aux institutions sont les suivants:

- un transfert des pouvoirs du gouvernement national au niveau local;
- une modification du cadre institutionnel dans lequel la gestion des incendies est administrée avec passage des institutions d'État aux institutions locales (figure 1);
- reconnaître que les forêts ne peuvent être maintenues, sauvegardées ou gérées de façon satisfaisante par les gouvernements sans tenir compte des impacts potentiels – positifs ou négatifs – des incendies sur les institutions locales;
- modification du cadre théorique (figure 1) dans lequel la gestion des incendies est conçue et mise en place avec passage de la prédominance de l'État ou des intérêts commerciaux à une conception qui reconnaît et appuie la capacité des institutions locales à planifier et gérer les incendies désirés en collaboration tout en prévenant et réduisant les effets destructeurs des incendies non désirés;
- une modification du régime de gestion quotidienne des incendies de forêt avec passage de régimes de maintien de l'ordre au détriment des usagers qui suscitent des conflits, à un régime selon lequel les usagers locaux réglementent leurs propres activités et sont en partie responsables de la protection (cas du canton de Dayao, province de Yunnan, Chine);
- une réorientation des institutions d'enseignement/de formation à la foresterie et à la gestion des incendies qui, au lieu de former des techniciens forestiers et gestionnaires de ressources, formeraient des médiateurs qui assureraient la promotion des accords de collaboration entre les villages (cas de Salavan, RDP Lao), les institutions locales et les organismes gouvernementaux (cas de la Gambie);
- la modification des institutions devra de plus en plus s'appuyer sur des activités complémentaires: réforme des politiques; législation; renforcement des institutions et des capacités au niveau local de base, pouvoirs en matière de gestion à base communautaire des incendies de forêt et mise en application; enfin, financement d'études et de campagnes de sensibilisation du public pour faire bien comprendre l'efficacité de ces méthodes.

FIGURE 1: Analyse au niveau national: rapports entre les acteurs principaux et résultats positifs que les modifications de ces rapports peuvent avoir pour la gestion sur des bases communautaires des incendies de forêt⁴



Il y a de nombreuses leçons à tirer de la foresterie communautaire elle-même et des disciplines connexes. Les six cas présentés ici offrent quelques exemples choisis dans diverses régions du monde. Il existe sans doute de nombreux autres exemples de gestion des incendies par les communautés locales pour diverses raisons. Les méthodes de gestion à base communautaire sont très variables. Afin de progresser, la gestion à base communautaire des incendies de forêt doit tenir dûment compte de cette variété et dégager les éléments analogues présents dans les contextes différents des communautés.

Dans un contexte général de décentralisation, il est évidemment nécessaire que les pays déterminent la meilleure approche à ce type de gestion en faisant des expériences au niveau local. Il n'est pas possible de modifier les cadres juridiques de façon satisfaisante en l'absence d'une politique d'orientation générale. En outre, il est préférable que les politiques soient elles-mêmes réaménagées sur la base d'exemples et d'expériences claires et non d'hypothèses. Comme dans le cas de la foresterie communautaire, il n'existe pas de documentation solide propre à servir de base au réaménagement des politiques en matière de gestion communautaire des incendies de forêt. Pour combler cette lacune, le présent recueil d'études de cas constitue une contribution pratique à l'adoption de ce type de gestion des incendies de forêt.

⁴ D'après Hobley et Shields, 2000. Projet forestier dans les Ghats occidentaux (Inde) soutenu par le DFID.

LISTE D'ACRONYMES

CESVI	Cooperazione e Sviluppo (Cooperation et développement)
CDS	Center for Community Development Studies (Centre pour les études du développement communautaire)
RECOFT	Regional Community Forestry Training Center for Asia and the Pacific (Centre regional de formation à la foresterie communautaire pour l'Asie et le Pacifique)
UICN	Alliance mondiale pour la nature
WWF	Fond mondial pour la nature

PRÒLOGO

Estudios de caso sobre el manejo comunitario de incendios en China, Gambia, Honduras, India, la República Democrática Popular Lao y Turquía

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EL CONTEXTO

Los incendios constituyen un problema que ha desempeñado y seguirá desempeñando un papel importante en los ecosistemas forestales en todo el mundo. En casi todos estos ecosistemas, los seres humanos han alterado el orden natural de los incendios, cambiando la frecuencia e intensidad de los mismos. En muchas partes del mundo, se suele atribuir a las comunidades locales la responsabilidad de provocar incendios forestales perjudiciales. Esta consideración a menudo impulsa a las instituciones de manejo forestal y de manejo de incendios, a percibir a las comunidades locales como parte del problema, y no ciertamente, como parte de la solución. Según refleja el presente estudio de casos, la causa subyacente del fallido control de incendios por parte de la población no obedece a la falta de conciencia o atención, sino a la falta de incentivos para proteger los recursos forestales. ¿Por qué proteger los bosques, cuando estos pertenecen al estado o son utilizados por personas o entidades externas?

Dado que las poblaciones locales suelen correr un considerable riesgo en caso de incendios perjudiciales, son las poblaciones mismas quienes deberían poder participar a la hora de mitigar estos incidentes indeseables. El manejo comunitario de incendios es considerado cada vez más, como un componente de las estrategias de desarrollo participativas y de manejo de incendios forestales. Además, el manejo forestal comunitario reconoce la índole integral de la contribución que el manejo comunitario de incendios presta al manejo forestal participativo. Los promotores del manejo comunitario de incendios siempre han sostenido que existen nexos importantes y potenciales entre el manejo forestal comunitario, la planificación del uso de la tierra, el manejo de los recursos naturales y los procesos de desarrollo comunitario en general. El manejo comunitario de incendios no puede funcionar de manera independiente respecto a estos demás procesos.

Los gobiernos en todo el mundo, y con las debidas diferencias, han comenzaron a adoptar estrategias de manejo forestal colaborativas o comunitarias. El término “comunitario” en el contexto de los incendios abarca una amplia gama de situaciones: que van desde la probable participación forzada (coerción), a la libre y voluntaria participación en actividades que los actores mismos llevan a cabo (atribución de poderes y medios). El hincapié en este caso no sólo

reside en la participación de la comunidad, sino también en la capacidad que posee una comunidad que ya fue reconocida y apoyada por las instituciones externas (gobiernos, organizaciones no gubernamentales, proyectos y demás). Tal reconocimiento puede comprender el apoyo al sistema indígena existente, o puede realizarse mediante la formalización, modificación o reelaboración del mismo, o a través del establecimiento de sistemas nuevos. Se considera que muchos de estos sistemas y enfoques son más eficaces para mitigar las quemadas incontroladas, siendo más beneficiosos para los ecosistemas locales y más eficaces desde el punto de vista económico a largo plazo.

Existe un vasto conjunto de conocimientos, así como un amplio examen de la definición que se hace de las comunidades y de los enfoques comunitarios en otros campos, como la antropología, el manejo forestal comunitario y otras disciplinas de las ciencias sociales. Sin embargo, la capacidad técnica y organizativa de las comunidades en relación con el manejo de los incendios, desde los puntos de vista histórico y cultural es poco conocida y es raramente estudiada. En consecuencia, es muy difícil transferir los conocimientos y el aprendizaje de lecciones de una comunidad, a otra, en distintas provincias, naciones y regiones. Esta recopilación de enfoques de manejo comunitario de incendios de la República Democrática Popular Lao, Gambia, Honduras, India, China y Turquía es un valioso paso inicial que enriquece el conjunto de conocimientos que existen sobre las comunidades y los incendios. Aunque este paso encierra el potencial de identificar algunos de los modelos generales que existen sobre el manejo comunitario de incendios, a fin de que los demás puedan ponerlos en práctica en sus respectivos países, la diversidad que caracteriza a los casos, circunstancias únicas y contextos variados vuelven ardua la extrapolación de principios, temas y aspectos comunes que se presten a la elaboración un modelo transferible.

Algunas de las iniciativas que se documentan en esta recopilación, tales como el proyecto de la entidad Cooperación y Desarrollo (CESVI), realizado en la Provincia de Sayabouri, República Democrática Popular de Lao, forman parte de proyectos gubernamentales o promovidos por donantes y están enfocados en la prevención y alerta de incendios. Dado que los incendios forestales no se consideran como una amenaza tan grande para la mayoría de los ecosistemas documentados, a excepción de Gambia, sólo una parte de estos proyectos gubernamentales, o promovidos por donantes, se basa exclusivamente en el manejo de incendios forestales. Mejor aún, la mayoría de los proyectos consideran el manejo de incendios como un componente de las iniciativas de manejo forestal más amplias. Dichos proyectos consideran el manejo de los recursos de manera holística y tienden a ser eficaces en cuanto al tratamiento de las causas de los incendios involuntarios.

Los ejemplos de manejo comunitario de incendios más comunes, son aquellos que derivan de la creación de instituciones comunitarias, así como de mecanismos de apoyo para un manejo de incendios más eficaz (tales como los dos casos que se documentan en las localidades de Çal y Bergama en Turquía). En estos casos, las principales transformaciones institucionales se verifican en el ámbito local, mientras que las agencias gubernamentales y no gubernamentales reorganizan sus propias funciones de conformidad, alejándose de una función de manejo directo para asumir papeles más técnicos y consultivos. La naturaleza de los cambios institucionales varía de lugar a lugar, así como la rapidez con la cual los cambios ocurren. Sin embargo, el desplazamiento en dirección del manejo comunitario de incendios, como parte de las iniciativas forestales comunitarias en países como Gambia ya se puso en marcha.

Las fuerzas promotoras de este desplazamiento en dirección del manejo comunitario de incendios cobraron mayor impulso gracias a los objetivos de conservación en su conjunto. Mientras que se reconoce el papel que los gobiernos desempeñaron en el pasado, en cuanto a la

conservación de los bosques, (principalmente a través de la creación de reservas naturales), también existe cada vez más conciencia de que las entidades gubernamentales no demostraron ser los agentes más eficaces para la conservación de los bosques. Aún en los lugares en donde las entidades gubernamentales han logrado manejar los bosques con el fin de conservarlos, éstas no siempre lo hicieron de manera participativa.

Las estrategias de vigilancia que forman el núcleo de la mayoría de los programas de manejo, patrocinados por los gobiernos, son objeto de particular preocupación. Las instituciones que deben administrar estos sistemas de vigilancia dejaron de ser factibles desde el punto de vista económico y los principios de protección estatal que estos encarnan, alimentan los conflictos y, paradójicamente, incrementan los gastos. En lugar de mitigar las dificultades que crean los incendios forestales, estos sistemas a menudo incrementan la magnitud y escala de los incendios mismos. Además, estos ignoran ampliamente el papel que desempeña la dimensión humana en los incendios, así como los beneficios sociales y ecológicos que conllevan los incendios prescritos y controlados.

En otros países, las fuerzas que impulsan los enfoques de manejo comunitario de incendios son los derechos indígenas de propiedad y uso de la tierra, entre ellos, el derecho a utilizar el fuego como instrumento de manejo forestal. La persistencia de las prácticas tradicionales, a través de la capacitación y habilitación adecuada de las poblaciones locales para que manejen y utilicen el fuego, constituye uno de los componentes fundamentales del manejo comunitario de incendios, que está captando cada vez más atención en el ámbito internacional. Garantizar los derechos a la propiedad y uso de la tierra puede contribuir a mantener el uso beneficioso de los incendios controlados con fines de desyerbe, reducción del impacto de las plagas y enfermedades, así como de generación de ingresos a partir de productos forestales no madereros (PFNM). El caso proveniente de Orissa, India, documenta la utilización tradicional de los incendios para favorecer la floricultura, cual la producción de flores de kendu y mahua. La falta de documentación de esta y de otras prácticas similares amenaza con desgastar el acervo cultural y cognitivo.

Algunos elementos del manejo comunitario de incendios y de otras estrategias de índole comunitaria constituyen un resurgimiento y formalización de sistemas indígenas de manejo de recursos naturales. Sin embargo, los autores se proponen alertar sobre los riesgos que conlleva un excesivo hincapié en este aspecto. Aunque existe coherencia en el marco general (comunidad o *kafoos*)¹, y los actores principales (dirigentes, *Alkalos*² o *Muhtars*)³; entre el uso de los incendios antes de la colonización y los sistemas actuales (basados en la supresión de incendios), las condiciones actuales requieren de precaución cuando se trata de volver a introducir los sistemas tradicionales de uso de incendios. Debido al actual crecimiento de la población y a los consiguientes flujos migratorios, algunas comunidades se han vuelto más heterogéneas de lo que eran y en algunos casos, se encuentran sujetas a arreglos institucionales y a luchas de poder que no favorecen a las actividades de manejo comunitario.

Se requiere de una precaución similar respecto a un excesivo hincapié en el papel y capacidad que poseen las comunidades locales para combatir los incendios más vastos y de mayor intensidad, respecto a aquellos de índole precolonial (o anteriores a la práctica de la supresión de incendios). Dado que existen sistemas que utilizan el fuego en distintas partes del mundo, las comunidades y sus miembros pueden ser un componente importante y clave, pero todo el peso de la lucha contra incendios no debería descansar en las comunidades.

¹ Asociaciones de aldea en Gambia.

² Dirigentes de aldea en Gambia.

³ Dirigentes de aldea en Turquía.

Varios programas de manejo comunitario de incendios, documentados en esta recopilación, se llevaron a cabo en lugares remotos en donde los enfoques gubernamentales de control y supresión de incendios se encuentran gravemente amenazados, debido al tiempo que se requiere para acudir y responder a la emergencia. En localidades remotas como esas, las comunidades tienen un papel importante que desempeñar para prevenir y apagar incendios perjudiciales que tienen un impacto negativo en sus vidas. Aún más, mientras el manejo comunitario de incendios reconoce la capacidad que la comunidad local tiene para ayudar a prevenir el surgimiento de incendios, el gobierno no debe delegar toda la responsabilidad, aún en estas localidades remotas. En el caso de incendios más vastos e intensos, es necesario contar con notables recursos y la comunidad no debe cargar sola con toda la responsabilidad de extinguir los incendios.

De manera similar, los incendios no deberían excluirse del todo, de la vida cotidiana de la población, ni de la ecología del ambiente que estos habitan. El estudio de casos ilustra las formas en que las comunidades utilizan el fuego para preparar la tierra y sembrar cultivos y productos forestales no madereros, para cazar u obtener forraje y para manejar las plagas y enfermedades (según puede observarse en el caso de Honduras). Estos pequeños incendios intencionales deben distinguirse respecto a los incendios involuntarios e incontrolados.

Este estudio de casos ilustra ejemplos en donde las comunidades tienen un evidente papel en el manejo de incendios – en algunos casos siendo plenamente responsables, y en otros compartiendo la responsabilidad con otros dueños o gestores conjuntos de los recursos. Además existen algunos ejemplos (tales como los bosques estatales manejados por las comunidades y los enfoques de forestería comunitaria de Gambia) en los cuales la población local utiliza y maneja los bosques con plena legitimidad, por medio de métodos tradicionales y a través del establecimiento de zonas de uso en la periferia de los bosques de propiedad estatal. En estas áreas los usuarios locales son beneficiarios de acuerdos sobre actividades generadoras de ingresos o reciben fuertes inversiones en áreas que se encuentran adyacentes a los bosques. Todas éstas son formas limitadas de participación comunitaria. Sin embargo, estas al menos reconocen la importancia que las comunidades locales tienen respecto a la protección y manejo sostenible de los recursos forestales. Aún más importante es que estos ejemplos proporcionan un peldaño para transferir la autoridad sobre el manejo de incendios, la cual deja de ser únicamente una función del gobierno, para transformarse en un modelo de mayor colaboración, coherente desde el punto de vista ecológico y más sostenible.

Es evidente que existen muchos componentes importantes del manejo de incendios que forman parte del ámbito de las políticas y del ámbito de terreno; muchos de esos aspectos no figuran en el estudio de casos documentado en este informe. Un componente recurrente consiste en el tema fundamental de quién debería controlar el uso de los incendios y manejarlos de manera apropiada. A medida que la población mundial creció, el ámbito rural ha absorbido millones de personas, tanto habitantes indígenas, como migrantes (voluntarios y forzados). Proliferan comunidades rurales compiten inevitablemente con los factores externos e internos para tener acceso a los recursos naturales y al derecho de utilizar los incendios controlados como instrumento de manejo. En consecuencia, la creciente competencia por la tierra, el agua y los recursos forestales, a menudo, es una importante fuerza que guía la necesidad de contar con sistemas mejor definidos de manejo de incendios.

En resumen, el manejo comunitario de incendios se preocupa por garantizar que la población local tenga acceso a los recursos forestales y al manejo de los mismos. Los elementos catalizadores que respaldan los enfoques de manejo comunitario de incendios son los derechos

de propiedad y/o uso de la tierra, entre ellos el derecho a utilizar los incendios como instrumento de manejo. La preservación de las prácticas tradicionales depende en gran medida del grado de capacidad con que cuentan las poblaciones locales para manejar y utilizar los recursos forestales. El manejo comunitario de incendios reconoce el papel de la dimensión humana en los incendios, así como los beneficios sociales y ecológicos que tienen los pequeños incendios prescritos, utilizados como instrumentos de manejo. El estudio de casos que figura en este informe demuestra cómo los aldeanos manejan los incendios con fines de subsistencia cotidiana. Al ejercer un control local más estricto en cuanto al uso de los incendios y al lograr un consenso más evidente acerca del uso de los recursos y respecto a los acuerdos en materia de derechos sobre el territorio, en relación con sus vecinos y los organismos gubernamentales, la población local puede restringir los efectos destructivos de los incendios e incrementar al máximo sus beneficios.

EL ESTUDIO DE SEIS CASOS

El estudio de casos presenta perspectivas y experiencias únicas de manejo comunitario de incendios que surgieron de manera simultánea en distintas partes del mundo. Como reflejo de los contextos tan dinámicos que caracterizan al tema de los incendios en cada país, cada uno de los estudios fue realizado por un organización local. Los seis casos, sus localidades, el hincapié y las afiliaciones respectivas comprenden:

China

La investigación fue realizada por el Centro para los estudios de desarrollo comunitario, (CDS) y contó con la edición técnica y el apoyo del Centro Regional de Capacitación en Forestería Comunitaria para Asia y el Pacífico, (RECOFTC). CDS es una institución sin fines de lucro que promueve el desarrollo comunitario sostenible en China, mediante procesos de capacitación eficaces basados en las necesidades comunitarias. Dado que los habitantes tienen un profundo conocimiento acerca de la prevención y el control de incendios, este caso se propuso realizar la investigación en Wenyime, una aldea del condado de Dayao, de la Prefectura autónoma de Chuxiong Yi. La aldea participó voluntariamente en el manejo de incendios y contó con el apoyo financiero y técnico de las agencias gubernamentales. Este esfuerzo de cooperación entre el gobierno y las comunidades locales logró resultados considerables y fue galardonado recientemente con un premio por el gobierno provincial de Yunnan.

Este caso demuestra cuán importante es establecer un nexo entre el manejo comunitario de incendios, los esfuerzos de mitigación de la pobreza y el mejoramiento, en general, de las condiciones de vida en la región. A fin de desalentar la utilización de los incendios como instrumento de desboscamiento del terreno, el estudio arrojó una recomendación clave que consiste en diversificar las fuentes de ingresos de la población rural.

Gambia

El Departamento forestal, en colaboración con el proyecto forestal gambiano-alemán, investigó tres de las cinco divisiones del país para determinar si las prácticas de forestería comunitaria han incrementado la habilidad de las comunidades locales para manejar los incendios de manera más eficaz. Los incendios en Gambia, así como en otros países documentados en esta recopilación, constituyen el principal instrumento local para desboscar el terreno. Aunque las prácticas de forestería comunitaria no han sido capaces de reducir la frecuencia de los incendios forestales en

todo el país, existen evidencias de que la propiedad local de los bosques (y/o cierto grado de propiedad) hizo cambiar, de manera positiva, las actitudes de colaboración de las comunidades para con las agencias gubernamentales. Estas áreas se han visto menos afectadas por incendios involuntarios y perjudiciales, haciendo suponer que el incremento de la participación y el acceso a la propiedad de los recursos forestales pueden conducir a una prevención de incendios más eficaz. Esta tendencia se confirmó gracias a una encuesta nacional comparativa, realizada entre las aldeas involucradas en la forestería comunitaria y aquellas que no lo estaban.

El nuevo concepto de Bosques estatales manejados por la comunidad (CCSFs) fue introducido en este caso. Este concepto, según el cual las comunidades son responsables del manejo de las tierras de propiedad estatal adyacentes a sus bosques comunitarios, demuestra que Gambia se desplazó de un manejo centralizado promovido por el gobierno, hacia un sistema de manejo descentralizado y principalmente comunitario.

Honduras

La investigación sobre el manejo comunitario de incendios en Honduras fue realizada por el Departamento de protección forestal de la Administración Forestal del Estado y por la Escuela Nacional de Ciencias Forestales. Como sucede en la mayoría de los casos, el 99 por ciento de los incendios forestales en Honduras obedecen a causas antropogénicas, sobre todo debido a las actividades de desboscamiento para la agricultura. En general, la gente considera los bosques como un obstáculo para las actividades agrícolas, y no toman en consideración los ingresos suplementarios que éstos pueden rendir. En otras áreas, los incendios se utilizan como medios para retardar la regeneración, manteniendo los pastos en un estado apropiado para producir forraje para los animales. En las tierras boscosas comunales, consideradas como tierras con valor económico, la población local a menudo desbosca y quema. Cuando los incendios escapan fuera de control, se solicita a la comunidad local que ayude a apagarlo. Muchos se resienten por este tipo de actividad dado que los aleja de sus actividades agrícolas. Si no existe una compensación adecuada, la población considera que controlar los incendios no es de su interés.

El estudio de este caso recomienda que se lleven a cabo programas de capacitación y concientización en las comunidades. Asimismo, recomienda que se extiendan derechos de jurisdicción e independencia a los gobiernos municipales, de manera que estos puedan definir sus propias estrategias de manejo de incendios.

India

La investigación sobre manejo comunitario de incendios en Orissa, India, fue realizada por Vasundara, una organización no gubernamental que cuenta con una trabajo extenso en los bosques de Orissa, y con el apoyo técnico del Centro Regional de Capacitación en Forestería Comunitaria para Asia y el Pacífico (RECOFTC). Vasundara trabaja para mejorar la colaboración entre la comunidad y el estado y para orientar las políticas en dirección de sistemas de manejo comunitarios. La comunidad local en esta parte de la India cuenta con un fuerte incentivo para proteger los bosques y prevenir o manejar los incendios forestales, dado que una proporción considerable de la población depende de los bosques para su subsistencia e ingresos. Al enfocar la investigación en varios y distintos distritos de Bolangir, Deogarh y Sambalpur en el estado de Orissa, este caso ofrece una amplia gama de temas sobre el manejo de recursos/incendios que comprenden los conflictos entre aldeas, la recolección de leña y las consideraciones de índole presupuestaria.

Este caso ofrece uno de los pocos ejemplos documentados, en donde los incendios son utilizados por las comunidades para facilitar la recolección de productos forestales no madereros. El estudio identificó nexos entre la frecuencia de los incendios y la disponibilidad de los recursos naturales, el grado de dependencia que se tiene del recurso y los usos tradicionales de los incendios para varias actividades de generación de ingresos.

La República Democrática Popular Lao

La investigación en la República Democrática Popular Lao fue realizada por un consultor del Proyecto de combate contra incendios de Asia Sudoriental, un programa mundial de la Unión Mundial para la Naturaleza (UICN) y del Fondo Mundial para la Naturaleza (WWF), los cuales trabajan para identificar a los actores, el uso que éstos hacen de los incendios y sus prácticas de manejo, así como las maneras de mejorar el manejo de incendios. El estudio proporciona varios ejemplos de estrategias de manejo comunitario de incendios, principalmente de proyectos promovidos por gobiernos o por donantes que se centran en la prevención y medios para afrontar situaciones de emergencia debidas a incendios. Muchos de los elementos claves necesarios para establecer prácticas comunitarias de manejo de incendios existen ya en la República Democrática Popular Lao o se encuentran en vías de establecimiento. Las entidades del gobierno provincial están cediendo la autoridad del manejo de incendios al ámbito de distrito y mantienen un interés continuo en desarrollar el manejo comunitario de incendios como un enfoque factible para esta región de la República Democrática Popular Lao.

En contraste con este ejemplo patrocinado por el gobierno y promovido por los donantes, otro estudio realizado en Salavan ilustra un enfoque más integrado de forestería comunitaria. Al partir de este caso, se concluye que, a fin de cumplir con los compromisos y poner en marcha un manejo de recursos coparticipativo eficaz, es necesario que la República Democrática Popular Lao cuente con apoyo técnico y con financiación suplementaria.

Turquía

El Ministerio de Bosques llevó a cabo una revisión de los mecanismos que existen para lograr una participación comunitaria activa en el manejo de incendios. Las diferencias entre estos mecanismos dependían de las situaciones socioeconómicas y políticas locales (las promovidas por el gobierno respecto a las que impulsa la comunidad). Se tomaron dos casos de participación comunitaria en las juntas directivas de Çal y Bergama del distrito forestal, los cuales fueron evaluados y comparados respecto a las estadísticas de incendios provenientes de cinco aldeas vecinas. Ambos casos proporcionaron ejemplos sólidos en los cuales la participación de la población local incrementó el éxito de las medidas de control y la prevención de incendios forestales. La proporción de incendios forestales intencionales en Çal y Bergama fue de 12.1 y de 10.8 por ciento, respectivamente, mientras que el promedio nacional en el curso del último decenio fue del 14 por ciento. Otros datos estadísticos validan la eficacia de esta participación comunitaria y los dos sitios se sugieren en calidad de modelos a ser aplicados en los demás lugares de Turquía a fin de probar mejor la eficacia de los enfoques de manejo comunitario de incendios.

LA VIA FUTURA

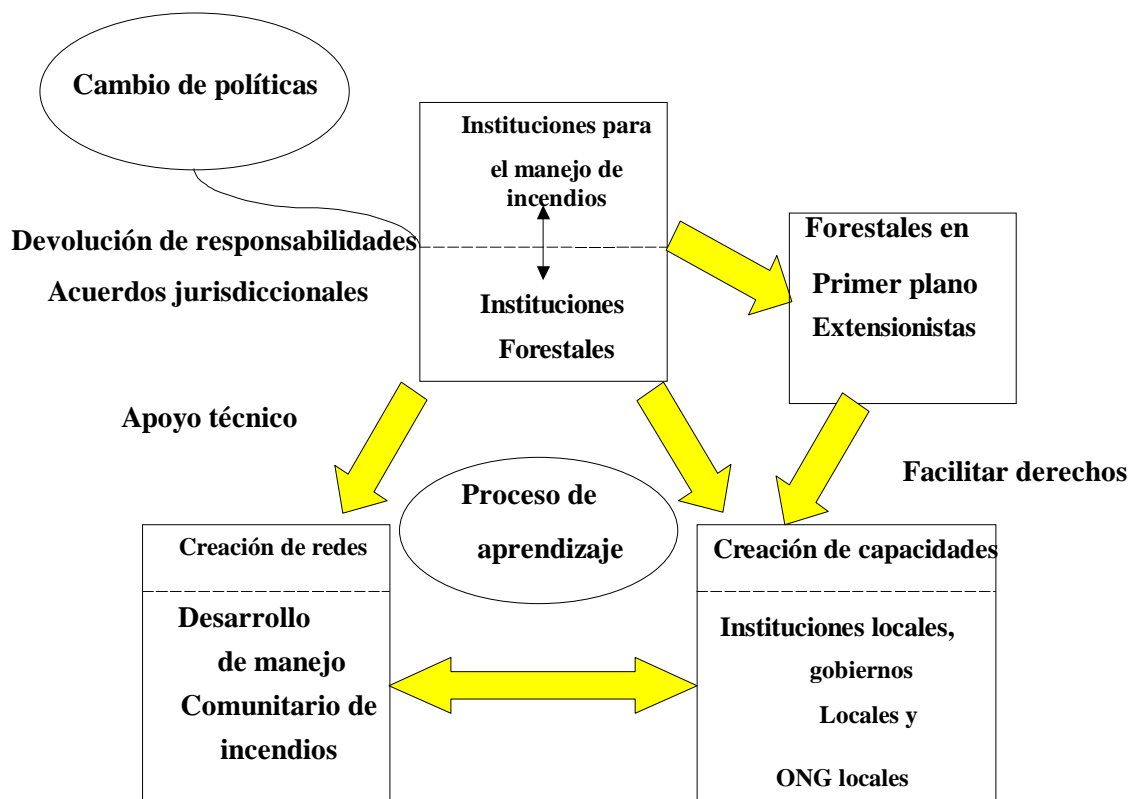
Varias conclusiones emergen a raíz de la revisión de los casos aquí presentados. Primero, el desplazamiento del enfoque de las agencias gubernamentales y no gubernamentales hacia un papel de índole técnica y consultiva, constituyó una tendencia positiva en este estudio de casos. Los viejos marcos de trabajo institucionales para el control y supresión de incendios demuestran ser cada vez más inapropiados para la situación actual, aún en los países desarrollados que cuentan con grandes presupuestos. Este modelo de control de incendios tan difuso se encuentra sujeto a una crítica creciente por parte de los forestales y gestores interesados del gobierno, amén de los académicos y la población que vive en los bosques y alrededor de ellos.

Existen muy pocas estadísticas acerca de la extensión y tipos que caracterizan a los incendios forestales. Aunque la mayoría de los incendios en los países en desarrollo se atribuyen a la agricultura itinerante, los fuegos incontrolados debidos a las prácticas de caza, pastoreo, acceso o desboscamiento pueden causar más daños que la agricultura itinerante. En muchos casos, el uso del fuego en los procesos de agricultura en gran escala y en las actividades de la agroindustria comercial no puede identificarse separadamente. También los incendios que surgen como una expresión de desigualdad social o como una manifestación de conflicto entre aldeas (como lo muestra el caso documentado en Sundergarh, India) se distinguen raramente de la utilización beneficiosa de los fuegos. No sólo existe una fuerte necesidad de recopilar los datos fundamentales necesarios para identificar y analizar cuáles son las causas subyacentes de los incendios forestales y terrestres, sino que además se necesita comprender cuál es el impacto que los marcos institucionales actuales tienen en esos incendios. Las causas subyacentes de estos incendios (por ej. La situación de la tenencia de la tierra y el manejo de conflictos) pueden mejorar la eficacia del manejo de incendios. Se requiere de una mejor contabilidad para distinguir entre las quemas prescritas y los incendios involuntarios e incontrolados (tal como las distinciones hechas en los casos de Turquía y Gambia). Con el fin de establecer cuándo y dónde se propician los incendios, se requiere además, de una serie de enfoques y directrices que primero tomen en cuenta a los diferentes actores y sus distintos intereses.

Asimismo, es necesario evitar la fuga potencial de finanzas cuando se concentra la atención únicamente en las estrategias de manejo de incendios basadas en la supresión de los mismos. Un desplazamiento en dirección del manejo comunitario de incendios también ayudará a los gobiernos a resolver los conflictos que surgen respecto a los derechos institucionales y a la autoridad, entidades que hayan podido inhibir la conservación de los bosques y el uso sostenible de los recursos naturales. Los elementos fundamentales necesarios para un cambio institucional comprenden:

- Un desplazamiento del control, alojado en el gobierno central, hacia el ámbito local;
- Un cambio en el marco de trabajo institucional dentro del cual el manejo de incendios pase de ser administrado por las instituciones estatales, a ser manejado por las instituciones locales (Figura 1);

FIGURA 1: Análisis del ámbito nacional y de las relaciones que existen entre los actores claves y cómo los cambios en estas relaciones pueden conducir a resultados positivos para el manejo comunitario de incendios⁴



- El reconocimiento de que los bosques no pueden ser mantenidos, conservados o manejados de manera satisfactoria por los gobiernos, sin tomar en consideración los impactos potenciales – positivos o negativos – que esos incendios tienen en las instituciones locales;
- Un cambio en el marco conceptual (Figura 1) dentro del cual el manejo de incendios se conciba y desarrolle, lejos de predominio del estado o de los intereses comerciales, desplazándose hacia un marco que reconozca y apoye las capacidades de las instituciones locales para planificar y manejar los incendios;
- Un cambio en la manera de llevar a cabo el manejo de incendios forestales cotidianamente, lejos de sistemas que induzcan al conflicto entre usuarios y guardianes, y orientado hacia una forma de manejo en la cual el usuario local ejerza el autocontrol y esté parcialmente a cargo de actividades de protección (como lo muestra el caso del condado de Dayao, en la provincia de Yunnan, en China);
- Un desplazamiento de enfoque dentro del ámbito de las instituciones académicas e instituciones de capacitación en materia forestal y manejo de incendios, que se aleje de una formación de los forestales y gestores de recursos, formados en calidad única de expertos técnicos, en dirección de una formación que incluya un papel de facilitador que maneje y promueva acuerdos de colaboración entre aldeas (como muestra el caso de Salavan, República Democrática Popular Lao), instituciones locales y agencias gubernamentales (según muestra el caso de Gambia);

⁴ Adaptado a partir de Hobley y Shields, 2000. Proyecto Forestal en Western Ghats en India apoyado por DFID.

- Una gama de actividades de apoyo será cada vez más necesaria a fin de propiciar cambios institucionales, entre ellos: la reforma de las políticas; la existencia de legislación favorable; el desarrollo y creación de capacidades en el ámbito lo más local posible; la existencia de una autoridad encargada del manejo comunitario de incendios y de su ejecución, así como la inversión para elaborar documentación y campañas de concientización pública a fin de comunicar la eficacia de estos enfoques.

Existen grandes oportunidades para aprender de la forestería comunitaria y otras disciplinas afines. Los seis casos del estudio presentados aquí ofrecen algunos ejemplos provenientes de distintas regiones del mundo. Es probable que existan numerosos ejemplos más, en los cuales las comunidades locales manejen los incendios por otra serie de razones. Estos enfoques comunitarios mostraron tener una gran diversidad. A fin de que el manejo comunitario de incendios pueda progresar, éste debería abarcar esa diversidad e identificar las similitudes en los distintos contextos comunitarios que las albergan.

En un contexto general de descentralización, existe una evidente necesidad de que los distintos países determinen cuál es el mejor enfoque de manejo comunitario de incendios a través de la experimentación con los ejemplos que existen localmente. Los marcos legales no pueden ser enmendados de manera satisfactoria sin que exista la orientación de las políticas. Además, las políticas mismas podrán ser reformadas con más productividad a partir de los ejemplos y de la claridad que proporcionan las experiencias, y no a partir de hipótesis. Al igual que con la forestería comunitaria, el manejo comunitario de incendios carece de casos bien documentados que sirvan de propulsores para la reconstitución de las políticas. Con el fin de colmar esta tarea, esta recopilación de estudios de caso proporciona algunos pasos prácticos a realizar en dirección del manejo comunitario de incendios.

LISTA DE ACRÓNIMOS

CESVI	Cooperazione e Sviluppo (Cooperación y desarrollo)
CDS	Center for Community Development Studies (Centro para los estudios de desarrollo comunitario)
CCSF	Community-Controlled State Forests (Bosques estatales manejados por la comunidad)
PFNM	Productos forestales no madereros
RECOFT	Regional Community Forestry Training Center for Asia and the Pacific (Centro regional de capacitación en forestería comunitaria para Asia y el Pacífico)
UICN	Unión Mundial para la Naturaleza
WWF	Fondo Mundial para la Naturaleza

Community-based forest fire management in Wenyime village, Sanchahe township, Dayao county, Chuxiong Yi autonomous prefecture, Yunnan province, China

By Zhang Lichang, Wu Long, Zhao Yaqiao and Lu Caizhen; October 2001
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EXECUTIVE SUMMARY

China had an average of 15 619 forest fire events each year since the establishment of the People's Republic of China in 1949 until 1990. Yunnan is one of the country's key national forest areas. It is rich in forest resources, but also very prone to fire. Every year, more than 2 700 forest fire events occur, destroying 1.7 million ha of forest. Of the many natural disasters in Yunnan, fire has had the most pronounced influence on forest cover. Although forest fires are difficult to prevent altogether, proper management and control can reduce their occurrence and spread, or at least minimize the damage that they cause.

The Chinese Communist Party and Government in Dayao county have paid great attention to forest fire management, especially after the Daxinganling forest fire in 1987. A collaborative effort between government and communities in the county has led to significant achievements, culminating in Dayao county being awarded a prize for advanced forest fire management by Yunnan Provincial Government in 1992.

This case study investigates the village of Wenyime in Dayao county, Chuxiong Yi Autonomous Prefecture, where villagers have shown a profound understanding of fire prevention and control and have participated voluntarily in fire management. The effect of such community-based fire management (CBFiM) has been beneficial to both villagers and government.

Forest fire management has a close and direct relationship with forest tenure. The existing Responsibility Mountain policy has provided benefits and income to the people of Wenyime village, thereby encouraging their participation in CBFiM in order to protect the forest resources from which such benefits are derived. To date, the effects have been positive, with no incidence of uncontrolled fire in the past 35 years. The most effective forest fire prevention regulations are not necessarily those of the government or outside agents. In Wenyime village, the community has discussed and formulated very effective regulations of its own. These experiences are worth publicizing within the county, the province and the whole country.

Gestion à base communautaire des incendies de forêt dans le village de Wenyime, municipalité de Sanchahe, canton de Dayao, Préfecture autonome de Chuxiong Yi, Province de Yunnan, Chine

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RÉSUMÉ

La Chine a enregistré en moyenne 15 619 incendies de forêt par an entre 1949, date de création de la République populaire, et 1990. Le Yunnan est une des zones forestières les plus importantes du pays: il est riche en ressources forestières mais très exposé aux incendies. Chaque année, plus de 2 700 incendies ont lieu et détruisent 1,7 million d'hectares de forêt. Parmi les nombreuses catastrophes naturelles qui frappent la province, c'est le feu qui a l'incidence la plus forte sur le couvert forestier. Bien qu'il soit difficile de prévenir totalement les incendies de forêt, une gestion et une lutte bien organisées permettent de réduire leur fréquence et leur ampleur, ou tout au moins de limiter au minimum les dégâts qu'ils causent.

Le Parti communiste et les pouvoirs publics du canton de Dayao ont porté un grand intérêt à la gestion des feux de forêt, notamment après l'incendie de Daxinganling en 1987. La collaboration entre les pouvoirs publics et les communautés du canton a donné des résultats si remarquables que le canton a reçu du gouvernement provincial un prix pour sa gestion avancée des incendies de forêt en 1992.

Cette étude porte sur le village de Wenyime du canton de Dayao, (préfecture autonome de Chuxiong Yi) où les villageois connaissent bien la prévention et la lutte contre les incendies et ont participé à titre volontaire à la gestion des incendies. La gestion à base communautaire des incendies a été bénéfique pour les villageois comme pour les pouvoirs publics.

Il existe un rapport étroit et direct entre la gestion des incendies et le régime foncier des forêts. La politique de responsabilité dans les zones de montagne actuellement appliquée a apporté divers avantages et fourni des revenus aux villageois de Wenyime, et les a ainsi encouragés à participer à la gestion communautaire des incendies de forêt afin de protéger les ressources forestières si précieuses pour eux. Jusqu'ici cette politique a eu des effets positifs et aucun incendie non maîtrisé n'a eu lieu depuis 35 ans. Ce ne sont pas nécessairement les règlements des pouvoirs publics ou d'agents extérieurs qui sont les plus efficaces pour prévenir les incendies de forêt. Au village de Wenyime, la communauté a étudié et établi elle-même une réglementation très efficace. Ces réalisations méritent d'être largement connues au niveau du canton, de la province et de tout le pays.

Manejo Comunitario de los incendios en la Aldea de Wenyime, de la alcaldía de Sanchahe, condado de Dayao, arefectura autónoma de Chuxiong Yi, provincia de Yunnan, China

Por Zhang Lichang, Wu Long, Zhao Yaqiao y Lu Caizhen; Octubre 2001
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RESUMEN DE ORIENTACIÓN

China alcanzó un promedio de 15 619 incendios al año entre 1949, fecha de la fundación de la República Popular de China, y 1990. Yunnan es una de las áreas forestales más importantes del país. Esta provincia es extremadamente rica en recursos forestales, pero también es muy propensa a los incendios. Cada año ocurren más de 2 700 casos de incendio que destruyen cerca de 1.7 millones de ha de bosque. El fuego es uno de las numerosas causas de desastres naturales que ocurren en Yunnan, en efecto, los incendios han tenido un fuerte impacto en la cubierta forestal. Aunque los incendios forestales son difíciles de prevenir, el manejo y control apropiados pueden reducir la ocurrencia y propagación de los incendios, o al menos, reducir al mínimo los prejuicios que estos provocan.

El Partido Comunista Chino y el Gobierno del condado de Dayao han dado mucho relieve al tema del manejo de incendios forestales, especialmente después de que ocurrieran los incendios del bosque de Daxinganling, en 1987. Un esfuerzo de colaboración, realizado entre el gobierno y las comunidades del condado, tuvo grandes logros que fueron coronados en 1992 con el premio otorgado al gobierno de la provincia de Yunnan, por el manejo avanzado de los incendios forestales.

Para realizar este estudio de caso, se condujo una investigación en la aldea de Wenyime en el condado de Dayao, de la Prefectura Autónoma de Chuxiong Yi, en donde la población mostró un profundo conocimiento sobre la prevención y el control de incendios, habiendo participado de manera voluntaria en el manejo de incendios. El efecto producido por este manejo comunitario de los incendios forestales ha sido beneficioso tanto para la población, como para el gobierno.

El manejo de los incendios forestales tiene una íntima y directa relación con la tenencia del bosque. La política de Responsabilidad de las Montañas que existe actualmente en China, produjo beneficios e ingresos para la población de la aldea de Wenyime, fomentando así su participación en el manejo comunitario de incendios a fin de proteger los recursos forestales de los cuales provienen tales beneficios. Hasta la fecha, los efectos de esta participación han sido positivos y han evitado la incidencia de fuegos incontrolados durante los últimos 35 años. La reglamentación más eficaz de prevención de incendios forestales no es necesariamente de índole gubernamental o la producida por agentes externos. En la aldea de Wenyime, la comunidad ha debatido y elaborado una reglamentación propia muy eficaz. Vale la pena divulgar estas experiencias en el ámbito del condado, de la provincia y de todo el país.

BACKGROUND AND OBJECTIVES

Many environmental problems, such as global warming, greenhouse effects, soil erosion, desertification, water resource degradation, loss of biodiversity and excessive flooding, have been linked directly or indirectly to the decrease in forest cover. One cause of the rapid decrease in forest cover is the effects of various natural disasters. Among non-natural events, excessive logging can be blamed for much of the loss. Of the many natural disasters, fire has had a pronounced influence on forest cover. Although forest fires are difficult to prevent altogether, proper management and control can reduce their occurrence and spread, or at least minimize the damage that they may cause. Prevention and control of forest fire has always been an important part of disaster prevention and relief. Appropriate forest fire management has not only important repercussions for human well-being, but also a profound significance for forest resource protection, restoration effects and sustainable economic development.

This study investigates community involvement in fire management as a way to strengthen forest development, fire prevention and the management of forests and woodlands in Yunnan Province. The objectives of the study are to:

- provide background information on fire management in China;
- collect primary data and statistics from a village, analyse these and provide recommendations to improve forest policy;
- itemize traditional uses of fire in forests and surrounding areas, and document community relationships with forest fire;
- gain an understanding of indigenous methods, rules and regulations used for community-based fire management (CBFiM).
- study how the community has been involved in fire prevention, control, management and remedial measures of restoration after fire;
- assess the level of local people's awareness about fire management.

The strategies used to reach these objectives were: collection of primary data and statistics on forest fire management, and evaluation of local people's awareness about fire management. There was an emphasis on traditional sources of fire, methods of using fire and managing fire for productive and non-productive uses. These include the causes of forest fires, prevention methods and village rules and regulations. The study also provides background information on China's fire management policies and includes recommendations for the further development of such policies.

The criteria for site selection included: frequent fire occurrences; degraded landscape; fire management challenges; the government's interest in collaborating; community involvement; and significant achievements with CBFiM. With collaboration from the headquarters of Yunnan Provincial Forest Fire Management Office, the Wenyime natural village in Dayao county, Chuxiong Yi Autonomous Prefecture was selected as the site for studying CBFiM in Yunnan Province. The reasons for selecting Wenyime were as follows:

- Wenyime village is located in the river valley of Sanchahe township. The weather tends to be dry and hot in spring and winter, with prevalent windy conditions. It is one of the most fire-prone areas in Dayao county, with fires occurring often. Bordered by Bingchuan county and Xiangyun county of Dali Bai Autonomous Prefecture, Dayao county has signed a joint protection agreement with these neighbouring townships for forest conservation and fire management.

- In recent years, Wenyime villagers have participated in fire fighting in a nationally owned forest managed by the township. Villagers have a profound understanding of fire prevention and control and have also participated voluntarily in fire management. The effect of this CBFiM has been beneficial for both villagers and government agencies.
- Wenyime village is multiethnic. People of Yi and Han nationalities have been living there in harmony for more than a century.
- Leaders at the county, township and village levels recommended this village and supported the work there.

CASE STUDY METHODOLOGY

A total of 18 days were spent in Wenyime village. In the first stage, the research team spent four days listening to the introductions of the township and village leaders and discussed forest resources, forest fire management organizations and forest fire disaster time lines. In the second stage, the members of the research team stayed in the village for 11 days to hold group discussions with the following groups of villagers:

- present and past leaders;
- women;
- elders;
- joint defence fire control volunteer team;
- key households reliant on forest resources;
- shepherds.

A workshop was held for household heads.

Semi-structured interviews, forest resources stakeholder analysis, questionnaires and ranking were used to obtain primary data and relevant information. Key informant interviews were also carried out; key informants included elementary school teachers, the former party secretary, elders, neighbouring villagers, and people who had been punished for starting fires. In the third stage, the research team spent three days completing the collection of secondary data, cross-checking primary data and giving feedback of the study results to the township and village leaders.

FOREST FIRE STATISTICS AND FOREST FIRE MANAGEMENT IN CHINA

From the establishment of the People's Republic of China in 1949 until 1990, China had an average of 15 619 forest fire events each year (1996 inspection tour, National People's Congress). The average forest area damaged by fires was 930 000 ha per year. The forest fire incidence rate was 11.1 occurrences per 100 000 ha of forest area. Every year, the forest fire damage rate was 0.706 percent (the area of fire-damaged forest divided by the country's total forest area). On average, 103 people were killed and 643 injured by fires each year.

Since the 1987 forest fire in Daxinganling, each level of government has strengthened its leadership on forest fire management and adopted more effective measures. In the past ten years, forest fires have decreased significantly. Between 1990 and 1995, the number of forest fire events decreased to 5 768 per year and the average forest fire incidence rate to 4.4 occurrences per 100 000 ha per year. Compared with values from 1990, the number of forest fires in 1995 had decreased by 63.1 percent, and the incidence rate by 58.5 percent. The area of forest

damaged by fire was reduced to 38 800 ha per year, amounting to a forest damage rate of 0.029 percent between 1990 and 1995. Compared with figures from 1990, the damaged forest area had decreased by 95.3 percent, to become lower than the world average of 0.1 percent of forest area burnt. The number of deaths resulting from forest fires also decreased from 1990 to 1995: 49 people died and 203 were injured in fires every year. The number of deaths and injuries had therefore decreased by 53.4 and 68.4 percent, respectively.

In 1996, about 4 948 fires took place in China, and forest fire alarms were sounded on 2 156 occasions. Fire occurrences included categories of ordinary forest fires (2 779), major forest fires (ten) and extraordinary forest fires (three). The damaged forest area was 148 985 ha. The forest fire incidence rate was 3.8 occurrences per 100 000 ha, and the damage rate was 1.13. In 1996, 105 people were injured and 75 killed. Compared with 1995, the number of fire occurrences decreased by 4.8 percent; the damaged forest area increased by 155.9 percent; the number of injuries decreased by 36.7 percent; and the number of deaths increased by 82.9 percent. Three extraordinary forest fires in Mongolian forests increased the damaged area significantly. Regarding the causes of forest fires in 1996, productive uses of fire such as prescribed burning or wasteland burning caused 2 355 fires, comprising 47.6 percent of the total ignitions; non-productive uses of fire, such as smoking or burning paper when visiting graves, caused 2 474 fires, accounting for 50 percent of known ignitions; arson caused 54 fires, making up 1.1 percent of known causes; lightning caused 16 fires; and fires from other countries caused five forest fires.¹

1987 was a turning point in China's forest fire management activities. Since 1987, China's forest fire management has made great progress through joint efforts on the part of government and civil society. The following steps were taken:

- *Establishment of forest fire management organization and system.* Forest fire management command and administrative bodies were set up at the provincial, prefecture and county levels. This created a forest fire management command system from top to bottom. Now there are 2 900 forest fire management command headquarters and 3 000 administrative bodies at and above the county level. Meanwhile, each forestry bureau (state forest farm) has also set up forest fire management command institutions. This has formed the basis of a provincial forest fire management network.
- *Reform of the legal system to carry out forest protection and fire management.* The State Council issued Forest Fire Management Regulations in 1988. Each provincial, prefecture and local government formulated its own enforcement with detailed rules and regulations legalizing forest fire management work.
- *Reinforcement and reiteration of administrative leaders' responsibility for administering the forest fire management system.* According to the Forest Fire Management Regulations, each provincial-, prefecture-, county- and township-level government is to establish a system in which administrative leaders are held responsible for fire management. This system identifies responsibilities and jurisdictions at each level.
- *Strengthening of public awareness of forest fire management issues.* By increasing education activities on forest fire management and emphasizing the Everybody Has a Responsibility for Forest Fire Management policy, fire management consciousness has been strengthened.
- *Strengthening of the forest fire management infrastructure.* Since 1987, the state has given 50 million yuan renminbi a year for improving forest fire management infrastructure. In recent years, this investment has reached 70 to 80 million yuan. The State Fiscal Ministry contributed 5 million yuan per year for construction of fire lines in the northeast and Inner

¹ Data on fire management from 1997 to 2001 are not available.

Mongolia. In 1997 these funds were increased to 10 million yuan. Another 16.5 million yuan was invested in aviation measures. Each province, prefecture and local fiscal unit has arranged matching funds (according to certain proportions) to strengthen the efficacy of this infrastructure investment. Forest fire management infrastructure has been upgraded by the building and maintenance of more than 7 000 watchtowers and 700 000 km of fire lines and by the acquisition of 16 000 fire engines, 89 000 radio base stations and 56 000 wind-blower fire extinguishers.

- *Establishment and training of forest fire teams.* There are some 9 300 professional or semi-professional fire fighting teams supported by 328 000 staff and 146 000 volunteer fire fighting teams. There are also 5.29 million volunteer firefighters. Heilongjiang, Jilin, Inner Mongolia and Yunnan provinces have four forest police teams and 18 aviation stations from which to carry out aerial surveillance in the northeast, Inner Mongolia and southwest forest areas.
- *Increased scientific research on forest fire management.* China has used and experimented with helicopter drop buckets, chemical applications and fixed wing aerial drops. To monitor fire, ground patrols, watchtowers and aeroplane patrols have been used, as well as satellite data for monitoring and discovering hot spots. Local weather broadcast departments have been strengthened by including fire weather broadcasts. A risk rating system is used to increase awareness, foresight and collective action.

Since 1987, leaders at all levels of government have paid greater attention to forest fire management issues. Consciousness has been strengthened, and forest fire management has made three fundamental shifts: forest fire management work has changed from depending solely on forestry departments to giving greater responsibility to multiple departments working collaboratively with civil society; work has changed from arousing the masses on fire management passively (after the fact) to more proactive measures of pre-fire management and fire control – professional teams now realize the goal of fire control at early stages, i.e. when fires are small and of low intensity and where the communities' collaboration allows for quick and effective control; and previously simple administrative management has evolved into integrated control in which combined administrative methods are used with economic and legal incentives.

Forest fire situation in Yunnan Province

Yunnan is one of China's key national forest areas. It is rich in forest resources but also very prone to fire. Every year, more than 2 700 forest fire events occur, in which 1.7 million ha of forest is consumed by fire. From 1951 to 1999, 130 000 occurrences of fire burnt 8 622 million ha of forests. Over the same period, 658 people died and 1 944 were injured by fire. The losses to the economy were estimated at 4 billion yuan. The latest statistics show that in 1999, 964 forest fire events occurred, burning 10 469 ha, killing 12 people and injuring 185.

- Networking and joint protection bodies for forest fire management have been set up in accordance with the policy of Reliance on Preventive Measures, Collectively Unite and Help Each Other Protect Forest. Dayao county has established a collaborating network for fire management with 18 townships in six counties. A joint protection regulation for the prevention and control of forest fires was made with six neighbouring counties, and was formulated at the township and village levels.
- Three county-level forest fire control teams have been established: one team has 30 members and is organized by the county forestry bureau; one has 20 members and is organized by the natural forest protection centre; and the third has 30 members and is organized by the county public security bureau and armed force squadron. There are therefore a total of 80 county-level firefighters. Each township has a team of at least 30 members and each village committee has a team of at least 15. Each villager group has organized a volunteer fire control team with at least ten people. Institutions and personnel working in forested areas must sign a fire-safe responsibility document of forest fire management. Dayao county has 19 semi-professional armed forces fire control emergency teams with a total of 754 members. At the village level, there are 735 armed forces fire control emergency teams with 14 700 members. Sanchahe township has 12 teams with 208 members and has also set up 47 fire control joint defence teams with a total of 709 members – one team for each village of more than 30 households.

FIELD STUDY IN WENYIME VILLAGE

Wenyime is one of 14 villages participating in the village committee of Sanchahe township, Dayao county. Wenyime village is situated on the Datianling plateau, eight km from Sanchahe administrative village. Han and Yi nationalities have been living together here for more than a century. The village's 42 households have a total population of 186 people, 90 of them male and 96 female (fifth census, November 2000). The Han nationality makes up 60 percent of the total population. The cultivated land area covers 202 mu (1 ha = 15 mu), of which 25 mu are paddy fields and the remaining 177 mu irrigated fields. The average farming land area is 1.08 mu per capita. The yearly grain output is 51 600 kg. The average grain output is 276 kg per capita. The main crops are maize, rice, broad bean and some other coarse foodgrains. Tobacco is the main cash crop with a yearly planting area of 118 mu and a total output of 18 762 kg. There are 95 cattle, 39 mules and horses, 85 goats and 134 pigs. In 2000, the total income of the group was 284 700 yuan per year, of which, 51 600 yuan was from agriculture, 93 800 yuan from tobacco, 74 600 yuan from animal husbandry, 49 700 yuan from forestry, and 5 000 yuan from other sources. The average annual income is 1 530 yuan per capita. Most households live in tiled houses surrounded by walls on three sides. The village is reached by road, and electricity was connected in 1997. Some households have TV, video, and grain and fodder processing machines.

The main mountain is Hongjia, which forms a tower-shaped landscape with Datianling plateau at its peak. Soils are fertile and suitable for tree growing. The forest land area is 5 600 mu. Vegetation is subtropical green broadleaf trees and the Yunnan pine belt. The main tree species are Yunnan pine (*Pinus yunnanensis*), Chinese fir (*Keteleeria evelyniana*) and sawtooth oak (*Quercus acutissima*). The forest cover rate is 40.7 percent and the average forest area per capita is 30.1 mu. The village has cash trees such as walnut, chestnut, peach, plum, pear, bamboo and apple. Walnut has an annual output of 3 091 kg and chestnut output is 362 kg which, together with wild mushrooms and fuelwood, generated an income of 49 700 yuan in 1999. Income from NTFP makes up 17.5 percent of the total income.

Landownership and use rights for forest resources are related to the development, prosperity and subsequent decline of forestry in China. Stable forest tenure is essential for effective protection of forest resources. Since the People's Republic of China was established, forest ownership had gone through six distinct policy changes.² The most recent experimental Responsibility Mountain policy was first implemented in 1985. Under this policy, 2 100 mu was allocated to the Wenyime village community, with ownership belonging to the collective and individual households owning the forests and trees. This has provided the incentive for households to manage forest and to control fire. The Responsibility Mountain certificate that was issued allocated 37.5 percent of the village collective mountain area. Each household has an average area of 50 mu of mountain forest, with a maximum of 109 mu and a minimum of 20 mu. Now that each household has its own mountain forest, they have invested in, benefited from and managed the forest by themselves. The confirmation of rights, responsibility and benefits of this Household Running Hills policy improved forest fire management initiatives, as well as forestry development for the collective and households. This type of community-based approach is further explored in this case study.

Forest fire and its impacts

Historically, Wenyime village has used slash-and-burn cultivation for agricultural production and other fires for improving pastoral lands. This practice is based on indigenous knowledge that “the soil would not be rich without fire burning the hills”, and “the grass would not grow, so the goats would not be strong, without fire burning the hills”. Such knowledge was handed down, so forest fires took place frequently. During discussions, elders stated that there had been more than ten occurrences of forest fire since the establishment of the People's Republic of China, the largest of which took place in March 1965. This fire was caused by a neighbouring village shepherd making a fire to warm himself. The fire continued for more than one month. The following facts emerged during investigation of this fire:

- It died out after four or five attempts to control it.
- All of the trees were destroyed in this crown fire.
- After the fire, no pasture was left for the animals and they had to be sold.
- After the fire, it was impossible to collect pine needles, grass or tree leaves. No manure fertilizer was collected so grain production decreased. The farmers had to rely on grain from government relief programmes.
- After the fire, flooding in May and June had detrimental effects on the watershed and agriculture, i.e. the water ditches and fields.
- Spring water was limited for several years; leaving little drinking-water.
- Walnut and chestnut trees did not bloom for many years.
- Wild mushroom harvesting ceased for some time owing to lack of production.
- No wildlife (barking deer, leopard, monkey and hare) was seen on the mountain.
- There was no wood for the construction of new houses for some 20 years.

These are only a few of the effects of the 1965 fire. The former village leader claimed that the fire had a positive impact because it encouraged the next generation to remember the potential

² The Land Reform, the Rural Cooperative, the Four Fixes and the Three Formulations of Forestry, the Two Hills and Responsibility Mountain.

effects of fire. The memory of this fire would be handed down from generation to generation, reminding people that “Forest fire can be merciless. Forest fire management is necessary to minimize its effects on the community”.

TRADITIONAL USES OF FIRE AND ITS RELATIONSHIP WITH FOREST FIRE

In order to evaluate the sources of ignition and the cultural uses of fire within the village, 37 surveys were taken from different stakeholder groups (elders, women, main forest households, shepherds, young people and village leader groups). The main topic of the survey was “do you know the productive and non-productive uses/sources of fire in Wenyime village”. Thirty-six of the surveys were returned. The following are the productive uses of fire in Wenyime village:

- post-harvest burning to prepare seedbeds;
- burning field banks and using the burnt soil as fertilizer;
- burning tree branches and leaves on shifting cultivation plots to increase the fertility of buckwheat and/or tobacco;
- burning melon delve by using leaves and grass;³
- burning withered grass on the meadow in winter to promote the sprouting of new grass;
- for reforestation efforts fire is used to reduce shrubs, reduce stocking by scattering trees and remove less desirable tree species.

The non-productive sources are:

- cooking when herding animals;
- smoking and throwing cigarette butts away;
- using fire for hunting (such as catching squirrels);
- burning wild bees to get their larvae as food;
- pine torches for lighting at night;
- burning incense, paper and firecrackers when visiting grave sites;
- children playing with fire;
- tobacco drying.

Villagers’ habits and consciousness in managing fire

Except for one fire alarm caused by a child playing with fire in February 1982, there has been no significant fire since that of March 1965. The 1965 fire was the first forest fire in Sanchahe township and the last significant forest fire in Wenyime village, which had no forest fires in the 35 years from 1966 to 2000. During discussions with elders, women, forest households, shepherds and young people, the following components of CBFiM in Wenyime village were identified:

- Responsibilities and jurisdictions have been set up, with each villager group responsible for different parts of the pasture, forest land, etc.
- The source of fire is strictly controlled.
- Forest fire management bodies, such as a leadership group of forest fire management and a voluntary joint defence team for fire control, have been set up.
- People in all households know the Everybody is Responsible for Forest Fire Management policy.

³ Melon delve grows mostly near the forest and has higher yields after low-intensity fire.

- Fire lines have been cut around areas of high concern.
- Pine needles and branches have been cleared to prevent and control forest fire.
- Children have been taught not to play with matches and cigarette lighters.
- The burning of paper, cooking and the setting off of firecrackers when visiting a relatives' graves have been stopped.
- Instead of pine torches, flashlights are used for lighting.
- People have stopped throwing away lit cigarette butts, cooking food while herding, burning wild bees and using fire to trap animals.
- They have stopped burning field banks, tobacco cultivation plots or melon delve.
- Villagers now obey village rules and regulations conscientiously.
- Herding times have been changed from once to twice a day, so that shepherds can eat lunch at home instead of cooking or heating lunch on the hills.
- Hay is stored for the winter feeding of livestock, instead of the traditional practice of burning pasture to promote grass growth.
- The period from 20 December to 30 May has been identified as the dry period for fire prevention, and a meeting is held a month earlier for planning control measures.
- Forest guards have been employed to enforce laws and regulations.
- The "four contracts" of responsibility are carried out: village leaders oversee the masses, teachers oversee students, shepherds oversee pastures, and forest guards oversee forest land.
- The "six responsibilities" are carried out: the group head is responsible for group members starting fire; the leader is responsible for the masses starting fire; the family head is responsible for children starting fire; the teacher is responsible for students starting fire; the guardian is responsible for disabled people starting fire; and the individual is responsible for him/herself.
- Forest fire is controlled as quickly as possible. When it breaks out, the volunteer joint defence fire team controls it at the early stage of its development.

Villagers' role in preventing and controlling forest fire

Based on this study, the farmers are the main body in forest fire prevention and control. The farmers in Wenyime village joint action depend on two factors: they have had clear forest tenure since 1982 and now obtain such forest products as timber for house construction, leaves for animal stables and fertilizer, fodder, fuelwood, fruits and a comfortable living environment, all of which influence their behaviour; and the government has formulated requirements and strict regulations. The punishment for causing a forest fire or not actively participating in its control is severe, and everyone is deterred by it. The role of the villagers in forest fire prevention and control are as follows:

- collecting falling leaves to use for animal stables, to provide fertilizer for crops and to clear the ground under trees so as to decrease the risk of forest fire;
- obeying the regulation that prohibits the starting of fire in the forest, especially between the months of November and May;
- teaching children not to play with fire;
- collecting the sources of fire (e.g. lighters, matches) and putting them out of children's reach;
- never using fire for heating or cooking food during grazing activities (e.g. not putting potatoes into the fire for lunch);

- sending at least one family member to join fire control activities as soon as forest fire breaks out;
- providing information to the forestry office on the causes and perpetrators of any forest fire that has occurred.

Villagers' indigenous methods and regulations for fire management

The main indigenous regulations are as follows:

- Village rules and regulations for forest fire management, such as the Three No's, the Four Contracts, the Five No Burnings and the Six Responsibilities are formulated: the Three No's are no smoking on mountains, no opening up wasteland by destroying forest and no burning fire to catch wild bees and animals; the Four Contracts are as mentioned in the section on the Six Responsibilities; the Five No Burnings are no burning without permission, no burning without opening fire lines, no burning without fire control tool, no burning under heavy winds and dry conditions, and no burning without supervision; and the Six Responsibilities are as already mentioned.
- Formulate a forest fire management period from 1 December to 31 May and a high-risk period from 1 March to 31 May.
- Establish forest management responsibilities that are separate from those for pasture management, and guardian responsibilities for each of the groups involved.
- Identify 1 000 mu of forest as a watershed protection area in which to carry out special protection and management.
- Establish the protection and management of the watershed area and 2 500 mu of collective forest as the main focus. One person is selected as a full-time coordinator to manage these and is paid 180 yuan per month for doing so.
- Implement public awareness campaigns and education in forest fire management. Request the township film team to visit the village regularly to show slides and films on fire management.
- Formulate village rules and regulations for forest fire management at meetings of household heads. These meetings are also the forum at which village cadres allocate CBFiM responsibilities to village members.
- Set up CBFiM organizations, institutions and teams. Village leadership groups for forest fire management consist of the village group cadre (as the head), the Party Secretary (as the deputy head), the former villager head, and the armed forces team (as the group members). A regular household head meeting is held once a month to monitor, evaluate and reallocate forest fire management work. At the same time, a village volunteer fire control team is established and a full-time forest guard is hired.

ROLE OF CBFiM IN COMMUNITY FOREST RESOURCE MANAGEMENT

Forest fire can potentially harm forest resources. After 35 years, the effects of having villagers cultivate, manage and protect the 5 600 mu of forest are clear. The following are some of the effects of CBFiM on forest resources protection:

- Mountains in Wenyime Village become greener every year.
- Forests have become mature timber because of good conservation and management.
- Pine and fir trees are straight and evenly spaced because of intermediate thinning and lack of fire.

- Many herbs and shrubs are present in the understory. Watershed and soil resources are protected.
- Many rare wild animals, such as barking deer, monkey and pheasant, have returned since the fire disaster of 1965.
- The mushroom harvest is, once again, one of the main sources of income.
- The forest resembles a virgin forest. Water yields have increased and provide enough water for drinking and crop production. Flooding has been tempered and water flow is now regulated.
- Chestnut, walnut, peach, plum, pear and apple are, once again, cash crops for most households.
- Good living conditions and the ecological environment have been maintained so that future generations will benefit from resources.

CONCLUSION

In China, forest fire prevention and control is more of a top-down than a bottom-up process. Planning, regulations, cost and management all come from the government; the local community thus has a limited role in decision-making. Experiences from Wenyime village have the potential to provide recommendations for forest fire prevention policy that emphasize the local community's ability to manage fire. They also demonstrate how to encourage and build on the local community's interest in protecting forests. Forest fire management has a tight and direct relationship with forest tenure. The Responsibility Mountain policy has given benefits and income to the villagers so that they have the incentive to participate in fire management, and the effects of this have been positive. The most effective forest fire prevention regulations are not necessarily those of the government or outsiders. In Wenyime village, the community discussed and formulated regulations of its own, which are very effective. Awareness building about forest fire management is a long but important process. The attitude and behaviour of Wenyime villagers are the result of 35 years of capacity building, awareness raising and the benefits derived from CBFiM practices.

RECOMMENDATIONS

It is necessary to find CBFiM models that supplement the current top-down and government-dominated forest fire management approach. The Chinese saying that "A single spark can start a prairie fire" is quite true. It is necessary to perform more studies on CBFiM and to summarize some key elements that may foster the formulation of more CBFiM models that are appropriate to China. For example:

- Local communities should be the main managers of forest fire, especially in collectively owned forests. Several elements need to be considered if the model of CBFiM from Wenyime village is to be extended to other areas.
- Local communities should have the right to decide the use of forest resources so that they may increase the benefits that they derive from the forest. Full, stable and secure rights to resources are the key for CBFiM, as well as for sustainable forest management. The government should do more to ensure that local communities have clear and secure forest tenure, especially secure use rights to forest products.
- This requires open, equal regulation formulation processes and effective supervision from the community itself during the implementation of regulations. For this, the Everybody has a Responsibility for Forest Fire Management policy means clear and equal rights and access to

forest resources and benefits. The local community may derive counterpart benefits from forests and relevant activities, but every community member should have equal access.

- Government agencies should transfer certain roles to communities so that they may generate income from forest resources and create linkages between prevention of forest fire and livelihood security. In southwest China, CBFiM must be combined with efforts on poverty alleviation and livelihood improvement. Increasing farmers' income sources and level should be the fundamental base for CBFiM.
- The rules and regulations for forest fire management, as well as for other village affairs, should come mainly from the community itself. Wenyime village has not experienced any forest fires for 35 years. One of the key reasons for this is that the villagers established, revised and followed village rules and regulations. These experiences are worth publicizing in the county, the province and the whole country.

Management of forest fires through the Involvement of Local Communities: the Gambia

By Almami Dampha; January 2001

Kaniman Kamara and Clemens Beck, Forestry Department, PO Box 504, Banjul, The Gambia

EXECUTIVE SUMMARY

There are insufficient data on forest fires in The Gambia because of inadequate staffing at the field level and the unwillingness of the population to expose fire offenders for prosecution. It is clear, however, that most of the country's forest lands are burnt annually. The resulting losses are huge considering the incalculable amounts of timber and fuelwood destroyed and the low agricultural productivity resulting from soil degradation.

The use of fire is intrinsic in the socio-economic activities of the rural population. Because of the nature of the farming system (small-scale and temporal) and the absence of other appropriate means of land preparation, fire is usually resorted to as a way of preparing fields for crop cultivation. Consequently, a significant number of forest fires result from field clearing, because control over these fires was and is still generally lacking. Other traditional causes of forest fires are hunting, honey collection, herding, fuelwood collection and smoking.

State control over the ownership of forest resources caused the general public to have a laissez-faire attitude towards forest fires, especially in the past, when fire prevention and control were seen as the responsibility of the Forestry Department. Following political independence in 1965, government policies put a lot of emphasis on economic development, mainly through the expansion of agricultural crop production – particularly groundnuts – to generate much-needed foreign exchange. Forest lands were seen as fertile land reserves for agriculture, and the only cheap tool for converting forests to other land uses was fire. Thus forest fires were not seen as detrimental as long as they facilitated farm preparation. Forested land area was relatively large compared with the demand of the population. The situation gradually worsened as the need for more cultivable land increased.

The issue of forest fires has been a major concern for The Gambian Government since the late 1970s. Policy instruments have been put in place to deal with forest fires, and these are starting to bear fruit. Since its creation in 1977, the Forestry Department has been active in forest fire prevention and suppression, including the clearing of firebreaks along managed forest parks and the launching of radio programmes to increase public awareness. Controlled early burning is encouraged around forest parks and community forests.

After nearly two decades of conventional forest management, in 1990 the Department of Forestry piloted the community forestry concept, which has been modified over the years and is now applied countrywide. One of the goals of community forestry is to reinstate public interest in the sustainable use of forest resources by transferring forest ownership from the state to deserving communities. It was hoped that this gesture on the part of the state would engender public participation in the crusade against forest fires.

Seven years after the first transfer of forest ownership to local communities, there was no significant reduction in the frequency of forest fires nationwide. There are a few areas where

forest fires are becoming rare and it is encouraging that public awareness about forest fires has increased greatly. Indications are that people are willing to change their attitudes positively and that local forest ownership promotes this. This was confirmed by a nationwide comparative survey of villages with and without involvement in community forestry.

This study shows that there is profound indigenous knowledge about the causes, effects and prevention of fire and makes various recommendations on the local management of fires.

Gestion des incendies de forêt grâce à la participation des communautés locales: Gambie

Par Almami Dampha; Janvier 2001

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RÉSUMÉ

On ne dispose que de données insuffisantes sur les incendies de forêt en Gambie parce que le personnel de terrain n'est pas assez nombreux et que la population n'est pas disposée à dénoncer les coupables pour qu'ils soient poursuivis. Il est cependant évident que la plupart des terres boisées du pays sont incendiées chaque année. Cette pratique entraîne des pertes énormes car un volume incalculable de bois d'oeuvre et de bois de feu est ainsi détruit et la productivité de l'agriculture est faible en raison de la dégradation des sols.

L'utilisation du feu fait partie intrinsèque des activités socio-économiques des populations rurales. Étant donné que celles-ci pratiquent l'agriculture temporaire à petite échelle et n'ont pas d'autre moyen approprié de préparer les terres, elles ont généralement recours au feu pour préparer les champs. En conséquence, le défrichage provoque un nombre non négligeable d'incendies de forêt car les cultivateurs ne maîtrisent pas toujours les feux qu'ils allument. La chasse, la récolte du miel, l'élevage, le ramassage de bois de feu et le tabagisme constituent d'autres causes habituelles d'incendies de forêt.

Le fait que l'État soit propriétaire des ressources forestières a amené le public à considérer les incendies de forêt avec indifférence, surtout dans le passé lorsque la prévention et la lutte contre les incendies étaient considérées comme relevant du département des forêts. Après l'accession à l'indépendance en 1965, le gouvernement a donné une grande importance au développement économique, principalement grâce à l'accroissement de la production agricole – en premier lieu celle d'arachide – afin d'obtenir les devises dont le pays avait le plus grand besoin. Les terres boisées ont été considérées comme des réserves de terres fertiles pour l'agriculture et le feu était le seul moyen peu coûteux de convertir ces terres à d'autres utilisations. Ainsi, les incendies de forêt n'ont pas été considérés comme néfastes tant qu'ils facilitaient la préparation des terres pour les cultures. La superficie boisée était grande par rapport à la demande de la population. La situation s'est progressivement dégradée à mesure que les besoins de nouvelles terres cultivables augmentaient.

Le gouvernement de la Gambie a commencé à se préoccuper vivement du problème des incendies de forêt pendant les dernières années 70 et il a mis en place pour le régler des

instruments qui commencent à donner des résultats. Depuis sa création en 1977, le Département des forêts s'occupe activement de la prévention des incendies de forêt et de leur suppression, notamment en créant des coupe-feu à la limite des parcs forestiers aménagés et en organisant des émissions de radio pour sensibiliser le public. Il encourage les recours aux feux précoces dirigés sur le pourtour des parcs forestiers et des forêts communautaires.

Au bout de près de vingt ans de gestion classique des forêts, le Département des forêts a lancé, en 1990, la notion de foresterie communautaire qui a ensuite évolué progressivement et est maintenant appliquée dans tout le pays. L'un des objectifs de la foresterie communautaire consiste à relancer l'intérêt du public pour l'utilisation durable des ressources forestières en transférant la propriété des forêts de l'État aux communautés qui le méritent. On espérait que ce geste de l'État inciterait le public à participer à la croisade contre les incendies de forêt.

Sept ans après le premier transfert de propriété des forêts aux communautés locales, aucune réduction sensible de la fréquence des incendies de forêt n'était enregistrée au niveau national. Il y a quelques zones où les incendies deviennent de plus en plus rares, et, fait encourageant, le public est beaucoup plus sensibilisé à ce problème. Il semble que les gens soient disposés à adopter une mentalité plus positive et que le transfert de la propriété des forêts aux populations locales encourage cette évolution. Cette idée est confirmée par une enquête comparative au niveau national sur les villages qui participent à la foresterie communautaire ou n'y participent pas.

Il ressort de l'étude que les populations indigènes ont une connaissance approfondie des causes et des effets des incendies et de leur prévention et diverses recommandations concernant la gestion locale des incendies sont formulées.

Manejo de incendios forestales a través de la participación de las comunidades locales: Gambia

Por Almami Dampha; Enero 2001

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RESUMEN DE ORIENTACIÓN

No existen suficientes datos acerca de los incendios forestales en Gambia, porque no se cuenta con personal adecuado en el terreno, y porque la población se niega a exponer a los infractores a la persecución. Sin embargo es evidente que la mayoría de las tierras forestales nacionales se incendia cada año. Las pérdidas son ingentes, si se toman en consideración las incalculables cantidades de madera y leña que se esfuman, amén de la baja productividad agrícola que se produce a raíz de la degradación de los suelos provocada por los incendios.

El uso del fuego forma parte intrínseca de las actividades socioeconómicas de la población rural. Debido a la naturaleza del sistema agrícola (temporal y en pequeña escala) y debido a la falta de medios de preparación de la tierra apropiados, el fuego suele ser el recurso adoptado para preparar la tierra destinada a la siembra de cultivos. Como consecuencia, se produce una cantidad considerable de incendios forestales, debido a las prácticas de desboscamiento del terreno, porque no existen prácticas de control de estos fuegos. Otras causas tradicionales de los

incendios obedecen a la práctica de la cacería, a la recolección de miel, al pastoreo, a la recolección de leña y a las prácticas de ahumado de alimentos.

El control de la propiedad de los recursos forestales de parte del Estado propició en la población una actitud permisiva en materia de incendios forestales, especialmente en el pasado, cuando la prevención y el control de incendios se consideraban como sujetos a la responsabilidad del Departamento Forestal. Después de la independencia nacional en 1965, la política gubernamental hizo mucho hincapié en el desarrollo económico, principalmente a través de la expansión de la producción agrícola de cultivos – sobre todo de maní – con el fin de generar las divisas, tan necesarias para el país. Las tierras forestales se consideraban como reservas de tierras fértiles a destinar a la agricultura y el único medio barato para convertir los bosques a otros usos de la tierra era el fuego. Por lo tanto, los incendios forestales no eran considerados perjudiciales, en la medida en que facilitaban la preparación de la tierra. El área de tierras forestales era relativamente grande, comparada con la demanda que existía de parte de la población. Pero la situación se agravó gradualmente, en la medida en que crecía la necesidad de tierras cultivables.

El tema de los incendios forestales ha sido una de las principales preocupaciones del Gobierno de Gambia desde finales del decenio de 1970. Se crearon instrumentos en materia de políticas a fin de afrontar los incendios forestales, los cuales están comenzando a dar frutos. Desde la creación del Departamento Forestal en 1977, esta institución ha participado activamente en las actividades de prevención y supresión de incendios forestales, entre ellas la preparación de barreras cortafuego a lo largo de los parques sujetos a manejo, así como la divulgación de programas de radio destinados a la concientización pública. Además, se fomenta el uso temprano del fuego controlado alrededor de los parques y de los bosques comunitarios.

Después de casi dos decenios de manejo forestal convencional, en 1990 el Departamento Forestal introdujo el concepto de forestería comunitaria, que ha sido modificado en el curso de los años y que actualmente se aplica en todo el ámbito nacional. Uno de los objetivos de la forestería comunitaria consiste en restaurar el interés público, en cuanto al uso sostenible de los recursos forestales, a través de la transferencia de la propiedad de los bosques estatales a las comunidades que así lo merecen. Se esperaba que este gesto de parte del estado generaría una participación pública en la cruzada contra los incendios forestales.

Siete años después de la primera transferencia de la propiedad estatal a las comunidades locales, no se ha verificado una reducción significativa en la frecuencia de los incendios forestales en el ámbito nacional. Pero existen algunas áreas en donde los incendios forestales son cada vez más raros y es alentador que la concientización del público acerca de los incendios forestales haya crecido de manera considerable. Existen indicios de que la población quiere cambiar sus actitudes en sentido positivo y de que la propiedad de los bosques promueve este cambio. Así lo confirmó una encuesta comparativa entre las aldeas que participaban de la tenencia y las que no lo hacían, realizada en el ámbito nacional.

Esta encuesta muestra que existen profundos conocimientos indígenas acerca de las causas, efectos y prevención de los incendios. Además, el estudio hace varias recomendaciones acerca del manejo de los incendios forestales.

INTRODUCTION

Fire in The Gambia, as in many countries, is the main tool used to expedite land clearing. Deforestation has been linked to the use of fire for land clearing for settlements, croplands, grazing, fuelwood cutting and charcoal burning. The last of these was banned in 1980, because it was considered a very serious cause of deforestation. The situation was aggravated by an increase in the population and the influx of migrant farmers from Senegal and Mali to engage in groundnut cultivation. As the population lit fires on a regular basis, forest canopy cover decreased and the areas of grassland and savannah grew larger.

Villagers depended on forest resources and the abundance of those resources was taken for granted. Villagers did not think that the negative impacts of burning seriously outweighed the advantages. In the context of the present fire regime, human activities are perceived as the cause of all fires.

Research objectives

This study examines whether or not community forestry has increased the awareness of local communities about forest fires and whether such awareness is leading to a change of attitudes towards the prevention of forest fires.

Scope and methodology of the study

The study area covers three of the five divisions of The Gambia: the Western Division, the Central River Division and the Upper River Division. The study covers 32 villages in rural parts of the country. A series of 113 interviews served to assess systematically the uses of fire in rural communities, as well as the awareness and attitudes of village populations towards fire. Interviews were held with 83 individuals, comprising 35 women and 48 men. Thirty interviews were conducted with groups of four to six people. The ages of the people interviewed range from 13 to 97 years, with a peak in the typical labour force age of between 30 and 50 years. The group interviews were assembled to include representatives from village institutions, such as forest committees, village development committees, kafoos (village associations) and Alkalos (local village heads), and to collate the answers obtained from the individual interviews with the voiced opinions of these stakeholders. In assembling the groups, attempts were made to include women, but in many cases only one woman was willing to take part. A large majority of those interviewed are farmers (59.5 percent) or farmers and herders (19 percent), i.e. farming is their main livelihood activity.

In addition to the community study, a countrywide written survey of forest station heads for forest fire management and a literature review of past and existing legislation and policy frameworks were undertaken. The results of the field surveys were presented and discussed with participants drawn from forestry field staff, NGOs and local administrative authorities (chiefs) in two workshops conducted in the Central River and Western Divisions. This discussion process served as a forum for gaining feedback from those directly concerned with fire prevention issues at the local level and to develop elements of the national fire prevention strategy in a participatory manner.

BACKGROUND ON THE GAMBIA

The Gambia, which covers an area of 11 295 km², is the smallest state on the African continent, and lies within the savannah belt of West Africa on the Atlantic coast. The Gambian climate is characterized by a short rainy season, followed by a long dry season (of eight months). With more than 104 inhabitants per square kilometre, The Gambia is one of the most densely populated African countries. It is also a predominantly rural country, with agricultural activities forming the backbone of the population's livelihood. While the population is itself multiethnic, consisting mainly of Mandinka, Fula and Wolof, almost 15 percent are immigrants from other African countries, including refugees from southern Senegal (Casamance) and Sierra Leone. The Gambia's forest cover (including mangroves) was estimated at 43 percent of the land area (503 900 ha) in 1983. These forests are impoverished as a result of overexploitation and annual forest fires. Closed woodlands constitute only about 4 percent of the total area and form important sources of timber and fuelwood. They are also important sources of the non-timber forest products (NTFPs) on which forest-dwelling communities often rely.

Forestry development in The Gambia

The Gambia has had significant success in the past few years in community forestry implementation. By January 2000, the number of community forests in the country had reached 267, with a total area of 22 945 ha (*Out of the Forest*, 2000: 9) and there are encouraging signs that the rural population is still highly motivated to join the community forestry programme. It is clear that community forestry is the most important strategy to reduce the incidence of forest fires. Within the community forestry concept, tenure over forest resources has been made clear, and could be passed to the local communities. As Abdulaye Kane said in his publication on public policies affecting forest fires in the African region (FAO, 1999b), local populations are not likely to interfere with forest fires unless their lives or properties are threatened.

Community forestry has been ongoing in The Gambia for more than ten years. Since it was first piloted in the Foni Brefet district in 1990, it has gradually extended to all parts of the country. There are now no fewer than 270 villages countrywide participating in community forestry. These villages manage something close to 24 000 ha of forest land. The main reason for introducing the community forestry concept is to facilitate local communities' participation in the management and utilization of forest resources. In the process, ownership of forest areas is handed over to communities that are able to demonstrate their ability for sustainable forest management through their own responsible bodies (Forest Committees). When the communities have a stake in the forest resources, it is believed that they will do everything within their means to protect their forests from deforestation activities, particularly forest fires.

The community forestry approach was formally embraced with the development and adoption of the 1995 Forest Policy, which puts special emphasis on community involvement in forest resource management. A revised Forest Act and Regulations back the policy. At the time of writing, legislators had approved the Forest Act and it was hoped that the Regulations would soon be approved as well. The approach is now the priority of the Forestry Department and the aim is that nearly half of the country's forest cover will be under community management by the time that the current forest policy comes to an end in 2005.

Community participation in the management and utilization of the nation's forests has gained additional momentum from the new concept of Community-Controlled State Forests (CCSFs). This concept foresees local communities taking care of forest areas adjacent to their community

forests and sharing the benefits obtained equally with the government. The concept has not yet been fully mastered by the majority of Forestry Department staff and collaborating agencies, and further orientation sessions are required, at least for senior staff members. Initial attempts to sell the idea to local communities received a lukewarm reception, which was not strange considering that the villagers are always cautious when entering into agreements with the state. At the time of writing, they do not see the advantage of supporting CCSF because, previous to its introduction, they did not have to share anything with the state from areas outside forest parks and community forests.

NATIONAL POLICIES RELATING TO FOREST FIRES

Very few issues are as contentious as forest fires. The different stakeholders, foresters, farmers and pastoralists all perceive forest fires differently, and sometimes in very divergent ways. As the frequency of forest fires kept increasing and the Forestry Department was unable to cope with the problem, villagers were asked to form fire committees to increase awareness of and coordinate forest fire issues at the village level. By the second half of the 1980s, fire committees were established in most villages, but a lack of resources meant that they could not perform their expected role and the majority of them ceased functioning.

Forest Policy, 1995–2005

The most pragmatic and holistic approach to tackling the menace of ever-increasing environmental degradation came into effect with the adoption of the 1995–2005 Forest Policy. This was developed in line with the environmental and socio-economic policy objectives of the government. Before this, there was no clear-cut national forest policy for The Gambia and all forestry development proposals were mentioned briefly in the five-year centralized development plans. The Forest Policy puts special emphasis on community and private forestry and recognizes multiple-use forestry. The policy has also been designed to contribute to poverty alleviation by calling for the active involvement of local communities and the private sector in the management and development of forest resources. In short, the policy aims at making stakeholders perceive themselves as indispensable actors in the protection and rational utilization of forest resources. The policy takes account of the fact that sustainable forest management will always remain an illusion unless everybody becomes a stakeholder. This is precisely why the policy makes provisions for private and community forestry management.

The Gambia Forest Management Concept (GFMC)

This concept has been developed by The Gambian–German Forestry Project in collaboration with the Forestry Department. It collates information and experiences gathered since 1980. GFMC describes approaches to reach the targets specified in the Forest Policy document. It promotes the nucleus concept, which aims at integrating community forestry into the management of forest parks. It also underlines the importance of collaboration among the Department of Forestry, line departments and NGOs in the nationwide promotion of the community forest concept.

The GFMC gives high priority to the participation of local communities in the protection and management of forest resources. The nucleus concept enshrined in the GFMC strongly recommends the recruitment of local communities living around forest parks for firebreak preparation and other forest management activities. The overall aim is that, as well as augmenting the income returns from forests for the communities, local people acquire forest

management skills and experience. Through the involvement of communities in economic activities in and around the forest, the value of the forest is enhanced in the eyes of the communities and they become more concerned for its protection and judicious utilization.

The Forestry Legislation and Regulations, 1998

According to the New Forest Act (Section 21, subsection 2), it is mandatory that neighbouring communities are informed prior to the setting of any prescribed burning by the nearest forest station. One of the reasons for this is to avoid fire escaping into croplands and thus burning field crops. Communities are also required to offer help during the controlled burning activities. It is a criminal act under the Forest Regulations for anybody to refuse to help in fire fighting without genuine reasons.

The Regulations (Part IV Section 23) permit the burning of farmland or pasture outside of forest areas only where:

- (a) the areas to be burnt are delimited and protected by strips of land cleared of bush and grass;
- (b) the burning is supervised by farmers or other concerned people to ensure that the fire is kept within the designated limits.

Section 24 of this Part makes it mandatory for the general public to assist in fighting fires. According to the Forestry Regulations (Part IV Section 19), heads of districts, towns, villages and communities are responsible for protecting the lands within their jurisdictions from the ravage of forest and bush fires. If they are found guilty of negligence of duty with such fires, they may be held liable to the penalty prescribed for contravention. If the fire originates between two villages and the culprit cannot be traced, the heads of the concerned villages are held responsible.

The forest committees are also charged under Part IV Section 17 with responsibility for protecting from fires their community forests, the CCSFs and any other piece of public forest within the area. They are required to create sufficient mechanisms to ensure the safety of their forests from fire.

The laws sanctioning the mandatory participation of the public in forest fire suppression are seen as punitive, and are strongly contested by the local communities and authorities. The village heads, in particular, argue that the law holds them responsible for fires over which they have no control. They further protest that their enemies, in or outside the community, can start fires with the aim of causing them trouble.

As with any other act, promulgation is far easier than application. The district chiefs are often reluctant to act against their subjects for fear of losing support.

Fines and prison terms have been prescribed for various forest offences, including forest fires. Forest fire offences draw the severest fines and prison terms according to the Forest Act (Schedule V – Fine Classes).

Exclusive nature of the Forest Policy

The Forest Policy does not incorporate the wishes and aspirations of local communities, which have developed strong resentment against the forest sector. The policy fails to recognize the right

of local communities to have a say in the way that forest resources are managed. Forest exploitation licenses have been issued without the involvement of local communities, resulting in serious overexploitation.

The mandate of the Forestry Department also runs contrary to traditional ownership rights. According to the statutory law, all naturally grown trees belong to the state, irrespective of their location. This is strongly resented by the local people, who have lost their sense of owning the forest and have resorted to undermining the efforts of the forestry services by constantly burning forests and carrying out other forms of illegal exploitation. Arsonists are rarely reported to the authorities for prosecution.

Lack of security of tenure

Populations living around forest parks have little sense of ownership or stewardship of the state reserve. In the Kiang West and Upper Badibou, according to case studies (Schoonmaker Freudenberger, 1994): “the Forest Parks are perceived to be owned and managed by the state and thus not worthy of care by the local populations. Villagers are certainly aware of the excessive exploitation of the parks and frequent forest fires (and they partake of it in many cases), but they do not try to stop abusive practices because they believe that this responsibility lies with the state.”

Access to benefits from the forest is another important consideration that encourages communities to participate willingly in forest resource management. The cost of community participation in forest protection activities must be balanced by the expected returns.

Lack of government commitment

Until 1985, all government programmes on forestry were sketchily mentioned only in the five-year development plans, and focused mainly on plantation management. There was no coherent policy on the way forward for the sustainable management of forest resources. In addition to lack of will, there was also the constraint of inadequate human resources in the department. Staff were thinly spread, leading to unsupervised operations on the part of commercial fuelwood cutters and other licensed forest users. Government policies were ill-defined and thus attracted only half-hearted measures and support. The forestry services seriously lacked the trained staff and financial endowment necessary to formulate and implement holistic forest policies and regulations.

Lack of will to enforce laws

Most destruction of the forest is not caused by lack of laws but by staff unwillingness [to enforce them], exacerbated by socio-cultural conditions. The motivation of forestry staff to enforce forest fire regulations has suffered as a result of low emoluments and openness to corruption. Chiefs and village heads are not very enthusiastic about prosecuting their subjects for offences related to forest fires. More often than not, fire cases linger in the courts for long periods and, when punishments are meted out, they are often mild compared with the damage caused.

There are many reasons for this reluctance to apply the laws. District chiefs fear losing the cooperation and support of their subjects by prosecuting them for fire offences. The general preference in The Gambia, especially in rural areas, is to settle issues outside the courts. So when individuals are accused of starting forest fires, their relatives and associates plead on their behalf, either to drop the case or to punish the accused very leniently.

The absence of a socio-economic framework

If people are to be concerned about forest fires and their impacts, they must feel the effects of the problems. As long as forest resources are abundant, local communities have very little cause to worry about the annual burning of the forest. Agricultural policies have invariably encouraged the conversion of forest lands to crop fields. The cultivation of groundnuts to acquire the much-needed foreign exchange was encouraged, to the detriment of the environment. The forest has been viewed mainly as a reserve for agricultural expansion. The root cause of this is the lack of coordinated and harmonized sectoral policies.

USES AND CAUSES OF FIRE

It is a matter of utmost importance that the causes of forest fires are known, not only for historical records, but also for the more practical purposes of planning forest fire prevention and management activities. The exact causes of the majority of fires are difficult to establish. In a traditional set-up, nobody is willing to risk his or her reputation by reporting neighbours for a punishable offence such as starting forest fires. As a result, the causes of most forest fires are unknown. The different causes of uncontrolled fires are discussed in detail in the following paragraphs.

Farm clearance: Of the 113 villagers interviewed in the study, 59 percent named farming as their main livelihood activity and another 19 percent depend on farming and herding. Consequently, burning for the purpose of field clearing is the most important reason for using fire in the fields. When asked to describe their method of burning in fields, almost two-thirds (64 percent) mentioned the preventive establishment of firebreaks around the field, and virtually all of them (96 percent) spoke of raking the area and establishing heaps from the residue.

Burning is carried out in the morning and evening. More than three-quarters (76.3 percent) of respondents said that they burnt “when the sun is very low”. The reason given was often that at this time, “the wind is stagnant” and “the heat of the sun is reduced”, making the fire less fierce and less prone to escape. Almost 60 percent of respondents said that they burnt in May and June, “just before the rains”, and another 22.2 percent named April, May and June as the peak season. This means that more than 81 percent of those interviewed carry out burning in these three months at the end of the dry season. It is also in these months that, in the experience of the interviewees, most uncontrolled fires erupt.

Livestock grazing: There is a large livestock population in the country. Cattle herders often burn the bush towards the end of the long dry season to encourage the growth of new succulent grass for their animals. However, few of those interviewed supported this practice. Only four villagers mentioned the encouragement of grass growth as an incentive to burn, and none of these people was a herder. Control of wild animals as a motive for setting fire in the forest was mentioned just five times, but not by the herders.

Hunting: Hunting is a traditional activity in The Gambia, often undertaken by semi-professionals. Especially in the past, it has been a major cause of forest fires. Nowadays, the number of fires attributable to hunting is less because the majority of the country’s fauna has already disappeared. Nonetheless, hunting is still the second most important reason for using fire in the forest, being mentioned by almost one-quarter (23 percent) of respondents. Its relevance as